Updated 30 August 2015

Resilience Research and Training
in the U.S. and Canadian Armed Forces*

“Battlebook” with agenda, participants and supplemental materials

*A symposium held at the American Psychological Association Convention

Society for Military Psychology Hospitality Suite

Fairmont Royal York Hotel

Toronto, Canada

August 7, 2015

Robert R. Roland

Paul T. Bartone

Co-chairs

NOTE: This document is a "work in progress." Questions and contributions, please contact Dr. Bob Roland (robertr@885@gmail.com) or Dr. Paul Bartone (bartonep@gmail.com)

Available for download at http://www.hardiness-resilience.com/publication-downloads/
Agenda

Friday August 7th

<table>
<thead>
<tr>
<th>Event, Title and People</th>
<th>Day/Time</th>
<th>Facility/Room</th>
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<tbody>
<tr>
<td>Division 19 Military Psychology Hospitality Suite (Rm# TBD) Fairmont Royal York Hotel</td>
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<tr>
<td>Division 19 Suite Session: Canadian and United States Updates</td>
<td>Fri 8:00 AM - 9:50 AM</td>
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<tr>
<td>Break:</td>
<td>9:50 AM – 10:20 AM</td>
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<tr>
<td>Roundtable Discussions with Principals continues</td>
<td>10:00 AM-12:00 AM</td>
<td>in the Suite</td>
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<td>NOTE: Select Members will remain for the Early Career Psychologists and Student Career Mixer</td>
<td>12:00 AM – 1:00 PM</td>
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Symposium and Reports

1. Canadian Road to Mental Readiness (R2MR)

2. Preservation of the Force and Family (POTFF)

3. Lessons Learned - Design, Implementation and Results - Do They Work, and How Well?

Co-Chairs

COL Bob Roland, PsyD (US Army, Retired) Independent Contractor
Chair, International Psychology Committee, Division 19 APA

COL Paul T. Bartone, PhD (US Army, Retired) Visiting Professor and Senior Research Fellow, Center for Technology National Security Policy - National Defense University, Washington, DC
Invited Participants/1st Author

Scheduled Speakers

- LtCol Suzanne Bailey, MSW Senior Staff Officer Social Work & MH Training, HQ Royal Canadian Medical Service Ottawa

Title: Mental Resilience Training in the Canadian Armed Forces: Unique Challenges and Opportunities

- Sako Maki Thompson, MSW, MPA POTFF-Resilience Lead, Booz Allen Hamilton, Washington DC

- Angela Gray, PhD POTFF-Resilience, Booz Allen Hamilton

Title: Preservation of the Force and Family Design, Implementation and Results

- Michael J. Schwerin, PhD, USNR, SPHR Project Director POTFF Program Evaluation & Analytic Support, Army Research Facilitation Lab Monterey CA

Title: Incremental Quality Improvement in Outcome-based Program Evaluation

- Col Walter Wiggins, SF - Student, US Army War College, Carlisle, PA

Title: Generational Resilience in Support of the Global SOF Network
Presented by Colonel (Ret.) Tom Williams

Participants (Invited)

Col Carla Long, PhD Command Psychologist USSOCOM HQ McDill AFB Tampa Florida
Capt. John Doolittle, USN, Director POTFF USSOCOM HQ, McDill AFB Tampa Florida.
Dr. Donald Neff, PhD, Deputy Director POTFF USSOCOM HQ, McDill AFB Tampa Florida

Dr. Morgan Sammons, PhD (Capt. USN Ret) Former USN Psychology Specialty Leader, Director of the National Register of Psychologists.

Invited Speakers: Thomas Williams, Ph.D. (Col. USA, Ret) Former INSCOM Cmd Psychologist - now Director, Senior Leader Development, US Army War College, Current President Division 19 APA.
Discussants: Armando X. Estrada, Ph.D. US Army Research Institute for the Social Sciences, Aberdeen, MD, Former President Division 19 APA, Journal Editor of Military Psychology

Dr. Mike Mathews, Ph.D. Department Of Behavioral Sciences and Leadership, U.S. Military Academy West Point, NY. Former President of Division 19 APA.

Invited Attendees

Canadian Forces  Deniz Fikretoglu, Cathy Boscarino, Dawn Herniman, Bernadette Myslicki, Alain Carrier, Kimberly Guest, Simon Logan (Peer Support Program)

USSOCOM  Col. Carroll Greene, Ph.D. (Col. USAF, Ret. AFSOC, Cmd Psychologist)
MARSOC Cmd Psychologist

Other  Dr. Hurbert Annen, Visiting Professor US Military Academy, West Point NY

Col. Sally Harvey, Ph.D., USA, INSCOM Command Psychologist and President Elect Div. 19 APA

Roundtable Discussion with Principals continues 10:00 AM-12:00 AM in the Suite

Resilience Program Development Items of Interest to USSOCOM and CANSOF

Topics:

- Initial design of the program based on needs assessment
- Decision making process regarding the key program components (human performance, psychological performance, spiritual performance, and social performance)
- Key program activities in each area both with SOF members and families
- Communications planning and Marketing
- Program evaluation and measurement
- Challenges and barriers to implementation and how these were overcome
- Success of the program
- Lessons learned and modifications made to improve implementation
- Timelines and program milestones
- Oversight and governance
- Threats and risk management
6 Bailey, S. (7 August 2015). Road to Mental Readiness: Challenges & Opportunities (PowerPoint slides). Presented at the seminar on Resilience Research and Training in the U.S. and Canadian Armed Forces, American Psychological Association Convention, Toronto, Canada.


33 Schwerin, M. J. (7 August 2015). Road to Mental Readiness (R2MR) and Preservation of the Force and Family (POTFF): Incremental Quality Improvement in Outcome-based Program Evaluation (Powerpoint slides). Presented at the seminar on Resilience Research and Training in the U.S. and Canadian Armed Forces, American Psychological Association Convention, Toronto, Canada.


149 Link to Video on Preservation of the Force and Family, By US Air Force Special Ops Cmd

150 Link to web page for Navy Combat Operational Stress Control (POC: COL Scott Johnston)

151 Biographies of seminar participants
ROAD TO MENTAL READINESS: Challenges & Opportunities

Lieutenant Colonel Suzanne Bailey

- Canadian Armed Forces Mental Health (MH) and resilience training throughout career & deployment cycle, including families
- Initial mandate in 2008 was to increase MH literacy, decrease stigma and other barriers to care, increase early recognition of distress and early care seeking
- 2002 CF Supplement to the Canadian Community Health Survey (CCHS) revealed that 84-96% who met criteria for a disorder did not perceive a need for services
- In 2009 mandate expanded to include mental preparation for military operations and deployments
R2MR: Mental Health & Resilience

- Integrated across development levels, deployment cycle, families
- Elements of US Naval Spec Warfare Command, USMC COSC and US Army MRT/CSF2 programs
- Integrates WHO, NATO, Defence Research & Development Canada research & guidance
- Outcomes validated & evaluated by DRDC, Stats Can MH Survey and program epidemiologist
- R2MR adapted with MH Commission of Canada for Canadian Police Forces, Alberta Health Services, Nova Scotia Public Service and Community Colleges, other first responders

Guiding Principles of R2MR

- Relevant Purpose & Content: Based on clear requirements & needs
- Comprehensive, integrated, longitudinal & developmental
- Strengths based: build on existing abilities, skills; creates positive expectancy
- Team based: must integrate fundamental structure of self, buddy, leader (build cohesion)
- More is not always better – keep it simple & relevant
- Integrated into organizational culture: developed and focus tested with members of target audience (user acceptability and face validity)
• Explanatory: highlights misunderstood reactions, normalizes common challenges (answers WHY)
• Experiential and action focused: tangible skills to build flexible & adaptive coping, real-world application, scenarios & situational trg
• Co delivered by trained operators & clinicians
• Quality control, standardization of content and delivery
• Train the trainer program with evaluation standard (pass/fail)
• Continuous validation, evaluation and quality improvement: evidence-based content and delivery, data collection, research
• Leader-centric: must be led, implemented and championed by operational leadership

Mental Health Continuum Model

- HEALTHY
- REACTING
- INJURED
- ILL

- Normal functioning
- Common and reversible distress
- Severe and persistent functional impairment
- Clinical disorder

- Normalizes mental health fluctuations
- Movement in both directions: expectancy of recovery
- Earlier recognition & intervention leads to better outcomes
# Monitor Health

<table>
<thead>
<tr>
<th>HEALTHY</th>
<th>REACTING</th>
<th>INJURED</th>
<th>ILL</th>
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<tbody>
<tr>
<td>Normal mood fluctuations</td>
<td>Irritable/Impatient</td>
<td>Anger</td>
<td>Angry outbursts/aggression</td>
</tr>
<tr>
<td>Calm &amp; takes things in stride</td>
<td>Nervous</td>
<td>Anxiety</td>
<td>Excessive anxiety/panic attacks</td>
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<tr>
<td>Good sense of humour</td>
<td>Sadness/Overwhelmed</td>
<td>Pervasively sad/Hopeless</td>
<td>Depressed/Suicidal thoughts</td>
</tr>
<tr>
<td>Performing well</td>
<td>Displaced sarcasm</td>
<td>Negative attitude</td>
<td>Overt insubordination</td>
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<tr>
<td>In control mentally</td>
<td>Procrastination</td>
<td>Poor performance/Workaholic</td>
<td>Can’t perform duties, control behaviour or concentrate</td>
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<tr>
<td>Normal sleep patterns</td>
<td>Forgetfulness</td>
<td>Poor concentration/decisions</td>
<td></td>
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<tr>
<td>Few sleep difficulties</td>
<td>Trouble sleeping</td>
<td>Restless disturbed sleep</td>
<td>Can’t fall asleep or stay asleep</td>
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<tr>
<td>Physically well</td>
<td>Intrusive thoughts</td>
<td>Recurrent images/nightmares</td>
<td>Sleeping too much or too little</td>
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<tr>
<td>Good energy level</td>
<td>Nightmares</td>
<td></td>
<td></td>
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<tr>
<td>Physically and socially active</td>
<td>Muscle tension/Headaches</td>
<td>Increased aches and pains</td>
<td>Physical illnesses</td>
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<tr>
<td>Low energy</td>
<td>Low energy</td>
<td>Increased fatigue</td>
<td>Constant fatigue</td>
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<tr>
<td>No/limited alcohol use/ gambling</td>
<td>Decreased activity/socializing</td>
<td>Avoidance</td>
<td>Not going out or answering phone</td>
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<td></td>
<td>Regular but controlled alcohol use/gambling</td>
<td>Withdrawal</td>
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<td>Increased alcohol use/gambling – hard to control</td>
<td>Alcohol or gambling addiction</td>
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<td></td>
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<td>Other addictions</td>
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# Individual Responsibility

<table>
<thead>
<tr>
<th>HEALTHY</th>
<th>REACTING</th>
<th>INJURED</th>
<th>ILL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maintain healthy lifestyle</td>
<td></td>
<td></td>
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<tr>
<td>Focus on task at hand</td>
<td></td>
<td></td>
<td>Talk to someone; ask for help</td>
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<tr>
<td>SMART goal setting</td>
<td></td>
<td></td>
<td>Tune into own signs of distress</td>
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<tr>
<td>Controlled breathing</td>
<td></td>
<td></td>
<td>Make self care a priority</td>
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<tr>
<td>Challenge negative self talk</td>
<td></td>
<td></td>
<td>Get help sooner, not later</td>
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<tr>
<td>Visualization/Mental rehearsal</td>
<td></td>
<td></td>
<td>Maintain social contact, don’t withdraw</td>
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<tr>
<td>Nurture a support system</td>
<td></td>
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<td>Follow care recommendations</td>
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<tr>
<td>Recognize limits; take breaks</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Rest, relaxation, recreation</td>
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Leadership Responsibility

**Lead by example**
Get to know your personnel
Foster healthy climate
Identify and resolve problems early
Deal with performance issues promptly
Demonstrate genuine concern
Provide opportunities for rest
Provide mental health first aid after adverse situations
Provide realistic training opportunities

**Lead to BE the Resilience Reserve**
Watch for behaviour changes
Adjust workload as required
Know the resources & how to access them
Reduce barriers to help-seeking
Encourage early access to care
Consult with CoC/HS as required

**Involve MH resources**
Demonstrate genuine concern
Respect confidentiality
Minimize rumours
Respect medical employment limitations
Appropriately employ personnel
Maintain respectful contact
Involve members in social support
Seek consultation as needed
Manage unacceptable behaviours

**Shield**  **Sense**  **Support**

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Explanatory: How and Why?

^stress = ↑ likelihood of choosing a risky alternative
^stress = ↓ tolerance for ambiguity
^stress = ↑ tendency to make hasty choice
^stress = ↓ productive thoughts
^stress = ↑ in distracting thoughts
^stress = ↑ distortion in perception
Realistic Appraisal of Stressful Demands

Positive growth can include:

- New sense of purpose in life
- Feeling closer to loved ones
- Increased confidence
- New skills and strengths
- Spiritual growth

Building Mental Resilience: Skills

The Big 4 +

- Goal Setting
- Visualization
- Self Talk
- Tactical Breathing
- + Focus and Attention Control

Road to Mental Readiness (R2MR): Prepare, Perform, Recover
Other Resilience Factors

- Positive emotions (optimism and humour)
- Emotion regulation (fear and anger)
- Cognitive flexibility (positive reappraisal)
- Coping style (active/approach vs passive/avoidant)
- Moral code (including altruism)
- Spirituality (including religion)
- Social support (including unit support)
- Purpose and meaning (mission)

Importance of Leadership

Leaders influence others through both their personal attributes (who they are) and their behaviour (what they do)

Leaders must influence group to accomplish mission while maintaining interpersonal relationships, trust and group cohesion

Must gauge obstacles and challenges accurately while maintaining determination to prevail

Leaders are in a unique position to shape how stressful experiences are interpreted and understood (purpose and meaning)
Improve Social Support

Check in with each other
Listen attentively
Normalize feelings
Use Big 4
  - Encourage SMART goal setting
  - Reminders to use tactical breathing
  - Challenge negative thinking
  - Give each other positive messages

Watch for behaviour changes
Suggest resources of support

Beyond the Optimal Zone: normalizing help-seeking

• The Big Four are helpful skills, but sometimes the demands placed on us outweigh our available resources

• Just as we go to physio for overuse injuries, we may need to seek additional resources for mental health
CAF personnel with mental disorders are more likely to seek care than civilians (in 2002)

Mota N, Klassen K, Fikretoglu D, Zamorski MA, Sareen J. Differences in mental health service use between civilians and military service members in Canada: comparisons between two representative surveys. Anxiety Disorders and Depression Conference, La Jolla, CA, 4 April 2013.
Past-year Service Use for Mental Health Problems, by Type of Provider, CAF vs. Civilians, 2013

Note: 2013 sample includes both Reg F and Res F personnel, but the findings are expected to change little when the small group of Res F personnel are taken out.

Changes in Care-Seeking

- In 2002, CAF Reg F personnel were significantly more likely to have sought care than civilians; not likely due to greater need in CAF

- CAF care seeking increased significantly between 2002 and 2013: only a small fraction of increase is likely traceable to prevalence rate increase since 2002

- In 2012/13, differences in professional service use between CAF and civilians widened dramatically between CAF and civilians widened dramatically
  - Particularly noteworthy difference in psychotherapy providers (psychologist, social worker)
  - In 2012/13, CAF personnel were much, much more likely to have turned to non-professionals for help with mental health as well
Overall Program Evaluation

Approximately 54000 CAF personnel have received some training between 2008 and 2013; data available from 28000 (does not include DND civilians and CAF families)

Significant increases in knowledge and confidence:
- I have a good understanding of mental health and coping strategies.
- I am confident in my ability to identify CF members at risk for mental health issues
- I am confident in my ability to help CF members get assistance for MH a problem
- It is possible for a CF member who is exhibiting the first signs of mental illness to become healthy without ever developing a full blown mental illness

Moderate effect sizes on stigma related questions
- I would be seen as weak if I sought help
- I would be afraid to talk to my supervisor about a mental health issue
- I would not be ashamed to seek help if I noticed mental health symptoms

Current Program of Study: Recruit Training

To assess and improve the efficacy of any behavioral intervention, we must consider the design, delivery, receipt, and application

Design: is it the right content for audience and objectives?
Delivery: is it being delivered the way it was intended?
Receipt: are participants learning the required content?
Enactment: can they apply the knowledge and skills?
Program of Study: Findings

Design: several revisions, content optimised for 160 minute session

Delivery: fidelity checklist and instructor training improved delivery of Big 4 skills, but instructor effect remains for self-talk and goal setting

Receipt: timing of training changed, complex information was simplified, order of skill delivery changed, skill application increased, information being retained at 2 week quiz

Enactment: improved with decrease in sleep deprivation, mental health literacy is good, Big 4 still has room for improvement

Lessons learned: instructor training and fidelity checklists, timing of training (sleep deprivation), instructor effect (clinician vs. peer), skill application and practice, challenge of teaching self-talk

Challenges Remaining

- How do we measure intermediate and final outcomes of training?
- How much of R2MR concepts and skills need to be retained in order to lead to meaningful improvements in final outcomes?
- What is happening in basic training that contributes to negative changes in attitudes toward care-seeking?
- Self-talk: is it possible to teach cognitive restructuring in classroom setting, or should we simplify the skill?
- Taking the skills outside the classroom and into real life
Moving Forward

- Adaptation of program to meet unique requirements of Canadian SOF community: **Special Operations Mental Agility**
- Unit R2MR Training: enhance integration & application of skills into all aspects of individual and collective trg
- Leverage technology to enhance skill application
- Continue collaboration with Mental Health Commission of Canada to learn from R2MR implementation in police & civilian organizations
- Tailor program as required to meet identified needs of unique occupations such as SAR, Health Services clinicians, Aircrew
- Ensure that content remains relevant

Mobile Applications
The Canadian Armed Forces (CAF), like other militaries, recognizes that mental fitness and well-being are key contributors to operational readiness. When the findings of the CAF Supplement to the 2002 Statistics Canada Community Health Survey indicated that a significant portion (84-96%) of military members who met criteria for a disorder but did not use services indicated that they did not need services, it was clear that more could be done to help CAF personnel recognize distress in themselves and others, and encourage them to seek consultation if required.

