

IMTA 2018 Symposium Abstracts

Symposium # 1

ID 15 **Measuring and Monitoring Resilience Throughout the Military and Police Career**

Chair: Dr Esther Oprins

Time Tuesday, 16 October Limestone City Ballroom 13:00 – 16:00
(Break: 14:30-15:00)

Symposium Abstract:

Service members of armed forces and police participating in military missions and police operations are being confronted with mentally challenging circumstances. A considerable amount of them suffers from mental health problems potentially resulting in PTSD. The aim is to increase the operational effectiveness and sustainability of personnel in operational units during threatening circumstances and to decrease attrition during training and career. Therefore, service members should be psychologically resilient and capable of applying successful coping strategies in stressful circumstances.

The Military Resilience Monitor (MRM) has been developed for measuring and monitoring resilience throughout the whole military and police career, from selection and training until deployment. This symposium provides an overview of the results of studies employing MRM in different phases of the career cycle. The predictive validity of the INSPIRE Resilience Scale, a selection instrument based on MRM, has been investigated in longitudinal research in armed forces of six countries and the Dutch Police Academy with similar criterion data obtained in training, using GHQ-12 and a developed ‘performance and resilience rating scale’. More longitudinal research, also using MRM, is conducted to gain insight in the effects of resilience resources during deployment on (absence of) mental health problems five years after deployment. Research on buffering effects of resilience on the impact of being confronted with mentally challenging incidents in police training has been conducted. Finally, physiological measures of resilience, using gaming and simulation, have been validated by using MRM in order to investigate whether the trait construct can predict physiological state responses.

Papers
ID 16

A Predictive Validity Study of a Selection Instrument on Resilience in Seven Countries, Based on Common Criteria Data Collected in Training

Esther Oprins & Wim Kamphuis, *Netherlands Organization for Applied Scientific Research*, Wouter Huybens, *Belgium MoD*, Lena Westerveld & Gerard Visser, *Dutch National Police*, Shirley van Eijk, *Dutch MoD*, Marcus Börjesson & Eva Johansson, *Swedish MoD*, Heli Aalto, *Finnish MoD*, Jessica Jung, *German MoD*, Tom Skoglund, *Norwegian MoD*

The consortium presenting this paper has been working together in a European Defense Agency (EDA) project since 2013. The aim of the overall project is to develop and validate a common selection instrument, the INSPIRE Resilience Scale (IRS). Selection on resilience should contribute to employees who are mentally resilient and capable of coping with mentally stressful circumstances and show quick recovery. The first phase of the project resulted in a conceptual framework, development of the IRS (103 items), and a first validation on its psychometric properties. The updated version IRS 2.0 has been used for performing a predictive validity on a large scale. This paper summarizes the first results based on a data set containing data of the participating organizations. This enlarges the number of candidates, makes it possible to compare results across countries, and increases the generalizability of the results over European military and police organizations. The IRS is administered during selection and at regular moments during the first two years of (basic) training. The reason for submitting the IRS also during training was to get insight into the variability of the various aspects of resilience. In addition, common criteria measures, referring to health, resilience and performance, are collected at subsequent moments during the first two years of training. Two measurement instruments are being used by all organizations: the GHQ12 and the self-made 'performance and resilience rating scale'. Additional criteria are e.g. grades and instructor's assessments. The outcomes will result in IRS 3.0 to be implemented in selection systems.

ID 17

Predicting Health and Performance among Military Personnel

Wouter Huybens, Annemie Defranc, Renaud Aubecq, Kristof Van Landeghem, & Salvatore Lo Bue
Ministry of Defense Belgium

Military personnel in operations often face challenging situations, both mentally and physically. They must be able to cope with them and to continue to perform their duties. When they fail to do so, their operational availability is endangered and the risk of psychological problems increases. A key prevention factor in this matter is the assessment of resilience during selection. Resilience is the ability to continue operating in the most appropriate manner in stressful situations, during critical incidents, setbacks, and to recover positively afterwards. The European project INSPIRE developed the INSPIRE Resilience Scale (IRS) to measure resilience in

selection. MOD Belgium took part in the predictive validity study of the scale. In this longitudinal research, we used health and resilience related performance as criterion data. We followed infantry soldiers during 4 critical phases of their early career, more precisely in selection, during their basic training, their specialized training and during their internship. Participants completed the IRS in selection and, at the end of the other phases, the IRS, General Health Questionnaire 12 (GHQ-12) and an ad-hoc performance measure. Moreover, their supervisors/instructors/trainers evaluated them in the last three phases on the performance measure. During our presentation, we will discuss the preliminary results of this longitudinal study.

ID 18 Resilience as Buffer for the Impact of Confrontation with Mentally Challenging Incidents During Police Training

Lena Westerveld, & Gerard Visser
Dutch National Police
Teun-Pieter de Snoo
Dutch Police Academy

Members of the Dutch National Police (DNP) as members of the military service are being confronted with mentally challenging incidents and circumstances. Within minutes their work environment can change from a situation of domestic violence to having to deal with a confused person handling a knife. However, confrontation with these kind of incidents starts before employment. The police academy uses a dual system in their training, Alternating theory with hands-on experience and alternating an academic environment with an environment of daily practice at a police unit. In order to be able to deal with this variety of incidents and circumstances, police officers need to be psychologically resilient and capable of applying successful coping strategies in stressful circumstances. In this study, the relationship between resilience, measured with the Inspire Resilience Scale (IRS) during the selection procedure and the impact of being confronted with stressful and mentally challenging incidents is investigated. One Hundred and twenty-six applicants completed the IRS during the selection procedure (T0) and during the first (T1) and second (T2) year of their training at the police academy. At T1, the students only followed theoretical classes at the academy, and at T2 the students completed their first practical period at a police unit. This paper presents the results of the predictive validity study of IRS with performance and resilience measures obtained during training.

ID 19 The Role of Resilience Resources in Predicting Long-term Post-deployment Adjustment: A Longitudinal Study

Dr. Wim Kamphuis & Dr. Roos Delahaij
Netherlands Organization for Applied Scientific Research

Military service members are exposed to life-threatening circumstances and hostile working conditions during deployment. This puts them at risk of developing stress-

related psychological health problems after deployment. Recent research has shown that in addition to a short-term symptom increase within the first six months after deployment, there is a subsequent long-term symptom increase at five years after deployment. Currently, there is no clear explanation of why some service members suffer from this delayed onset of stress symptoms, whereas others are able to positively adjust themselves in the long term. The present research focuses on the role of resilience resources before and during deployment as potential predictors of long-term post-deployment adjustment. Resilience can be seen as a process in which internal and external resources interact with demands to result in positive outcomes. We expected that the presence of a diverse set of resources before and during stressful experiences would not only influence short-term outcomes but also long-term adaptation, because of the emergence of resource loss and resource gain cycles (cf. Conservation of Resources Theory). To investigate this, we measured resilience resources using the Dutch Military Resilience Monitor before ($n = 786$) and during ($n = 736$) deployment in service members of the Netherlands Armed Forces participating in the NATO ISAF mission and the NATO Anti-Piracy Mission in 2012/2013. Five years later, in 2018, we conducted a follow-up, measuring various indicators of (lack of) adjustment (i.e. quality of life, well-being, post-traumatic stress symptoms, burnout and depression). In this presentation, preliminary results will be discussed.

ID 20 **Using the Military Resilience Monitor to Predict Physiological Stress Responses
Soldiers Operating in a Controlled Virtual Reality Training Scenario**

Dr. Olaf Binsch & Dr. Roos Delahaij
Netherlands Organisation for Applied Scientific Research

The increasing development of both gaming and simulation technology and applied miniaturized sensor and monitoring technology represents a great opportunity for advancing resilience of employees that might experience high levels of stress during their military career. Therefore, we developed a Virtual Reality (VR) platform for a controllable induction of stress and used clinical equipment to monitor physiological stress responses (e.g., cardiac output, total peripheral resistance and cortisol-levels). In addition, the Military Resilience Monitor (MRM) was applied and enrolled in the run-up of the experiment to assess whether the relatively stable resilience resources measured in the MRM can predict some state-stress-responses. Sixty-four (64) cadets of the Royal Dutch Academy volunteered to participate and responded on VR military patrol scenarios. Analyses revealed that the MRM concept of instructor support is related to higher saliva cortisol levels ($r^2 = .42$; $p < 0.01$), implying that cadets who receive more instructor support have higher physical activation. The coping style 'acceptance' is related to higher levels of total peripheral resistance ($r^2 = .270$; $p < 0.05$), suggesting that people with this coping style experience the VR platform as more threatening and effortful. The coping style humor is related to a higher heart rate ($r^2 = .32$; $p < 0.02$) and cardiac output (i.e., $r^2 = .33$; $p < 0.01$), suggesting that people who take challenges with use humor as a coping style, need general higher levels of activation and effort. Further results will be discussed

during the Resilience Symposium at the IMTA 2018, in Kingston/Canada.

Symposium # 2

ID 97 **Multidimensionality of Leadership in the Military - a Multinational Perspective**
Chair: Dr Tzvetanka Dobрева-Martinova

Time Tuesday, 16 October Gibraltar 13:00 – 14:30

Symposium Abstract:

As a foundation of the military institution, leadership is at the core of operational effectiveness in the increasingly complex security environment. This symposium will present ongoing work related to multiple facets of leading in an operational and organizational context. Dr. Melinda Key-Roberts will describe a military framework for inclusion, developed by the U.S. Army Research Institute for the Behavioral and Social Sciences, and will present a data-driven measure of inclusive leadership, along with initial data about how it relates to outcomes such as psychological safety and commitment. Next, Mr. Jan Heimdal will discuss a series of studies investigating value dimensions in the Norwegian Armed Forces, how they differ between branches, geographical areas, and gender, and how they relate to general mental ability, personality, selection outcomes, cultural intelligence, and service records, along with takeaways for leadership on operations and in garrison. Ms. Ann Rubens Mortensen will present on developing military leaders for effectively leading in complex and ambiguous contexts. Dr. Sara Rubenfeld will present results from a qualitative study examining the perspectives and experiences of senior non-commissioned members leading through a time of culture change in the Canadian Armed Forces. Finally, the focus will turn to those charged with developing military leaders, as Dr. Carla Sowinski reveals, through an analysis of four institutions, how leaders of military colleges can foster well-being among their staff and faculty.

Papers
ID 98

Identifying and Developing Inclusive Military Leaders

Melinda Key-Roberts, PhD & Mathias Simmons, PhD
U.S. Army Research Institute for the Behavioral and Social Sciences

As military missions increase in complexity and evolve to encompass broader objectives it is likely that a more diverse set of knowledge, skills, and abilities will be required for mission success. The U.S. Army recognizes that increased diversity alone is not sufficient for mission accomplishment but that positive individual and organizational outcomes depend on the Army's ability to value and leverage diverse perspectives, including those of multinational partners (Department of Defense, 2012). The U.S. Army seeks to better understand how to leverage diversity through the development and maintenance of positive climates characterized by inclusion, where inclusion is operationalized as a shared perception that members of the team are recognized and valued for their differences in expertise and background, and peoples' strengths are utilized to contribute to force readiness and effectiveness. This presentation will describe a military framework for inclusion developed by the

U.S. Army Research Institute for the Behavioral and Social Sciences, and initial efforts to develop empirically valid measures to assess inclusive climates and the leader behaviors associated with inclusion in a military context. A data-driven measure of inclusive leadership will be presented to the audience, along with initial data about how it relates to outcomes such as psychological safety and commitment. Furthermore, future steps for validation, how inclusive leadership extends to multinational contexts, and the potential relationship between inclusion and agility and adaptability will also be discussed.

ID 99

Value Profiles and Related Factors in the Norwegian Armed Forces

Jan O. Heimdal, Deputy Chief Psychologist
Norwegian Armed Forces

In the Armed Forces, core values are typically well defined, clearly expressed and regularly reinforced in order to guide and shape desired behavior. In general, values guide attitudes and norms and thereby behavior. Different types and levels of cultures, including national and organizational cultures, typically are defined by these shared values, and as follows, cross-cultural encounters can prove to be challenging due to too large differences. Knowing your own value and cultural constructs is a needed starting point for effective interaction with other nations, as in international operations, as well as for shaping your own internal cultures, therefore of importance to leading in both operational and organizational contexts. A series of studies have been conducted to investigate differences and similarities in cultural values (Hofstede VSM08) between nations in similar organizations (nuclear power plants), and within Norway, and the Armed Forces, where cultural values have been examined in relation to differences between military branches, selection outcomes, gender, geography and personality. The latest study in this domain conducted with Norwegian military members, adds to these findings by exploring differences in cultural values among officers at different branches later in their career, and relationship with cultural intelligence (CQ), personality and their service records from international operations. The implications of the findings will be discussed.

ID 100

Developing Military Leaders for Effectively Leading in Complexity and Ambiguity

Ann Rubens Mortensen, Doctoral Researcher
Royal Danish Defence College, Institute of Leadership and Organisation

Military leaders face complexity and multidimensionality when leading in operational environments. The doctoral research of Ms. Ann Rubens Mortensen, conducted in operational environments with leaders in multinational coalition forces, explored the complexity and multidimensionality of the actions of leading in operational environments and the usage of these actions as resources by military leaders in the performance of leadership. As a leadership approach, this prepares incoming leaders even more than hitherto for agility and flexibility while remaining

decisive, accountable and responsible in their leading actions. This presentation will introduce the complexity sensitive approach that was utilized in this qualitative doctoral research project. It will also describe the philosophy behind the developed framework for leader training and development towards agile leadership, capable of working consciously with processes, multiplicity, heterogeneity and responsibility.

ID 101 **Called to Task: Canadian Military Leaders' Views on Sexual Misconduct**

Dr. Sara Rubinfeld & Ms. Shannon Russell
Canadian Department of National Defence

The External Review into Sexual Misconduct and Sexual Harassment in the Canadian Armed Forces (CAF) concluded that there is an undeniable problem of sexual harassment and sexual assault in the CAF (Deschamps, 2015). This review called upon senior leaders, particularly those with general oversight responsibilities, to become engaged in culture change in order to build and maintain a respectful and inclusive work environment. As a result of this external review, the Chief of the Defence Staff implemented "Operation HONOUR" to strengthen the culture and ethos of the CAF. This approach relies on direct and sustained engagement of leaders to achieve what is called "Leadership-Driven Culture Change." Given the important roles and responsibilities of being a leader in the CAF, a study was conducted to explore the challenges and barriers experienced by leaders in response to sexual misconduct. This first phase, of a four phase study, focused on senior non-commissioned members (Sr NCMs), who are the first responders to many of the personnel challenges of the organization. Thematic analysis of focus groups and interviews was conducted using a grounded theory approach. This presentation will summarize Sr NCMs' perspectives and experiences leading through a time of culture change. Their input identified both progress and remaining challenges in their ability to address sexual misconduct in the CAF.

ID 102 **How Leaders Can Promote Well-Being Among Military College Staff**

Carla Sowinski, PhD & Ann-Renée Blais, PhD
Canadian Department of National Defence

The Unit Morale Profile (UMP 2.0) survey is a tool used to assess workplace well-being among personnel working within Canada's Defence Team (i.e., members of the Canadian Armed Forces and civilians working for the Department of National Defence). Recently, the UMP has been used to assess the well-being of staff and faculty working at the military colleges that train future officers (i.e., the Royal Military Colleges) and senior officers (i.e., the Canadian Forces College and the NATO Defense College in Rome, Italy). In this presentation, we will briefly describe the UMP survey and its data presentation. We will then focus on a Latent Profile Analysis (LPA) using four outcome variables (i.e., Morale, Burnout, Psychological Distress, and Turnover Intentions). This technique identified 3 groups

of respondents: An At-Risk (30%) group, a Functioning (49%) group, and a Thriving (21%) group. Low levels of Morale and high levels of Burnout, Psychological Distress, and Turnover Intentions characterized the At-Risk group, whereas high levels of Morale and low levels of Burnout, Psychological Distress, and Turnover Intentions described the Thriving group. An examination of the key drivers of well-being showed that lower levels of autonomy, competence, relatedness, role clarity, and recognition and reward increased the odds of being at risk, as did higher levels of job stress. Based on the data across the four institutions, we will offer strategies leaders of military colleges may consider to support these key drivers with the goal of fostering well-being among their faculty and staff.

Symposium # 3

ID 22 **Competency-Based Management in a Canadian Armed Forces Context**
Chair: Dr Kevin Rounding

Time Tuesday, 16 October Old Stones 15:00 – 16:30

Symposium Abstract:

The Canadian Armed Forces (CAF) is on the precipice of adopting a competency-based management approach to human resource (HR) systems which is fundamental to the evolution of CAF HR practices. In this symposium, we bridge the academic-practitioner gap by discussing the integration of the CAF competency dictionary (CD) and the implementation of the CAF competency model, which operationalizes the Leader Development Framework as the theoretical and doctrinal cornerstone to align various HR systems, namely career planning, personnel appraisal, and professional development. To this end, the CAF is employing the CD in a way that spans the spectrum of a CAF member's career, and is creating Leader Profiles which serves to guide the selection and professional development of optimal incumbents for key senior positions. Serving to renew CAF members' trust in the CAF personnel appraisal system, the CAF undertook a comprehensive review of best practices in personnel appraisal for large organizations. Linking best practice to design, the CAF is currently developing a new competency-based personnel appraisal system, which is based on the standardized behavioural indicators contained in the CAF CD. Aligned with the academic literature on competency-based training, it is imperative that the CAF apply the competency standards outlined in the CD consistently across HR systems. Specifically, personnel appraisal and training assessments should identify competence along the same conceptual domains to ensure alignment and reduce variability. To facilitate successful adoption of this competency-based approach, several recommendations regarding the implementation of competency-based training and how to align various HR systems are proffered.

Papers

ID 23 **Canadian Armed Force Competency Dictionary: Aligning Human Resource Systems**

Karen J. Rankin, MSc
Canadian Department of National Defence

The move of the Canadian Armed Forces (CAF) towards a competency-based human resource (HR) system has been underway for several years. Towards that end, the CAF Competency Model uses the Leader Development Framework (LDF) as the theoretical and doctrinal cornerstone to align various HR systems, namely career planning, personnel appraisal, and professional development. This competency-based approach places focus on the specific capabilities of employees and aligns these various HR systems towards a common goal—organizational

effectiveness. To do so, the CAF recently developed a competency dictionary which is meant to underpin important CAF leadership doctrine and operationalize the LDF by way of defining the behaviours that underlie it. The competency dictionary identifies those competencies that are valued in the organizations' work activities and defines the progression of expected performance across ranks. A competency dictionary serves as a particularly powerful tool that can be employed to facilitate alignment, but developing one is but the first step towards adopting a competency-based approach; implementing this approach requires new HR tools, programs, policies, and processes be built or existing ones modified. When done correctly, the competency-based approach "integrates, prevents inconsistency, and allows HR systems to reinforce each other for maximum positive impact" (Campion, 2011, p. 228). Consequently, the CAF is employing the competency dictionary in a way that spans the spectrum of a CAF member's career. Ergo, the CAF is creating Leader Profiles for senior positions which serve to guide the selection of optimal incumbents for key positions, and guide the professional development of employees.

ID 24

Review of Best Practices in Personnel Appraisal

Major M. Katharine Berlinguette
Canadian Armed Forces

Most organizations conduct some form of personnel appraisal, often for varied purposes such as current employment evaluation or succession planning. We now have more than 100 years of research regarding personnel appraisal (e.g., DeNisi & Murphy, 2017), providing documented science to help guide organizations in the development and implementation of personnel appraisal systems. Research suggests that while some domains of personnel appraisal have sufficient evidence to support generalized conclusions, other critical gaps in the literature are not well established (DeNisi & Murphy, 2017). For instance, one of the less effective ways of evaluating personnel appraisal systems is measurement error, however less well established is the relationship linking individual- to organizational-level improvements. This paper will review the scientific literature and highlight best practices in personnel appraisal for large organizations, such as the Canadian Armed Forces, which uses personnel appraisal for multiple purposes (e.g., performance feedback, promotion decisions, training selection). This analysis is conducted to help bridge the academic-practitioner gap, with particular consideration given to the military context.

ID 25

Competency-Based Personnel Appraisal for the Canadian Armed Forces

Major Michelle MacArthur
Canadian Armed Forces

This paper outlines the development of the new competency-based personnel appraisal system (PAS) designed for the Canadian Armed Forces (CAF). It was developed to support the career development and planning of CAF members by

providing timely, accurate, and constructive performance feedback, and to optimize their potential to rise to, and succeed at, higher ranks through valid and transparent assessment procedures. It was developed with four main goals: 1) modernization based on best practices; 2) maximization of transparency, fairness, accountability, and member participation; 3) delegation of appraisal assessments to supervisors and reviewers who have direct knowledge of the member's performance and potential; and 4) provision of quality appraisal information with which to make personnel decisions. Performance is assessed by the member's direct supervisor and is rated on standardized behavioural indicators contained in the CAF competency dictionary for each rank. Potential is assessed by a unit board using standardized potential factors for each rank. The potential factors were derived from the meta-competencies described in the Leadership Development Framework, and the CAF general specifications. CAF leaders will have increased visibility on all aspects of the members' career development, increasing the capacity to identify and select the most suitable and motivated personnel for promotion, senior appointment, and hopefully help bolster career satisfaction. The intent is that the new PAS will renew members' and leaders' trust in the CAF PAS as a fair and efficient system that incorporates individual choices, provides flexible career plans, and increases CAF fit for all members.

ID 26

One Competency Dictionary to Align Personnel Appraisal and Training Systems

Dr. Kevin Rounding

Canadian Department of National Defence

The competency-based training (CBT) literature advocates that an important aspect of aligning human resource (HR) systems is ensuring that competencies are integrated into assessment, and an integral component of this is training assessment. It is imperative that the competency standards applied in the realm of assessment (both personnel appraisal and training) be consistently applied across HR systems. Performance feedback and training assessments should be derived from the same competency standards defined in the CAF competency dictionary (CD), and should identify competence along the same conceptual domains to ensure alignment and reduce variability. A CBT approach can help explore those competencies that trainees must have to be successful in the training, to ensure that the competencies are being adequately developed. The utilization of CBT to align both systems can be elucidated by drawing on CAF examples in the analysis of training failures. A synthesis from the CBT literature culminates with the conclusion that it is imperative that during the transition to competency-based approach, the various HR systems pay particular attention to implementation. The development of a CD can provide a standardized lexicon that helps to increase reliability by promoting a common understanding, but this is just the first step in adopting a competency-based approach. Organizations successful at implementing CBT recognize that the development of a CD is but the first step. Several recommendations regarding how best to implement CBT and align assessments across various HR systems are

proffered to ensure successful implementation of a competency-based approach to HR in the CAF.

Symposium # 4

ID 114 **Examining the Assessment of Vocational Interests in the U.S. Military**

Chair: Dr Christophe Nye

Time Wednesday, 17 October Limestone City Ballroom 10:30 -12:00

Symposium Abstract:

There is a long history of research on vocational interests in the applied psychological literature. This research suggests that individuals will be more satisfied with and successful in their job when they are doing work that they are interested in. As a result, several branches of the U.S. military have begun considering the use of vocational interest measures to help Soldiers identify military occupations that they may be interested in. This symposium brings together four presentations that will discuss these efforts and the use of vocational interest assessments in the services. The first presentation will focus on recent efforts by the U.S. Army to develop a new measure of vocational interests that can be used to assign Soldiers to military occupations. The second and third presentations will then discuss efforts by the U.S. Air Force and Navy to develop and validate their own measures of vocational interests that can be used to recruit individuals for occupations in these services. Finally, the fourth presentation will discuss recent efforts by the U.S. Department of Defense to create a career exploration program that incorporates vocational interests and can be used to provide prospective applicants with information about jobs across the military services.

Papers

ID 115

Development of the Adaptive Vocational Interest Diagnostic (AVID)

Cristina Kirkendall, *U.S. Army Research Institute*, Christopher D. Nye, *Michigan State University*, James Rounds & Fritz Drasgow, *University of Illinois*, Oleksandr S. Chernyshenko, *Nanyang Technological University*, Stephen Stark, *University of South Florida*

The history of vocational interests shows that these measures have great promise for use in job assignment, suggesting that individuals will be more satisfied and successful in their job when they are doing work that they are interested in. Recent research has provided empirical support for these predictions and demonstrated that the match between an individual's interests and his or her work activities is positively related to job performance and negatively related to attrition. Due to these positive empirical findings, the U.S. Army is investigating the use of vocational interest measures for personnel job assignment. This contribution to person-job fit is very important in a context such as the U.S. Army, where applicants may have nearly 150 military occupational specialties from which to choose. This presentation will begin by reviewing evidence for the validity of interests and discussing how vocational interest measures may be used for classifying Soldiers in a military

context. Next, we will discuss recent research conducted by our team to pilot a new measure of vocational interests that aims to improve the process of matching Soldiers to military occupational specialties. This work includes preliminary analysis of data suggesting that different composites of interest dimensions are useful for the classification of Soldiers into military occupational specialties. We will also discuss the next steps for this research and potential paths of implementation.

Disclaimer: The views expressed in this submission are solely those of the authors and should not be construed as official policy or position of the U.S. Department of Defense, the U.S. Army, or the U.S. Army Research Institute for the Behavioral and Social Sciences.

ID 116

Vocational Interest and the Air Force Work Interest Navigator

James F. Johnson, Sophie Romay, Laura G. Barron, & Johnny J. Weissmuller
U.S. Air Force Personnel Center / Strategic Research and Assessment

As part of continued military interest in non-cognitive selection measures, the United States Air Force (USAF) has developed the Air Force Work Interest Navigator (AF-WIN), a vocational interest tool to identify good-fit in enlisted and officer career fields for Air Force (AF) recruits, cadets, and re-trainees. The AF-WIN identifies good-fit jobs based on the level of congruence between participant interest ratings and SME-derived job profile markers. We begin by briefly summarizing the development and concurrent validation results of the enlisted AF-WIN using a sample of AF job incumbents ($N = 4,222$). Results demonstrate that fit scores for current job incumbents show a significant positive relationship to incumbent job satisfaction and intentions to re-enlist. We then discuss the transition from dichotomous to categorical AF-WIN job profile markers, and present results from a comparison study ($N = 1,427$) of different assessment scoring methods found in the extant vocational interest literature. Findings demonstrate the utility of a weighted additive linear scoring model over potentially more complex scoring methods. Finally, we provide implementation recommendations following the launch of the AF-WIN for potential recruits (AirForce.com) and re-trainees (Air Force “myPers” website), and present the beta version of the officer AF-WIN for officer candidates and cadets currently in development.

ID 117

Assessing Vocational Interests in the U.S. Navy

Stephen E. Watson & Mike Crookenden
U.S. Navy

This presentation will describe the process used to build a combined job-preference/job-preview testing instrument as an alternative to conventional interest or personality inventories, for the specific purpose of identifying the best match between a Sailor or recruit and assigned job. Criteria for building a successful instrument will be discussed and the resulting test instrument will be described, with emphasis on the key testing criteria and their implementation. The exhaustive and

lengthy process of instrument validation leading to the final approval for Navy-wide deployment will also be reviewed. The convergent validation of the approach, taxonomy, and instrument will be presented, based on two samples totalling [approximately] 10,000 U.S. Navy Sailors and showing encouraging predictive validity results against specific real-world criteria. Sample item characteristic, gender differences, and factor analytic results will also be presented along with a discussion of the utility of these psychometric outputs. The developmental and validation methodologies described here may be considered non-traditional in an academic environment but prove invaluable when building a novel instrument which must, and does, demonstrate direct impact on real-world job performance measures such as training, promotion, and retention.

ID 118

Career Exploration in the Military

Shannon Salyer

U.S. Department of Defense, Defense Personnel Assessment Center

The Armed Service Vocational Aptitude Battery Career Exploration Program (ASVAB CEP) is a comprehensive career guidance system that incorporates both ASVAB aptitude test scores and interest results from the Find Your Interest (FYI) assessment. An overview of the ASVAB CEP objectives, components, and tools, such as the online OCCU-find and portfolio, will demonstrate an integrative approach to career exploration. The ASVAB CEP is a DOD sponsored career exploration program with a two-fold mission: to provide quality leads to the military services, and to provide a career exploration program to the public. The ASVAB CEP is delivered nationwide in the United States to over 650,000-700,000 students each year and, of those who enlist, approximately 20% use their scores from this program, which saves the services time and money. In order to stay current and capitalize on the advances made in aptitude assessment, interest assessment and career development research, a team of experts are conducting research studies and evaluations and revising program components. In order to align with legislation and demonstrate how jobs in the military and civilian sectors are comparable, an analysis and crosswalk of over 1,200 civilian careers and 8,000 military classifications (enlisted and officer) has been implemented into the program. Each occupation is assigned interest codes and skill importance ratings so students have a better understanding of each occupation. Further, steps are being taken to revise the FYI assessment. Preliminary findings will be presented for each of these program components and future research and evaluation plans will be outlined.

This presentation will address the effective use of power and influence in the military leadership dynamic. Military leaders are granted explicit power and authority by their rank and role in the chain of command, but may fail to influence followers effectively. Because of the nature of military structure and culture, they may use power more often and tend to overlook the negative consequences of relying on power to lead. Still, power is an indelible and important part of the leadership dynamic. Most familiar theories of leadership recognize the negative effects of power use, but few are clear in describing how power can, and should, be used in formal leadership roles. We propose that using power appropriately can increase a leader's influence, while still strengthening followers' motivation, commitment, and trust. This presentation concludes with practical recommendations to align the use of power and influence with effective, theory-based leadership approaches. We will begin by specifying what power is, and distinguishing it from influence. We will then align these definitions with prevailing theories of leadership (e.g., the Full Range Leadership Model) and explain how power is used in the practical administration of organizations to highlight when power may be used without detrimental effects. In addition, we will identify various ways power can have profound effects on a leader's social perceptions and, in turn, increase the likelihood of poor leadership decisions through the misapplication of power.

ID 37

Communicative Behaviour as Transformative Power of Military Leadership

Lt Col Samir Rawat, PhD

Military MIND Academy

Suryang Rawat

Symbiosis International University

This presentation discusses the deeper context surrounding an amalgamation of insights from effective communication research and leadership theories that show how leaders demonstrate their character through their behaviour. Put simply, actions speak louder than words and "what congruent leaders say is what they believe is what they do." Anyone in uniform could tell you that leadership is neither about rank nor high sounding appointments, it is more about communicative behaviour that transcends rank authority, and transforms collective soldier potential into optimal performance that yields desired outcomes. In other words, the domino effect of communicative behaviour demonstrated through conscientious actions develops into an army of character which is the inner strength that provides purpose, direction, morale and motivation to sustain troops in battle. We will address the following questions: How does leadership behaviour change the attitude of the men he or she commands, if at all? Can leadership behaviour be modelled to percolate down to the rank and file to enhance the performance of the unit? Could it flow upward as well with similar effects? Answers to these question are worthy of empirical research and may provide the foundation of leadership training programs for senior military leadership. We will conclude with an overview of the effective communication behaviours leaders can employ to transform and motivate their

soldiers to sustain prolonged duress in volatile, uncertain, complex and ambiguous environments, and ultimately achieve accomplish the mission against all odds.

ID 38 **New Leaders, "New Wars": Applying Gender and Cultural Perspectives**

Vanessa Brown, & Dr Alan Okros
Canadian Forces College

This presentation provides considerations on the emerging and complex issue of how leaders can develop and apply gender and cultural perspectives in both operational contexts and in senior staff roles developing policies, implementing programmes and managing projects. First, we will draw on literature related to the complexity and fluidity of 21st Century conflict to identify how gender and cultural perspectives are central to effective leadership, and describe the various evolving factors leading to the requirement for increased expertise in gender and cultural understanding. Next, we will present methods to acquire understanding of gender and cultural perspectives, which underscore the importance of challenging assumptions and biases about gender and culture. Finally, we will forward recommendations on how to apply gender and cultural perspectives effectively across a range of military duties.

Symposium # 6

ID 61 **Global Views on Military Performance: General Perspectives**
Chairs: Dr Doug Lindsay, *United States Air Force Academy*,
Dr Allister MacIntyre & Dr Danielle Charbonneau, *Royal Military College of Canada*

Time Wednesday, 17 October Gibraltar 13:00 – 15:30
Break: 14:30-15:00

Symposium Abstract:

The International Military Testing Association (IMTA), in collaboration with the Canadian Defence Academy Press, recently published the second volume in its Global Views series. The topic for the book was military performance. Specifically, the aim was to focus at the individual level and the factors that impact a military member's performance. This symposium is the first of two symposiums offered on this important topic. Part of the challenge with the topic of performance is that it has been examined in many different ways, from different perspectives, and at different levels (individual, team, organizational). While this approach can shed some light on the different facets that go into performance, it leaves the literature on performance a bit disjointed. That can make it difficult to understand how to approach the topic of performance in a military setting. In an effort to bring some clarity and understanding on this topic, this symposium brings together a group presenters that offer models, context, and approaches to the examination of performance. Through this symposium, we will shed light on successful ways to study, research, and measure performance.

Papers

ID 62 **How Leaders Can Improve Followers' Performance through Organizational Alignment**

Lieutenant Colonel Peter J. Reiley, PhD, Major Steven D. Raymer, & Lieutenant Colonel (Ret.) Douglas R. Lindsay, PhD
United States Air Force Academy

Accomplishing the mission is undeniably paramount in military organizations. Unfortunately, for most military units, focusing on organizational outcomes (i.e., the mission)—above all else—often leaves individuals to bear the weight of the organization's persistent operational inefficiencies. While some organizational performance metrics may maintain an illusion of success in the short run, the lack of attention to the human dimension can ultimately put the mission at risk due to exhaustion, mistakes, complacency, or even turnover. Conversely, leaders who focus on developing and empowering individual members, while converging toward strategic organizational goals and objectives, may increase long-term organizational performance. To determine individual alignment, organizations should focus on how

culture and structure impact followers' personal motivation within their role in the greater system. This presentation discusses how these elements of alignment build on and support each other, and examines their relationship to desirable attitudes, behaviors, and performance at both the individual and organizational levels. In addition, this presentation describes critical mechanisms that establish, sustain, and monitor this alignment model and provides practical strategies and considerations for effectively employing these elements in a military organization. Using feedback mechanisms, leaders at any level of the organization can work to establish and grow member alignment and enhance performance.

ID 63

Points to Ponder: Individual Performance in the Military

Lt. Col. (Rt.) Jacques J. Gouws, D.Phil.
Human & System Interface Inc.

Various militaries have differences of opinion on how to measure performance, how to evaluate performance, and how to even talk about performance in the military. Many of these differences are also reflections of cultural differences that exist around the world. This presentation as part of a symposium on individual military performance aims to briefly discuss some of the common factors that contribute to performance, what factors contribute to performance failures, and then offers a few suggestions for improving military performance during operations.

ID 64

Self Awareness and Attitude Training for High Performance in the Military

Lt Col Dr Samir Rawat, PhD
Military MIND Academy, India
Suryang Rawat
Symbiosis International University, India

Nations value their military might and performance as a leverage of soft power to resolve conflicts or dominate world policies; every time an individual soldier or sub unit/unit engages in a goal directed activity, it reflects military performance at work which strives to achieve standards of excellence and individual /team competencies. The primary aim of this chapter is to better understand psychological processes that allow soldiers to perform optimally. We seek to understand how soldiers perform in both day-to-day peace-time activities and in complex, life threatening tasks during combat operations. In this chapter, we use performance and cognitive psychology literature to review and distinguish between soldier competence on one hand and soldier performance on the other. We focus on and discuss self awareness training and attitude training as determinants of high performance. We also discuss the influence of individual differences in soldier's abilities and motivation, as well as, situational factors (e.g., fatigue, climate, terrain), which influence soldiers behaviour in a demanding military environment. This includes information processing for simple and complex tasks, impact of stress on performance, documenting individual and group differences among soldiers as well as 'focus management strategies' and

personal goals that shape soldier's performance .