A working group was established in 2007 to consider new and innovative approaches to mental health training and education in the CAF, and was given the task of developing, delivering and evaluating mental health education across the spectrum of Canadian Forces audiences, including Canadian Forces members’ families. The group, consisting of mental health clinicians working in partnership with military leaders and operational personnel, as well as military veterans with operational stress injuries (OSIs) and families, consulted with experts in adult education, the Canadian Mental Health Association (CMHA), and military allies such as the United States Marine Corps (USMC).

Research conducted by Megan Thompson and Donald McCreary at Defence Research and Development Canada (DRDC) was instrumental in developing an educational strategy to change attitudes toward mental health in the CAF (Thompson & McCreary, 2006). Drs Thompson and McCreary highlighted the importance of addressing beliefs and feelings underlying the attitudes to be changed; the role of persuasion, interaction, and professional credibility on the process of attitude change; and the combined role of evidence-based information and vivid personal accounts from credible speakers with operational experience. In addition, while an educational program could begin to have some impact on individual attitudes and behaviours, larger cultural change within the organization would require leadership support and policy change in order to be sustained.

R2MR program development was also informed by a set of guiding principles, developed by Dr Mark Zamorski, that are consistent with similar guidance from leading experts in military mental health training (Castro, C. A., & Adler, A. B., 2009), and the NATO Implementation Principles for Mental Health Training (Van den Berge, 2011). The guiding principles recognized that any military mental health training must be integrated into the organizational culture, be based on clear requirements and needs, and built in a developmental fashion to progressively add concepts and skills over time. For the training to be well received and useful it must also be experiential and action focused, using tangible skills to build flexible and adaptive coping with real-world application. Training content would need to be strengths-based, building on existing skills and abilities, while creating the positive expectancy that most people can manage most demands placed on them.

One of the key changes to mental health education delivery was the decision to pair trained mental health clinicians with military operators to co-facilitate the sessions. Thompson and McCreary identified that audiences would be more likely to change their
attitudes toward mental health if the messages were delivered by credible, persuasive speakers who had operational experience similar to that of their target audience. The mental health clinician as co-facilitator also brings their experience of providing treatment to CAF personnel affected by mental health problems, and can credibly deliver the theoretical and practical knowledge of mental health issues in the areas of etiology, prevention, intervention, and resources. Both the clinician and the operator are also appropriately trained and must demonstrate that they can effectively deliver an interactive and engaging program to the intended audience.

Initially focused on mental health education at the basic training and primary leadership levels, the CAF implemented curriculum in 2008 that was focused on increasing mental health literacy, decreasing stigma and other barriers to care, and enhancing well-being and performance. One of the foundational elements of the program was the Mental Health Continuum Model (MHCM), developed in collaboration with the USMC. Using the Mental Health Continuum as an anchor, CAF personnel are provided with mental health education that normalizes mental health fluctuations, creates an expectation of recovery and wellness, and highlights actions that individuals can take to maintain or regain their mental fitness.

One of the key messages is that mental health and mental illness are merely two points on a continuum. Health, be it physical or mental, is a dynamic changing state that can deteriorate or improve given the right set of circumstances. Many CAF members have physical and mental health concerns that, if identified and treated early, have the potential to be temporary and reversible. The mental health continuum provides insight into the varying levels of mental health issues and offers guidance on the appropriate support depending on the severity of the condition. The arrow acknowledges movement in both directions, creating an expectancy of return to full health and functioning, and encouraging earlier access to care. Furthermore, as many CAF personnel suffer from mental health issues that are not operationally related, this training focuses not only on operational stress but also on non-operationally related stress and mental health problems. Non-OSI mental health problems cause similar functional deficits and have similar prognoses as many OSIs, and for that reason they have the same implications with respect to readiness, operational effectiveness, force sustainability and overall well-being.

In order to help CAF personnel recognize symptoms of stress and distress in themselves and others, the MHCM was developed using common behaviours rather than diagnostic criteria (see below). The benefit of using observable behaviours is two-fold: it increases mental health literacy and awareness, while distinguishing common and reversible distress from more persistent conditions. Given the stated preference of many CAF personnel to manage their own mental health conditions, the MHCM helps to distinguish
between early distress that can often be self-managed, and more persistent symptoms that would require professional assistance. This approach has enhanced the ability of CAF personnel to self-monitor, recognize their own early indicators of distress, and take action to regain a healthier level on functioning.

In addition to earlier recognition, the R2MR program focuses on stigma and other barriers to care, and includes time for interactive discussion aimed at challenging some of those barriers as well as increasing awareness of the broad range of resources available to CAF personnel. Thompson and McCreary had highlighted the importance of using two-sided messages, thereby acknowledging and then refuting negative attitudes, which can be more effective in promoting changes for complex attitudes such as mental health and OSIs. Over the past seven years there has been a noticeable trend toward earlier care seeking, and the mental health continuum has provided a framework to better determine when someone should consider seeking care beyond self-management.

As the program has expanded, it has grown to include sessions for leaders across the organization, further embedding the knowledge within the CAF and reinforcing that health and well-being are a shared responsibility between the individual, their chain of command, and CF Health Services. Leaders at all levels have a key role in sustaining the mental readiness of service personnel under their command, and the program provides leaders with information and practical strategies for dealing with stress and the provision of psychological support. The goal is to enhance personal and unit effectiveness in modern military operations, whether at home or on deployment.
More recently, the R2MR program has incorporated detailed information about the stress response and its potential impact on performance and decision making. The explanatory approach, advocated by both Zamorski and Van den Berge, highlights misunderstood reactions and provides a scientific explanation for why individuals should apply strategies to better manage their response to stress. Some of the leadership training also highlights the role of leaders in reappraising stressful situations, reinforcing the knowledge that overcoming the impact of stress often leads to increased confidence, new skills and strengths, and a renewed sense of purpose in life.

Building on the outcomes of a similar program implemented by the US Navy Seals, the CAF has adopted four primary skills or countermeasures (goal setting, self-talk, mental rehearsal, and tactical breathing) that have been proven to be effective in managing physiological responses to stress and enhancing performance. Curriculum for certain occupations includes a fifth skill, attention control, which is aimed at helping them to effectively direct their attention to appropriate cues for the duration of a task while screening out irrelevant external and internal stimuli. While the same skills are taught in both the career and deployment training, they are tailored and adapted to the rank, task, occupation, environment or mission. Minimizing the number of skills keeps it simple, thereby increasing the likelihood that participants will recall and practice applying the skills. Repetition of the skills reinforces learning while demonstrating that the skills can be applied to a wide range in situations in both military employment as well as day to day life. This is particularly relevant as we know that daily hassles and psychosocial stressors can have as much or even greater impact on our mental health as acute adverse events.

While the explanation of why the skills are important and how they work can lead to better audience engagement, program evaluation conducted in collaboration with DRDC has demonstrated that repetitive application and practice of the skills in the training environment is essential for retention and effectiveness. This information has reinforced the importance of instructor training, standardization and quality control of content, and fidelity checklists for each curriculum package. While much of the research that informed early program development had mentioned these factors, recent evaluation outcomes have underscored some of the challenges of ensuring that the program is delivered in the way it was designed and intended. Ongoing research continues to confirm that there are many details to be considered when implementing a nationally standardized education program if the training content is to be effectively applied in both the short and long term.

Efforts are underway to ensure that the R2MR mental health education program meets the unique requirements of all CAF elements and occupations, with specific attention to high risk occupations such as Search and Rescue Technicians, Special Operations personnel, and the Health Services clinicians who provide medical care. This work will further embed the key skills and knowledge in the specialized training for these occupations while ensuring that it is adapted to better manage the distinct demands of such employment. Recent trials of unit-level training, whereby unit personnel are trained to deliver the program within their own sections, has also demonstrated tremendous effectiveness and will continue to be assessed for wider implementation across the organization. Additional tailoring and application of the skills will also be facilitated with the release of mobile applications for each of the skills taught during the R2MR training, as well as a Mental Health Continuum app that will allow individuals to monitor their own
health behaviours and determine where additional attention or resources may be required. It is anticipated that such mobile applications will provide CAF personnel with the opportunity to customize each of the skills and apply what they have learned to a variety of potentially stressful demands in their lives.

As with any training program of this scope, ongoing research and validation will continue to inform development and delivery, in order to maintain the most scientifically current and relevant programming.

References:


Beyond Battlemind: Evaluation of a New Mental Health Training Program for Canadian Forces Personnel Participating in Third-Location Decompression

Mark A. Zamorski, MD, MHSA; Kim Guest, MSW; LCol Suzanne Bailey, MSW; Bryan G. Garber, MD, FRCS(C), MSc

ABSTRACT  Introduction: Battlemind training, which improves postdeployment well-being, has been part of Canada’s postdeployment Third-location Decompression (TLD) program since 2006. In 2010, a new educational program drawing on Battlemind was implemented to make it more consistent with Canada’s current mental health training strategy. Methods: Subjects consisted of 22,113 Canadian personnel returning from Afghanistan via TLD in Cyprus; 3,024 (14%) received the new program. Pre-/post-training attitude and self-efficacy questionnaires assessed the impact of the training. In addition, a quasi-experimental approach used questionnaires administered at the end of TLD to compare the satisfaction, attitudes, and self-efficacy under the old vs. new program. Results: Pre-/post-training questionnaires showed medium to large positive effects of the training on targeted attitudes and self-efficacy (Cohen’s $d = 0.44–1.02$). Participants completing the new program were more satisfied with the educational program (adjusted odds ratio = 3.2), perceived the TLD to be more valuable (odds ratio = 1.7), and had at least certain more favorable post-TLD attitudes and self-efficacy ($d$ ranging from 0.00 to 0.29). Conclusion: All of these findings point to the superiority of the new program. However, quasi-experimental approaches are bias-prone, and it is unknown whether these advantages will translate into meaningful improvements in well-being.

INTRODUCTION  Military personnel returning from deployment must readapt to their home environment, psychologically, physically, and socially. Most are glad to be home, but many find parts of this transition to be at least temporarily distressing. In addition, an important minority go on to have serious long-term mental health problems. Some have argued that difficult early homecoming experiences are an important etiological factor in these postdeployment disorders.

In recognition of the challenges and potential toxicity of the transition home, military organizations have developed policies and programs to make the process of transition easier and to mitigate mental disorders. The two most commonly used approaches are third-location decompression (TLD) programs and psychoeducational programs such as the U.S. Army’s Battlemind training, which has been shown to improve postdeployment well-being. The Battlemind program is a cognitive and skill-based program that reframes transition difficulties as a failure to adapt skills learned in combat to the home environment.

Since 2006, Canadian personnel returning from combat and peace support operations in Kandahar Province, Afghanistan, have completed a 5-day TLD program in Cyprus. In addition to having opportunities for rest and recreation, all TLD participants have received a clinician-delivered version of the postdeployment Battlemind training program. Participants also attended two 1-hour “elective” presentations on a variety of topics relevant to reintegration. Personnel are strongly supportive of the TLD concept, find the Canadian TLD program to be valuable, and perceive it to help make the transition easier for them. About three quarters of participants were satisfied with the TLD educational program, and satisfaction with the program actually increased over the first 4 to 6 months after return from deployment. About three quarters also felt that the TLD experience helped them realize that there was nothing wrong with getting help with a mental health problem; this was a central message of the Battlemind program.

Notwithstanding the apparent success of the TLD program, a variety of factors drove Canada to change its TLD education program:

- Some participants found the Battlemind video used during the training to be “too American” in its themes and settings;
- Participants going through TLD for a second time complained that the training was getting “stale”;
- Canada’s career- and deployment-cycle mental health training program was using increasingly divergent training paradigms from Battlemind;
- Canada needed a more flexible postdeployment psychoeducational program that was suitable for non-combat operations;
- Recent research has increased awareness of barriers to care other than stigma that could be targeted in training;
- The use of electives prevented training from being delivered to cohesive groups, where it was expected to be most effective; and
- The Canadian Forces (CF) moved to a joint delivery model for its mental health training, in which both a clinician and a nonclinician provide training together.
In response, the CF developed a new 4-hour educational program for TLD. This article presents its results and compares these to those of TLD’s using the old educational program. Specifically, it will explore:

- Pre-/postsession changes in self-efficacy and attitudes;
- Differences in satisfaction with the TLD program among those receiving the new vs. old program; and
- Differences in post-TLD self-efficacy and attitudes among those receiving the new vs. old program.

**METHODS**

**Subjects**

The subjects were 22,113 CF members returning from 6- to 9-month deployments in Kandahar Province, Afghanistan, who completed a 5-day TLD program in Cyprus from 2006 to 2010. The old and new programs were received by 19,089 and 3,024 personnel, respectively.

**TLD Program**

Canada’s TLD program has been described elsewhere. In brief, Day 1 consisted of arrival procedures, a short orientation briefing, and individual free time. Days 2 and 3 consisted of educational sessions (either the old or new program) followed by individual free time or group outings. Day 4 featured individual free time or outings, and participants flew home on Day 5. TLD was held in a four-star resort in varying locations in Cyprus.

**Old Educational Program**

On Day 2, a version of the Battlemind training program was delivered by a mental health clinician. A video with vignettes of four soldiers experiencing transition or mental health problems was shown, interspersed with didactic material and group discussion on how to recognize transition problems, how to use self and buddy care where appropriate, and how to know when professional care is needed. The video was developed by the U.S. Army’s Walter Reed Army Institute for Research and was intended for use 3 to 6 months after return, but it was used during TLD because of its engaging nature. Battlemind sessions lasted approximately 60 minutes and occurred in groups of 30 or fewer personnel. To the extent possible, training occurred within platoons or among personnel who worked together.

On Day 3, participants attended one of between four and seven “electives.” Attendance was mandatory, but participants could select the two sessions they preferred. The offerings varied over time, but the most popular offerings were:

- “Coping with Stress and Anger,” a clinician-delivered, cognitive-behaviorally oriented anger and stress management program;
- “Healthy Relationships,” a clinician-delivered, interpersonal therapy-oriented program intended to help participants prevent, recognize, and solve family conflicts;
- “Post-deployment Reintegration from the Veteran’s Perspective,” a presentation by veterans who were part of a peer support program for personnel with operation-related mental health problems; and
- “Leadership after the Action,” a presentation by clinicians or personnel selection officers on recognizing and supporting those with postdeployment mental health problems.

The electives lasted 60 minutes each and consisted of didactics and group discussion, with a maximum of 30 participants per group. No attempt was made to deliver the electives in cohesive groups. Trainers were not necessarily selected on the basis of their instructional abilities, and they received varying durations of training (between a few hours and 1 week).

**New Educational Program**

Key differences between the old and new programs are summarized in Table I. The fundamental goals of the new program remained to ease the process of transition and to facilitate care-seeking for those who need it. These goals were met differently, though, via the following learning objectives:

- Identify the difficulties and accomplishments of the mission;
- Understand the physiological effects of stress;
- Appreciate the physiological decompression process;
- Recognize the common transitional phase challenges during reintegration;
- Identify key reintegration strategies in returning home from deployment;
- Identify positive coping strategies to assist during reintegration;
- Identify negative coping strategies;
- Recognize behavioral signs that may indicate external support is required;
- Challenge barriers to seeking mental health care; and
- Identify informal and formal mental health resources.

Training was delivered in two 2-hour blocks, on Day 2 and Day 3. The new TLD program was delivered in a group setting with an average group size of 27 learners (range = 2–50). Where possible, those who worked together while deployed received training together. The training included one individual exercise and three small-group exercises.