ID 65

Measuring Performance from a Global Competency Perspective in the Canadian Armed Forces

Kevin Rounding, PhD & Karen J. Rankin, MSc
Canadian Department of National Defence

The Canadian Armed Forces (CAF) is transitioning to a competency-based approach to performance appraisal meant to align the various human resource (HR) systems towards a common goal—organizational effectiveness. The adoption of competency-based performance appraisal (CBPA) can help the CAF clearly define, vis-à-vis the delineation of competency standards, expectations for performance, and can help to develop specific evaluation criteria rooted in competencies to prepare CAF members to meet current and future organizational challenges. In a CBPA approach, competencies can provide an indication of the level of performance required in leadership roles, are capable of distinguishing superior from average performers, and can also provide an evolution of competence that changes/increases as levels of employment change/increase. Further, the CBPA approach is touted as a means by which performance, both individual and organizational, can be bolstered. It can impact organizational performance by augmenting individual performance, or by optimizing training or performance criteria, and standardizing the HR language. Accordingly, the CAF recently developed a competency dictionary aimed at defining the progression of expected performance across ranks. The competency dictionary identifies those competencies that are valued in the organization's work activities, and represents the complex, multi-dimensional construct of leadership. Also key to a CBPA approach inextricably linked to leadership is doing so from a systems-based organizational performance lens which views each of the various HR systems as being intertwined. Conceptualized this way, individual leadership development, utilizing aligned HR systems based on the CAF competency dictionary, will result in effective organizational performance.

ID 66

Performance in Military: Unleashing the Emotional Perspective

Nity Sharma, Yashwant Kumar Nagle, Hema MA, & Usha Sharma
India Ministry of Defense

Emotions play a prominent central role in everyday life and not surprisingly, they play an essentially powerful role in military planning and training. Behavioural scientists have firmly established the significance of emotions as a critical variable in understanding a wide variety of human behaviour which has direct relevance to military needs. Military planners throughout history have incorporated an emotional element into training and operations. Training exercises are designed so as to elicit strong emotions that soldiers feel on the battlefield and to create the shared emotions that lead to esprit-de-corps. An area of developing research is the effect of emotions

in the work setting. In this context, there are several questions that are relevant to military setting which include, what are the rules for displaying emotions in military settings, what are the effects of emotions on work performance or on attitudes towards work, and what are the effects of dispositional influences on workplace performance. An important concern is emotional carryover between the battlefield and rest and relaxation, as well as, from one type of mission (e.g., combat) to another (e.g., peacekeeping). In exploring how emotions interact with behaviour, this chapter aimed at revealing the emotional perspective in relation to military performance. The chapter discusses themes such as action required in combat and humanitarian missions, the risk and protective factors guiding emotions at the workplace, their spillover and crossover impacting the perception consequentially influencing behaviour and performance. The chapter further covers the differences in experience and expression of emotions with regard to gender, and concludes with strategies to manage emotions intelligently and efficiently.

Symposium # 7

ID 54 **Advances in Military Personnel Selection: A Collaborative Effort**
Chairs: Dr Wendy Darr & Dr Elliot Loh

Time Wednesday, 17 October British-American 15:00 – 16:30

Symposium Abstract:

Personnel selection, an already complex process in military organizations, is additionally challenged by emerging trends in society and technology. Some of these trends pertain to an increasingly diverse society, advances in technology, and the need to attract and select individuals whose values are aligned with those of the military profession. In 2017, an exploratory working group of representatives from various member and invited nations of the North Atlantic Treaty Organization (NATO) identified three areas (diversity, on-line testing, and integrity testing) as deserving further attention in military personnel selection. A Research Task Group (RTG) has since been formed to explore and study challenges within these three interest areas. This symposium showcases the work of the RTG thus far. It provides insight into the nature of the personnel selection challenges across NATO nations in the areas of diversity, on-line testing, and integrity assessment, discusses the approaches taken or to be used in addressing some of these challenges, and provides a glimpse into preliminary findings geared towards generating viable solutions to advance military personnel selection practices.

Papers
ID 55

Military Personnel Selection in the Context of Diversity

LCol Soo Owens
Canadian Armed Forces

In an increasingly complex global environment, diversity of military populations has become an issue of strategic importance for many industrialized multicultural nations. Yet, among North Atlantic Treaty Organization (NATO) nations, it is evident that its definition and associated value for militaries remain varied or is unclear in the context of personnel selection. One of the objectives of a NATO working group convened to examine this topic is to conduct a review of selection practices that incorporate diversity considerations within the affiliated armed forces. This presentation examines the initial challenges of the working group's discussions on diversity, as well as the methodology employed in reviewing personnel selection practices of member nations with respect to diversity. Preliminary outcomes of this review will also be presented. It is hoped that the findings will facilitate an understanding of diversity and selection practices among military nations.

ID 56 **Current and Emerging Trends: On-line Testing in Personnel Selection**

Dr Elliot Loh
Canadian Department of National Defence and
Dr. Françoise Bertrand
Belgium Defense

Militaries are progressively incorporating more on-line technologies into their personnel selection processes. These technologies can provide substantial improvements and efficiencies in applicant selection processes, and can leverage novel methods of assessment. However, the use of on-line approaches also brings forth unique challenges and risks in their implementation. One of the objectives of the on-line testing component of the North Atlantic Treaty Organization (NATO) Research Task Group (RTG) is to examine the extent of on-line testing use in 13 member or invited nations participating in the RTG. The group is currently collecting information on the potential scope and implementation of on-line testing as well as the challenges they encounter. This presentation will discuss the findings from this examination, providing insight into the adoption of on-line test applications in military personnel selection, as well as a discussion of emerging trends.

ID 57

Towards a Definition of Integrity in the Military

Maria Fors Brandebo
Swedish Defence University
Gerhard Wolgers
Swedish Armed Forces

Military organizations are distinguished from other organizations, primarily in terms of an ethos that facilitates a common understanding of the requirements of the military profession. Among these requirements are strict discipline, loyalty, and legitimate exercise of authority. These requirements are often discussed in terms of integrity. A North Atlantic Treaty Organization (NATO) working group recently confirmed the importance of assessing integrity in military selection, but also identified several challenges in doing so. Key among these is the lack of a clear definition of integrity in a military context. In an attempt to develop a common definition of integrity, a review of each participating military nation's high-level code/values of ethics/integrity/profession of arms (e.g., information contained in official brochures/pamphlets that are well-known and promoted within the organization) was undertaken. The objective of the review was to conduct an analysis of the content to identify common elements/themes. This presentation discusses the methodology and outcomes of this examination. It is hoped that the findings will facilitate the formulation of a common definition of integrity among military nations, which in turn will facilitate its assessment in military selection.

ID 58

Integrity Assessments in Military Personnel Selection

Marjolein Verboom

Netherlands Armed Forces

Military selection is often aimed at identifying applicants whose values and behaviours are aligned with those expected of the military profession. This is evident through personnel security screening checks which scan for applicants' involvement in counter-productive behaviour. In a recent North Atlantic Treaty Organization (NATO) working group, participating nations discussed the relevance and importance of directly assessing integrity in military selection. However, the extent of this practice in existing military selection processes is presently unclear. A survey of participating NATO nations was conducted to determine the current state of integrity assessment in military selection. This presentation discusses the findings of that survey. It will shed light on whether integrity is assessed directly or indirectly in various nations, as well as the nature of integrity-related constructs and measures currently used. It will also determine how information gathered from integrity-related assessments are used to inform personnel selection decisions, and provide insight into the difficulties or challenges associated with the assessment or non-assessment of integrity in military selection.

Symposium # 8

ID 67	Global Views on Military performance: An Empirical Examination Chairs: Dr Doug Lindsay, <i>United States Air Force Academy</i> , Dr Allister MacIntyre & Dr Danielle Charbonneau, <i>Royal Military College of Canada</i>		
Time	Thursday, 18 October	Gibraltar	13:00 – 15:30 Break: 14:30 – 15:00

Symposium Abstract:

The International Military Testing Association (IMTA), in collaboration with the Canadian Defence Academy Press, recently published the second volume in its Global Views series. The topic for the book was military performance. Specifically, the aim was to focus at the individual level and the factors that impact a military member's performance. This symposium is the second of two symposiums offered on this important topic. Military organizations have seen an increase in operational tempo as well as an increase in the range of missions they are required to perform. Unfortunately, this tempo and mission variance can have consequences for the organization but also the individual performance of the soldier. Since performance can be examined, studied, and measured in many different ways, it can be difficult to fully understand what is really meant by individual performance in a military setting. The purpose of this symposium is to bring together scholars and practitioners who have successfully examined performance from several different perspectives. The benefit to such an approach is that those attending the symposium can gain insights on how they might measure and assess performance in their particular organization.

Papers

ID 68 **Military Tactical Negotiation Training: Design and Evaluation**

Major Salvatore Lo Bue, PhD; Lieutenant Anthony Leduc, MSc; &
John Taverniers, PhD
Royal Military Academy, Belgium

In this chapter, we argue that negotiation skills have become more important for soldiers, even at the tactical level. We define Military Tactical Negotiation (MTN; Goodwin, 2005) as a communication process in which a soldier tries to reach an agreement with a member of the local population, a foreign allied soldier or even non-allied soldier, or an GO/NGO representative, with an eye on operational success and on the "winning the hearts and minds" strategy. Because of the lack of literature regarding how to improve soldiers' performance during MTN's, we designed and tested our own 10-hour training program. The training was based on the Seven Elements Framework of negotiation (Patton, 2005) and grounded in Kolb's (1984) theory of Experiential Learning. In our chapter, we report the results of a randomized controlled trial evaluating the effectiveness of the training. We found

that even the mere exposure to a first reality-based role-playing MTN simulation can improve service members' MTN performance during later simulations. The effect, however, seems stronger when following the MTN training between two simulations. Because of the decentralization of decision-making and the crowded nature of areas in which soldiers have to operate, MTN is important in the winning the hearts and minds campaign. Based on our preliminary results, we suggest two approaches to implement MTN training. Our chapter is a benchmark for future trainers and researchers to design and evaluate MTN training for their own armed forces.

ID 69

Job Performance Considerations in Military Settings

Tammy A. Mahar
Saint Mary's University, Canada

Understanding job performance is one of the most important and longstanding challenges in organizational settings. For nearly a century, job performance simply was considered to be the completion of observable job tasks. Over time, focus broadened to consider the multidimensional nature of performance elements. Various performance frameworks and models also began to emerge. However, work in the area is vast, disjointed, and incomplete. In response, this chapter organizes the literature in a practical and relevant format for use in military settings. The chapter begins by addressing the military setting and its unique work experience with distinct performance management challenges. The chapter then presents a brief overview of job performance dimensionality and theoretical frameworks. Next, it presents Mahar's (2018) ABC process model of job performance, which integrates relevant job performance dimensions and frameworks into a cognitive-behavioral process model of job performance. The process model represents antecedent-, behavior-, and consequence-level (ABC) job performance characteristics. The chapter then presents an expanded theoretical process model that considers other relevant determinants, correlates, and mediators of job performance at the antecedent (A) and behavior (B) levels, leading to desired task performance consequences (C). Finally, because antecedent-level factors are the primary determinants of effective performance behaviors and subsequent consequences, the chapter presents an overview of proactive systemic organizational initiatives for improving job performance at the antecedent level. Specifically, the chapter addresses best practices in recruitment, selection, and diversity management; training and development; and workplace health and wellness initiatives in a military setting.

ID 70

Monitoring Mental, Physical and Organizational Performance in Different Military Training Settings by Focusing on Perseverance and/or Attrition

Olaf Binsch & Pierre J.L. Valk,
Netherlands Organisation for Applied Scientific Research (TNO)

For many Dutch infantry units, high attrition rates during initial training are a persisting problem. The reasons for this dropout (varying from 40 up to 70%) are diverse. Therefore, we conducted a number of studies in which we first tested a previously developed monitoring system that integrates the effects of physical and mental factors on operational readiness, followed by applying recommendations to improve perseverance and testing a promising method for enhancing the quality of sleep. In the first study, we monitored a school platoon of the Dutch Airmobile Brigade during a period of eight weeks of their basic training. This study revealed that recruits who persevered and completed the course had a higher cortisol response to a stressful training event compared with those who leave the course. A second study was conducted in the context of the initial training of the Dutch Marine Corps, validating the improved tool set which comprises also organisational factors (i.e., instructor ratings). Survival analyses predicted attrition rates (at early stages) caused by both physiological and mental factors. However, the organisational determinant “trainers’ judgment” on the “recruits’ military quality” dominated the physiological and mental determinants. As sleep deprivation was a recurrent predictor of attrition in all examined settings, we finally conducted a study to test whether a promising method, i.e. unidirectional sensory motor rhythm-training (SMR) is applicable in the military domain to improve sleep quality. Further results will be presented and discussed during the Symposium on Military Performance at the IMTA 2018, in Kingston/Canada.

ID 71

Improving Work Engagement Through Leader-Member Exchange and Psychological Capital: Lessons Learned from Indonesian Peacekeepers

Captain Helmi Pamungkas & Arum Etikariena, PhD

University of Indonesia

Brigadier General Arief Budiarto, PhD

Psychological Service of the Indonesian Army,

Colonel Eri Hidayat, PhD

Indonesian Defense University

Studies have shown that work engagement can play an important role in improving performance, and it was found that the Leader Member Exchange (LMX) is linked with positive indicator of work engagement. This paper will discuss how work engagement of soldiers can be enhanced through psychological capital. Through research on Indonesian peacekeepers who were deployed in the United Nations–African Union Mission in Darfur (UNAMID), we will discuss on how military commanders can improve LMX, as defined by the quality of the commander and subordinate relationship. This ability is important because positive relationship will in turn enhance the work engagement of soldiers, and commanders can then provide the soldiers with a strong psychological capital, by instilling hope, optimism, resilience and self-efficacy during times of operational deployments.

Organizational Performance Measurement for the Canadian Military Personnel System

Max Hlywa, Krystal Hachey, Samantha Urban, & Dave Scholtz
Canadian Department of National Defence

The performance of military personnel is important for their selection, education, training, and professional development, and ultimately leads to improved operational effectiveness. A clearer understanding of individual performance is also informative when exploring the ways in which personnel affect mission success for the organization. But how do we know that the organization is on the path toward mission success? How can we measure the performance of the greater personnel system as it strives to accomplish its mission? This chapter describes the five step process that was devised for the development of a performance measurement framework (PMF) for the Canadian Armed Forces (CAF) Military Personnel System. We present some of the products that resulted from the process, provide recommendations on developing a communication platform (e.g., web-based scorecards and dashboards), and review lessons learned. We also highlight the ways in which the PMF was leveraged for higher-level reporting by the Department of National Defence and discuss the differences and relationship between a sustaining agenda and a change agenda from a performance measurement perspective. With the exception of one North Atlantic Treaty Organization (NATO) Systems Analysis and Studies (SAS) Panel Research Task Group that took place from 2011-2014 (SAS-096), to our knowledge, there are currently no formal international collaborations (e.g., NATO, The Technical Cooperation Program) on organizational performance measurement for military personnel systems. By summarizing the work that the CAF is doing in this domain, this chapter opens the door for future information exchange and highlights the opportunity for renewed international collaboration.

Symposium # 9

ID 47 **Countering Counter-Productivity in the Military**
Chair: Dr Wendy Darr

Time Thursday, 18 October Limestone City Ballroom 15:00 – 16:30

Symposium Abstract:

Military organizations are distinguished from other organizations by an ethos that inculcates a common understanding of what it means to serve. Consequently, military professionalism embodies the values, character, and obligations expected in the military. Some of these pertain to discipline, legitimate exercise of authority, and loyalty, elements that are typically studied within the domain of counter-productive work behaviours (CWBs). This symposium showcases methodologically diverse research efforts aimed at studying counter-productivity in the military. The first examination presents an historical account of cold war studies responding to the need to identify personnel with requisite characteristics for military service. The second presentation uses a qualitative approach to answer questions about the kinds of destructive leadership behaviours and subordinate coping exhibited in crisis situations. The third study defies the adequacy of mainstream theoretical models of ethical decision making and moral character in understanding decision making in a military context. The two final studies showcase efforts to develop integrity-based selection tools. These include the development of a personality-based measure of integrity (Canadian Armed Forces) and the development of a Situational Judgement Test of Integrity (Belgian Defense). Whether responding, answering, defying, or developing integrity-based tools, these unique approaches together paint a fuller understanding of efforts to counter counter-productivity in the military.

Papers

ID 48 **Dilemma of Deviance: Early Cold War Studies of Military Delinquency**

Dr. Meghan Fitzpatrick
Royal Military College of Canada

Canadian and Commonwealth interest in integrity testing is longstanding and can be traced back to the early years of Cold War. During this period, Canada's armed forces invested in identifying recruits who exhibited desirable characteristics like honesty and dependability and screening out candidates with a history of what they defined as 'deviant' or 'delinquent' behaviour. Throughout the 1950s and 1960s, all three services funded substantial research into distinguishing the personality differences between offenders and non-offenders, and tracing the roots of juvenile delinquency and recidivism. Canada's key allies like Britain pursued similar lines of inquiry in an effort to better understand the mind of the military offender. This paper examines the results of those early Canadian and allied studies of deviance. It explores the motivation behind this work and the cultural and social factors that informed results. In addition, it looks at how contemporary understandings of

normality, masculinity and citizenship shaped screening standards. The paper concludes by assessing the implications of these findings for current policymakers, reflecting on the limits of the military selection process, and considers the dangers involved in medicalizing socially unacceptable behaviours.

ID 49

Destructive Leadership in Crisis Management Behaviors and Coping Strategies

Maria Fors Brandebo
Swedish Defence University

Being a leader in the event of accidents and public crisis involves leading under pressure. During these situations, leaders move from an ordinary context to a more risky one that is characterized by uncertainty and ambiguity. Effective leaders who are able to manage both these contexts are an important prerequisite for success. Research indicates that contexts characterized by stress and risks can contribute to leaders more often using destructive leadership behaviors, even if the leaders, under more normal circumstances, would not be prone to use that kind of behavior. The aim of the study is to increase the knowledge of destructive leadership in crisis management. The specific research questions are: (1) What kind of destructive leadership behaviors can be identified in leaders in crisis management?, and (2) what coping-strategies are subordinates using in order to deal with the leader's destructive behaviors? Twenty-one individuals were interviewed and data was analyzed according to the Grounded Theory method. The informants were involved in crisis management at a regional (county administrative boards), local (municipalities) and operative level (the emergency service and the police). Results from the study is presented and practical implications discussed.

ID 50

Moral Character and Decision-making Research from a Military Standpoint

Dr Deanna L. Messervey
Canadian Department of National Defence

Most moral decision-making research has largely focused on civilian cultures and populations. Although academic models of decision making based on civilian populations are informative, they may not capture the nuances of moral decision making in the military. The Defence Moral Decision-Making Model (DMDM) recognizes that the factors that drive the moral decision making of military personnel on operations can differ in important ways from those that drive civilians in civilian contexts. In line with the DMDM, this presentation discusses how moral character research presents unique challenges to our understanding of moral decision making in military contexts. Character research has focused on people's propensity to think, feel, and act ethically. According to Cohen and Morse's (2014) framework, moral character is composed of (1) motivation (thinking about the needs of others and how one's actions will influence others), (2) ability (the ability to regulate one's behaviours and to act in a self-controlled manner), and (3) identity

(the extent that people value doing the right thing). Although these three factors may make sense in a non-military context, they can present challenges in a military environment. Thinking about how one's actions will impact others, for example, could lead to psychological distress among military personnel in combat roles. Likewise, military identity and professionalism emphasizes obedience and loyalty, attributes that receive less weight in civilian research. Accordingly, civilian models of moral decision making and moral character need to be considered carefully before being applied in the military context.

ID 51

Towards the Development of a Personality-Based Measure of Integrity

LCdr Chris Harding, OCdt William Oakman, & Dr Wendy Darr
Canadian Department of National Defence

With the aim of screening out individuals with the potential to act in a manner that is counter to the values and principles espoused by the Canadian Armed Forces (CAF), this presentation describes research efforts directed at developing a personality-based measure of integrity for eventual use in CAF personnel selection. Beginning with an understanding of the elements of moral character, several personality facets within the normal (i.e., Five Factor Model; FFM) and maladaptive (i.e., Diagnostic Statistical Manual for Mental Disorders; DSM) construct domains were identified as being relevant to integrity. The predictive validity of some of these facets was empirically examined in two studies. The first study examined normal and maladaptive facets within the Conscientiousness/Disinhibition domain using a military police applicant sample ($n = 151$). The second study extended this examination to include facets within the Agreeableness/Antagonism and Emotional Stability/Negative Affectivity domains using a university student sample ($n = 999$). Findings provide insight into the differential validities of normal and maladaptive personality facets in predicting various counter-productive criteria, as well as the incremental validity of some maladaptive personality facets over the normal facets. The presentation concludes with a discussion on the use of these findings in the development of a composite personality-based measure of integrity.

ID 52

Situational Judgment Test Measuring Integrity: Validation and Issues

Dr. Françoise Bertrand, Vicky De Nil, Kristof Van Landeghem, & Annemie Defranc
Belgian Defense

Situational judgment tests show good predictive validity (Lievens, Peeters, & Schollaert, 2008) and, as an additional benefit, can leave applicants with a positive image of the selection process and provide a realistic job preview (Banki & Latham, 2010). Belgian Defense aims to implement a situational judgment test to measure key competencies (integrity and loyalty) needed to successfully complete basic military training. The construction of such a tool requires a careful methodology so as to achieve good construct validity. Another difficulty lies in the ambiguity

inherent in measuring integrity, as this can be viewed as both a skill and a value. In this presentation, we describe the construction phases of the test as well as its psychometric qualities. By developing very specific items with non-behavioural elements, we were able to construct items with very good internal consistency indices, and by applying an appropriate scoring method (Weng et al., 2018) we obtain good predictive validity. Implications for selection will be discussed.

IMTA 2018 Paper Abstracts

ID 01

Human Factors – Relationship Resilience During and After Deployment

Kerri-Ann Welch, Vivienne Tippett, & Ian Shochet
Queensland University of Technology, Australia

While many tests, checklists, and measures are applied to military personnel in the pre-deployment space, their intimate relationships are not a focus. This is contrary to the military viewpoint that personnel are the core building blocks of the military: and without the support of their loved ones, are unable to perform at their maximum capacity. Using a narrative methods approach, this qualitative study examined the effects of deployment on the intimate relationships of Australian Army personnel. We assessed the relationships of Australian Army personnel and their partners ($n = 11$) at three different time periods: during deployment, four to six weeks post-deployment, and six to twelve months post-deployment. Couples were interviewed separately, for maximum frankness and candor in their narratives, and partnerships were deemed ‘resilient’ (i.e., couples remained partnered one-year post deployment) or ‘non-resilient’ (i.e., couples were no longer together). The results showed stark differences in the experiences, emotions, and support available to the couples who were resilient to the stresses of deployment on their relationship, and those who were not. The results will be presented as a comparison of case studies of two couples: one whose relationship was resilient, and one whose was not. The implications of our findings and recommendations for intimate relationship navigation in the pre-deployment, deployment, immediate- and longer-term post-deployment periods are discussed. These recommendations include the development of a relationship self-assessment tool for pre-deployment use, to highlight the areas that may need attention, and remind both partners of the strengths already inherent in their relationship.

Time	Thursday, 18 October	British-American	15:00 – 16:30
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ID 02

Job and Work Analyses in the German Armed Forces

Dr. Sibylle Dunker & Marko Vidakovic
Federal Office of Bundeswehr Personnel Management

Job and work analyses are conducted to describe workplaces and to acquire personal competencies needed to succeed in a certain position. In a selection process, these competencies are rated to decide whether and for what position applicants are eligible. In order to obtain objective, reliable and valid threshold values derived from job and work analyses, the psychological section within Bundeswehr Personnel Management has developed a new method over the past years. Therefore, when analyzing workplaces and competencies the following methods were developed and are currently being used: a structured observation of tasks, a

structured workshop with experts, structured individual interviews with experts and a standardized questionnaire assessing several dimensions of personal characteristics needed to fulfill certain tasks. While the reported methods result in a better understanding of certain workplaces, determining exact threshold values for employees often remains inexplicit. The focus of this paper is to present ideas that deal with that issue and to gain new ideas on how to assess threshold values more accurately.

Time Wednesday, 17 October Old Stones 13:00 – 14:30

ID 03 **Comparison of Ability Requirements for UAS operators**

Hinnerk Eißfeldt, PhD, Wiebke Melcher, PhD, & Doris Keye-Ehing, PhD
DLR German Aerospace Research Center
Anja Schwab, PhD
Center of Aerospace Medicine, German Air Force

Since the introduction of UAS in the German Bundeswehr, their deployment has steadily grown and therefore the demand for operating personnel. Due to the lack of knowledge about specific demands created by operating UAS, the DLR German Aerospace Center, Department of Aviation and Space Psychology in cooperation with the German Air Force, Center of Aerospace Medicine conducted a study to empirically analyze ability requirements of UAS operators. The aim of the study is the development of specific requirement profiles for UAS operating personnel, as well as, the identification of possible differences in requirements between unmanned and manned military aviation. Requirement profiles will be differentiated for different types of UAS and different operating positions (pilot vs. sensor operator). Experienced UAS operators, as well as, pilots of manned aircraft answered a German version of the Fleishman Job Analysis Survey (FJAS). The FJAS consists of 73 scales for assessment of required abilities and skills from cognitive, psychomotor and sensory domains, as well as, interactive and social domains and was extended for two additional scales developed at DLR. First, results suggest that general requirements irrespective of operating position can be deduced such as high mental persistence, high reliability and high selective attention. Also, position specific requirements were identified: For UAS pilots, operational monitoring and problem recognition are central aspects. For sensor operators, demands are higher in abilities like visualization and perceptual speed. Differences between systems will be discussed. The results can contribute valuable information about human factors relevant for selection, training, and stress management of future UAS operators.

Time Wednesday, 17 October Old Stones 13:00 – 14:30

ID 04 **Trust as an Essential ‘Glue’ Component in Military Leadership:**

Indian Case Studies in Kargil Operations

Lt Col Samir Rawat, PhD
MIND Academy, Pune, India

What factors influence officer – non-commission member relationships? If we were to peg one thing that sums up the crux of bonding and camaraderie in the military, what would it be? Although the answer to this question is more complicated than one thinks, most military personnel would agree that to understand interpersonal behaviour in the military, we need to have an understanding of the basic building block of military cohesiveness – TRUST. This paper discusses trust as the ultimate expression of social capital and reviews literature of trust in the military. It then differentiates between calculus based trust and identification based trust, citing examples to demonstrate its crucial importance in military settings (looking back while going into assault on objective). The paper examines issues related to trust and discusses the same with example of Indian case study of Kargil operations. The paper addresses the qualities and behaviours that help military leaders create, inspire, and sustain trust. The paper recommends how trust can be developed, fostered, and more importantly, once developed, how it can be maintained in the military. The paper also describes the mechanism of repairing trust in light of trust violation and trust deficits in the wake of shattered expectations. The paper has implications for senior military leaders as well as bureaucrats and politicians who have control of military in democracies.

Time	Thursday, 18 October	Old Stones	13:00 – 14:30
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ID 05 Application of Psychological Research on Dehumanization in the Military

Adelheid Nicol, PhD & Mathieu Gagnon, PhD
Royal Military College of Canada

Dehumanization, regarding others as objects or animals without an identity or community, has deep ties in warfare. Specifically, theorists have often associated this concept with systematic discrimination, ethnic genocide, civilian casualties, as well as the use of torture, extreme punitive forms of counter-terrorism, and terrorism. Nevertheless, despite this longstanding theoretical association, empirical psychological research on dehumanization, its antecedents and outcomes, has only burgeoned in the last two decades. We present some of the most recent research findings on this topic and identify consequences for military operations, military workplace relations, and the development of defence policy and training. Moreover, contemporary studies on factors that can reduce the potential to dehumanize will also be presented. Finally, the need for future research within the military will be explored, such as the role of dehumanization in international peacekeeping operations and robotic warfare.

Time	Thursday, 18 October	British-American	13:00 – 14:30
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ID 06**Military Knowledge Transfer after the Berlin Terrorist Attack**Ulrich Wesemann, Antje Bühler, Manuel Mahnke, & Gerd Willmund
Military Hospital Berlin

Much research has been conducted on military deployments abroad. Apart from mental disorders, researchers also found a worsening of the mental health status in general after deployments. The variety of reactions of emergency responders to terrorist attacks has thus far been the subject of few studies. The aim of this project is to adapt military expertise in mass screening and in identifying individualized mission preparation and appropriate post-incident interventions to the civilian area after calamities such as amok, terrorist attacks or natural disasters. All relevant calamities in Germany (and eventually more countries later) are taken into account. Emergency responders (e.g., police officers, firefighters, first aid personnel) are screened four times (4-6 weeks after the incident, 6-9 months after, 1-1.5 years after, 3 years after) with several resource-oriented and clinical questionnaires and compared to personnel of the same unit/sex not involved to the incident. Occupational group and gender differences and their trajectories are calculated. A preliminary evaluation of the terrorist attack in Berlin found higher hostility among police officers ($\chi^2(36,3)=11.7$; $p<.01$) as well as lower quality of life among firefighters in environment ($\chi^2(36,3)=11.6$; $p<.01$) and physical health ($\chi^2(37,3)=8.4$; $p<.05$) compared to the other occupational groups. The gender-specific evaluation revealed higher levels of stress ($\omega=254$; $p<.05$) and paranoid ideation ($\omega=260$; $p<.01$) among female personnel. As a result, a comprehensive approach – termed the Berlin Post-Incident Intervention Model (BEN) – is conceived. In addition to various services and seminars, it includes a mobile phone application that addresses four target groups. The target groups are individual emergency responders, family members of emergency responders, emergency service teams, and superiors. Gender specific modules are designed for different occupational groups and their families. They comprise a variety of components such as serious gaming, internal differentiation or a regular “MentalCheck”.

Time	Wednesday, 17 October	British-American	13:00 – 14:30
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ID 07**Diversity at the Bundeswehr, A Controversial Topic Among Officers:
Research in Progress**Tanja Kreitenweis, M.Sc. & Prof. Dr. Rafaela Kraus
Universität der Bundeswehr München

Workforce diversity increased dramatically over the years and HR practitioners approved that a diverse workforce may be a key for substantial competitive

advantages as diversity might increase (e.g., innovation or performance). However, empirical research doesn't necessarily support this thesis. So far, there is a lack of studies concerning the topic of diversity in the German Armed Forces. For this reason, we want to narrow this gap. Concretely, we will answer the research questions how German officers perceive diversity in general and how they assess their experience with diversity so far. In the broad field of diversity, we have also focused on migration and dealt with the opportunities and risks of integrating migrants into the Bundeswehr.

Presently, we conduct semi-structured interviews with future officers who are studying at the Bundeswehr University. Interviewees are both German students and students with migration background. Interviews are appropriate in this case to discover new insights as research about diversity in the German military is rather scarce. We considered students to be suitable participants because they will be the future leaders of the German Federal Forces and play an essential role how the future army will be shaped. All interviews are recorded and transcribed to produce qualitative data for subsequent analysis according to Mayring.

Time	Tuesday, 16 October	British-American	15:00 – 16:30
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ID 08 **Force-specific Leadership Cultures in Multinational Associations**

Prof. Rafaela Kraus, PhD, Tanja Kreitenweis, M.Sc., Dennis Degen, B.A
Universität der Bundeswehr München

In 1995, the German Armed Forces participated in an armed multinational operation with 1,700 soldiers for the first time since their repositioning. Meanwhile, 3,266 soldiers of the German army worldwide are on missions, each of whom is multinational. At the same time, multinational cooperation on a military basis is by no means to be understood only as preserving the good tone in the Western world. It has been shown that multinational cooperation has military advantages – even without political constraints. This quickly leads to the question of how this cooperation can be structured and managed especially as current developments cause increased uncertainty and at the same time an increasing number of missions. This work examines the question of whether multinational cooperation is possible while retaining different leadership concepts. In order to address this question, a theoretical approach was chosen. For this purpose, we selected the countries Germany and the USA to compare their military leadership concepts and work out the different forms of multinational cooperation. We conclude that different leadership concepts can reduce or even endanger the success of a multinational deployment. Accordingly, multinational cooperations are either structured horizontally or vertically. In the first case, different leadership concepts do not hinder each other at all, since soldiers of different nationalities hardly meet and are integrated into their accustomed leadership structures. Or the leadership concepts influence each other, as is the second case. Thus, a new, common conception can

possibly develop.

Time	Wednesday, 17 October	Gibraltar	10:30 – 12:00
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ID 09	Deployment, Commitment and Intention to Serve in the German Reserve
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Felix Breyer, PhD and Jessica Jung
Bundeswehr

Based on a sample of 422 active soldiers with recent deployment-experiences this questionnaire-study examines the relationship between the intention to serve in the German Reserve (reserve-intention) after active duty and affective organizational commitment (OCA). Moreover, effects of the total length of past deployments (deployment-duration) as well as a global rating of personal experiences during deployments (deployment-rating) are analyzed as antecedent factors for OCA and are integrated into a structural equation model in order to predict reserve-intention together with OCA. A one-way analysis of variance (ANOVA) with reserve-intention as an independent factor and OCA as dependent variable shows a significant effect with lower OCA-scores for soldiers without reserve-intention and higher OCA-scores for soldiers with reserve-intention. A subsequent two-way ANOVA with deployment-duration and deployment-rating as independent factors shows only a significant main effect for deployment-rating on OCA with higher OCA-scores for soldiers with positive deployment-ratings. Path-analyses using the Lavaan package in R with OCA as mediator between deployment-rating as exogenous variable and reserve-intention as endogenous variable indicate a good fit on several fit-indices. The study reveals the importance of individual experiences during deployment and the affective organizational commitment with regard to the intention to serve in the German Reserve also after active duty and implies that the total duration of deployments is only of minor relevance for these intentions. Considering the limits of the deployment-terms examined in this study, implications for military forces with international presence concern the general conditions for soldiers during deployment and less the length of deployments.

Time	Tuesday, 16 October	British-American	15:00 – 16:30
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ID 10	Daily Hassles and Uplifts in Veteran Recovery
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Sofia Nilsson, Sofia Svensén, Emil Lundell & Gerry Larsson
Leadership Centre, the Swedish Defence University

Stress research tends to put an emphasis on extreme stressors and worst-case scenarios. However, accumulated hassles have shown to have a stronger relationship with physical and psychological symptoms than highly stressful events. It may be

that the effects of major life events are mediated through hassles and uplifts. A minor hassle, as for example, misplacing things, might thus be symptomatic for an individual dwelling on major life questions as it is likely that an individual with traumatic experiences, e.g. having lost a friend in combat, interpret everyday life differently. Many daily events that were perceived as routine before the traumatic event are instead registered as hassles. Every such hassle may result in a micro-physiological and psychological mobilization. This in turn, may mean that positive events, so called uplifts, are no longer registered. Hassles combined with less uplifts in everyday life indicates a risky imbalance. A vicious circle may arise that, accumulated over time might have injurious effects. This presentation emphasizes a three-year project, financed by the Swedish Armed Forces, that takes its theoretical starting point in a slightly different approach to stress that may be favorable to veteran recovery. While major life events are practically impossible to affect, it is easier to change appraisal of and coping with daily life patterns. Practical implications are discussed.

Time Thursday, 18 October British-American 15:00 – 16:30

ID 12 **Systematic Follow-up of the Psychological Selection to the Swedish Armed Forces**

Emma Jonsson & Sofia Svensén
Swedish Defence University
 Anne Lindqvist, Johan Lantz, & Gerhard Wolgers
Swedish Armed Forces
 Rose-Marie Lindgren & Britta Törner
Swedish Defence Recruitment Agency

The aim of this project is to gain more knowledge of reasons for attrition from basic training at Swedish Armed Forces in order to predict attrition, and in the future adapt selection criteria, tests and training. The project started 2015 and have so far resulted in two reports. At baseline, recruits complete a questionnaire, about demography, personality, preparations and expectations for basic training. A second questionnaire about their experience of basic military training is distributed in the end of the training, after either completed training or when they drop out. Results from 2016 (710 questionnaires and 68 interviews) indicate that it is not only the selection that contribute to a successful recruitment, but also civil state. The projects strengths are the longitudinal design as well as the combination of both quantitative and qualitative data, which allow insights from multiple perspectives. The project is a collaboration between the Swedish Armed Forces, the Swedish Defense Recruitment Agency and the Swedish Defence University.