A mental health clinician (largely social workers and mental health nurses) and a nonclinician (either a veteran with a history of service-related mental health problems or line personnel with a special interest in mental health, similar to the Master Resilience Trainers used in the United States) provided the training as a pair. Instructors underwent a minimum of 30 hours of training on psychoeducation in general and on the new TLD program in particular. Successful completion of a practical competency test was required.
TABLE I. Key Differences Between Old and New Educational Programs

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Old Program</th>
<th>New Program</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Duration</strong></td>
<td>3 hours</td>
<td>4 hours</td>
</tr>
<tr>
<td><strong>Instructors</strong></td>
<td>Largely clinicians; some electives delivered by nonclinicians</td>
<td>Clinician + nonclinician</td>
</tr>
<tr>
<td><strong>Instructor training</strong></td>
<td>Variable</td>
<td>Consistent</td>
</tr>
<tr>
<td><strong>Choice of offerings</strong></td>
<td>2/3 of content was electives</td>
<td>All learners received the same program</td>
</tr>
<tr>
<td><strong>Group structure</strong></td>
<td>Learners in varied and not necessarily cohesive groups</td>
<td>Learners largely in cohesive groups</td>
</tr>
<tr>
<td><strong>Group interaction</strong></td>
<td>Variable—limited where groups were not familiar with one another</td>
<td>Consistent—a number of group exercises were required</td>
</tr>
<tr>
<td><strong>Barriers to care</strong></td>
<td>Largely addressed stigma</td>
<td>Addressed broader range of barriers; focused on practical strategies to overcome these</td>
</tr>
<tr>
<td><strong>Review of difficulties</strong></td>
<td>Limited emphasis</td>
<td>Major emphasis of first module of the program</td>
</tr>
<tr>
<td><strong>and accomplishments of the mission</strong></td>
<td>Central focus of Battlemind; limited focus of electives</td>
<td>Greater focus on assessment of severity of transition and mental health problems</td>
</tr>
<tr>
<td><strong>Recognition of transition and mental health problems</strong></td>
<td>Central focus of Battlemind; limited focus of electives</td>
<td>Greater emphasis on describing different programs and services and how to access them; demystification of mental health care; identification of both formal and informal sources of care</td>
</tr>
<tr>
<td><strong>Sources of care</strong></td>
<td>Limited emphasis</td>
<td></td>
</tr>
<tr>
<td><strong>Physiology of human stress response</strong></td>
<td>Covered only in some electives</td>
<td>Covered consistently</td>
</tr>
<tr>
<td><strong>Coping</strong></td>
<td>Greater focus on avoidance of negative coping, especially use of alcohol</td>
<td>Balanced focus on a broader range of positive and negative coping strategies</td>
</tr>
<tr>
<td><strong>Frame of reference</strong></td>
<td>Combat-centric</td>
<td>More adaptable; addresses a broader range of deployment experiences</td>
</tr>
</tbody>
</table>

**Evaluation Process**

For the new program only, participants completed identical 15-item pre-/postsession evaluations covering attitudes and self-efficacy that were tied to the program’s objectives. Five-point Likert scales were used, with 1 = “strongly disagree” and 5 = “strongly agree.”

For both programs, participants completed an overall evaluation form at the very end of TLD that captured satisfaction with the TLD and with different aspects of it (notably the educational component) and key attitudes and self-efficacy using items obtained from the developers of the Battlemind program. Most of the mental health care barrier items have been used in earlier research. Program satisfaction was measured using a four-point “forced choice” Likert scale (with no middle category), and attitudes and self-efficacy were measured using a five-point Likert scale. To simplify analysis of satisfaction data, the response categories were dichotomized into satisfied vs. unsatisfied.

**Analysis**

Analysis was done using SPSS for Windows, version 15.0. Univariate association of categorical variables was explored using the $\chi^2$ test. The association of satisfaction with the new vs. old program was explored with binary logistic regression.

In order to simplify analysis and presentation of results, exploratory principal components analysis with a varimax rotation was done on the 15 presession knowledge and attitude items to identify items for calculation of subscales.

Cronbach’s $\alpha$ was used to measure subscale reliability. Pre-/postsession differences and differences in attitudes and self-efficacy for the old vs. new program are expressed as Cohen’s $d$, a standard measure of effect size for continuous data; confidence intervals (CI) for $d$ and significance testing was done using the $Z$ distribution. Differences in overall satisfaction with the TLD program under the old vs. new program were assessed using Somer’s $d$, a nonparametric measure of ordinal association.

**Ethical Aspects**

Completion of all questionnaires was voluntary and anonymous. As routine evaluation of an educational program, approval by a Research Ethics Board was not required.

**RESULTS**

For the new program, pre-/postsession knowledge and attitude questionnaires were received from 2,952 and 2,950 respondents, respectively (98% response rate). For the new and old programs, overall TLD evaluation forms were received from 2,935 and 14,253 respondents, respectively (97% and 75% response rates). A leading factor in the lower response rate for the old program was the loss of more than 2,000 evaluation forms in a single shipment from theater. Characteristics of the participants are shown in Table II; there were small differences in the sociodemographic and military characteristics of those who underwent the old and new programs, with those receiving the new program being...
slightly younger, more likely to be Reservists, and more likely first-time deployers (p < 0.001 by χ² test).

Principal components analysis of the 15 pre-/post-session items yielded three factors accounting for 58% of the variance. The first factor (44% of the variance, 3 items, α = 0.87) represented confidence in knowledge and abilities for transition, and included items such as “I can identify positive and negative ways of coping with transition challenges,” “I understand the common experiences that occur during transition from deployment to home,” and “I am confident in my ability to recognize when to get a transition problem checked out.” The second factor (8% of the variance, 5 items, α = 0.83) captured mental health literacy with items like: “I would know what to expect in the variance, 5 items, α = 0.73) represented the sense of personal responsibility toward others regarding their mental health with the following items “It’s my responsibility to help a buddy with a mental health problem” and “It is the responsibility of leaders to encourage CF members to get help when they have mental health problems.” A cross-loading item that was conceptually related was also included in this last subscale (“I am confident in my ability to help CF members get assistance for a mental health problem”). Subscales for each of these factors representing the mean score of loading items were calculated for each respondent. A single item (“If I had a mental health problem, I would definitely get professional help for it”) cross-loaded on all three factors and was not used in any subscale.

Presession attitudes and self-efficacy were largely favorable, though mental health literacy showed the lowest average score (3.6 out of 5). All three knowledge and attitude factors saw statistically significant improvements in response to the new program (Table III), with the effect sizes (Cohen’s d) for confidence in knowledge and abilities, mental health literacy, and sense of responsibility for others being 0.66, 1.03, and 0.44, respectively.

As shown in Figure 1, the new program was associated with significantly higher satisfaction with the educational program (p < 0.001). The “strongly agree” category showed a particularly strong shift in favor of the new program (39% vs. 16%). Figure 2 suggests that this increased satisfaction with the educational component enhanced the perceived value of TLD as a whole (p < 0.001). All measured sociodemographic and military characteristics had a statistically significant univariate relationship with satisfaction with the educational program and/or perceived value of TLD (Table IV). Logistic regression models confirmed that the new program was independently associated with increased satisfaction with the educational program (adjusted odds ratio [OR] = 3.8, 95% CI = 3.2–4.5) and greater perceived value of the TLD (OR = 1.7, 95% CI = 1.5–2.0).

Sociodemographic and military characteristics showed different patterns with respect to satisfaction with the educational program and with TLD as a whole. Women were more likely than men to be satisfied by the educational program and to find TLD valuable. Officer rank was associated

### TABLE II. Sociodemographic and Military Characteristics of Participants, Old vs. New Programs

<table>
<thead>
<tr>
<th>Educational Program</th>
<th>Old</th>
<th>New</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Count</td>
<td>%</td>
<td>Count</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>12,604</td>
<td>91.8</td>
<td>2,650</td>
</tr>
<tr>
<td>Female</td>
<td>1,119</td>
<td>8.2</td>
<td>236</td>
</tr>
<tr>
<td>Total</td>
<td>13,723</td>
<td>100.0</td>
<td>2,886</td>
</tr>
<tr>
<td>Age*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>26 Years or Less</td>
<td>4,428</td>
<td>32.5</td>
<td>1,094</td>
</tr>
<tr>
<td>27–36 Years</td>
<td>5,342</td>
<td>39.2</td>
<td>1,078</td>
</tr>
<tr>
<td>37 Years or More</td>
<td>3,870</td>
<td>28.4</td>
<td>718</td>
</tr>
<tr>
<td>Total</td>
<td>13,640</td>
<td>100.0</td>
<td>2,890</td>
</tr>
<tr>
<td>Component*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regular</td>
<td>11,586</td>
<td>83.9</td>
<td>2,294</td>
</tr>
<tr>
<td>Reserve</td>
<td>2,230</td>
<td>16.1</td>
<td>607</td>
</tr>
<tr>
<td>Total</td>
<td>13,816</td>
<td>100.0</td>
<td>2,891</td>
</tr>
<tr>
<td>Rank</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Junior NCM</td>
<td>9,436</td>
<td>68.9</td>
<td>1,994</td>
</tr>
<tr>
<td>Senior NCM</td>
<td>2,504</td>
<td>18.3</td>
<td>496</td>
</tr>
<tr>
<td>Officer</td>
<td>1,757</td>
<td>12.8</td>
<td>392</td>
</tr>
<tr>
<td>Total</td>
<td>13,697</td>
<td>100.0</td>
<td>2,882</td>
</tr>
<tr>
<td>Deployment History*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Never Deployed</td>
<td>6,379</td>
<td>47.1</td>
<td>1,619</td>
</tr>
<tr>
<td>Previous Deployment(s)</td>
<td>7,174</td>
<td>52.9</td>
<td>1,258</td>
</tr>
<tr>
<td>Total</td>
<td>13,553</td>
<td>100.0</td>
<td>2,877</td>
</tr>
</tbody>
</table>

NCM, Noncommissioned member. *p < 0.001 by χ² test.

### TABLE III. Mean Knowledge and Attitude Subscale Scores for New Program. Pre- vs. Postsession

<table>
<thead>
<tr>
<th>Subscale</th>
<th>Pre (N = 2,952)</th>
<th>Post (N = 2,950)</th>
<th>Difference, Cohen’s d (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Confidence in knowledge and abilities for transition</td>
<td>3.92 ± 0.58</td>
<td>4.27 ± 0.48</td>
<td>0.66 (0.64–0.68)*</td>
</tr>
<tr>
<td>Mental health literacy</td>
<td>3.58 ± 0.78</td>
<td>4.26 ± 0.52</td>
<td>1.03 (1.00–1.05)*</td>
</tr>
<tr>
<td>Sense of responsibility toward others with respect to mental health</td>
<td>4.12 ± 0.63</td>
<td>4.37 ± 0.53</td>
<td>0.44 (0.44–0.46)*</td>
</tr>
</tbody>
</table>

*p < 0.001 by Z test.
with lower satisfaction with the educational program but
greater perceived value of TLD. Previous deployers were
equally satisfied with the educational program but found
TLD as a whole to be less valuable. No significant inter-
actions were seen between the new educational program
and any of the sociodemographic or military characteristics
(results not shown).

Respondents who had undergone TLD in Cyprus previ-
ously (N = 1,491) were asked to compare the value of their
current TLD experience with their previous one. As shown
in Figure 3, the 984 respondents who completed the old
educational program twice tended to find the current experi-
ence less valuable. In contrast, the 507 who completed the
old program followed by the new program strongly favored
the current experience.

The new program was also associated with more favorable
attitudes toward mental health care (Table V). In particular,
negative attitudes toward care (e.g., “I don’t trust mental
health professionals” and “Mental health care doesn’t work”) were
less prominent in those who received the new program
(Cohen’s d = −0.29 and −0.27, respectively). Other attitudes
(most involving stigma, such as “I would be concerned about
what others might think”) showed little or no difference
between the two programs. The new program was also asso-
ciated with greater self-efficacy surrounding mental health
(Cohen’s d = 0.20–0.34); these items covered self-efficacy
both for identifying fellow CF members with mental disor-
ers and for self-management of mental health problems. The
univariate differences remained significant after adjustment
for potential confounders (sex, age, component, rank, and

FIGURE 1. Satisfaction with TLD educational program, old vs. new program.

FIGURE 2. Perceived value of TLD program, old vs. new program.
deployment history) using univariate analysis of variance (results not shown).

DISCUSSION

Key Findings

This article demonstrates the superiority of a new TLD educational program over an earlier program including Battle-mind, at least when it comes to very short-term outcomes. Three pieces of evidence are presented: first, pre- and post-session attitude and self-efficacy questionnaires established that the program resulted in medium to large changes in the domains of confidence in mental health knowledge and abilities (Cohen’s $d = 0.66$), mental health literacy ($d = 1.02$), and sense of responsibility toward others ($d = 0.44$). Second, overall evaluation forms completed at the end of TLD showed that the new program was independently associated with a significantly increased odds of satisfaction with the educational program (adjusted OR $= 3.2$), and this satisfaction translated into increased odds of perceiving the TLD as a whole to be valuable ($OR = 1.7$). Those who had also undergone TLD under the old program clearly preferred the

TABLE IV. Logistic Regression Results for Satisfaction With Educational Program and Perceived Value of TLD

<table>
<thead>
<tr>
<th>Program</th>
<th>Satisfaction With Educational Program</th>
<th>Perceived Value of TLD</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Univariate OR (95% CI)</td>
<td>Adjusted OR (95% CI)</td>
</tr>
<tr>
<td>Old</td>
<td>3.8 (3.2–4.4)**</td>
<td>3.8 (3.2–4.5)**</td>
</tr>
<tr>
<td>New</td>
<td>1.2 (1.0–1.4)*</td>
<td>1.2 (1.0–1.5)*</td>
</tr>
<tr>
<td>Sex</td>
<td>1.0 (0.9–1.1)</td>
<td>1.1 (1.0–1.3)*</td>
</tr>
<tr>
<td>Age</td>
<td>1.3 (1.2–1.5)**</td>
<td>1.7 (1.4–1.9)**</td>
</tr>
<tr>
<td>Component</td>
<td>0.9 (0.8–1.1)</td>
<td>0.9 (0.8–1.0)</td>
</tr>
<tr>
<td>Rank</td>
<td>1.1 (1.0–1.3)*</td>
<td>1.6 (1.4–1.8)**</td>
</tr>
<tr>
<td>Deployment History</td>
<td>0.7 (0.6–0.8)**</td>
<td>1.5 (1.2–1.7)**</td>
</tr>
</tbody>
</table>

NCM, Noncommissioned member; —, reference category. *$p < 0.05$; **$p < 0.001$.

FIGURE 3. Overall satisfaction with current TLD compared to previous TLD, old + old vs. old + new programs (for those who had completed TLD in Cyprus previously, $N = 1,491$).
new one, on average. Finally, overall evaluation forms also showed that those who completed the new program had significantly more positive attitudes toward mental health care, though the magnitude of this effect was small (Cohen’s $d = -0.29$ to $-0.18$). Stigma-related attitudes showed little or no difference between the two programs ($d = -0.15$ to 0.02). The new program was associated with a small but significant advantage with respect to self-efficacy for helping others with mental health problems and for self-management of mental health problems. Gains in self-efficacy for self-management occurred alongside gains in knowing when to seek care, suggesting that messages on resilience and care-seeking are not incompatible.

Although the new program did not appear to be superior with respect to its impact on mental health stigma, it was superior in its apparent impact on negative attitudes toward care (e.g., “Mental health care doesn’t work”). This is an important finding because these attitudes are emerging as a much stronger predictor of care-seeking than stigma. These negative attitudes received much greater emphasis in the new program.

The absence of significant interactions between key sociodemographic and military characteristics and the new program suggests that it has broad appeal and relevance: All subgroups benefited similarly from the new program. In short, all indicators point toward a significant advantage of the new program over the old one for all participant groups.

Comparison With Other Literature

The only real point of comparison for the present study is the rigorous group randomized trial of the postdeployment Battlemind training program done by its developers. One hour of Battlemind delivered at the time of redeployment was superior to a conventional lecture on stress both in terms of training satisfaction and with respect to psychological well-being, 4 to 6 months later. For those with heavy combat exposure only, the investigators found well-being effect sizes (Cohen’s $d$) ranging from 0.06 to 0.30. These effect sizes cannot be compared to any of the effect sizes in our sample, which deal with much shorter-term outcomes where higher effect sizes are achievable.

Although we earlier emphasized differences between our new program and the old program rooted in Battlemind, our “new” program did draw heavily from key elements of Battlemind. Key similarities included:

- Emphasis on identifying when help is needed;
- Reframing transition difficulties as consequences of appropriate adaptations to combat;
- Expectation of normal transition and reintegration for most;
- Use of military relevant examples;
- Skills-oriented;
- Strengths-based;
- Projective emphasis on unit cohesion and buddy support; and
- Use of sound principles of adult education.