Time Tuesday, 16 October Old Stones 13:00 – 14:30

ID 13**Recruitment and Selection to the Swedish Armed Forces – from an All-Volunteer Recruitment to a Re-established Conscription**

Emma Jonsson & Sofia Svensén
Swedish Defence University

In January 2018, Sweden re-established conscription after seven years with voluntary recruitment. In this project, we have followed the recruitment and selection to the Swedish Armed Forces since the introduction of the all-volunteer force. We have studied the quantities, the demographic set-up among the applicants as well as the qualities of those who voluntarily have applied for basic military training. Further, we have compared the volunteer recruitment with previous years with conscription. The reintroduced conscription is gender neutral and works as a supplement to the volunteer recruitment in order to guarantee the personnel supply to the Swedish Armed Forces. How will this shift in manning system effect the recruitment base? This is what this presentation will address.

Time

Tuesday, 16 October

Old Stones

13:00 – 14:30

ID 14**Personalized Military Training, Supported by Learning Analytics**

Esther Oprins, Karel van den Bosch, & Heleen Pennings
Netherlands Organization for Applied Scientific Research

Adaptability and self-directedness are important competences of military personnel that are required for life-long learning in a constantly changing operational environment. A large research program for the Dutch Ministry of Defense, called "Education and individual training in a dynamic operational context" (2017 – 2021), investigates how training innovations can enhance such requirements. One of these innovations is personalized learning. This involves adapting training to the needs of military personnel, so that they can learn just in time and just enough. Consequently, learning will be maximally efficient and effective. Interventions like task-selection, feedback, instruction, and scaffolds, are adapted to learners' personal learning profiles. Another such innovation is learning analytics, which involves the collection, analysis, and interpretation of data to improve learning. Learning analytics and big data technology allow for constructing better and more refined learner profiles. Learning analytics can provide new opportunities for determining appropriate, personalized learning paths. Two experiments are presented. In the first experiment, an experimental group that receives personalized maintenance training is compared to a control group that receives standardized training. The second experiment focuses on learning analytics, implemented in the TACTIS simulator CV90 shooter training. Various types of learner data are combined into learner profiles: simulator log data, instructor assessments, self-ratings on academic/psychological factors (e.g., motivation, effort), and demographics.

Advanced analysis techniques are used (i.e., time-series analyses and growth curve analysis). With such data-driven learning profiles, learners and instructors can monitor learning processes over time. Ultimately, this information can be used to personalize the training.

Time Thursday, 18 October Old Stones 15:00 – 16:30

ID 21 **Coaching Top Leaders: Does Self-other Agreement Matter?**

Martin Scherm, PhD, Stephanie Renneberg, Jan de Jonge, & Madeleine Lang
*Center for Leadership Development and Civic Education (Koblenz)/
 Helmut-Schmidt-University (Hamburg)*

This paper presents results of the German Armed Forces’ top leaders coaching program conducted by the Bundeswehr’s “Zentrum Innere Führung” to improve leadership competencies, effectiveness and to enhance employee orientation. The program is designed for high ranking military officers (OF-5 and above) and top civil leaders. Participation is voluntary, all subjects and insights remain confidential between coachee and coach. Since coaching is a promising intervention, diagnosing one’s own strength and developmental needs is a crucial point for the individual success. According to Atwater (1997, 2005) and Scherm (2014) we analyzed the accuracy of self-other competence ratings as the degree of shared perception of behavior. Accordingly, we hypothesized that type of agreement (‘underrating’, ‘in agreement’, ‘overrating’) is an indicator for developmental success. The coaching process is established by one intensive starting session and three more optional sessions for working on the coachees subjects. Based on a model of six core leadership competencies (e.g., responsibility and trust; lead and delegate) 360-degree feedback data measuring competencies were provided for leaders in focus (self-ratings) rated by their superiors, peers, and subordinates (aggregated as ratings of ‘others’). Feedback data were collected before the first session ($n = 976$ coachees) and after the final coaching session ($n = 431$ coachees). Results show moderate correlations between self and other ratings before ($r = .19$) and after coaching ($r = .20$). Considering developmental success, findings show differences between underrating and overrating leaders. Implications for further research and for the practical designing of coaching programs are discussed.

Time Wednesday, 17 October Gibraltar 10:30 – 12:00

ID 27 **Morale of Dutch Units Deployed in the Period 2014-2017**

LtCol Myckel Cremers, MSc
Trends, Research & Statistics Unit Netherlands MoD

Dutch morale research aims to support commanders of deployed units with

information about morale and well-being of its personnel. After an extensive study by Van Boxmeer (2007) the current model and questionnaire of Dutch Morale Research was defined. During the last decade several studies and results from this morale research have been published and presented. These studies always combined a limited number of participating units or were limited to the results of morale research done in a specific year. For the first time, data from all participating units during a period of 4 years have been combined. The goal of this study was to research trends in morale during (pre-)deployment, and had several research questions, such as: What is the average morale of deployed units? Are there certain trends in (pre-)deployment and between pre-deployment and actual deployment? Are there differences in morale based on areas of deployment, or other factors? Can baselines be established to qualify morale and its aspects or factors in terms of good/bad, positive/negative or even desirable/undesirable or sufficient/insufficient. One of the main conclusions of this study is that pre-deployment morale (in average) is higher than morale during deployment, and that this result is consistent in time and location. This presentation will cover results of the study and its practical and theoretical implications for Dutch morale research, and morale research in general. This study led to some expected results, but also some unexpected and surprising outcomes that force us to revise how morale measure (and also report the results). Even more, perhaps we need to think differently about morale and its contributing factors completely?

Time	Wednesday, 17 October	Limestone City Ballroom	15:30 – 16:30
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ID 28

Change the Way of Safety Thinking: A Cannabis Case Study

LtCol MSc Renzo C. Versteeg
Dutch Armed Forces

Last year, three critical reports on safety and safety culture within the Dutch Ministry of Defence (MoD) were published that stated that the MoD safety management requires urgent and structural improvement. The MoD developed an extensive plan for improving safety and the ability to learn. As the plan states, “a change of safety culture is one of the most challenging and complex issues for a large organization”. As a result, both leadership and individual employees should change their way of thinking on safety and risks in their primary, operational processes and day-to-day activities. At the same time, the Dutch MoD is confronted with another extensive effort, as the largest increase of the defence budget was announced in the 2017 Dutch government coalition agreement. In fact, this budget increase can have a negative influence on the implementation of the improvement plan for the safety culture, as it places greater focus on the spending of newly allocated funds within the required time-frame, which can detract from addressing the underlying causes for the need for a safety behaviour and culture change within the Dutch MoD. Based on theories from psychology and change management, this paper explores opportunities and obstacles ‘to make the shift of focus for safety

culture happen’, illustrated by a case study on a Dutch Safety Board report on environmental safety of cannabis grow rooms that requires a different way of thinking of parties involved to confront the underlying causes for this problem.

Time Thursday, 18 October Old Stones 15:00 – 16:30

ID 29 **Re-design of the Close Protection Operative Assessment Center (CPOAC)**

Marcelle Girard, MA, Joy Klammer, PhD, & Jacqueline Laframboise, MSc
Canadian Department of National Defence

Personnel involved in Close Protection (CP) are responsible for providing protective services for high-ranking officials who are deemed to be high-value targets. These services are provided in Canada and abroad in support of both Department of National Defence (DND) and Canadian Armed Forces (CAF) missions. The primary duties of a Close Protection Operative (CPO) include bodyguard, security advance party, personal escort, residence security, and driver. Given the psychological and physical demands placed on these individuals and the complexities inherent in the role, the selection of suitable personnel to carry out these duties is paramount. In 2017, a redesign of the current assessment centre was requested by the Canadian Forces Provost Marshal. In particular, it was requested that the new assessment centre have an operational look and feel. With this in mind, discussions were held with senior CPOs to get an understanding of typical CP operations in order to facilitate the design of a more operation centric assessment centre. The resulting structure consisted of: (1) Job simulation exercises, (2) Fitness specific exercises, and (3) Orientation exercises. Consistent with the previous assessment centre, the redesign included an independent clinical psychological assessment. Candidates are assessed using trained assessors and standardized assessment forms. Final selection decisions are determined by a board chair in concert with advice from a multi-disciplinary team of subject matter experts. This presentation discusses the design process for the CPOAC.

Time Wednesday, 17 October Old Stones 13:00 – 14:30

ID 30 **Classes and Clusters found in a Sample of National Servicemen**

Warwick Graco
Australian Taxation Office

This presentation will cover the classes and clusters found in a sample of national servicemen who did officer training at the Officer Training Unit at Scheyville during Australia’s commitment to the Vietnam War. Many of these graduates went on to have successful careers in the civilian sector and for those that remained, in the Australian Defence Force. The sample was divided into those who achieved up to

executive level 2 (EL2) officer rank or equivalent and those who attained senior executive service (SES) level or equivalent in their careers. The results showed that there were three clusters of professionals found in the EL2 subsample. They were seen to consist of members who had respectively a practical, a strategic and a rational approach to life and the work they perform. There were two clusters including a strategic and a rational one found in the SES subsample. A practical professional excels at execution and getting the job done, the strategic one thinks big and long term and is focused on winning the war rather than winning battles while the rational one brings logic to the table and can dissect arguments and proposals and find flaws in their assertions and use of facts. The results suggest that those who are either strategic in their thinking or are logical and factual in their approach are more likely to be promoted to SES or equivalent ranks. These typologies correspond to three found in the Herrmann Brain Dominance Model where the rational approach corresponds to the analytical one, the strategic approach corresponds to the experimental or integrative one and the practical approach corresponds with the same typology used in the Herrmann instrument. The relationship typology found in the Herrmann Model was not evident in the results obtained for this national service sample. How class structure is found in data will be briefly explained. Three classes were discerned in the responses of the respondents including a conventional class, a class consisting of those with a high need for cognitive closure and a strategic class. The characteristics of these classes will be described. The limitations of the research will be highlighted and suggested future directions with this line of inquiry will be outlined.

Time	Tuesday, 16 October	British-American	13:00 – 14:30
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ID 31 **Staying Ahead of the Game: Development of the Leading Indicators Questionnaire**

Anne Goyne & WGCDR Naomi van der Linden
Centre for Defence Leadership and Ethics, Australian Defence College

To identify ethically compromising behaviour and intervene early before it becomes a major strategic issue is desirable for many reasons, but especially so in a military context. In 2017, the Centre for Defence Leadership and Ethics (CDLE) was tasked with developing a ‘Leading Indicators Questionnaire’ (LIQ) for the ADF. The purpose of the LIQ was to seek feedback from military personnel about incidents of unethical behaviour witnessed or experienced directly and, where applicable, what was done about it. The items for the questionnaire reflected hundreds of responses to evaluation surveys from personnel who had completed educational courses with CDLE over many years. In addition to a focus on negative behaviour, the LIQ also seeks feedback about the perceived likelihood of ethical behaviour in the ADF, especially where there could be a risk to one’s own career by ‘doing the right thing.’ Finally, the LIQ seeks respondent’s views on what factors increase or decrease the likelihood of unethical or ethical behaviour in the ADF. The current paper provides

an overview of the LIQ, background to how and why it was developed and its proposed utility in the ADF.

Time Thursday, 18 October Old Stones 13:00 – 14:30

ID 32 The Retention of Medical Officers in the Canadian Armed Forces

Anna Ebel-Lam, PhD & Dr. Nancy Otis, PhD
Canadian Department of National Defence
Maj Tina Sweet
Canadian Armed Forces
Joanna Anderson, PhD
Canadian Department of National Defence
Col P.J. (Pierre) Morissette
Canadian Armed Forces

The recruitment and retention of medical officers is a key priority for the Canadian Armed Forces (CAF) Health Services Group, particularly in light of anticipated shortages over the next several years and the implications that this could have for the operational effectiveness of the CAF as a whole. To address this issue, a mixed-method study was conducted to identify the main factors affecting retention and recruitment of physicians in the CAF. Specifically, focus groups and interviews were held with incumbents from across Canada, with additional data obtained via a questionnaire. Results show that the most frequently cited dissatisfiers and reasons for leaving among medical officers included (a) the impact of postings on personal/professional well-being, (b) skill fade, (c) pay dissatisfaction, (d) concerns about career management/progression, and (e) work tempo. A number of additional issues were also identified. In the current paper, we discuss some of the main challenges associated with maintaining functional manning levels in the medical officer occupation. Importantly, we also describe a number of strategies that the Health Services Group is currently pursuing to enhance job satisfaction and retention among medical officers, and to promote military medicine as a desirable long-term career path for physicians and medical students in the civilian sector.

Time Tuesday, 16 October Old Stones 13:00 – 14:30

ID 33 The Soldier On Program: Lessons Learned and the Way-Ahead

Megan Therrien, MSc & Julie Coulthard, PhD,
Canadian Department of National Defence
Cdr David Woycheshin, PhD
Canadian Armed Forces

Soldier On is a program that promotes physical health and sport in Canadian Armed

Forces (CAF) members and veterans who have been diagnosed with a mental health illness or physical injury during their time in the military. Given that physical activity has been shown to boost the well-being and overall health of military members (Pensgaard et al., 2014), Soldier On plays an important role in injury recovery. Two qualitative studies were conducted to examine specific aspects of the Soldier On program, including its effectiveness and the optimal timing for participation. Overall, between the two studies, there were a total of 125 in-person interviews conducted with program participants at Soldier On events across Canada. Thematic analysis of the interview data demonstrated that the program was overwhelmingly well-received by study participants, who reported positive aspects including peer support, ability to share their experience with others, and benefits to their physical and mental health. Importantly, however, a number of themes emerged from both studies demonstrating areas where the program could be strengthened and improved. This includes developing better communication strategies to bolster program awareness and provide clarity regarding eligibility requirements, improvements to the program logistics and administrative processes, and exploring the possibility of offering more local and regional Soldier On events. This presentation focuses on these areas of improvement, and how they can potentially develop and grow the Soldier On program, while ensuring that it continues to provide a positive and valuable experience to as many ill/injured CAF members and veterans as possible.

Time	Wednesday, 17 October	British-American	13:00 – 14:30
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ID 39 **Barriers to Military Mental Health Care by Mental Health Issue**

Shannon Gottschall, Isabelle Richer, François Thériault, Barbara Strauss, & Megan Therrien
Canadian Department of National Defence

Accessing mental health care is important to health outcomes, and in military populations, operational readiness. It is important to understand barriers to care, but little is known about the barriers faced by certain sub-groups within military populations. Survey data from 2,499 Canadian Armed Forces (Regular Force) members were analyzed to identify correlates of reporting unmet mental health care needs, as well as the barriers to care (acceptability barriers or unfavourable personal attitudes/beliefs regarding mental health care; availability barriers or factors impacting the extent to which care is available; accessibility barriers or personal circumstances impacting the extent to which care can be accessed) reported by groups with specific mental health or alcohol misuse issues. Reporting unmet mental health care needs was significantly associated with lower ages, screening positive for probable mental health issues and alcohol misuse. Acceptability barriers were most commonly reported overall. However, individuals with probable PTSD had significantly lower odds of reporting acceptability barriers than those without PTSD, and those with probable depression had significantly higher odds of reporting

availability barriers than those without depression. Although we could not directly compare groups with different mental health needs due to comorbidity, descriptive statistics showed that accessibility barriers were more common among individuals with psychological distress, and availability barriers were more common among individuals with depression, psychological distress, or PTSD, than among those misusing alcohol. These results can inform efforts to reduce the barriers faced by groups with particular needs, which may improve the health and operational readiness of military forces.

Time	Wednesday, 17 October	British-American	13:00 – 14:30
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ID 40 **Handling the Toxic Buzzword: Defining and Addressing Counterproductive Leadership**

Melissa Wolfe, Ph.D.
U.S. Center for Army Leadership

Toxic or counterproductive leadership has received increased attention from researchers due to its negative impact on individuals and organizations. There is no clear consensus though amongst researchers or even organizational members on what exactly is meant by the term. It has been described as toxic, abusive, destructive, bullying, tyrannical, and many other terms. To clarify this concept and mitigate its negative impact, the U.S. Center for Army Leadership (CAL) embarked on a systematic research effort to identify the behavioral indicators, predictors, frequency, individual and unit-level impacts, and to assess and address the phenomenon. Counterproductive leadership was defined based on this research as the abuse of authority that inflicts serious harm on followers and the organization. CAL research also found that counterproductive leadership has cascading effects on the U.S. Army, including lowering morale, commitment, cohesion, effectiveness, readiness and productivity. Although the frequency of counterproductive leadership in the U.S. Army remains relatively limited, addressing issues like this that impact well-being and readiness is a key priority. As such, the concept of counterproductive leadership has been incorporated into U.S. Army doctrine, regulation, and leadership assessments. This proactive investigation was a departure for the U.S. Army from the traditional focus on what leaders *should* be doing (Army Doctrinal Publication 6-22) to what they *should not* be doing. This presentation will discuss the U.S. Army's conceptualization of counterproductive leadership and the steps taken to address the problem via developmental resources, leadership assessments, and changes to military doctrine and regulations.

Time	Thursday, 18 October	Old Stones	13:00 – 14:30
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ID 53 **Integrity Testing in the Norwegian Police Selection:**

All that glitters is Not Gold

Tom H. Skoglund
Norwegian Armed Forces

An integrity test was especially scrutinized in a recently published validation study of the police-student selection in Norway. The validation study had a longitudinal design, following one class through a selection phase ($N \approx 1300$), and the upcoming 3-year theoretical and practical educational period ($N \approx 500$). The purpose of the study was to evaluate a contractor-developed selection system for the Norwegian Police University College. The integrity test in question had a personality test inspired format aiming to measure applicant's level of "ethical awareness" and "impulse control", giving a total "trustworthiness" score. According to the test documentation, the test is tailored to measure applicants' probability of counterproductive work behavior (CWB); exemplified by formulations such as "betrayal of secrets", "abuse of authority" and "reckless/dangerous behavior", which can have devastating consequences for police work. Therefore, it is of great interest if a test can identify a risk for CWB's in police selection. However, this study failed to find supporting evidence for the test's suitability in police selection. The integrity test's validity is criticized through three empirical findings:

(1) In the applicant database, the integrity test was correlated to the outcome of a security clearance process. There were 47 applicants who failed the security clearance process, primarily because of criminal records. Neither the integrity test, nor the other selection tests of ability, language and personality, reached significant levels of concurrent validity and thus identify the risk of these individuals.