### TABLE V. Self-efficacy and Attitudes Toward Mental Health Care and at the End of TLD, Old vs. New Program

<table>
<thead>
<tr>
<th>Domain</th>
<th>Item</th>
<th>Old Program</th>
<th>New Program</th>
<th>Difference, Cohen’s $d$ (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitudes toward Care</td>
<td>I don’t trust mental health professionals</td>
<td>2.26 0.99</td>
<td>1.98 0.91</td>
<td>$-0.29$ ($-0.31$ to $-0.27$)*</td>
</tr>
<tr>
<td>(desired score = low,</td>
<td>Mental health care doesn’t work</td>
<td>2.04 0.88</td>
<td>1.81 0.81</td>
<td>$-0.27$ ($-0.29$ to $-0.25$)*</td>
</tr>
<tr>
<td>desired change = decrease)</td>
<td>If I had mental health problems, I would want to deal with them</td>
<td>2.61 1.06</td>
<td>2.42 1.03</td>
<td>$-0.18$ ($-0.21$ to $-0.16$)*</td>
</tr>
<tr>
<td>(item stem =  “The following</td>
<td>I would think less of a team member who was receiving mental</td>
<td>1.86 0.93</td>
<td>1.72 0.85</td>
<td>$-0.15$ ($-0.17$ to $-0.13$)*</td>
</tr>
<tr>
<td>questions pertain to concerns</td>
<td>health counseling</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>that may affect your decisions</td>
<td>Members of my unit might have less confidence in me</td>
<td>2.63 1.11</td>
<td>2.55 1.10</td>
<td>$-0.07$ ($-0.10$ to $-0.05$)*</td>
</tr>
<tr>
<td>to receive mental health</td>
<td>I would be concerned about what others might think</td>
<td>2.46 1.15</td>
<td>2.42 1.15</td>
<td>$-0.03$ ($-0.06$ to $-0.01$)</td>
</tr>
<tr>
<td>counseling or services if you</td>
<td>I don’t know where to get help</td>
<td>1.78 0.83</td>
<td>1.78 0.88</td>
<td>$0.00$ ($-0.02$ to $0.02$)</td>
</tr>
<tr>
<td>ever have a problem”</td>
<td>It would harm my career</td>
<td>2.22 1.03</td>
<td>2.24 1.03</td>
<td>$0.02$ ($-0.01$ to $0.04$)</td>
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<tr>
<td>Self-efficacy (desired score =</td>
<td>I am confident in my ability to identify CF members at risk for</td>
<td>3.60 0.78</td>
<td>3.86 0.71</td>
<td>$0.34$ ($0.33$–$0.36$)*</td>
</tr>
<tr>
<td>high, desired change = increase)</td>
<td>mental health or reintegration problems</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>I am confident in my ability to help CF members get assistance for</td>
<td>3.82 0.72</td>
<td>4.01 0.68</td>
<td>$0.27$ ($0.25$–$0.28$)*</td>
</tr>
<tr>
<td></td>
<td>a mental health problem</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>If I have a mental health problem, there are things I can do to</td>
<td>4.01 0.69</td>
<td>4.15 0.66</td>
<td>$0.20$ ($0.19$–$0.22$)*</td>
</tr>
<tr>
<td></td>
<td>make it better</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>If I take care of myself, I can avoid mental health problems</td>
<td>3.71 0.88</td>
<td>3.89 0.86</td>
<td>$0.20$ ($0.18$–$0.22$)*</td>
</tr>
</tbody>
</table>

*p < 0.001 by Z test.
In addition, our new program incorporated an element from another effective Battlemind program, Battlemind debriefing,\textsuperscript{7,15} in that it started with a brief review of the difficulties encountered during the deployment. This exercise served as an ice breaker, acquainted the instructors with the unique experiences of each group, and permitted adaptation of the program to their specific needs (such as those related to noncombat operations).

\textbf{Limitations}

The foremost limitation of any pre-/postintervention evaluation strategy is that differences between the two groups other than the intervention could account for its apparent benefits. For example, the differences in response rate between the old and new programs could have introduced bias. We controlled for a limited number of confounders, but other factors may have been at play. The individuals best suited to judge the likelihood of bias are those closest to the project, namely the authors of this article. Although we can hypothesize any number of differences in, say, leadership, deployment experiences, and other factors, we cannot, in all honesty, identify any differences substantial enough to account for the sizable apparent advantage of the new program over the old one. We thus believe that a good fraction of the observed advantage reflects a real difference in the short-term educational impact of the program.

If one accepts these differences as real, a more important question arises: Will the short-term improvements in satisfaction, attitudes, and self-efficacy translate into improvements in long-term well-being and functioning? Military leaders want healthy, productive personnel, not just satisfied and confident learners. Battlemind has documented small but meaningful advantages in terms of well-being at 4 to 6 months after return, whereas the benefits of our new program are unknown. Whether the favorable changes we document here will translate into more meaningful changes in well-being hinges first upon the persistence of those effects over time. Unfortunately, the effects of health education (and education in general) are often transient. However, our TLD program has short-term outcomes in mind, namely successful reintegration over the weeks and months following return, so even a transient effect may be perfectly satisfactory. Our larger mental health training program also offers opportunities for reinforcement during other training offered across the career and deployment cycle. The translation of benefits in terms of attitudes into benefits in terms of well-being also hinges upon the extent to which those attitudes mediate well-being. Such mediation is likely but unproven.

One final major limitation: We cannot say which specific aspect of our new program (Table I) accounted for its apparent advantage. Was the team delivery model the active ingredient? Its less combat-centric content? Its delivery in more cohesive groups? Its slightly longer duration? Its greater interactivity? Better instructors, perhaps? Or simply the novelty of the new program? All of these are plausible, and none of them are testable with our data.

There are also some technical limitations in this analysis: Assumptions required for some of the statistical analyses may have been violated. We could not control for instructor or multilevel effects in training outcomes, and these may have been significant.\textsuperscript{7} Use of logistic regression for other than rare outcomes (e.g., training dissatisfaction) has limitations.\textsuperscript{16} Some of our respondents had participated in TLD earlier, hence their responses on the evaluation of the new program violated the assumption of statistical independence of the observations. We were not able to do paired comparisons for the pre- and post-tests; instead, we could only document differences at the cohort level. Finally, we did not adjust for multiple comparisons. We acknowledge these limitations but judge them to be much smaller threats to the conclusion as to the advantage of the new program over the old one. These would be of greater concern if the observed differences were less dramatic than they proved to be.

\textbf{CONCLUSIONS}

The development and validation of Battlemind was a landmark event in military mental health training, and we are deeply indebted to its creators. The meaningful gains in terms of well-being after a brief, group intervention for unselected learners made us look at military mental health training in a different light. When we selected Battlemind as the cornerstone of our TLD program, we endeavored to alter it as little as possible, with the intention of retaining as much of its efficacy as we could. At that time, we were not certain of what parts of the program were the active ingredients or if the whole was greater than the sum of its parts.

Over time, our understanding of deployment-related mental health problems and barriers to mental health care has progressed. Evidence is accumulating that psychoeducation and resilience training may actually be broadly effective.\textsuperscript{17,18} In response to these changes, Battlemind itself has evolved in “Battlemind Resilience Training.”\textsuperscript{19} Other resilience training has grown up around it in the form of the Comprehensive Soldier Fitness strategy.\textsuperscript{20} Arguably, this article amounts to the testing of our new program (one with Battlemind firmly in its genome) against an increasingly obsolete version of the original program. However, many of the changes we made in our program mirror those in the mental health training in the U.S. Army. For example, Comprehensive Soldier Fitness relies on nonclinicians as trainers,\textsuperscript{10} and the training as a whole is less combat-centric.\textsuperscript{21} As such, the apparent success of our new program may have something to say about the effects of similar changes elsewhere.

Turning away from Battlemind, even as much as we have, has been a difficult decision. However, we are confident that we have retained enough of its essence to preserve its demonstrated benefits. Moreover, this evaluation suggests that our new program has, if anything, added to those benefits.
ACKNOWLEDGMENT
This research was funded by the Department of National Defence (Canada).

REFERENCES
Overview

- Describe the US Special Operations Command (USSOCOM) Preservation of the Force and Family (POTFF) program

- Overview of the challenge

- Assets & opportunities

- Lessons learned from other program evaluation studies: Incremental quality improvement in program evaluation
USSOCOM Preservation of the Force & Family (POTFF) Program Overview: An Illustrative List of Programs

<table>
<thead>
<tr>
<th>Human Performance Program (HPP)</th>
<th>Psychological Performance Program (PPP)</th>
<th>Spiritual Well-Being Program (SWP)</th>
<th>Social/Family Well-Being Program (FWP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSWC: Tactical Athlete Program (TAP)</td>
<td>Unit-level Mental Health Care Provider (MHCP)</td>
<td>Spiritual Growth Retreats (singles, couples)</td>
<td>Families OverComing Under Stress (FOCUS) Resilience Training</td>
</tr>
<tr>
<td>USASOC: Tactical Human Optimization, Rapid Rehabilitation and Reconditioning (THOR)</td>
<td>Medical Treatment Facility MHCP</td>
<td>Yellow Ribbon Events</td>
<td>Unit-level Family Readiness Events</td>
</tr>
<tr>
<td>MARSOC: Performance &amp; Resiliency</td>
<td>Military Family Life Consultant (NFLC)</td>
<td>Third Location Decompression (TLD)</td>
<td>Child Care</td>
</tr>
<tr>
<td>AFSOC: Human Performance Program</td>
<td>Family Services/Family Advocacy</td>
<td>Home Station Decompression (HSD)</td>
<td>Youth Programs</td>
</tr>
<tr>
<td></td>
<td>Military OneSource</td>
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<td></td>
<td>Veteran’s Affairs Counselor</td>
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<tr>
<td></td>
<td>Other Non-military MHCP</td>
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<td></td>
<td>National Intrepid Center of Excellence (NiCoE)</td>
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</tbody>
</table>

USSOCOM Preservation of the Force & Family (POTFF) Program Overview

- Four pillars that focus on personnel and family support service delivery
- Implementation tailored by each Service Component
  - Pillars vary in intensity of service type and delivery
  - Some programs predated the POTFF Task Force and are more unique/distinct due to SOF mission requirements (i.e., Human Performance Program) than others (i.e., Family Well-Being Program)
  - Overall objective is to bring support services in closer proximity (or even embedded) with SOF and families to extend SOF service careers and improve family well-being

- Program evaluation and metrics
  - Logic models developed to identify program outputs/activities and outcomes
  - POTFF Needs Assessment Survey (3 waves administered to date: 2010, 2012, & 2014)
  - Ongoing program utilization metrics defined by USSOCOM, collected by Service Components, and reported to USSOCOM
USSOCOM Preservation of the Force & Family (POTFF) Program: Program Evaluation Challenges

- Outcome-based Logic Models correctly identify desirable outcomes but gathering those outcome data for SOF personnel and families is problematic
  - Cultural biases in referrals, reporting, and diagnosis for SOF personnel?
  - Objective indicators: Decreased incidence of intimate partner violence, child maltreatment, alcohol-related incidents
  - Subjective indicators: Decreased self-report ratings of depression, post-traumatic stress, anxiety
  - Outcome indicators: Need to build a comprehensive readiness index indicator

- Each pillar has program-specific objectives but there is program effect spillover; how do you evaluate the interaction among all programs?

- Attribution of causality – there may be a lower incidence of undesirable mental health, physical, and family well-being outcomes but is it due to POTFF?

Lessons Learned from Previous Evaluation Studies

- Kelley, Schwerin, Farrar, & Lane (2005)
- Kelley, Schwerin, Farrar, & Lane (2006)
Augmenting Logic Models with Other Program Evaluation Methods

- **Cluster Evaluation** (Sanders, 1997; William K. Kellogg Foundation, 2004)
  - Objective: Evaluate a program administered at different, autonomous program sites aimed at bringing about a common change
  - Basic Characteristics: (1) holistic; (2) outcome-oriented; (3) seeks generalizable learning; (4) involves frequent communication and collaboration among partners

- **Kirkpatrick's (1994) four-stage model of program evaluation**
  - Stage 1: Reaction; Satisfaction with program components, subcomponents, missing elements, opportunities for improvement (self-report)
  - Stage 2: Learning; Changes in knowledge, skills, abilities, and attitudes (self-report)
  - Stage 3: Behavior; Transfer of knowledge, skills, abilities, and attitudes to a field environment (self-report; supervisor/team leader ratings)
  - Stage 4: Results/Return on Investment; Increases in positive outcomes and decreases in negative outcomes; often includes objective outcome indicators (e.g., fewer injuries, shorter return-to-duty time periods but can include self-reported subjective outcomes (e.g., less binge drinking, increased subjective well-being)

- **Other program evaluation/research design opportunities**
  - Baseline data prior to or upon program implementation
  - Point of service or targeted program participant surveys to ensure that programs with low usage have enough data for analysis
  - Defined comparison groups (e.g., General Purpose Forces – how would that be operationally defined; SOF installations of low and high program density/dosage)?
  - Strong stakeholder collaboration and buy-in (e.g., data collection training; periodic on-site visits to assist with data collection;
Augmenting Logic Models with Other Program Evaluation Methods

- Data Collection & Survey Methods
  - Extensively pre-test baseline and follow-up assessment measures from the outset
    - Stakeholder Subject Matter Expert (SME) reviews
    - Communication plan to highlight Commander support and evaluation salience (Groves, Singer, & Comin, 2000)
    - Expert evaluation survey question appraisal (Willis & Lessler, 1999; Graesser et al., 2000)
    - Cognitive testing to refine evaluation survey items (Willis, 2005)
  - Pilot-testing: Start with a limited scope (selected programs), course-correct after lessons-learned after action review (AAR), expand scope (additional programs, installations)
  - Regular feedback to survey participants to reinforce the value of study participation

- Other Research Tools
  - Prediction Markets can be a good tool to gather feedback on programs under development (e.g., program purpose, intended outcomes, content, location, participants, speakers)
  - Cohort study design: Enroll a cohort of program participants/non-participants and follow over time; for small populations, treat the population as though it is a cohort

Constraints

- Privacy
  - Need identified data (e.g., identified surveys, cohort design) to get closer to inferring causality
  - How do we reconcile our personal beliefs with the “Big Data” movement?
    - Engage your colleagues, Institutional Review Board, and leadership team
    - Potential benefit weighed against potential risks
  - Sensitive data (e.g., intimate partner violence, child maltreatment, alcohol-related incidents) requires secure analytic environments with controlled user access

- Incentives
  - Cohort designs and recurring participation is improved when incentivizing participation
    - But DoD regulations prohibit survey incentives
    - “Tokens” to ensure current contact information is correct?
    - “Survey website communications”?
Questions?

<table>
<thead>
<tr>
<th>Michael J. Schwerin, Ph.D., SPHR</th>
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</thead>
<tbody>
<tr>
<td>Army Research Facilitation Laboratory</td>
</tr>
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<td>Northrop Grumman Corporation</td>
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</thead>
<tbody>
<tr>
<td>Director, Army Research Facilitation Laboratory</td>
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<tr>
<td>Army Analytics Group</td>
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<tr>
<td>Email (mil): <a href="mailto:paul.b.lester.mil@mail.mil">paul.b.lester.mil@mail.mil</a></td>
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</tbody>
</table>
“The Transparent Soldier”

Comprehensive Assessment of Human Factors in Military Training

Hubert Annen
Swiss Military Academy at ETH Zürich
Topics of military psychology

Selection - Stress - Motivation

Stress - Self-reflection - Stress
Previous findings

- Main research results in Swiss military psychology
  - Increased stress at the beginning of basic training
  - Personality traits and character strengths correlate with positive coping strategies
  - Demography, motivation & leadership as influencing factors
  - Perceived fairness, appreciation and supportive behavior of superiors have a positive effect on motivation.
Current research activities

Opportunities
- Longitudinal study
- Subjective and **objective** measurement of stress
- Established psychological assessment tools
- Focus on soldiers and prevailing conditions

...and limits
- No psychological intervention
- Mainly self-assessment
- Commitment of participants and superiors
Comprehensive data set

Personality Traits
- Big Five
- Self-efficacy
- Self-esteem

Motivation
- Attitude towards military
- Achievement motivation
- OCB & Commitment

Subjective/objective Stress
- Indicators of stress/resources
  - sAA / cortisol
  - Heart rate variability

Military Performance

Perceived Leadership
- Fairness and supportive behavior
- Leadership style
- Trust

Intervention
Methods

Selection

Motivation

Stress

Self-reflection
Methods

TSST  (Kirschbaum, Pirke & Hellhammer, 1993)
Methods

Selection

Motivation

Selection

Motivation

Intervention

FBT

UT

Intervention

FBT

UT

>10,000 variables

Self-reflection
(Selected) Results

Basic training is a stressor.

![Graphs showing stress levels over time.](image)
(Selected) Results

Early exit from basic military training

- **No**: Resilience in week 1 (mean) = 5.50
- **Yes**: Resilience in week 1 (mean) = 5.00
(Selected) Results

TSST-G does work.

Salivary Alpha-Amylase (before and after TSST-G)

\[ p = n.\text{sig.} \]
(Selected) Results

TSST-G does work.

Heart rate during TSST (presentation; calculation task)

$\text{p} = \text{n.sig.}$
### (Selected) Results

<table>
<thead>
<tr>
<th></th>
<th>Positive affect <em>pre</em> TSST-G</th>
<th>Negative affect <em>pre</em> TSST-G</th>
<th>Positive affect <em>post</em> TSST-G</th>
<th>Negative affect <em>post</em> TSST-G</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TSST-G (W1)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RS-11 in W1</td>
<td>0.385***</td>
<td>-0.273**</td>
<td>0.229***</td>
<td>-0.155*</td>
</tr>
<tr>
<td>N = 299</td>
<td>N = 293</td>
<td>N = 211</td>
<td>N = 215</td>
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<tr>
<td><strong>TSST-G (W11)</strong></td>
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<td></td>
</tr>
<tr>
<td>RS-11 in W1</td>
<td>0.321***</td>
<td>-0.050 (n.s)</td>
<td>0.206**</td>
<td>-0.013 (n.s)</td>
</tr>
<tr>
<td>N = 238</td>
<td>N = 238</td>
<td>N = 167</td>
<td>N = 166</td>
<td></td>
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</table>
(Preliminary) Results

The higher perceived self-efficacy is, the less pronounced is the increase in heart rate from baseline to intro in week 11 compared to week 1.
(Preliminary) Results

Military service is associated with a decrease in PSS (Fig. 2). This decrease is related to alterations of sympathetic nervous system activity, characterized by an increased tone and decreased responsiveness.

**Fig. 1a:** Military service, a chronic stressor

**Fig. 1b:** TSST-G, an acute stress task

**Fig. 2:** Decreased (dashed line) or unchanged (solid line) PSS during military service.

**Fig. 3:** Changes in sAA (re)activity in recruits with decreased (dashed line) or unchanged (solid line) PSS.
(Preliminary) Conclusion and Outlook

- Measurement tools (standardized stress test!) do work
- Basic training is a stressor
- Personality traits and leadership style have a significant influence on (perceived) stress
- Perceived stress has an influence on attitude
- Comprehensive understanding of stress
- Influencing factors on dynamics of stress and performance must be precisely analyzed
- Deduction of practical consequences
The journey continues ...

Selection + Motivation

Resilience + Self-reflection
... as well as the collaboration

Psychological Resilience for Military
Network of Excellence

- Netherlands: Ministry of Defence, TNO
- Germany: Ministry of Defence, IABG
- Belgium: Ministry of Defence
- Switzerland: Swiss Armed Forces
Generational Resilience in Support of the Global SOF Network

by

Colonel Walter James Wiggins
United States Army

United States Army War College
Class of 2015

Distribution Statement: A
Approved for Public Release
Distribution is Unlimited

This manuscript is submitted in partial fulfillment of the requirements of the Master of Strategic Studies Degree. The views expressed in this student academic research paper are those of the author and do not reflect the official policy or position of the Department of the Army, Department of Defense, or the U.S. Government.
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Generational Resilience in Support of the Global SOF Network

Colonel Walter James Wiggins
United States Army

Dr. Thomas J. Williams
Senior Leader Development and Resiliency

U.S. Army War College, 122 Forbes Avenue, Carlisle, PA 17013

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In order to sustain the Global SOF Network while waging a generational fight against violent extremist networks, USSOCOM must make a cultural shift toward building the long-term resilience of its most precious asset - highly trained, skilled, and experienced people. Resilience is achieved by adaptation in the face of pressure. Adaptation occurs when people who are screened, assessed and selected for SOF are given time and opportunity to learn, grow and adjust to the demands of a volatile, uncertain, complex and ambiguous (VUCA) environments. It is essential that SOCOM and its components invest in screening and selection processes that test for adaptability, build disciplined systems of time management to maximize black space, and leverage the preservation of the force and families (POTFF) programs to build a sustainable competitive advantage over future adversaries. Good leadership is critical to enabling adaptation and therefore SOCOM must invest in leadership development as the foundation upon which generational resilience is built.
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U.S. Army War College
CARLISLE BARRACKS, PENNSYLVANIA 17013
In order to sustain the Global SOF Network while waging a generational fight against violent extremist networks, USSOCOM must make a cultural shift toward building the long-term resilience of its most precious asset - highly trained, skilled, and experienced people. Resilience is achieved by adaptation in the face of pressure. Adaptation occurs when people who are screened, assessed and selected for SOF are given time and opportunity to learn, grow and adjust to the demands of a volatile, uncertain, complex and ambiguous (VUCA) environments. It is essential that SOCOM and its components invest in screening and selection processes that test for adaptability, build disciplined systems of time management to maximize black space, and leverage the preservation of the force and families (POTFF) programs to build a sustainable competitive advantage over future adversaries. Good leadership is critical to enabling adaptation and therefore SOCOM must invest in leadership development as the foundation upon which generational resilience is built.
Generational Resilience in Support of the Global SOF Network

What is the future of the global security environment? Although it is impossible to predict with any precision the future security challenges the United States will face, given present trends, the threats are sure to be characterized as more volatile, uncertain, complex and ambiguous (VUCA).

It is within this VUCA security threat environment that our Nation expects United States Special Operations Command (hereafter SOCOM) to not only succeed, but also thrive in order to provide feasible, suitable and acceptable options for solving complex security problems to national level policy makers.

The SOCOM Special Operations Forces (SOF) Operating Concept identifies SOCOM and the expansion of the Global SOF Network (GSN) as the best way to provide these policy options for this VUCA world. The GSN will consist of globally distributed small teams and individual SOF functioning as part of an interconnected web of inter-agency, coalition, industry and academic partners operating within the "Human Domain" to build partner capacity, capability and information sharing to re-assure allies, deter enemies and defeat adversaries.

The concept emphasizes that these teams and individuals will "build and sustain enduring relationships" to "understand and influence relevant populations," and that it will require "resilient, adaptive, well-trained, and professionally educated (emphasis added)" people to realize this capability.

A key assumption underlying the SOF Operating concept was expressed by Admiral William H. McRaven in his 2014 Congressional testimony. In it, Admiral McRaven emphasized that the United States is, and will remain for the some time, engaged in a generational conflict with irreconcilable violent extremist networks. The trends over the last ten years indicate that his underlying assumption and concerns are
well founded. Since 9/11, the number, size, reach and influence of violent extremist organizations have expanded despite the thirteen-year global war to contain, degrade and destroy these organizations and the networks that support them.\textsuperscript{6}

SOCOM has increased substantially in personnel, funding and authorities to meet this threat. Since 2004 SOCOM has increased in end-strength from 47,649 to 69,700 personnel, its budget has expanded from $6 to $9.2 billion, and its people are deploying to over 150 countries worldwide.\textsuperscript{7} Additionally, SOCOM has proposed changes to the Unified Command Plan that would expand its Title 10 U.S.C. responsibilities to include synchronizing the planning, coordination, deployment, and, when directed, the employment of special operations forces globally against not just terrorist organizations but any threat networks.\textsuperscript{8} At the same time in an era of fiscal austerity, SOCOM has grown force structure by 3,400 positions in Fiscal Year 2014. SOCOM’s current Commander, General Joseph L. Votel has determined that SOCOM has the right size of force structure to meet current requirements.\textsuperscript{9} However, if the world is becoming more VUCA, necessitating a greater demand for Special Operations Forces, then the concomitant pressure to do “more with less” will only increase and this pressure will exist beyond this present generation of SOF.

Generational Fight and Demands for Resilience

The nation’s increasing dependence on SOCOM to lead a generational fight against expanding violent extremists combined with the challenge of sustaining a high-quality force makes individual resilience an absolute imperative for building and sustaining the Global SOF Network. In fact, some analysts have stated that in the future, organizational resilience may become important than an organization’s individual leadership. Even if a leader’s actions are “delayed, wrong, inadequate, or just
Building resilience into the organization improves [its] chances to survive the moments of weak leadership and to get through the strategy shifts."¹⁰ Individual resilience is so critical to future success that SOF must shift its collective mindset towards ensuring long-term, generational resilience.

Resilience has a number of definitions depending on the context. The United States Army defines resilience as: “a set of processes that enables good outcomes in spite of serious threats,” or in simpler terms, “the ability to persist in the face of challenges and to bounce back from adversity.”¹¹ Another definition offered by Institute for the Future is “the ability to adapt to changes in a socially positive way.”¹² For the purpose of assessing resilience among the force, SOCOM has defined resilience as “the ability to positively adapt to or recover from physical or psychological trauma or adversity.”¹³

These definitions indicate that two elements are key for building individual resilience: pressure and adaptation. Pressure builds from increasing demand to meet continuous threats and challenges to the individual caused by unexpected or underestimated changes in the physical, operational, and social environments in which he is expected to function. To ensure short-term survival, the individual must recognize the threat and then respond appropriately to mitigate its effects. However to build long-term resilience organizations must create the conditions through which individuals can adapt and ultimately dominate in the new environment. Pressure and adaptation must be balanced to make an organization resilient. Too much or too sudden pressure and the organization cannot adapt fast enough to remain resilient, and conversely, too much adaptation wastes resources.
SOCOM Commander Admiral Eric T. Olson first identified the nature and extent of the pressure experienced by SOF and their families in 2010. Admiral Olson expressed his concern that the demands of *Operation Enduring Freedom*, *Operation Iraqi Freedom*, and the *Global War on Terrorism* were “fraying” the force. In order to properly study and understand the threat posed by this change in environment, Admiral Olsen stood up the *Pressure on the Force and Families Task Force* (POTFF-TF).

Admiral McRaven continued in this effort after taking command in 2011. At that time research indicated that the operational environment was more difficult than what either SOF service members or their families expected. A primary source of that difficulty was a lack of time to adjust to the stress brought on by “perpetual absences.”

**Preservation of The Force and Families**

Admiral McRaven acted promptly and decisively to address the threat. He changed the “P” in the POTFF acronym from “Pressure” to “Preservation” in an effort to emphasize the Task Force’s now proactive effort to build resilience into the individual SOF warrior by leveraging pre-existing service programs and tailoring or adding to them to meet the unique needs of SOF. The Task Force was tasked to identify and implement “valuable solutions across the SOCOM Enterprise aimed at improving the short and long-term well-being of our Special Operations Forces (SOF) warriors and their families.”

The POTFF-TF was designed to focus on four lines of effort to address the holistic well-being of the individual; physical, mental, social and spiritual. By synchronizing the four lines of effort through an inter-disciplinary approach to resilience, SOCOM provided resources (people and money) to address problems at the unit level. The process of identifying and solving problems was meant to be iterative in nature with...
users at the unit level driving requirements. In his testimony before the Senate Armed Services Committee Admiral McRaven stated that ultimately the POTFF program is not only a moral imperative for the SOCOM’s warriors and families but is key and essential to ensuring the readiness of its people across the force. For this reason, he emphasized that preservation of the force and families is, “our number one priority here at home!” (emphasis was included in the original source document). General Votel vowed to continue the emphasis on building resilience in the force through the POTFF-TF in his advance policy questions for Senate confirmation.

After nearly 13 years of sustained high operational tempo, our people need help with mending their mind, body, and spirit. The nation asks much of our Special Operators and their families, and they have always delivered. Much more will be asked of them, and, if confirmed I will seek to preserve our most precious asset – our people.

In order to understand the needs of the force, SOCOM started an annual survey to identify and evaluate the impact of both POTFF and service-provided programs designed to “improve the short and long-term well-being of SOF warriors.” The first two surveys, commonly referred to as Wave I and Wave II, focused specifically on overall resilience of the force. Resulting data showed that as a whole, SOF service members and their spouses report a high degree of resilience. When analysts combined the number of deployments experienced over the previous ten years with aggregate scores pertaining to indicated levels of post-traumatic stress (PTS), they found that respondents “clustered” into three distinct groups. Those who had less than 3 deployments and reported low levels of PTS, those who had between 4 and 6 deployments and reported high levels of PTS, and those who had 7 or more deployments and reported low levels of PTS. The analyses found that those in the low
deployment group and the high deployment group possessed greater levels of resilience than those in the middle group.

According to the definition of resilience proposed above, resilience requires both pressure and an ability to adapt. Assuming the respondents in the first group experienced lower levels of pressure and PTS because of low numbers of deployments, it is uncertain whether or not this group experienced enough pressure to test adaptation. That is, was the pressure high enough to validly determine true levels of resilience? Those whose results placed them in the middle group proved the least resilient presumably because the majority of this group reported experiencing a level of environmental pressure that overwhelmed their ability to adapt. The group reporting six or more deployments and low PTS were the most resilient and, therefore, proved to be highly adaptive. The analysts concluded there is an apparent “tipping point” between the first group and the third where service members who do not have, “the capacity to cope with multiple deployments and the consequent psychological reactions” are much more likely to attrite from the military.23

To push the theoretical tipping point as far to the right as possible it is essential that SOCOM identify the key factors that caused the second group to attrite and the third group to endure. While the factors contributing to adaptation likely differ across individuals, those factors are generally categorized into three domains: Personal aptitude, time, and opportunity.

The Importance of Screening, Assessment, and Selection

Although not a perfect metric for determining personal aptitude for adaptation, selection or screening processes are valuable tools for assessing whether or not volunteers have the attributes required to adapt and maintain long-term personal
resilience. Therefore, rigorous assessment and selection of SOF volunteers is not only a foundational principle upon which competent SOF are created, but also a foundational principle for maintaining generational resilience within SOF.

If designed and executed properly, an assessment and selection process should illuminate individual character by creating adversity, forcing mistakes, and allowing the opportunity to persevere, learn and grow in wisdom and maturity. Selection offers much more than a rite of passage to evaluate physical and mental toughness. It must also involve psychological screening and a commander’s board or interview that seeks to discover a candidate’s ability to self-assess, learn, and adapt in the face of adversity. Specific questions must be crafted to assess the resilience of the individual and his family throughout his life and career. This requirement should not only exist for operators. Selection of support MOSs should also concentrate on psychological screening and interviews to assess personal resilience prior to assignment to SOF.

The Wave I and II surveys described above provide evidence to support this notion as respondents who were pre-screened reported higher levels of resilience than those directly assigned to SOF. Assuming that most “operators” go through assessment and selection prior to their assignment to SOF, it should come as no surprise that analysts found that, as a whole, operators were significantly more resilient than support personnel.

There are some SOF units that run an assessment and selection process for support personnel. An example is the 75th Ranger Regiment in which all personnel are volunteers and are required to pass an assessment process, to include a psychological evaluation. All officers, warrant officers and senior non-commissioned officers are
required to pass a commander’s board regardless of MOS. In addition to a rigorous selection process for operators, Special Mission Units also screen support personnel through psychological assessments and interviews prior to assignment. In future surveys it would be valuable to compare screened vs. directly assigned support personnel to determine if there is an appreciable difference in resilience between these populations.

Assessment vs. Assignment: Resilience in the Force

It is important to note that over 61% of the respondents in the Wave II survey were directly assigned to SOCOM and therefore did not go through a screening process. This suggests that the survey and its resulting analyses provide more insight into the resilience levels of those individuals never formally assessed for the rigors of SOF than it does for those who were specifically assessed to either conduct or support SOF operations. Without a selection process, commanders are left guessing as to whether or not their personnel have the attributes required to be resilient in the face of a generational conflict. The question senior leaders in SOF must ask themselves is, “are we expecting too much of people who do not have the level of adaptability required to maintain long-term resilience in a VUCA environment?” If the answer is yes, then either leaders must adjust their expectations or place greater emphasis on screening personnel, regardless of rank or MOS to ensure they have the minimal attributes needed for long-term resilience in SOF.

Thorough screening, assessment, and selection provide information to the organization on potential strengths and weaknesses affecting a candidate’s long-term resilience. Once candidates are selected, long-term resilience is cultivated with the
organization places value and emphasis in both time management and opportunities for personal growth and professional excellence.

Personnel Operations Tempo and Resilience

High personnel tempo (PERSTEMPO) is frequently raised as the most critical factor affecting individual resilience. When respondents were asked, “What are the Top 3 things that SOCOM can do to help preserve the force?” more respondents listed “controlling PERSTEMPO” than any other category.28 PERSTEMPO is a congressionally mandated program directed by the Office of the Secretary of Defense (OSD). It directs the services to track off-duty time individual service members spend away from his/her primary residence for the purpose of carrying out official duties.29 Simply put, individual PERSTEMPO accumulates anytime a service member is not sleeping in his/her own bed because of deployments, training, or TDY. Dwell time, or time between deployments, is also tracked by the respective services to ensure that “no individual service member, irrespective of their unit, is subjected to repeated combat tours, disproportionate deployments or extended periods of time away from their home stations.”30

In 2014 Admiral McRaven instituted a PERSTEMPO policy intended to reduce overall PERSTEMPO while at the same time meeting mission requirements. The policy mandates that service members spend a minimum of 250-days at home, “head on the pillow” within a span of 730 days (two years). In order for any commander to break the PERSTEMPO policy for any individual, an exception from Commander, SOCOM is required.31 To assist commanders in this effort, SOCOM began a Program of Record to develop, institute, and maintain a computerized system of monitoring PERSTEMPO for every member of SOCOM, called Defense Ready. The system, which is installed at all
commands down to the O-5 level and run by a contracted civilian, gives commanders immediate and accurate data on individual PERSTEMPO rates. The policy itself is very liberal with respect to PERSTEMPO ratios and gives the operational commander tremendous flexibility to deploy and train personnel to meet mission requirements. When assessing the effects of this directive, the overall results indicate that it achieved its intended goal with a drop in PERSTEMPO across all SOCOM components when compared to baseline numbers. Average time away from home in a 24-month period in 2012 was 10.76 months and dropped to 8.75 months in 2013. However, averages across the SOCOM enterprise do little to reflect an accurate picture of true PERSTEMPO at the individual and unit level where deployment and training demands differ across locations, missions and individual MOS’s.

**Family Resilience: Warrior’s Time Away from the Family**

In a 2003 white paper entitled “The Army Family,” Army Chief of Staff Erik K. Shinseki wrote that actual time spent away from home is just one of the factors that are detrimental to building strong and resilient soldiers. The paper notes that, “Contrary to popular opinion, the inclination to reenlist does not go down as days away from home go up nor does family support for such reenlistment.” Rather the Army found that, “back-to-back deployments without sufficient recovery time, poorly managed deployments attended by confusion and lack of notification, or circumstances wherein family support is perceived to have been ignored” was much more a factor in hurting retention rates than time spent away from home.