(2) Secondly, regarding predictive values, the integrity test did not show a sound validity in regards to integrity-relevant criteria in the upcoming educational period, including a training-phase doing real police-work over a 10-month period.

(3) Finally, 94 students did not complete their degree within the normed time range of the educational period, thus falling behind on becoming authorized police officers. Neither the integrity test, nor the other selection tests, reached significant levels of predictive validity and thus identify the risk of these individuals.

The presentation will conclude by clarifying what is considered important themes in "in-house"- or "contractor"-developed selection systems in law enforcement and the military in Norway, with a special focus on integrity testing.

Time	Tuesday, 16 October	British-American	13:00 – 14:30
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ID 60 **Competence Development and Hierarchical Rise: An Enriching or Excluding Relationship?**

Daniel Schmidt, B.A., Tanja Kreitenweis, M.Sc., & Prof. Dr. Rafaela Kraus
Universität der BundeswehrMünchen

Interest in the field of competence management in the military context has increased considerably in recent years. Examples of this are the development of intercultural competencies for deployment, the development of resilience or the development of competency models for specific areas of military activity. The German Armed Forces have also developed a general competency model for their officers. Based on this model, we investigate the question of how German officers develop their competencies and what influence the ascent in the hierarchy has on them. In this study, we conducted semi-structured interviews to answer our research questions. Interviews are well suited to uncover and document the 'how' and are providing researchers with profound and rich insights. Nine officers of different deployments described their competence development and promotion in the German Armed Forces. Interviewees were able to learn a lot during their training in the troops and their individual field of activity. It turned out that not only the rise in the hierarchy has contributed to the competence development. Rather, the tasks which have been transferred to them gave them the opportunity to gain experience, to increase their confidence and ultimately to become more competent. We also found out that not only given tasks lead to a successful career advancement but also a supportive working environment (e.g. subordinates or freedom of decision).

Time	Thursday, 18 October	Old Stones	15:00 – 16:30
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ID 73 **Cognitive Function and Affect State at High Altitude Hypoxia Condition**

Dr.D. Ravi & Dr.K. Ramachandran
Defence Institute of Psychological Research (DIPR)
Defence Research and Development Organisation , Delhi, India

High altitude environments can alter human cognitive function due to a variety of psychological and biological processes. The aim of this study is to understand the effect of hypoxia (High Altitude) on cognitive and emotional state. To get a consolidated view, the study was carried out in two phases. In the first phase, meta-analysis was carried out on 53 studies which were collected and synthesized to calculate pooled mean effect size. Results indicate that there is a significant effect of altitude on cognition. In consonance with meta-analysis and existing literatures, an empirical study was carried out to investigate the cognitive function and emotional state at hypoxia conditions. Data were collected from different levels of hypoxic conditions for cross sectional research. For the baseline condition (Normoxic), data from 199 subjects were collected at 1,122.05 ft (98% Oxygen and 731mmHg). To study the short term exposure of chronic hypoxic condition (6 months duration), data were collected from 76 subjects at 14,500ft (59% Oxygen and 451mmHg), and to investigate the long-term exposure to hypoxic conditions data were collected from 55 subjects who had resided more than two years at 14,500 ft. Results revealed that there is significant changes in cognitive function and emotional state, which includes a significant change in tension, vigor and negative affect. Further

implications were discussed.

Time Thursday, 18 October Old Stones 15:00 – 16:30

ID 74 Dismounted Operations: Assessing the Canadian Army Battle Management System

Katherine Banko, PhD
Defence Research and Development Canada

Canadian, New Zealand and American soldiers participated in the friendly force tracker thread of a coalition exercise known as Bold Quest. Soldiers wore battle management systems while conducting a variety of missions. The aim was to test and assess the ability of the newly acquired Canadian Army Integrated Soldier System Suite (ISS-S) to integrate with other dismounted Battle Management Systems (BMS) to improve situational awareness and, as a result, increase operational effectiveness. For interoperability, data sharing required 3rd party service; the company, platoon and section performed as a cohesive, mission-focused unit. The BMS improved situation awareness and enhanced performance. Power usage did not differ significantly as a function of role in the company.

Time Tuesday, 16 October Gibraltar 15:00 – 16:30

ID 75 Panel: Publishing with the International Military Testing Association and the Canadian Defense Academy Press

Douglas Lindsay & Daniel Watola
United States Air Force Academy
Allister MacIntyre, Daniel Legace-Roy, Danielle Charbonneau
Royal Military College of Canada
Melanie Denis
Canadian Defense Academy Press

The International Military Testing Association (IMTA), through the generous support of the Canadian Defence Academy Press, has published books on topics related to leadership since 2006 and recently started a second series related to topics of interest to the larger IMTA community. These books are intended to foster dialogue among member organizations, produce quality scholarship, highlight applications, and provide guidance to the larger military communities on topics related to the military context. Over the years, the panelists on this session have overseen numerous books in these series. Through a panel format, these editors will share lessons learned, best practices, what it takes to submit a successful chapter, and other useful guidance. Anyone who has ever been interested in producing work for these books should attend this session. Attendees will walk away with a clear

picture of what it takes to submit a successful chapter to these book series.

Time Tuesday, 16 October Limestone City Ballroom 09:00 – 11:30

ID 76 Resilience as a Function of Work Family Balance in Armed Forces

Archana, Scientist ‘E’, & Updesh Kumar, Scientist ‘G’
Defence Institute of Psychological Research (DIPR), India

Work and family are deemed to be two intertwined domains of an individual’s life. Work family interface comprises of conflict and synergy depending on whether these two significant domains of an individual’s life are in contradiction or in harmony with each other. The result of poor work family balance not only affects the employees’ well-being but also affects the organization they work for. Positive work family interaction creates positive impact on people’s outlook towards life and mental health. The present study was conducted on a sample of 795 troops serving in Indian Armed Forces. The objectives of this research were to identify military specific work family balance variables in predicting resilience and to examine organizational facilitators contributing towards resilience and quality of life. Both qualitative and quantitative approach was followed for analysing the results. The findings of the study revealed that work family balance (measured as, work family interface, work family facilitation, work family support, work family satisfaction and work family demand) significantly predicted resilience. Work family interface (measured in terms of conflicts and spillover) and work family demands were significantly and negatively correlated with resilience. However, work family facilitation, work family support and work family satisfaction were significantly and positively correlated with resilience. Organizational facilitators in terms of; medical care services, provision for pursuing higher studies, opportunities for recreational activities, and provision for undergoing specialized training were some of the factors that were found to contribute towards maintaining health and quality of life.

Time Thursday, 18 October British-American 13:00 – 14:30

ID 77 Positive Traits and Virtues: Pathways to Resilience among Military Personnel

Updesh Kumar, Scientist ‘G’ & Archana, Scientist ‘E’
Defence Institute of Psychological Research (DIPR), India

In the recent years, resilience has received considerable attention among the scientific community and continues to gain immense momentum for its basic and applied implications. Resilience signifies a vibrant course of action wherein an individual adapts positively despite significant adversities and challenges. It represents a personal strength that develops over a period of time. Resilience comes from interactions between people and their environments as part of a dynamic

developmental system. Military personnel often function in difficult, stressful and risk environment that affects their mental health, although not all military members who are exposed to the same kind of stressors exhibit mental health problems. Increasing research has focussed on the presence of protective factors that serve as strengths to maintaining mental health and well-being. The present study focuses on identifying the role of positive traits and virtues towards predicting resilience among troops serving in Indian Armed Forces. The study was carried out on a sample of 1640 troops deployed at various field and peace locations. Positive traits included attributes pertaining to self-esteem, positive affect, spirituality, adaptive coping, psychological capital and family support. Virtues were assessed on the dimensions pertaining to wisdom and knowledge, courage, humanity, justice, temperance and transcendence. Results indicated that psychological capital, self-esteem, adaptive coping, wisdom and knowledge, courage, humanity and justice emerged as significant predictors of resilience. The identification of these factors is considered important in military setup, as they provide an empirical basis for the development of modules for enhancing resilience among troops.

Time	Thursday, 18 October	British-American	13:00 – 14:30
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ID 78 **Coaching Leaders of Transformational Change in Canada’s Defence Headquarters**

Jonathan Steeves
Canadian Department of National Defence

This paper presents the results from the developmental coaching pilot program for civilian executives and senior military officers leading transformational change in the Canadian Department of National Defence Headquarters, from May 2017 to March 2018. Using the Integral Coaching Canada – developmental coaching model, this research investigated: 1) to what extent the coaching program was effective with executive Defence Team leaders; and 2) what would enhance the pilot program to further support the Defence Team with leading transformational change. The coaching program received endorsement from all participating executives and senior officers, who overwhelmingly recommended a second developmental coaching pilot and the expansion of coaching practices into leadership development programs. The report addresses the impacts of developmental coaching on leadership of transformational change and recommends follow-up measurement of the *ripple effects* of executive coaching, which include reduced attrition, improved mental health, eased transitions from operations, improvements to civility and respect, leadership agility, enhanced collaboration, work-life integration, self-awareness, emotional intelligence, compassion, empathy, active listening, and influence.

Time	Tuesday, 16 October	Gibraltar	15:00 – 16:30
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ID 80**Evaluation of an Aptitude Test for ADF Cyber Selection**

CAPT. Samantha Jackson, Ms Tamara Doulgeris, & CPL Melanie Cooper
Australian Defence Force

The Directorate of Occupational Psychology (DOP) was engaged by the Australian Army to conduct an evaluation of a commercial cyber aptitude test battery, to assess its suitability for use as a selection tool for Cyber Systems Operators (CSO) within the Australian Defence Force (ADF). The opportunity to participate in the test trial was extended to all serving ADF members, with additional targeting focused on those already filling cyber or cyber-related roles. A total of 782 ADF members completed the test, representing a range of ranks and occupations across all three Services. Test results were matched to members' existing military records, including performance on general cognitive ability and mathematical aptitude tests completed as part of their initial application for entry, or at some subsequent stage in their service. Score distributions and psychometric properties of the component sub-tests were examined, as well as the relationships between sub-test scores and existing selection measures. Two sections of the test returned poor psychometric properties for this ADF sample and were not recommended for future use in a selection context; the remaining three sub-tests demonstrated some potential for future inclusion, although additional research validating the test against training or job-related outcomes is still required.

Time Wednesday, 17 October Old Stones 15:00 – 16:30

ID 81**Five-factor Model Personality Traits of Swedish Counter Terror Police Officers**

Police Officer (PhD student) Peter G Tedeholm
Swedish Counter Terror Unit (SCTU), Karolinska Institutet
Anders Sjöberg, PhD
Stockholm University
Agneta C Larsson, M.D, PhD
Karolinska Institutet

Cognitive ability and physical strength have shown to be crucial for success in Special Forces and Counter Terror Units (CTU, intervention). However, few studies have shown how personality relates to application and acceptance to CTU. The purpose of this study was to investigate how the Five Factor Model of personality (FFM) distinguish between normal population and SCTU Police Officers. In this research, 56 male Police Officers on duty in SCTU completed the Swedish version of the paper and pencil self-assessment of the NEO-PI-3. The test results were compared with norms from Swedish adult population. Cohens D effect size test measured a difference in CTU from norm regarding Neuroticism (-0.88; large), Conscientiousness (0.66; medium), Extraversion (0.53; medium), Openness (-0.24;

Time	small) and Agreeableness (-0.16; very small). Wednesday, 17 October	Old Stones	15:00 – 16:30
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ID 82

In Situ Qualitative Research in Military High-Risk Teams

Maj Jakob Rømer Barfod
Royal Danish Defence College

The paper will outline and discuss a method of conducting qualitative, up-close studies of military teams in action by being embedded as an active participant observer, and the possibilities and challenges of this kind of research will be addressed. The purpose of this project is to analyze how leadership emerges in military high-risk teams where the soldiers are subjected to exceptional conditions. Work in high-risk environments is characterized by a complexity that makes it impossible to predict all scenarios, as an unexpected or unforeseen mistake or incident can affect all aspects of the organization in unexpected or unforeseen ways. The research project takes as its starting point leadership in several Danish military high-risk teams conducting operations in Afghanistan and in the North Atlantic. Different types of high-risk units are embedded and the research takes place while conducting tactical operations, and in the periods between conducting actual operations. I take on the role of an active team member, and when possible I conduct interviews ‘on the move’, and recordings from a helmet camera is used in follow-up interviews after action. Being in the beginning of a three years research project, the focus of this paper will in particular be on methodology and a discussion of some of the advantages of this type of research, including what this type of research is able to shed light on, but also some of the issues which obviously are difficult to address. Furthermore, preliminary findings will be touched and possible future ways of analysis described.

Time	Tuesday, 16 October	Gibraltar	15:00 – 16:30
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ID 83

Cockpit Attitudes and Pilot Decision Making in Non-normal Operations

Sukmo Gunardi, Urip Purwono, & Jahja Umar
Indonesia Defence University

This research studied the influence of hazardous attitudes on pilot decision making in non-normal operations. Likert-like questionnaires were distributed to 537 active male pilots both from military and civilian aviation in Indonesia. Participants were recruited using a probability sampling. Using Structural Equation Modeling (SEM), it was concluded that the theoretical model of pilot decision making in non-normal operation could be explained by the individuals’ hazardous attitudes. This result indicates the critical role of affective components to the decision making models.

Practical significance of the results pertaining to pilot training, particularly in crew resource management context, will be discussed.

Time Tuesday, 16 October Gibraltar 15:00 – 16:30

ID 84 **Military Spousal/Partner Employment: Identifying the Barriers and Support Required**

Natalie Fisher and Karen Newell

QinetiQ

Professor Clare Lyonette, Dr Sally-Anne Barnes, & Dr Erika Kispeter
University of Warwick, Institute of Employment Research

For years researchers have discussed the ‘choices’ that women, particularly those with young children, make with regards to work and family responsibilities and the resulting difficulties in pursuing a career (e.g. Crompton and Lyonette, 2005). Evidence from the Army Families Federation (2017) indicates that UK military spouses/partners, the majority of whom are women, face additional difficulties in finding and maintaining employment. This is largely due to their mobility within the UK and overseas, living in rural areas with few employment opportunities and lack of easy access to affordable childcare. Research was undertaken to explore the factors shaping the employment of military spouses/partners and to formulate suggestions for effective support services that would enable them to get and stay in employment. The research involved five separate phases of data collection: a literature review; 14 stakeholder interviews; an online survey of 1,491 military spouses/partners; telephone interviews with 32 military spouses/partners; and an online survey with 38 employers. Findings from the study indicate that the main barriers to military spousal employment centre around: childcare; postings and deployment; ability to keep up with training and professional development; lack of (re)training opportunities; and the general military culture. Employer perceptions were also a barrier to spousal employment and many spouses/partners believe that it is better not to disclose their partner’s military background when applying for jobs. Employers themselves reported similar perceptions about the challenges of hiring military spouses/partners. Based on these findings the support required to enable military spouses/partners to gain and maintain employment were identified.

Time Thursday, 18 October British-American 15:00 – 16:30

ID 85 **Development of Selection Criteria for Clearance Diver**

CAPT. Danny Boga & Ms Tamara Doulgeris

Australian Department of Defence

The Directorate of Occupational Psychology (DOP) recently undertook a review of

the selection criteria for the Australian Defence Force (ADF) Clearance Diver (CD) occupation. The first stage was to review relevant research, policy and current selection procedures already in place for CD. This included collecting observational data at the CD 'selection test' (a week-long secondary selection process for pre-screened candidates) and interviews with CD experts regarding the training process and requirements for success. Based on these findings, the key attributes identified as being necessary for selection as a CD were combined into a survey that was sent to 51 currently serving CDs considered to have an expert level of knowledge regarding what attributes were required for success as a CD. All but one of the attributes included in the survey were rated as essential by at least 70% of respondents. The results were grouped into five broad attribute domains: cognitive ability; motivation; physical fitness; emotional stability; and team orientation. Recommendations for how these findings may contribute in a practical way to the CD selection process are discussed.

Time Thursday, 18 October Limestone City Ballroom 13:00 – 14:30

ID 86 **The AFOQT and Pilot Performance: A Meta-analytic Investigation**

Khalid ALMamari & Anne Traynor
Purdue University

The Air Force Qualifying Test (AFOQT) has been the primary selection test battery for officer candidates in the U.S. Air Force since 1953. Despite a wealth of literature on the validity of the AFOQT in predicting pilot performance, there is less evidence on its validity generalization. This study investigated the AFOQT at the scale level by examining the predictive validity of the AFOQT's subtests for pilot performance using meta-analysis approach. Psychometric meta-analysis method (Hunter & Schmidt, 2004) was applied to a database of 28 independent samples for 16 subtests of the AFOQT as well as the pilot composite score of the AFOQT. Results showed that the best predictors of pilot performance at the AFOQT scale level were the scales of instrument comprehension ($r = .16$), scale reading ($r = .15$), table reading ($r = .12$), and aviation information ($r = .12$). These four scales corresponded to the constructs of perceptual speed and aircrew aptitude/interest, which highlighted the fundamental role of these two constructs in piloting ability. The weakest predictors of pilot performance were the three scales corresponding to the verbal ability: word knowledge ($r = -.01$), verbal analogies ($r = .02$), reading comprehension ($r = .03$), which devalue the contribution of this construct for pilot performance prediction. The pilot composite score that are typically constructed from the best combinations of the AFOQT scales had slightly more predictive power ($r = .17$) than those resulted from the individual scales. Evidence for validity generalization of the AFOQT scales was presented and implications for the practical use were discussed.

Time Thursday, 18 October Limestone City Ballroom 13:00 – 14:30

ID 87 Development of Situation Apperception Test: A Measure of Implicit Motives

Suresh Arumugam & Arunima Gupta
Defence Institute of Psychological Research, DRDO, Delhi, India

Implicit motives express themselves in individuals' fantasies and can therefore be measured by fantasy-based methods and content analyses methods like the Picture Story Exercises (PSE). Nonclinical research in implicit motives uses the PSE by requiring participants to write imaginative stories in response to ambiguous picture stimuli that depict people in everyday situations; the story protocols are then analyzed for motive imagery using coding systems. In this study, we developed a PSE test, titled the Situation Apperception Test (SAT) as an efficient, reliable and valid measure of implicit motives, particularly the needs for achievement, affiliation and power of Military Aspirants. Based on critical incidents of military aspirants initial pictures ($N = 120$) were developed and were rated by 10 Subject Matter Experts (SME) based on the criteria of Cue Strength, Cue Ambiguity and Cue Universality, resulting in 48 pictures. These pictures were administered to military aspirants ($N = 120$) to assess content validity. The content analysis of 360 stories by each SMEs ($N = 4$) resulted in 24 high pull pictures. The inter-rater reliability of the test was established through SME rating ($N = 3$) on 180 stories. The concurrent validity was established by comparing the responses of the SAT with the TAT. The SAT addressed many of the issues in implicit assessment and provides a powerful new tool for researchers wishing to investigate unconscious psychological forces on human behavior.

Time Thursday, 18 October Limestone City Ballroom 13:00 – 14:30

ID 88 The Cognitive Abilities and Pilot Performance: A Meta-analytic Investigation

Khalid ALMamari & Anne Traynor
Purdue University

Considerable debate surrounds the relative importance of general and specific cognitive ability tests for predicting performance in flight training program. This study examined the validity of tests of general mental ability (GMA) and five specific cognitive abilities (verbal, quantitative, spatial, perceptual speed, and aircrew aptitude) for predicting pilot performance. The correlations between the tests of cognitive constructs and criterion of pilot performance were aggregated and meta-analyzed using the psychometric meta-analysis approach of Hunter and Schmidt (2004). In order to form reliable and uniform constructs, all cognitive abilities were operationalized using the selection test battery of officer candidates in the U.S. Air Force, The Air Force Qualifying Test (AFOQT). Based on 11 to 14 independent samples, meta-analysis results at the AFOQT's construct level revealed

that the tests of perceptual speed ($r = .14$) and aircrew aptitude/interests ($r = .13$) were the best predictors of pilot performance while the tests of verbal ability ($r = .02$) and spatial ability ($r = .09$) were the weakest predictors. GMA and quantitative ability tests produced criterion-related validity of .12 and .11 respectively. The results highlighted the role of specific abilities in predicting pilot performance and suggested that some have even more predictive power than GMA. Implications for the practical use of tests of GMA and specific cognitive abilities in the context of pilot selection practices were discussed.

Time Thursday, 18 October Limestone City Ballroom 13:00 – 14:30

ID 89 **Group Cognitive-Behavioural Approach to Reduce Anxiety of IAF Paskhas Wives**

Capt Martin Herdiansyah
Indonesian Air Force Psychology Department
 Dr. Fivi Nurwianti & Drs. S.S. Budi Hartono
Faculty of Psychology Universitas Indonesia

The psychological impact of soldiers' wives when their husbands are on duty to armed conflict areas include anxiety, depression, and problems of adjustment due to the emergence of negative thoughts, such as the fear of something bad happening to their husbands. This study aims to determine the effectiveness of an intervention using the cognitive-behavioral approach in a group setting to reduce the anxiety level of Indonesian Airforce Paskhas wives whose husbands were deployed to an armed conflict area. This study is quasi experimental research with one group pretest-posttest group design. The group consisted of eight people obtained through purposive sampling. Participants followed seven group-level intervention sessions and one follow-up session. Pre- and post-intervention analyses included quantitative data analyses using results from the Hopkins Symptoms Checklist-25 (HSCL-25) and State Trait Anxiety Inventory (STAI) measures, and qualitative analyses of cognitive and behavioral changes of participants before and after the intervention. The results showed that the intervention using group-level cognitive-behavioral approach decreased the anxiety level of soldiers' wife in Battalion Command 463 Paskhas when their husbands were deployed to an area of armed conflict. In addition to dealing with negative thoughts that arose as a cause of anxiety, participants in the intervention group also engaged in more adaptive behavior.

Time Thursday, 18 October British-American 15:00 – 16:30

ID 90 **A Primer on Computer-Based Testing Models: Which is right for you?**

Anthony R. Zara
Pearson VUE

Choosing which testing model is the best for your program? Selecting a testing model involves analysis of your organization’s testing goals, budget, stakeholders, and appetite for change. The commonly stated needs for increased exam security, improved test formats, more flexible scheduling, better measurement, and more efficient administrative processes are causing testing agencies to consider converting their paper-and-pencil exams programs to computer-based testing (CBT). There are a number of models that might provide benefits that your paper-and-pencil delivered program currently cannot achieve. Commonly implemented CBT models include linear, linear on the fly testing (LOFT), and computerized adaptive testing (CAT). This session will discuss the requirements and programmatic efficiencies that are enabled by different CBT models. Perspectives from different testing stakeholder groups including the public, test users, test takers, and educators will be considered. This session will also include concrete examples of how one program changed program modalities from paper-and-pencil to CAT, describing the psychometric, technical, and business considerations that result in a successful conversion. Programs should weigh all relevant information and select a testing model that provides the most important advantages for the most stakeholders. This session will provide insight/advice about optimal test model selection for organizations with competing needs.

Time	Thursday, 18 October	Gibraltar	15:30 – 16:30
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ID 91 **Designing Mission: Ready – the Canadian Army Integrated Performance Strategy**

Maj Bernadette Myslicki
Canadian Army Land Warfare Centre

Readiness and resilience are required for a strong performance by any member of the Canadian Army Team. In the Canadian Army, readiness and resilience are interdependent - a soldier needs not only to know their job and how to do but also how to adapt to the changing situation whether that be for maintenance tasks in garrison, support for family at home while a soldier is on training or fire missions on operations. In 2014, the Canadian Army Commander established a Planning Group in order to develop a Canadian Army Integrated Performance Strategy. The overall vision was identified as: “To establish a cultural change that integrates resilience into how we build, strengthen, maintain and assess soldiers’ competencies across all domains, thereby increasing individual and collective performance and readiness. This strategy involves all Army soldiers, leaders, families, and civilians.” This presentation will provide: 1) an introduction of key CAIPS concepts; 2) an overview of the methods used to design CAIPS, including the development of the Army Total Fitness model; 3) an overview of the tools designed and leveraged for Phase 1 of CAIPS; and 4) an overview of current training initiatives being piloted.

Time	Wednesday, 17 October	British-American	10:30 – 12:00
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ID 92**Item Validity Test “STAXI” with the Indonesian Air Force**

Lieutenant Colonel Zamzani, M.Si,
*Aviation Psychology Laboratory of Department of Psychology Indonesian Air
Force, Jakarta*
Annaz, Dea, Eko, Fatimah, Raffi
State Islamic University Syarif Hidayatullah Jakarta

This research aims to examine item validity of the State Trait Anger Expression Inventory (STAXI). Using a sample size of 1097, classical test theory analyses were conducted using SPSS and Iteman, and modern test theory analyses were conducted using Quest, Lisrel, and Mplus7. Classical test analyses indicated that the STAXI had good reliability, with Cronbach's alpha of .86, and item-scale correlations ranging from .47 to .80. Modern test theory analyses using a Rasch, 1-PL model found 44 STAXI items with acceptance limit of 0.77 to ≤ 1.3 . Confirmatory Factor Analysis (CFA), using the Lisrel and Mplus7 program found one item (# 23, which measures the Anger) to be invalid because the score exceeded the acceptance limits. In conclusion, classical test theory analyses suggest that the STAXI is valid and reliable; however modern test theory techniques using Lisrel and Mplus7 question the validity of some items.

Time	Wednesday, 17 October	Old Stones	15:00 – 16:30
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ID 93**Enhancing the Selection of 4-Year Army ROTC Scholarship Recipients**

Mark Young, PhD, Robert Kilcullen, PhD, Peter Legree, PhD
United States Army Research Institute for the Behavioral and Social Sciences
Bethany Bynum
Human Resources Research Organization

The U.S. Army uses the Reserve Officer Training Corps (ROTC) 4-year scholarship program to encourage high-potential high school seniors to become Army officers. We evaluated the validity of the operational Cadet Background and Experience Form (CBEF) for predicting program continuance among 4-year scholarship awardees. The CBEF measures motivational attributes (e.g., Army Identification, Achievement Orientation, Fitness Motivation, Stress Tolerance) using multiple-choice questions asking about past behaviors and experiences relevant to success in the military. Our longitudinal cross-validation sample consisted of a cohort of 896 four-year scholarship applicants who entered ROTC during the school year of 2014/2015. We examined the relationships between the CBEF scores of applicants against disenrollment through the end of the sophomore year of college, the period in which most disenrollment occurs. In spite of considerable range restriction on

both the predictor and criterion, the CBEF composite was significantly predictive of ROTC program disenrollment ($r = -.10, p < .05$). Four-year scholarship cadets scoring in the lowest 25% on the CBEF had a program disenrollment rate of 25%, while cadets scoring in the highest 25% on the CBEF had a program disenrollment rate of 12%. In contrast, the previously used selection composite (without the CBEF) which was based more heavily on cognitive ability was completely unrelated to program disenrollment ($r = .00, n.s$). The implications of these findings, and plans for extending CBEF testing to other populations, will be discussed.

Time Wednesday, 17 October Old Stones 15:00 – 16:30

ID 94

Platoon Leaders' Leadership Style in Estonian Defence Forces

Maj Artur Meerits
University of Tartu, Estonian National Defence College
 Asst. Prof Kurmet Kivipõld
University of Tartu

In Estonia, past years have heightened attention to platoon leaders' influence on their units and how leaders are perceived by their subordinates, as Estonian Defence Forces (EDF) soldiers are mostly conscripts attending mandatory military training. The current study analyses EDF platoon leaders' leadership behaviour in accordance with authentic, transformational and transactional leadership theory. Transformational and Transactional leadership behaviour was measured with the Multifactor Leadership Questionnaire (MLQ; Bass, 2006), Transformational Leadership Behaviour Inventory (TLBI; Podsakoff et al., 1990) and Leader Reward and Punishment Questionnaire (LRPQ; Podsakoff et al., 1984). Authentic Leadership (AL) behaviour was measured with the extended authentic leadership model, which was composed from three different approaches (Walumbwa et al., 2008; Neider & Schriesheim, 2011; Beddoes-Jones & Swailes, 2015). Over a six-year period (from 2012 to 2018) over 4300 soldiers assessed their commanders' (over 200) on one of the four leadership scales (MLQ: $N \approx 2600$, TLBI/LRPQ: $N \approx 700$, AL: $N \approx 1000$). Results indicate that some leadership styles such as Management-by-Exception are not relevant in a military context, and there is some question whether some leadership behaviours such as, contingent reward are indeed part of either transaction leadership or transformational leadership. Results also revealed that transactional leadership behaviour are employed more than transformational behaviours. As well, platoon leaders who a have higher understanding of their weaknesses and strengths have more efficient relations with their subordinates in terms of authentic leadership. Limitations and implications about proposed platoon leaders' desired leadership behaviours are discussed.

Time Wednesday, 17 October Gibraltar 10:30 – 12:00

Dr Jonathan Bradshaw
Eikonika Ltd, UK

Unproctored internet testing (UIT) divides professional opinion. Advocates argue it is a cost-effective, efficient and modern approach providing candidates with convenient and easy access to a selection process. Others are less convinced and believe UIT is uncontrolled, prone to measurement error and provides opportunity to cheat. Nonetheless, when testing large volumes of candidates there is often a good financial case for using UIT as an initial filter, particularly in the context of military assessment. This paper describes research undertaken in partnership with the Danish Ministry of Defence Personnel Agency to prepare for implementation of UIT using a test battery called Predict. This battery measures general mental ability (GMA) and covers the constructs of logical reasoning, spatial ability, numerical facility & working memory. The key UIT challenges addressed are the unstandardised administration environment, candidate malpractice and test piracy. These are discussed with particular focus on test design, forensic psychometrics and the assessment policies to wrap around UIT. Also covered is the practical issue of using cut-scores during UIT screening. Later this year and in the short-term, UIT and Predict will be embedded within the Danish military selection process and data collected to stabilise the forensic psychometrics. In the longer term, Predict will be deployed as a UIT screen to filter candidate prior to attendance at a national assessment centre.

Time	Thursday, 18 October	Gibraltar	15:30 – 16:30
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Jimmi Andreasen, MSc (Psych) & Janne Hellerup Nielsen, MSc (Psych)
Psychologist, Danish Ministry of Defence Personnel Agency

Increased competition from educational institutions among a declining youth population in Denmark and an increased focus on cost savings has led to the need for increased flexibility and efficiency of testing procedures used by the Danish Ministry of Defence Personnel Agency. Since the 1950's, the paper and pencil Danish Draft Board Cognitive Ability Test has been used as a measure for military suitability. In 2010, a computer-based version was developed, but unproctored use of this test was ruled out due to the risk of compromising the content. In 2015, it was decided to prepare a new cognitive ability test battery for online testing called Predict. This will be used to filter military school applicants with the lowest scores before invitation to a national testing facility. This work has been undertaken in partnership with two commercial organisations from the UK. In Spring 2018, the I-S-T 2000 R-test (Intelligenz Strukturen Test) was used as a proxy trial for online testing with 396 officer applicants and 39 were filtered. From the Fall, 2018 onward,

the new Predict test battery will be implemented in an online version. Organisational implications and recommendations for implementing and using unproctored internet testing will be discussed.

Time	Thursday, 18 October	Gibraltar	15:30 – 16:30
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ID 105 Preparing Soldiers for Mission Readiness: Intangible Psychological Constructs

Steven N. Aude, PhD., Heidi Keller-Glaze, PhD., Jonathan Bryson, MA, ICF, & Christopher L. Vowels, PhD
United States Army Research Institute for the Behavioral and Social Sciences

The US Army goes to great lengths to measure the tangible indicators of unit readiness. Less is known about the intangible, psychological aspects of Soldier mission readiness and how to practically measure it. The first phase of this research sought to identify individual Soldier constructs critical to mission readiness. The second phase of the research developed content valid measures for two constructs: perseverance and initiative. Effective training methods for these two constructs were also identified. Data from a US Army Brigade Combat Team (BCT) were collected and analyzed in support phase one and two research objectives. The third phase conducted construct validation as well as a field test of the measures during simulated casualty evacuation and first responder emergency medical treatment. Results demonstrated construct and face validity for measures of Soldier initiative and perseverance.

Time	Wednesday, 17 October	British-American	10:30 – 12:00
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ID 106 Development and Validation of a Selection Test for Army Strategists

Elizabeth D. Salmon, PhD & Robert N. Kilcullen, PhD
U.S. Army Research Institute for the Behavioral and Social Sciences

The U.S. Army faces an ever-changing, increasingly complex operational environment with limited resources. Sound Army strategic processes, including strategy appraisal, strategy development, team coordination, and strategy implementation – the primary undertaking of the Functional Area (FA) 59 branch – are central to enabling limited resources to be utilized at optimal capacity to achieve mission success. Thus, it is critically important to ensure the right personnel are designated to fill the FA59 (Strategist) role. We developed a test to identify candidates for FA59 who are most likely to excel. This research project identified important FA59 attributes, developed tests to measure these attributes, and examined how well the experimental test battery predicted performance in a sample of incumbent FA59s. The results indicate that the test significantly predicts in-unit job performance in strategist positions. The test is scheduled for operational use for

selecting FA59s in Fall 2018. As a follow-up to the concurrent validation research, ARI will initiate a longitudinal research effort that will examine how well test scores predict 1) selection into the FA, 2) successful completion of training, 3) initial and subsequent job performance as FA59s, and 4) long-term career advancement.

Disclaimer: The views expressed in this paper are those of the authors and do not reflect the official policy or position of the Department of the Army, DOD, or the U.S. Government. The research described herein was sponsored by the U.S. Army Research Institute for the Behavioral and Social Sciences, Department of the Army.

Time	Tuesday, 16 October	British-American	13:00 – 14:30
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ID 107 The Use of 3,4-methylenedioxyamphetamine (MDMA)-Assisted Psychotherapy in Treatment Resistant Post Traumatic Stress Disorder

Dawn DeCunha, PhD
Psychology Works

With the escalating rate of treatment resistant PTSD and suicide in soldiers and veterans worldwide, and with only modestly effective treatments currently available, there is an urgent need for more effective interventions. MDMA and other ‘mind altering’ substances (entheogens), widely researched in Europe and North America from the 1920’s to the 1970’s, were declared Schedule 1 drugs in the 1970’s, ending promising research. In the recent past, there has been a resurgence of research in this area, following the American Food and Drug Administration approving Phase 1 studies in the US. With exceptionally effective treatment outcomes, Phase 2 research was also approved and currently, Phase 3 research is being conducted internationally. The FDA has granted Breakthrough Therapy Designation to MDMA-Assisted Psychotherapy, acknowledging that it “may demonstrate substantial improvement over existing therapies”. A number of well designed studies provide a new conceptualization for trauma, treatment and recovery. With only a few sessions of MDMA assisted psychotherapy, resolution of trauma symptoms in more than 50% of participants at six and twelve month follow up, are reported in several studies. This presentation provides a summary of the research studies contributing to the investigation of MDMA and other entheogens as a treatment aid. If results follow their current trajectory, MDMA Assisted Psychotherapy could become available by 2021. Researchers and clinicians should become informed about these paradigm shifting findings, as they may help in Leading in Times of Uncertainty.