These factors also seem to hold true for SOCOM. Service members need enough dwell time between deployments to properly recover physically, socially, mentally and spiritually. Too often, time between deployments is filled with training,
exercises and TDY trips that prevent sufficient recovery but remain well within the PERSTEMPO policy for overall dwell time. Additionally, lack of predictability is a significant factor affecting their ability to reconnect with family and friends.\textsuperscript{37} Inability to make sufficient plans for leave or other personal matters because of uncertainty within training and personnel schedules makes spouses especially feel under-appreciated or ignored.

Although unforeseen contingencies and requirements also contribute to the lack of quality dwell time, survey respondents indicate that poor time management is often a greater problem. Poor time management while at home station leads to uncertainty during the times in which the variables that contribute to a short- and mid-range planning are controllable. From the perspective of those serving in small units or in support positions, uncertainty and frequent changes on the calendar while in home station are too often construed as resulting from either incompetent or uncaring leadership. This negative perception is compounded when commanders do not take the time to personally involve themselves in the family readiness business (e.g., to hear grievances, communicate with family members, and take an active role in solving problems).

Poor time management includes time spent on tasks that do not relate, either directly or indirectly, to mission accomplishment. As one respondent noted, “our time at home should be thoroughly analyzed to ensure that we are not breaking ourselves needlessly. Often times I felt that we had a plethora of tasks back home that were simply worthless. I was never sure what was more important, staying until 8PM to do some sort of mundane task or to attempt to balance my personal life.”\textsuperscript{38}
“Navy Knowledge Online” or Army Regulation 350-1 requirements such as suicide prevention, Information Assurance and Anti-Terrorism/Force Protection, that are created to educate and train the entire Department of Defense to the lowest common denominator, are often perceived as a waste of valuable time better spent training or at home. Too often, they become a “check the block” drill rather than a beneficial use of time. Leaders mitigate these perceptions when they invest time and effort to communicate to their subordinates the strategic context behind the requirement while modifying the content to suit the audience. When leaders communicate to superiors the reason and extent of the modification it brings attention to the problem while also providing a solution. All of this takes time and effort, but it communicates directly to people that their time is valued and important.

Global SOF Network and Force Generation Priorities

For SOF operating in a VUCA world, mission requirements are not likely to decrease as authorities, budgets and requirements for maintaining the Global SOF Network increase. But in order to sustain the force for a generational conflict, the component commands must better prioritize force generation planning and execution. SOCOM must transition from a demand focused, pull system to a supply-based push system of force generation that will help drive prioritization of missions across the enterprise. This is not a problem that is unique to SOCOM; all the services are wrestling with post-OIF/OEF force generation models in the midst of a drawdown of force structure. Each SOCOM component command will have to develop force generation models that work according to its unique requirements.

Determining the right model will require an iterative process. Even the best models will have flaws due to the dynamic nature of the VUCA world and the inherit
capabilities of SOF to operate in that environment. However, no matter which force generation model or models are adopted, SOCOM will have to assume short-term operational risk in some missions within GCCs in order to maintain the resilience of the force. If risk is not assumed by SOCOM, then risk is successively pushed down to lower levels until our most junior commanders and leaders are forced to make a choice between growing mission requirements and long-term resilience.

Force generation models aside, the responsibility for time management is a shared responsibility throughout the chain of command. The more volatile and uncertain the world becomes, the more valued, critical, and important disciplined command oversight of training and time management become. Disciplined battle-rhythm events for reviewing short and long-term training calendars is up to unit-level commanders and staffs to enforce. Staffs can develop good systems and processes to manage training, but only commander involvement throughout the chain of command ensures there is enough “black space” on the calendar and that some modicum of predictability is built within the force generation process. This may mean that commanders will need to carefully manage their own goals with respect to how much they can push their organization to accomplish in the course of a two-year command and accepting short-term risk for the sake of long-term resilience.

POTFF to Strengthen the Force: Effectiveness and Acceptability

Starting with the creation of the POTFF-TF, SOCOM senior leaders have invested considerable time, energy, and resources into developing programs that provide an important opportunity for service members to improve adaptability and resilience. Although the Wave II survey showed some improvement in the overall level of awareness of the POTFF-TF and the expertise it offers, there remains a critical gap in
communication between the command and the force as a whole. Importantly, these results showed that 54% of respondents were unaware of POTFF-TF, its programs and its available expertise. Additionally, of those who were aware, less than half (23% of total respondents) said that the resources were only somewhat beneficial or not beneficial at all. The authors of the survey indicate that this overall lack of awareness contributed to the programs’ lack of effectiveness and is best attributed to the fact that the nascent POTFF enterprise contract and resulting staff hiring were still underway during the period of the survey. They concluded that a robust messaging campaign is needed to help inform the force of the POTFF-TF assets available to them.

However, another possibility is that the overall message is not resonating with the force. Instead of increasing the frequency and the volume of the message with respect to programs, perhaps it is the message itself needs modification. Rather than focusing on what is ailing the force, SOCOM must shift its message toward investing in people for the purpose of maintaining a competitive advantage over our adversaries. By making that investment leaders not only improve near-term readiness, but also they provide an avenue to drive adaptation through which the force can maintain this competitive advantage well into the future. Additionally, SOCOM’s service members are much more likely to use a program that helps them realize and maintain a competitive advantage. To illustrate this point, one needs to look no further than the Human Performance Program (HPP) within POTFF.

Although survey results ranked HPP at eighth out of ten programs on the hierarchy of needs list in 2012, HPP climbed to third behind medical care and childcare by 2014. Many of the comments from respondents to the 2013 survey focused on the
positive impact of USASOC’s Tactical Human Optimization Rapid Rehabilitation and Reconditioning (THOR3), Naval Special Warfare Command’s Tactical Athlete Program (TAP), and MARSOCs Performance and Resilience (PERRES). Designed primarily with the operator in mind, these programs provide direct and tangible benefits to operator effectiveness in the everyday execution of their primary responsibilities. Just like a high-level sports team, the physical strength and conditioning offered by these programs are designed specifically to maintain the operator’s edge over an adversary on the battlefield.

It is essential to keep in mind that the effectiveness of the program is largely dependent upon how the program is developed. Those programs developed and controlled at the tactical level give the user direct input into the final product. That is, tailoring the program to the particular needs of the unit give it a much better chance of success in SOF. In this way, locus of control is pushed down as far as is possible. In the case of the THOR3, the program is largely decentralized with human performance teams attached to groups and detached battalions under the supervision of the unit S-3. A RAND study on the THOR3 program found that the decentralized approach is beneficial “if it can be adopted without significant loss of technical functionality.”45 By pushing down the locus of control, USASOC also fosters a culture that drives innovation and is very much in line with what service members expect when they join Special Operations.46

Similarly, if the psychological, social and spiritual pillars of the POTFF program demonstrate that they bring a competitive advantage to the warfighter, then service members are more likely to leverage these programs. For example, the psychological
pillar is largely centered on “behavioral health” which implies that the only reason to seek out a behavioral health specialist is when there is a behavior problem. While there are some individuals and families who do have particular psychological, social or spiritual challenges brought on by combat, lengthy separation, or other job and personal stress, the Wave I and II surveys revealed the overwhelming majority of SOF service members do not. Therefore, although having behavior health specialists available at the unit level is critical for those who recognize they have a problem and are willing to seek help, SOCOM should focus on the potential capability advantages of embedding operational and sports psychologists at the unit level. Just as embedded psychologists provide professional sports teams with a cognitive competitive advantage, so too can commanders use them to provide a competitive advantage at the tactical level within SOF. SOF personnel require “strength of mind” to maintain the mental agility to anticipate and react positively in environments full of uncertainty, chance and friction. Interacting with a psychologist should be a routine event for SOF, not for the sake of diagnosing problems in an office, but rather for the sake of making service members better thinkers and problem solvers out on the range, in the planning bays, in the field, and forward in the GSN. The secondary benefit of a routine, positive and proactive relationship between the psychologist and unit personnel is that stigma associated with seeing the psychologist for problems when they do arise likely diminishes.

The same is true of Chaplain-led programs. Although overall usage of these programs is low, those service members who did participate in Chaplain sponsored marriage retreats, family retreats, father-son and father-daughter events found them very beneficial. It is likely that these respondents already invest in family
relationships and therefore value the opportunity to invest command sponsored time and resources into making them even better spouses and parents. However, there is an element inherent in programs purposed to build social and spiritual resilience that strengthens SOF’s competitive advantage through adaptation.

Social and spiritual resilience programs help to build the critical competencies needed for robust emotional intelligence, an essential quality of effective leadership and arguably a critical skill required for building an effective Global SOF Network. Research shows that these critical competencies are not innate; they are learned through training and practice. Self-awareness, self-management, social awareness and relationship management are skills taught, practiced and honed in the controlled environment of a marriage retreat, family retreat, or a father-child adventure weekend. When chaplains sponsor events with operational effectiveness in mind, it shifts the perspective of participants from a reactive or preventive mindset to a positive, pro-active and strengthening mindset. When service members realize that these events are designed to improve their operational effectiveness, they will be more likely to participate. The second order effect of this shift is that SOF marriages and families are strengthened and become more adaptive in the midst of environmental pressure.

SOCOM fought for and recently gained the authority to spend up to $5 million annually on three family support pilot programs. This presents an opportunity that commanders need to leverage through their unit chaplains. The three categories of pilot programs are Family Orientation, Information, and Referrals; Pre and Post-Deployment Preparation, Reintegration and Decompression; and Family Relational Enhancement. Each category is broad enough to allow commanders ample room to,
innovate and discover the best way in which to invest their service members and families. Examples include pre and post-deployment family retreats using venues such as *The Great Wolf Lodge*, “Becoming a Man” father-son adventure weekends, and Father-daughter retreats using privately run and operated adventure camps. Each of these programs are highly successful and valued by service members because the command provides the time and resources through which they can immerse themselves in being the very best possible spouse and parent.

When considering future opportunities for promoting resilience in the force, it is critical to keep in mind that the vast majority of SOF are not physically, mentally, socially, or spiritually broken. Only 7% of respondents to the 2013 survey reported high levels of post-traumatic stress (PTS) and 86% of reported low PTS. Additionally 93.3% of service members and 91.8% of spouses reported low levels of depression. Yet, for many in the force the message of “preservation” implies “vulnerability.” The fact is that SOCOM service members and families are highly resilient and many service members resent the inference that they are not. When asked about the most important thing necessary to preserve the force from the 2013 survey, one respondent stated, “Stop assuming everyone is broken. Expectations leads behavior.” Yet another commented, “Stop reminding me that the force needs ‘preservation.” As Dr. Carroll Green, the command psychologist for MARSOC stated, “The un-sensational – and therefore unspoken – truth is that seventy-five to ninety-five percent of our warriors and their families experience long-term growth, family pride, enhanced self-esteem, strength development from stress inoculation and many other benefits from their service, acceptance of risk and personal sacrifices.” Programs that seek to build upon the fact
that SOF are comprised of resilient people who want to grow personally and excel professionally will resonate with the force. Whether conducting a proper Olympic lift, optimizing cognitive performance, re-connecting with a spouse, camping with a child, attending a leadership seminar, earning a master’s degree, or interning with a top CEO, direct investments in people provides a competitive edge and builds generational resilience.  

Develop Leaders; Not Programs

Selection, time management and promoting opportunities for building physical, mental, social and spiritual resilience are essential to maximizing adaptation and thus building generational resilience in a VUCA environment. One must admit that not all SOF are screened or selected for long-term resilience, nor is time fully optimized. In addition, no program, regardless of how it is imagined, developed, communicated and executed, meets the needs of every member of a diverse command like SOCOM. Yet, when emphasized and synchronized through good leadership, these three aspects can have an appreciable impact in leveraging the inherent adaptive strength of SOCOM service members to build long-term generational resilience.

Good leaders are required to develop and critically evaluate systems of screening, assessment and selection to identify people who are adaptive in their careers and lives. Good leaders know the strengths and weaknesses of their people, how well they adapt in the face of pressure, and manage time and demands in order to effectively balance PERSTEMPO with mission requirements. Good leaders not only take advantage of the opportunities afforded by POTFF programs for their units and themselves, they are essential to encouraging innovative, bottom-up solutions for leveraging POTFF to sustain a competitive advantage over our future adversaries.
Developing leaders of high moral character who are committed to building generational resilience within SOF will make the difference in sustaining a competitive advantage over our adversaries. Conversely, dissonant leaders who are tuned-out to the needs of their subordinates will erode SOCOM’s competitive advantage over time. As one respondent to the 2013 survey stated, “Develop leaders, not programs. Leaders change and preserve units, not programs.”

Therefore, it is critical that SOCOM make leader development the cornerstone of its effort to promote generational resilience in the force. Commanders at all levels need to create “deliberate, continuous, sequential and progressive” plans for leader development that are grounded in SOCOM and service organizational values. Leader development to achieve generational resilience needs to be prominently featured during the unit Quarterly Training Briefs (QTB) and serve as a key component of individual counseling and mentoring. Command climate surveys, 360-degree evaluations, and regular performance and career counseling are essential feedback mechanisms that assist leaders in creating a climate that is aligned with a culture that values long-term resilience.

Although SOCOM does possess exceptional leaders throughout the force, the POTFF surveys indicate that leader development is too often assumed rather than enacted. Unbalanced and even “toxic” leadership was often cited among survey respondents as a current issue affecting the resilience of the force. This feedback should cause SOF leaders at all levels to think critically about their own programs and systems of leader development. Arguably, if the human being is the cornerstone of SOF capability then selecting, developing and promoting leaders who possess a
generational mindset toward resilience is critical to ensuring SOF’s qualitative edge over a generation.

Conclusions

Admiral McRaven proclaimed during his change of command speech last summer that, “this is the golden age of SOF.” Clearly SOF is increasingly the cornerstone of the U.S. strategy to counter a generational conflict. The pressure that is brought about through our Nation’s increasing dependence on SOF to operate in and thrive within a VUCA world is not likely to subside even while budgets and force structure limitations persist. In order to extend the “golden age of SOF” and maintain generational over-match against any and all potential adversaries in the VUCA world, SOCOM will increasingly depend upon the resilience of its highly trained professionals.

SOF now has an opportunity to take advantage of its “golden age” to reshape its culture toward building long-term resilience though adaptation in the face of pressure. The key elements to promoting adaptation are: ensuring SOF are screened, assessed and selected to have the personal attributes and experiences that demonstrate adaptation and resilience; developing force generation systems and methods of time management that will aid in maximizing limited time, promote predictability and assist commanders in evaluating risk to short-term mission requirements versus long-term individual resilience; and, maximizing opportunities to build adaptability through programs that are focused on not preserving the force in a “protective sense,” but rather growing individuals with skills that will maintain SOF’s competitive advantage over future adversaries.

The key elements for developing adaptation do not, in and of themselves, ensure resilience. However, when taken together and empowered by leaders who possess a
generational mindset toward resilience, the elements work in concert to extend the “tipping point” in which individual members of SOF choose to either endure for the long-term fight or attrite from the military. If SOCOM is to extend the “golden age of SOF” for a generation and beyond, then it is essential that building resilience extends beyond any particular programs to preserve the force and families. That is best achieved by adopting a generational mindset within the force that seeks to maximize adaptation in order to dominate adversaries while thriving in a VUCA world.

Endnotes


3 Ibid., 3, 5. The Human Domain as defined in the USSOCOM SOF Operating Concept is “the totality of the physical, cultural and social environments that influence human behavior to the extent that success of any military operation of campaign depends on the application of unique capabilities that are designed to fight and win population-centric conflicts.”

4 Ibid., ii.


15 Ibid.

16 Ibid.


18 McRaven. 9.

19 Votel. 5.


Although widely distributed, the first two surveys in 2012 and 2013 were answered by about one-sixth of the force (10,270 service members and 1,415 spouses in the 2012 survey and 10,686 service members and 1,839 spouses in the 2013 survey). According to the authors of the 2014 USSOCOM enterprise report, the survey size is sufficient enough to, “ensure a high degree of confidence in its findings.” See Neff and Caserta., 5.

21 Neff and Caserta, 24.
Operators are defined by the individual service component commands and include a wide variety of occupational specialties across SOCOM. These include: Special Forces, Infantry (Ranger), Civil Affairs, PSYOPS, SEALs, SEAL Delivery Vehicle (SDV) crew, Special Warfare Combat Craft (SWCC) crew, Pararescue (PJ), Combat Controllers, Special Operations air crews (to include Remotely Piloted Aircraft pilots and sensor operators), Special Operations weathermen, and Marine Special Skills. Ryan Caserta, email message to author, 16 March 2015.


Caserta and Neff, 5.

Neff and Caserta, 58.


USSOCOM Office of Communications, Command Talking Points - Issue 1.0 (MacDill AFB, FL: USSOCOM, 12 November 2014), 24.

Ibid.

To further clarify the 1:1/2 dwell ratio, in order to break the PERSTEMPO policy a service member would be home for less than one-half a month for every month he is deployed over a two-year period.

Neff and Caserta, 8.


Ibid.