Time	Wednesday, 17 October	British-American	13:00 – 14:30
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ID 108 Military Culture and Soldiers’ Identity

Dr.psych. Andzela Rozcenkova
National Defence Academy of Latvia

The research explores the understanding of military culture in the Armed Forces of Latvia. Latvia's security and defence policy, and future military activities will require our soldiers' ability to build trust, communicate, and collaborate with people of diverse backgrounds. The need to develop military cultural and competent soldiers becomes an important factor for training and mission success. Using the research sample ($N = 180$) from different units of Armed Forces and multiple questionnaires, the study examined the relationship between soldiers' identity and military cultural competence. The findings revealed that the most significant predictors of soldiers' identity are the following factors of military cultural competence: cultural adaptation, knowledge of army symbols and traditions, as well as the army values and soldiers' emotional links with the profession. Research results also show the differences of soldiers' identity and military cultural competence among gender, ages, ranks, military operational experience and different army units. Findings highlight the importance of assessing and training cross-cultural competence in military personnel. Recommendations for developing soldiers' military cultural competence are being discussed.

Time	Tuesday, 16 October	British-American	15:00 – 16:30
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ID 109

Understanding Military Duty in Contemporary Warfare

Sofia Nilsson, PhD, & Lisa Ekman
Swedish Defence University, Sweden

Duty constitutes a central part of military decision-making and behavior during warfare, especially in the context of combat operations. Different or conflicting understandings of duty among military personnel are problematic. At the strategic level, the lack of a unified sense of duty challenges the political integrity and legitimacy of military operations. At the operative and tactical levels, different notions of duty pose a possible threat to military cohesion and the safety of local citizens and mission staff, which ultimately, endangers mission effectiveness. We argue that Western armed forces are currently influenced by two principal, but perhaps conflicting visions of military duty. On the one hand, military personnel are socialized and trained to adopt a combat-oriented understanding of duty that emphasizes the destruction of enemies and protection of fellow service members. On the other hand, recent political, ethical, and legal demands on military personnel urge troops to support, engage with, and protect local populations, for instance while implementing humanitarian and development assistance. Is it possible for military personnel to reconcile these two notions of military duty? This presentation will emphasize the preliminary results of a study on the underlying psychological mechanisms behind military personnel's sense of duty in contemporary military operations. With a focus on the role of the local population, it will add empirical

insights to the small, but growing literature on military personnel’s understandings of responsibilities toward local populations. Although military personnel appear increasingly motivated for mission deployment out of a sense of readiness to help or to protect local citizens, they are frequently found disappointed, frustrated, or bored with performing tasks other than combat, or suffer psychological, moral, and cultural stress because of engaging with foreign populations, particularly in situation of escalating violence or combat.

Time Thursday, 18 October British-American 13:00 – 14:30

ID 110 **Personality in Selection and Classification: USAF 10 Year Update**

Mr. Johnny J. Weissmuller, Laura G. Barron, PhD, Mark R. Rose, PhD
Air Force Personnel Center / Strategic Research and Assessment
Thomas R. Caretta, PhD
Air Force Research Laboratory /Human Effectiveness Division
Gregory G. Manley, PhD
Office of People Analytics/Defense Personnel Assessment Center

At the IMTA in Kingston in 2006, the US Air Force presented a paper entitled “Personality and Mission Effectiveness.” In mid-2005 the Air Force deployed the Air Force Officer Qualifying Test (AFOQT, Form S) with its personality assessment – the Self-Description Inventory (SDI+). This paper was followed in 2007 by “SDI-Plus: Assault on Occam’s Razor” and finally, in 2008 by ”Person-Job Match (PJM) – Beyond the “More is Better” Paradigm.” When that last paper was given (10 years ago), there were four years of officer (SDI+) data on the shelf but the criterion of job success data was just then beginning to emerge for pilots and other air crew jobs. This paper highlights the analysis of that data and the re-development of the Self-Description Inventory (SDI-O) now on the Air Force Officer Qualifying Test (AFOQT) Form T. For the enlisted career fields, a version of the US Army-developed TAPAS (Tailored Adaptive Personality Assessment Scales) system was under evaluation by the USAF from 2009 until 2014. In 2014, TAPAS became an operational test for all Air Force recruits. Since then, the Strategic Research and Assessment branch has been evaluating differential models for operational classification decisions within targeted enlisted career fields.

Time Wednesday, 17 October Old Stones 13:00 – 14:30

ID 113 **Certifications Help Military Members Show What They Know**

Bill Brigman
Solutions for Information Design, LLC
Sue Jackson
Pearson VUE

It is widely accepted that attainment of occupational certifications demonstrates competency and skills, and improves professional development, employability and mobility within the U.S. workforce. This is true across all sectors, private and public including the military. Skillset verification is particularly important for those undergoing a career change or transitioning out of the military. The value of occupational certifications to military service members and veterans is significant; they promote the professional development of service members and can be used to demonstrate to prospective civilian employers that their skills are on par with their civilian counterparts across all professions and industries. Facilitating certification not only enhances opportunities of service members in transition, it is also a force multiplier. Certification can improve job performance, advancement and retention rates. The U.S. Departments of Defense and Labor have incorporated certification pursuits as solutions for higher-level performance requirements, advancement, and retention amidst increased selection competition, as well as strategies to reduce unemployment rates for Veterans. Through the military Services' Credentialing Opportunities On-Line (COOL) programs, military occupations have been mapped to over 1,500 civilian certifications and in FY 17, the services paid for over 50,000 certifications and licenses. COOL provides exam information by matching military occupations to civilian certifications, utilizing gap analysis processes and credential payment policies. Pearson VUE partners with the U.S. Department of Defense to facilitate credentialing, providing the military community access to on-base testing sites and promoting the use of electronic badging to recipients which translates learning outcomes into web-enabled representations.

Time	Wednesday, 17 October	Gibraltar	15:30 – 16:30
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ID 119 **Patterns of Problematic Alcohol Use among ROK Officers and NCOs**

Ji-yeon Park
 Center for Defense Human Resource Management
Korea Institute for Defense Analyses (KIDA)

As many research revealed, problematic alcohol use is associated with significant mental health problems. This study aims to examine the subtypes of problematic alcohol use among Republic of Korea (ROK) officers and non-commissioned officers (NCOs) and investigated the relationships between various alcohol use patterns and related mental health variables. This research adopted a person-centered approach using latent profile analysis to understand the heterogeneity of individual response patterns on alcohol use which was undetected in variable-centered analyses. The problematic alcohol use group was selected based on a cut-off score of the alcohol use questionnaire in the Service Adaptation Inventory for officers and NCOs, which is a screening tool used to identify maladjustment status during the military service. Alcohol use questionnaire items based on the diagnostic criteria of the Alcohol Use Disorders in DSM-5 consist of questions about

respondents' impaired control, social impairment, risky use, and pharmacological criteria. Based on the 4 indicators, profiles of problematic alcohol use were detected and these profiles were investigated whether each profile uniquely related to mental health variables. The clinical implications for findings and limitations of the research are discussed.

Time	Wednesday, 17 October	British-American	10:30 – 12:00
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ID 121

Military Morale: Research from Estonian Defense Forces

Antek Kasemaa, MA

Estonian National Defence College & Tallinn University

The central theme of this study is military morale, which has been defined by Britt & Dickinson (2006) as a variable reflecting motivational orientation. Researchers have shown that individuals with optimistic, hopeful, and self-confident orientation are more involved with adaptive coping in difficulty and with greater conviction of goal achievement (Carver *et al.*, 2002), therefore emphasizing motivational orientation of morale. Factors such as realistic training, leadership, the experience of success, and group cohesion contribute to the high level of soldiers' morale, meaning meaningfulness of the activity, achievement of the goal, and satisfaction with work (Manning, 1991; Hardy, 2009; Ivery *et al.*, 2015). There are strong evidences that military morale is one predictor of performance (Manning, 1991; Sirota *et al.*, 2008) together with small unit cohesion (MacCoun & Hix, 2010) both in battlefield and as well as in training conditions. This study examines the impact of several variables on military morale in the Estonian Defence Forces (EDF). Using conscripts and members of the Estonian Defence Forces ($N = 1500$) from private to captain (collected between 2013 and 2014), we investigated the link between morale and several variables, such as leadership (i.e., leader behaviour and influence tactics), unit (i.e., collective efficiency and small unit cohesion), and individuals (i.e., dispositional optimism and self-efficacy).

Time	Wednesday, 17 October	Limestone City Ballroom	15:30 – 16:30
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ID 123

The Leader as an Intercultural Interface: Managing Uncertainty

Dipl.-Psych. Ulrike de Ponte

Applied University of Regensburg (OTH), Germany

Interculturality is intersubjectivity between people of at least two different cultures. Military leaders often face challenging and uncertain situations with people from other cultures. For leaders to be effective they need to be aware that they are not only a "carrier of culture", but are operating as an "intercultural interface". Using a training video with the German Army, this presentation will elaborate on a training

method based on the critical incident technique on how to improve the management of intercultural and ambiguous situations.

Time Wednesday, 17 October Gibraltar 10:30 – 12:00

ID 124 **Advances in Forced Choice Modeling and Implications for Noncognitive Testing**

Stephen Stark, PhD
University of South Florida, USA
Fritz Drasgow, PhD
University of Illinois at Urbana-Champaign

Over the last decade, research has shown that personality measures predict important academic and work outcomes without adverse impact on historically underrepresented groups. As such, there has been increasing interest in using personality test scores for counseling (career and leader development), selection (screening and admissions), and classification (job matching). To reduce rating scale errors and response biases, such as faking good, and to increase reliability and validity in high-stakes scenarios, researchers have been developing item response theory (IRT) forced choice methods for test construction and scoring. This talk will present recent research aimed at improving the quality of multidimensional forced choice (MFC) tests using two-alternative (pair) and three-alternative (triplet) response formats. We will describe simulation studies comparing the advantages of testing with MFC pairs and triplets and provide suggestions for follow-up research with human participants to see whether anticipated reliability and temporal stability gains materialize when response sets, decision difficulty, and fatigue come into play. We will conclude with recommendations and implications for noncognitive assessment in military settings.

Time Tuesday, 16 October British-American 13:00 – 14:30

ID 125 **Talent Management: A Longitudinal, Multi-level Research Approach**

Tonia S. Heffner, PhD, Kimberly S. Owens, PhD, & Major Keyia N. Carlton
U.S. Army Research Institute
Julia Dahl, PhD & Nadina L. Anderson, PhD
Consortium of Universities of Washington Metropolitan Area

The U.S. Army strives to recruit, acquire, maintain, and retain the highest qualified personnel to maintain the highest levels of readiness. To accomplish these goals, it is imperative to manage personnel talents to meet both organizational and personal objectives. The U.S. Army Research Institute has embarked on an empirical investigation of talent management which adopts a whole person, longitudinal,

multi-level approach. This paper will describe the model used to guide the research which captures data across the career trajectory for both officers and enlisted Soldiers to provide a dynamic picture of career progression. Although data is being collected throughout the Soldier's career, it focuses on pivotal career decision points which naturally have a more intense assessment focus including pre-accessions, initial training, first unit of assignment, and initiation of subsequent assignments. The data captured includes cognitive, non-cognitive (e.g., personality, interests, person-job fit), and medical/physical (e.g., injury, physical ability) attributes of the individual Soldier in combination with the experiences and opportunities afforded the Soldier as predictors of performance, attitudes, and career outcomes. Acknowledging the importance of group dynamics and leadership on the individual Soldier, measures of unit climate/culture and leadership also are included in the model to provide context. The resulting research data will be merged with Army administrative records to construct a master dataset permitting both longitudinal and cross-sectional analyses. Limitations of the model and challenges for data collection will be discussed.

Disclaimer: The views, opinions, and/or findings contained in this paper are those of the authors and shall not be construed as an official Department of the Army position, policy, or decision, unless so designated by other documents.

Time	Wednesday, 17 October	Old Stones	10:30 – 12:00
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ID 126

Evaluation of Resilience Training – Between Desire and Reality

Hubert Annen, Phd, Madlaina Niederhauser, Chantal Utzinger, & Regula Züger
Swiss Military Academy at ETH Zurich
 Samuel Felder
University of Bern
 Annika Vogel
University of Jena

Not being involved in war theatres or peace enforcement operations, the Swiss Armed Forces spend the majority of its time training for operational readiness. Nonetheless, members of the Army frequently encounter various challenges and stressful situations in everyday military life (e.g., long working hours, unusual tasks and a limited private sphere). Furthermore, in a conscript army, the cadre have to deal with less motivated soldiers (i.e., civilians in uniform) and leadership errors become public more quickly. Against this backdrop, it makes sense to introduce elements in leadership training that foster the mental strength of young military leaders. Swiss Army Resilience Training takes this fact into account. It is designed to provide officer cadets with tools to overcome stressful situations in a calm and constructive manner. Based on established methods from sports psychology and cognitive behavioral therapy, four training modules were developed. These modules were carried out at an infantry officer school over a four-week period. The effect of this training is measured against a control group and by collecting data before and

after the respective period as well as in particularly stressful situations. This research project is still in progress, preliminary results shed light on the difficulty of scientific research in an operational context, but also provide relevant information about success factors and how the training can be improved.

Time Wednesday, 17 October British-American 10:30 – 12:00

ID 127 A Study on Standardization of Interview Evaluation Guidelines for the ROK Army Cadets Selection

Dong-yoon, Lee
Korea Institute for Defense Analyses

This study aimed to develop the standardized, competency-based interview evaluation guidelines (S-IEG) for the ROK Army junior cadets recruiting. Presently, selection system for the ROK Army junior cadets is composed of two parts. The first stage is a paper-based examination (cognitive ability test, job personality test and situational judgement test), and the second stage is an interview-based assessment. The interview is the decisive factor for selecting successful candidates; however, it is overly dependent on non-professional interviewer (active officers), and there is no sufficiently standardized evaluation guideline for the interview. In this study, a S-IEG was developed, based on the five competencies (leadership, interpersonal, problem-solving, conscientiousness and initiative) selected by ROK Army as being that most important competency for Army officer applicants. The development process consisted of three phases, which included the development of interview questions to assess each competency, a simulated interview to develop behaviour statements for scoring, and a workshop for evaluating the competency level of each behavior statement.

Time Tuesday, 16 October Old Stones 13:00 – 14:30

ID 128 A Study on the Types of Subjective Cognition Towards Factors that Hinder Soldiers from filing a Military Grievance: Applying Q Methodology

Young-Gon, Kim, PhD
Korea Institute for Defense Analyses

In present-day military organizations, there are various strategies to effectively settle a major grievance or an infringement of rights experienced by soldiers. However, many soldiers who are entitled to these institutional strategies often remain silent, which can be attributed to the several factors. This study used a Q Methodology with army Non-Commissioned Officers in order to identify factors that prevent soldiers from filing a grievance, and identified soldiers' cognitive attributes towards these factors. Based on the results of interviews and a literature review, 34 specific

Q questions were identified that hinder filing a grievance, which were categorized in three major factors (i.e., personal, institutional and organizational perspectives). Based on the types of subjective perceptions experienced by army Non-Commissioned Officers, effective measures to encourage soldiers to file a grievance are suggested.

Time Tuesday, 16 October British-American 15:00 – 16:30

ID 129 **The Influence of Communication Styles of Military Leaders on Perceived Stress**

Anna Van deb Brand
The Netherlands Ministry of Defence

Burnout seems to become a mass phenomenon in recent years, with more and more people missing work due to work related stress. However the term ‘burnout’ originated in the 1970’s as a result of severe stress in the ‘helping’ professions (e.g., doctors and soldiers). Military personnel who are expected to sacrifice themselves for their country are at risk to develop burnout. Research has found that leadership plays an important role in reducing work related stress and ultimately burnout. Research suggest that the leader’s communication style effects employee satisfaction. This presentation discusses research findings regarding the influence of communication styles by leaders on decreasing stress after experiencing traumatic events. It will shed light on how these communication styles could be assessed in regards to selecting future military leaders.

Time Thursday, 18 October Old Stones 13:00 – 14:30

ID 130 **The Psychological Factors of Suspension from Compulsory Military Service**

Inga Karton, PhD
Estonian Military Academy

This research involved two studies of Estonian Defense Forces (EDF) conscripts (Study 1: 2016-17; Study 2: 2017-18). The study investigated the psychological factors measured at the beginning of service that predicted suspension from compulsory military service. In the EDF Estonia, the drop-out rate has decreased from 20% in 2016, to 18.8% in 2017, to 11.6% 2018, and as such in this research we wanted to investigate whether these factors are different over the past two years. In this research, we measured the emotional state of conscripts, which included depression, general anxiety, social phobia, panic disorder, asthenia, sleep disorder; service motivation by intrinsic, extrinsic and amotivation; and deep and surface

learning motivation. In Study One, using the linear regression model, we found that the strongest predictor of suspension was panic disorder followed by sleep disorder, asthenia, social phobia, depression, and intrinsic motivation. In Study Two, we found that the strongest predictors of suspension were general anxiety and extrinsic motivation. In sum, we this research suggests that psychological factors predict suspension from compulsory military service. It is also important to note that the decrease in the drop-out rate also reduced the proportion of emotional states as predictors.

Time Wednesday, 17 October Old Stones 10:30 – 12:00

ID 131 **Quality of Life and Mental Toughness in Military Training**

Can NNakkas & Till Frey
Swiss Armed Forces

The current cross-sectional study examined the validity of the Military Related Quality of Life scale (MRQOL-8) and the Military Training Mental Toughness Inventory (MTMTI) during basic military training of the Swiss Armed Forces. For the MRQOL-8, diagnostic validity was examined by comparing a healthy sample of recruits (N = 221) with a subclinical sample of recruits who had sought psychological counseling (N = 88). For the MTMTI, predictive validity was examined by analyzing the relationship between the recruits' performance during unit training (as assessed by their squad leaders) and a subsequent recommendation for promotion (recruits with recommendation: N = 49; without recommendation: N = 159). Both scales exhibited adequate to very good internal consistency. With regard to military related quality of life, the subclinical sample exhibited significantly lower levels than the healthy sample. In addition, the scale showed good diagnostic validity with a sensitivity and specificity of above 80%. With regard to mental toughness, recruits who received a recommendation for promotion exhibited significantly higher levels than recruits who did not. However, the inventory itself showed no significant predictive validity. In summary, the MRQOL-8 has the potential to be a useful tool to screen recruits for psychosocial distress during the beginning of basic training. The MTMTI, however, shows limitations despite promising qualities, and should be further examined with further samples.

Time Wednesday, 17 October Old Stones 10:30 – 12:00