Jonathan Allen, "What Is the Preservation of the Force and Families Task Force?," *Tip of the Spear*, 20 February 2013, 4. Black space is time on the calendar that is specifically designated for individual service members to use as they see fit. Most often this is designated training holidays or block leave, but it can also be limited training days or any other time that the commander deems as necessary to ensure the resilience of service members and families. Most importantly, and just like any other critical training event, black space is deliberately scheduled far enough in advance to ensure that service members and their families can take full advantage of the time allotted. USASOC has scheduled 4-day weekends on a monthly basis often by adding training holidays to federal holidays. Several respondents in the 2013 POTTF Wave II Survey specifically commented that the monthly 4-day weekend policy is a practice that should be sustained.

Caserta and Neff, 38.

Ibid., 37.

Ibid., 37.

Ryan J. Caserta, email message to author, 28 January 2015.


Caserta and Neff, 25.


Ibid., 39.

Headquarters USSOCOM, USSOCOM Component Commands and Sub-Unified Commands (MacDill Air Force Base, FL: 21 April 2014).

53 Author's personal experience as a member of a Special Mission Unit (SMU) from June 2002-June 2014.

54 Caserta and Neff, 11.

55 Ibid., 12.

56 USSOCOM Wave II Needs Assessment (Open-Ended Comments), 132.

57 Ibid.


60 Goleman, 50. In his book Primal Leadership Daniel Goleman writes, “Empathy is key to retaining talent. Leaders have always needed empathy to develop and keep good people, but whenever there is a war for talent, the stakes are higher. Of all the factors in a company’s control, tuned-out, dissonant leaders are one of the main reasons that talented people leave – and take the company’s knowledge with them.”

61 USSOCOM Wave II Needs Assessment (Open-Ended Comments), 4.


63 In the 2013 POTFF Wave II survey there were 36 open-ended comments, which mentioned “toxic leaders” or “toxic leadership” as an issue within their units. Additionally, respondents cited that leaders frequently do not set a good example by working excessive hours while in garrison, building up excessive leave by refusing to take leave on a regular basis, not utilizing the services available to them, not taking an active role in educating their organizations on POTFF, or by not actively shaping POTFF programs for their units.

64 Turse.
Mental readiness for maritime international operation: procedures developed by Norwegian navy

Sverre Sanden1, Bjørn Helge Johnsen2, Jarle Eid3, Jan Sommerfelt-Pettersen4, Vilhelm Koefoed1, Roar Størksen1, Atle Røsseland1, Hans Olav Neteland1, Per Inge Wetteland1, Eirik Veum Wilhelmsen1

1Naval Staff, Department Naval Medicine, Norway
2Naval Staff, Department Naval Medicine and University of Bergen, Norway
3Armed Forces Joint Medical Services and University of Bergen, Norway
4Armed Forces Joint Medical Services, Norway

ABSTRACT
Seafarer’s mental health is vital for a well-functioning organisation. Neglecting mental health status on board could be extremely costly for both the crew affected as well as the company. The present article outlines an extensive programme implemented in the Royal Norwegian Navy for personnel deployed in international operations. The challenges involved in international operations bare similarities to onboard personnel in civilian maritime operations. The program utilised by the Royal Norwegian Navy is extensive and not immediately applicable to civilian maritime companies. However, elements of this program could be used with limited resources. Questionnaire based screening, before, during and at the end of a contract period could result in early detections of mental health problems and increased retaining of personnel. This should be done by health professionals. Early targeting of at risk personnel could prevent serious costs for the individual as well as the company.

Key words: seafarer, prevention, mental health, crisis support

INTRODUCTION
In a review of published and unpublished information, Iversen [1] concluded that seafarers mental health was in many cases very poor and often fatal. Possible causes of poor mental health was long deployment at sea, long work hours, sleep deprivation, fatigue, lack of shore leave, criminalisation, harassment and bullying, as well as dangers from piracy. These causes can lead to anxiety and depression and in some cases to suicide. Based on statistics from 1960–2009, Iversen [1] showed that 5.9% of total deaths on board vessels were suicides. These numbers did not include seafarers who disappeared at sea. Thus, the real proportion of death by suicide could be estimated higher. A large body of evidence has shown that working on board merchant ships is one of the most mentally and physically demanding professions with a potential for severe somatic and psychological distress [2–4].

In order to counteract this potential threat towards sailors health, Iversen [1] suggested more emphasis on psychoeducative and other preventive methods. More specifically, he recommended material produced by both the Rotary Club of Melbourne South and the International Committee on Seafarers’ Welfare [5] which present both information on mental health issues and instruments to evaluate mental health status on board. The cost of neglecting seafarer’s mental health could be high, for the individual at risk, their families and coworkers, as well as the company. The possible causes of poor mental health stated by Iversen [1] are similar to stressors of Naval military personnel deployed in international operations. In addition, naval personnel will face the stressor of potential combat. Another similarity to military personnel is the reluctance of seafarers to seek professional help for mental health problems. This could be caused by the social stigma of mental

Sverre Sanden, Naval Staff, Department Naval Medicine, Norway, e-mail: sverresanden@gmail.com
health problems and the fear of losing certificates as well as future contracts. The aim of this article is to present an extended psychosocial prevention program used in the Royal Norwegian Navy (RNoN) concerning naval personnel’s mental health in international operations. This could be viewed as a preventative program of applied social and community psychology, developed to evaluate and improve sailor’s mental health, including screening and consultation regarding psychopathology.

BACKGROUND

The RNoN has to an increasing degree participated in worldwide international naval operations. Because of the increased operational area, the medical branch of the naval staff has developed standard procedures in order to increase sailor’s mental preparedness and sustainability as well as welfare and safety of its onboard personnel. The intention is to enhance the operational status of both personnel and vessel.

In May 2011 the Norwegian government published the action plan ‘tjeneste for Norge’ (‘Serving for Norway’; [6]), presenting a range of measures intended to strengthen recognition and care for Norwegian personnel participating in international operations. Naval personnel have participated in a wide range of international operations during the past years, from Special Forces and mobile observation teams in Afghanistan, to antipiracy operations in the Bay of Aden, mine countermeasure operations in the Mediterranean Sea, and escorting civilian freighters in the Red Sea. The Royal Norwegian Navy (RNoN) concerning naval personnel from Solberg et al. [7]) are administered.

In looking at mental preparedness, planners must consider factors at the individual level as well as at the unit level. In order for personnel to be able to adapt and perform under stressful conditions, and over longer periods of time, they need to have confidence in their own equipment, procedures, and abilities to perform the tasks needed, as well as a sense of meaningfulness and recognition for the work they do. This includes an active attitude toward solving problems as well as the belief that one is able to find solutions. Thus, individual factors such as self-efficacy [7], task-focused coping style [8], and hardiness [9, 10] could be included in an evaluation of individual mental readiness. As a part of the individuals’ belief in his/her abilities and active attitude, the subjective evaluation of own skills is important. This includes coping skills, ability to monitor team members, and the will to act in demanding situations.

The evaluation of mental preparedness in the RNoN is conducted using questionnaires. Standard scales of Personality Hardiness (Dispositional Resilience Scale — 15 item version [11]) and of subjective evaluation of their professional performance as naval personnel (adapted to naval personnel from Solberg et al. [7]) are administered.

Furthermore, an assessment of mental status should also be included when evaluating individual preparedness. This could prevent vulnerable individuals from being deployed who could be a risk to themselves, their teammates, and the operation as a whole. Thus, the procedures include Hopkins Symptom Checklist (25 item version [12]), and General Health Questionnaire (12 item version [13]). Sleep problems are measured using Bergen Insomnia Scale [14]. Individual preparedness includes subjective safety and risk assessment related to the mission, as well as an individual sense of meaningfulness and motivation for the particular mission.

When looking at the unit level, evaluation of level of operational experience, expectations, preparations and cohesion in the unit (both horizontal and vertical), as well as the sense of trust in and support from the higher levels of the organisation, should be performed (for a more detailed explanation — Johnsen et al. [15]).
THE NORWEGIAN NAVY’S PROCEEDURES: PREPARATION

In addition to the procedural and skill-focused preparation done by the shore based institutions, crew and vessel leadership, mental preparation will contain various other elements.

STAFF WORK

Consideration of health threats. Based on the mission given, information about area of operation and threats likely to occur, the medical branch of the naval staff produce a written consideration of possible threats to mental health. These are listed according to likeliness and seriousness of consequences, and groups of personnel likely to be particularly exposed or vulnerable are targeted. This is, in turn, followed up with appropriate interventions.

Employer contingency organisation. The Norwegian navy has, as all other employers, a responsibility for taking care of its’ employees should these come to harm. This responsibility involves taking care of affected personnel, their next-of-kin, and handling interest from the media. Should a Norwegian naval vessel be involved in a critical incident, the employer contingency organisation will activate a crisis staff trained to manage these situations. The administration, education and training of this crisis organisation is a constantly ongoing task, involving, among other things, 4 yearly exercises. The staff has various tools and resources at its disposal. Among these resources are the naval staff crisis support team and family assistance workers (FAWs). The naval staff crisis support team is a cross-disciplinary unit containing medical doctors, licensed psychologists, nurses, and priests, and could be expanded using other relevant groups of personnel. The unit has the capability of deploying at short notice to any given location. The team is a “virtual organisation”, meaning that the members on their day to day duty act in other positions in the navy. When scrambled, the team members are relieved of their normal duties and enter as members of the crisis team supporting the crew of the affected vessel.

FAWs are naval personnel volunteering for the task of assisting next-of-kin of affected personnel. In case of a critical incident, FAWs will report to the employer contingency organisation, and be appointed to the affected family they are to assist. The FAWs receive basic training in human reactions to crisis and bereavement, procedures for rituals and practical procedures (e.g. autopsy and criminal investigation) and considerations related to loss of life, insurance and welfare rights, etc. FAWs are not professional helpers, and are not to take on tasks related to grief work or therapy. Their task is to be point-of-contact between the navy, as employer, and the affected family, to be a channel of communication and assist the affected family in matters related to the navy’s’ responsibility as employer.

Education and preparation of vessel leadership. In the immediate aftermath of a critical incident, the vessel leadership will be responsible for the psychological well-being of the vessel crew, and may not have mental health professionals available for guidance until hours or even days after the incident. For this reason, members of the vessel leadership are educated by licensed psychologists in procedures for psychological first aid and procedures for organising a caretaking environment after critical incidents. These procedures are in accordance with the principles used by the naval staff crisis team. Also, a standard operating procedure for critical incidents is formulated for the vessel. This is to be used as a basic guideline for the vessel leadership in organising basic psychosocial care for the crew after a critical incident, until professionals from the naval staff crisis team can be reached and used for further guidance. A basic principle for the work of the naval staff crisis team is to maintain the organisational structure of the affected vessel or unit in the management of a critical incident. Mental health professionals from the naval staff crisis team will therefore not take over the leadership of the organisation, but rather work as counsellors and advisors for the vessel leadership.

Preparing next-of-kin. Sailors’ family situations affect their wellbeing as well as their motivation in onboard settings. A study from the Norwegian navy [16] reported that crewmembers characterised by a high degree of task focused coping style experienced more support and readiness from their families and less worries about family issues. On the other hand, an avoidant habitual coping style was related to less support and more worries. Worrying about family problems, sense of family preparedness and sense of support from family were also related to the crewmembers’ mental health problems and motivation. Thus, an important part of preparing a crew for deployment is preparing and informing next-of-kin. The concern and worry of family members or spouse can result in strained relations between next-of-kin and crewmembers. Lack of support from family and/or spouse can be a source of mental strain, and cause guilty conscience among crewmembers for being absent during deployment. If this source of extra mental strain can be reduced or removed, crewmembers may have more capacity to focus on their job and the mission at hand, resulting in improved coping with long-time deployments.

As part of a preparation for international operations ‘family-days’ are arranged at the naval base, where next-of-kin get to meet vessel leadership, and are given a presentation of the mission, the risk involved, and arrangements for taking care of both crew members and next-of-kin (insurance benefits, legal advice, point-of-contact in the Navy for next-of-kin, etc.). Information regarding known challenges, and ways of coping, for families of deployed personnel is distributed in the form of leaflets and a presentation given.
by a counsellor. A guided tour of the vessel is also conducted, giving next-of-kin a chance to see the place where their significant other is to spend the next months.

**Preparing crew members.** Crewmembers are divided into groups of around 10–12 persons, and given a brief by a licenced psychologist from the naval staff medical branch, focusing on mental preparedness, stress and coping. Potential stressors of the particular mission are presented and discussed. Following the brief, there is a discussion focusing on expectations among the crewmembers themselves, their own feeling of actual readiness and skill level, and the individual sense of meaningfulness of the mission.

A mental readiness screening of the entire crew is conducted, using a questionnaire containing standardised mental health questionnaires and questions specific to deploying on a naval vessel. Screening for mental health issues is an important factor on the individual level. Personnel with high scores on anxiety, depression, sleep problems or low quality of life are targeted and given individual consultation. If they are considered not suitable for deployment, they will be refused to participate in the operation.

A feedback session to the master is conducted based on both questionnaire data as well as on the group sessions. In this feedback session the state of readiness of the crew is discussed, and concerns discussed in the group sessions are presented. The intention of the feedback session is to give the master the best possible information about the state of his crew, and, if requested, give advice on possible measures to be taken. The work of preparing crewmembers is preferably conducted on board the vessel at sea. Spending time with crewmembers and having informal conversations is an important part of gaining acceptance and trust, and getting a general impression of the unit level of preparedness and cohesion. In addition, it gives crewmembers the chance to air any questions or concerns they may have in a private setting.

**EVALUATION DURING DEPLOYMENT**

Evaluation during deployment carries an almost exclusive focus on the crewmembers, and is conducted by licenced psychologists from the naval staff medical branch on board the vessel in the area of operation. The standardised questionnaire is distributed, collected and scored aboard the vessel (using a portable scanner), and individual consultations are conducted if needed. Personnel in particularly exposed positions go through mandatory individual consultations.

Focus groups, each consisting of 10–12 crewmembers, are also conducted. The average duration of the focus groups is around 90 min. The topics of conversation in these groups are mostly of an operative focus; what is working well on board, what improvements can be done, how can crewmembers themselves improve their own situation, what challenges/threats exist, smoothness of cooperation between departments on board, or flow of information.

After reviewing and collecting data from questionnaires, and after having conducted focus groups for the entire crew, the master is given a feedback session where results and findings are presented and discussed (including trends from preparation to mid deployment). Possible interventions or changes are discussed if the master wishes so. During deployment next-of-kin are kept as informed as possible about activity on board and plans for the following days and weeks. Using social media the vessel leadership can publish pictures and comments on a continuous basis, in addition to a letter written by the master and sent to the crew’s families every 2 weeks. In cases where acute notification is needed, text messages can be automatically distributed to next-of-kin for all crewmembers.

The focus of the evaluation during deployment will of course depend on the nature of the operation, and what situations have occurred during deployment. Have there for example been critical incidents, the focus of the group discussions will be more around how the crewmembers experienced these incidents, how they are coping, and what their sense of risk and security is on board. Should there prove to be a poor working environment on board, for example involving cases of harassment or conflict between individuals or groups, the focus of the evaluation may be directed at improving these situations. Getting the right focus is key for a successful evaluation/intervention. More often than not, there will be a wide array of situations or issues, and not a single main focus.

**END OF DEPLOYMENT EVALUATION**

Procedures for end of deployment evaluation carry much resemblance to the prior evaluation during deployment, involving questionnaires, focus groups, formal individual consultations if necessary, informal conversations, and a feedback session to the master. However, the focus of the conversations will shift. Evaluation during deployment is conducted with an intentionally more active attitude, intending to instil a sense of agency and efficacy in the crewmembers, promoting improvements and positive change on board. End of deployment evaluation is used to sum up experiences and lessons learned during deployment, and turning the crewmembers focus to the experience of coming home, and the challenges associated with stepping back into the everyday routine from which they have been absent for a considerable period.

The end of deployment evaluation is also preferably carried out on board the vessel, by licensed psychologists from the naval staff medical branch sailing and living with the crew for a longer period (around 2 weeks).
As with the evaluation during deployment, the end of deployment evaluation is adjusted according to the nature of the mission, whether there have been critical incidents, etc. In addition, a brief for the master is given based on the information collected. A brief of trends over the mission, included statistics, could give the commanding officer feedback of status as well as effects of interventions implemented after the mid deployment evaluation.

**POST DEPLOYMENT FOLLOW UP**

At 3 to 6 months after redeployment, a post deployment follow up is conducted, by distributing a questionnaire. The focus of this follow up is on late effects of deployment, in particular adjustment problems and psychological symptoms associated with anxiety, depression and post-traumatic stress disorder.

Individual cases known beforehand from mid deployment evaluation or end of deployment evaluation, as well as crewmembers having served in particularly exposed positions, are given particular interest, and may be invited to formal individual consultation.

Individuals requiring further attention are either followed up by the naval staff medical branch, or referred to further specialised treatment elsewhere.

**CONCLUSIONS**

The Norwegian Navy’s work on mental preparedness carries a double focus. First of all, and most important, is ensuring the mental health of the personnel deploying to international operations. This is done by mentally preparing crewmembers, screening for symptoms, and offering formal individual consultations if required, making support to troubled crewmembers easily accessible. An example of this is monitoring the degree of sleep problems on board, and giving advice on how to improve sleep to those in need. The second focus is on contributing to increased operational ability, by using knowledge of normal aspects of psychology. This could include detecting organisational issues experienced as problematic for crewmembers lower in rank and making vessel leadership aware of such issues, in hope of improving the situation. Or even better; motivating the crewmembers themselves to take initiative and improve their situation.

The program utilised by the RNoN is extensive and not immediately applicable to civilian maritime companies. However, elements of this program could be used with limited resources. Questionnaire based screening, before, during and at the end of a contract period could result in early detections of mental health problems and increased retaining of personnel. This should be done by health professionals. Early targeting of at risk personnel could prevent serious costs for the individual as well as the company.

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Leader Influences on Resilience and Adaptability in Organizations*

Paul T. Bartone

Center for Technology and National Security Policy,
National Defense University (NDU),
Washington, DC,
USA

Leader Influences on Resilience and Adaptability in Organizations

According to the renowned stress researcher Hans Selye, some amount of stress is a necessary condition of life. Even when fully at rest, our bodily systems are still working hard to maintain homeostasis. As Selye said famously, the only way to be completely free from stress is to be dead! (Selye, 1974). And while life has never been without stress, it certainly appears that as the pace of change has quickened in the modern era, the potential for stress has risen for many people. The need to adjust and adapt to changing circumstances has indeed grown substantially in today’s world (Ilgen & Pulakos, 1999). New technologies, equipment and systems appear at a fast pace, forcing changes in the way many jobs get accomplished (Thach & Woodman, 1994). Also, increasing globalization of operations for many organizations means that employees often must learn to function in unfamiliar cultures and languages (Molinsky, 2007). Given these increased demands, organizations are in need of employees who are highly resilient, and able to adapt quickly to changing conditions. The present chapter explores the role of psychological hardiness in promoting resilience and adaptability, and describes how leaders can foster these desirable qualities across the workforce.

Individual differences in responding to stress

Selye, despite his extensive attention to generalized patterns of responding to stress, also recognized that there are profound individual differences in how people respond to stressors. He observed that “the same stress which makes one person sick can be an invigorating experience for another” (Selye, 1978, p. xv). Much of the early human research in this area focused on the ill-effects of various life stressors (eg., Holmes & Rahe, 1967). More recently, attention has shifted to the study of resilient people, those who remain healthy and continue to perform well despite high levels of stress (Bonanno, 2004).

Recent years have seen a dramatic increase in the number of studies on “resilience,” although there is little agreement as to what it means (Layne, Warren, Watson & Shalev (2007). The term resilience has its roots in materials science, where it is defined as “the ability of a material to absorb and release energy, within the elastic range” (Gere & Goodno, 2009, p. 146). Resilience was first applied to humans by developmental psychologists and psychiatrists, who used it to describe children who developed normally and adapted well despite having grown up in harsh environments that put them at higher risk for psychopathology and other poor outcomes (Garmezy, 1971; Garmezy, 1974; Rutter, 1979; Werner, Bierman & French, 1971). Many stress researchers still hew to this tradition, and view resilience as basically the absence of pathology following stress exposure (Sroufe, 1997; Witmer & Culver, 2001).

In contrast to this view, many researchers see resilience as involving positive processes that are distinct from those associated with heightened vulnerability (Carver, 1998; Werner & Smith, 2001; Friborg, Hjemdal, Martinussen & Rosenvinge, 2009). However, even among those

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1 For an interesting account of the history of the resilience term, see A. McAsan The concept of resilience: Understanding its origins, meaning and utility. Adelaide, Australia: Torrens Institute, 14 March 2010. Available at: http://torrensresilience.org/images/pdfs/resilience%20origins%20and%20utility.pdf
focusing only on positive features, there is a wide diversity of views as to what factors constitute or contribute to resilience (Luthar, 2006). These range from individual attributes such as intellectual ability, self-control, flexibility, optimism, self-efficacy, spirituality, and confidence, to social factors such as support from family and friends, co-workers, and the broader socioeconomic environment (Layne et al., 2007).

Resilience and Adaptability

In a world of rapid change, resilience must also include the capacity to adjust and adapt in response to new circumstances. It is not enough to merely “bounce back” from stress into one’s original state. In fact, some scholars see adaptability as the core feature of resilience. For example, Folke et al. (2010) assert: “Resilience in this context is the capacity of a (system) to continually adapt and change yet remain within critical thresholds. Adaptability is part of resilience.” Importantly too, adaptability involves the capacity “…to learn, combine experience and knowledge, and adjust responses to external drivers and internal processes.” While Folke et al. (2010) are addressing the resilience of social-ecological systems, the same is true for resilience at the individual level. Adaptability has been linked to resilience and performance of individuals (Burke, Pierce & Salas, 2006), teams (Hackman, 2002), organizations (Weick & Sutcliffe, 2001; Zaccaro & Banks, 2004) and entire nations (Ben-Dor, 2004; Gaillard, 2007). Regardless, adaptability always has to do with the ability of a system to change or adjust in response to changing conditions (Mueller-Hanson, White, Dorsey & Pulakos, 2005). A recent report by the Defense Science Board (2011) takes this even further, defining adaptability as “…the ability and willingness to anticipate the need for change, to prepare for that change, and to implement changes in a timely and effective manner in response to the surrounding environment.” (p. 3). This report also notes that in the new, rapidly changing global environment, the ability of organizations and personnel to adapt is essential to successful performance.

One of the most frequently studied variables contributing to stress resilience at the individual level is psychological hardiness (Eschleman, Bowling & Alarcon, 2010). Hardiness is a constellation of psychological qualities found to characterize people who remain healthy and continue to perform well under a range of stressful conditions (Kobasa, Maddi & Kahn, 1982; Bartone, 1999; Bartone, Roland, Picano & Williams, 2008). The key facets of hardiness are commitment – an active engagement and involvement with the world, and a sense of meaning in life (versus alienation); control – a belief that through effort one can influence events and outcomes (versus powerlessness); and challenge – a receptiveness to variety and change in life (versus high need for security and predictability). High hardy persons typically regard experience as (1) overall interesting and worthwhile (commitment), and (2) something they can exert control over (control). When confronted with new or changing situations, they tend to see these as (3) challenging opportunities to learn and grow (challenge). High hardy persons also favor proactive, problem-solving coping strategies, as opposed to avoidant ones.

Since Kobasa’s original (1979) report on hardiness and health in highly stressed executives, a substantial body of research has accumulated that generally confirms hardiness as a protective factor against the ill effects of stress on health and performance. Studies with diverse occupational groups have found that hardiness operates to moderate or buffer of stress (e.g.
Contrada, 1989; Kobasa, Maddi & Kahn, 1982; Roth, Wiebe, Fillingim & Shay, 1989; Wiebe, 1991; Maddi & Kobasa, 1984). Hardiness was also found to be a moderator against the ill-effects of combat exposure stress on Gulf War soldiers (Bartone, 1993; Bartone, 2000). Other groups where hardiness has been identified as a stress resilience resource include U.S. Army casualty assistance workers (Bartone, Ursano, Wright & Ingraham, 1989), peacekeeping soldiers (Bartone, 1996; Britt, Adler & Bartone, 2001), Israeli soldiers in combat training (Florian, Mikuluncer & Taubman, 1995), Israeli officer candidates (Westman, 1990), former prisoners of war (Waysman, Schwarzwald & Solomon, 2001), and Norwegian Navy cadets (Bartone, Johnsen, Eid, Brun & Laberg, 2002). Studies have also found that military personnel who develop PTSD symptoms following exposure to combat stressors are significantly lower in hardiness, compared to those who don’t get PTSD (Bartone, 1999; Escolas, Pitts, Safer & Bartone, 2013). Moreover, there is evidence that high hardy soldiers not only adapt better during operational deployments, but also adjust more favorably in the months following their return home (Britt, Adler, & Bartone, 2001).

Relevant studies with military academy cadets found that hardiness predicts several important outcomes for these military officers in training. For example, across multiple West Point classes, hardiness (commitment) predicts successful completion of a rigorous 6-week Cadet Basic Training course (Bartone & Psotka, 2004). Hardiness-commitment also predicts retention throughout the four-year West Point experience, and successful graduation. Total hardiness and the hardiness facet of commitment were also found to predict military performance scores, which are the grades received by cadets for their performance of military and leadership tasks. Other studies found hardiness-commitment to be a stronger predictor of retention at West Point than the traditional weighted composite (Whole Candidate Score) of academic aptitude, leadership, and physical fitness indicators (Kelly, Matthews & Bartone, 2005). In this same study, hardiness was second only to high school class rank in its relationship to military performance scores at the academy. A recent meta-analysis also found that hardiness is related to better health, as well as relevant performance outcomes (Eschleman, Bowling & Alarcon, 2010).

Theoretical roots of hardiness

In order to better understand how leaders and organizations may influence hardiness, it is useful to delve a bit into some theoretical background. The hardiness concept derives theoretically from the work of existential philosophers and psychologists including Heidegger (1986), Frankl (1960), and Binswanger (1963), as discussed by Kobasa & Maddi (1977). It is a broad, generalized perspective that affects how one views oneself, others, work, and even the physical world (in existential terms, *umwelt*, the “around” or physical world; *mitwelt*, the “with” or social world, and *eigenwelt*, the world of the self). People high in hardiness see life as meaningful and worthwhile, even though it is sometimes painful and disappointing. The commitment facet of hardiness shares some features with Antonovsky’s (1974) “sense of coherence,” which also entails commitment and engagement with others and lends resistance to the ill effects of stress. Kobasa’s understanding of commitment was also influenced by White’s (1959) ideas on self-awareness and striving for competence. Hardiness-commitment thus includes a sense of internal balance and self-confidence which aids the person in making realistic assessments of stressful and threatening situations.
The control facet of hardiness likewise derives from existential theory. According to Maddi, the core tendency in existential personality theory is the “striving for authentic being,” which involves an honest and genuine acceptance of oneself and the world, and a willingness to make choices and take responsibility for those choices (Maddi, 1989, pp. 128-130). The authentic person routinely chooses to engage with and act upon the world, rather than retreat into the safety of passive inaction. High hardy persons are authentic in this sense, and see themselves as in control of their own destiny despite the reality of an uncertain and sometimes frightening future. The hardiness-control facet also shows some similarities to Rotter’s concept of locus of control (Rotter, Seeman & Liverant, 1962), and Lefcourt’s (1973) on control beliefs. Kobasa’s thinking on control was further influenced by multiple experimental studies showing that when subjects are given control over aversive stimuli, the stress effects are substantially reduced, as compared to when the aversive stimuli are uncontrollable (Averill, 1973; Seligman, 1975).

The challenge hardiness element involves an appreciation for variety and change in the environment, and a motivation to learn and grow by trying new things. The primary theoretical influences on challenge come from Fiske & Maddi’s (1961) work on the importance of variety in experience, and Maddi’s (1967) ideas on engagement vs. alienation. Maddi (1967) used the term "ideal identity" to describe the person who lives a vigorous and proactive life, with an abiding sense of meaning and purpose, a belief in his own ability to influence things, and an appreciation for variety and change in experience. This is contrasted with the “existential neurotic,” who shies away from change, seeking security and predictability in the environment. The influence of existential theorists is evident here as well, as the person high in hardiness is more courageous in choosing to look forward and take action in a world that is inherently unpredictable.

While it is often thought about as a personality variable, hardiness seems to be largely distinct from the “Big Five” personality dimensions of neuroticism, extraversion, openness, conscientiousness and agreeableness (Digman, 1990; Costa & McCrae, 1992). For example, in a study that examined hardiness alongside the Big Five dimensions, hardiness was a unique predictor of military cadet performance beyond the variance accounted for by the Big Five factors (Bartone, Eid, Johnsen, Laberg & Snook, 2009). Also, it is important to remember that most psychological constructs are not fully trait-like or state-like, but exist on a continuum between full trait and full state (Hertzog & Nesselroade, 1987; Donnellan, Kenny, Trzesniewski, Lucas, & Conger, 2012). So while hardiness is trait-like in that it is a relatively stable quality of individuals, it also shows state like qualities, and can increase or decrease depending upon social-environmental factors and training (Bartone & Hystad, 2010).

Theoretically, hardiness should also contribute to adaptability in several ways. Hardiness-commitment should help people to be more adaptable in novel and rapidly changing situations, since the high-commitment person tends to regard all experience as interesting and meaningful, and also has a strong sense of self and confidence in his own abilities (Kobasa, 1979). People high in commitment are more actively engaged with the world, seeing their experience as generally meaningful and important. They are more interested in what’s going on around them, more attentive, and thus more likely to perceive different aspects of situations, as well as to envision multiple possible response alternatives and adjust their behaviors accordingly. Hardiness-control should likewise lead to greater adaptability, since people high in control approach novel situations with the belief they can respond well and influence outcomes.
Regardless of changing conditions, those with a strong sense of control tend to believe they can influence and manage events effectively. Studies have shown, for example, that hardiness increases the sense of self-efficacy which in turn can lead to more positive and healthy behaviors (Oman & Duncan, 1995; Delahaija, Gaillard & van Damb, 2010). Finally, hardiness-challenge should also facilitate greater adaptability. By definition, challenge involves an abiding acceptance of change in life, and a proclivity for variety. People high in challenge enjoy novelty and tend to see changing circumstances as an opportunity to learn. Thus, challenge should facilitate a person’s adapting to changing conditions. Some confirmation for the influence of hardiness on adaptability comes from a longitudinal study of U.S. Army military academy cadets, which found that hardiness scores as freshman predicted later supervisor ratings of adaptability as junior officers (Bartone, Kelly & Matthews, 2013).

Leader influences on hardiness

How does hardiness operate to influence stress resilience? Although the underlying mechanisms are still not fully clear, a key feature of hardiness involves the meaning that people impute to events around them, as well as to their own actions. This involves the executive brain functions of memory, recognition, appraisal and judgment. Again, high hardy people tend to interpret their experiences as interesting and meaningful, amenable to control, and challenging, presenting opportunities to learn and grow. In organizations, this “meaning-making” process is something that can be influenced by leader actions and policies, as well as by peers.

Social identity theory suggests several possible avenues by which leaders may influence hardy or resilient thinking in groups. Social identity theory posits that social influence within groups occurs in large part due to self-categorization by individuals who see themselves as belonging to the group (Turner, 1991; Hogg, 1992). This identification with the group in turn makes the individual more susceptible to group norms of behaving and thinking. In many organizations the work is group-oriented and highly interdependent. The more interdependence among the workers, the more salient are the group categories for people, and the more likely that individuals will categorize themselves into their work groups (McGarty, 1999). Furthermore, categorization can also be imposed upon the worker by his/her superiors (Branscombe, Schmitt & Harvey, 1999), providing another way that social identity with the group is increased.

Another important idea found in social identity theory is that group members tend to think and act similarly to those seen as prototypical within the group (Postmes, Haslam & Swaab, 2005). To the extent leaders in organizations are admired and positively regarded, they would also come to represent the prototype that embodies the norms and values of the group. By the policies and priorities they establish, the directives they give, the advice and counsel they offer, and perhaps most importantly the example of their own actions, leaders may alter the manner in which their subordinates interpret and make sense of experiences. The narratives and stories told by more experienced members and leaders provide another avenue for influencing the thought and actions of individuals within the group (Weick & Roberts, 1993). Weick takes this even further, arguing that not only leaders, but organizational policies and programs also exert powerful influence over how individuals within the organization “make sense of” or interpret their experiences, particularly work experiences (Weick, 1995; Weick & Roberts,
There are many additional perspectives on how social processes can influence the creation of meaning by individuals. For example, Janis (1982) used the term “groupthink” to describe how people in groups can come to premature closure on issues, with multiple individuals conforming to whatever is the dominant viewpoint in the group. In their classic work, Berger and Luckmann (1967) argue that “reality” or perceptions of individuals reflect “social constructions,” an incorporation into the individual mind of social definitions of the world.

Data from multiple studies provide support for the notion that leaders high in hardiness can influence their subordinates to think and behave in more hardy or resilient ways. The idea that hardiness is linked to meaning-making is supported by a study of U.S. soldiers deployed to Bosnia (Britt et al., 2001), which found hardiness levels influenced perceptions that the deployment work was meaningful, and was also associated with positive benefits. Several studies with West Point cadets have found that hardiness is associated with leader performance grades (Bartone, 1999; Bartone et al., 2009). Under the stressful environment of the West Point Military Academy, cadets high in hardiness perform more effectively as leaders, as indicated by external ratings of cadet peers and faculty supervisors. This is even more true for female cadets, where the correlation between hardiness and leader performance grades is stronger (Bartone & Snook, 2000). Leader performance ratings in part reflect how successful the leader’s unit is in accomplishing group tasks, and these tasks are frequently highly stressful and conducted under time pressure. It appears then that high hardy cadets are more effective leaders in part because they help the group to adapt and perform well under stressful conditions.

The positive influence of high-hardy leaders on their subordinates can also be understood as a form of contagion. Rajah and Arvey (2013) have discussed this as the ‘contagion of resilience’ effect, which has also been identified in other leadership studies (Norman, Luthans & Luthans, 2005). For example, using an experimental design, Barsade (2002) showed that both positive and negative emotions and attitudes readily spread through working groups. A study done with Norwegian military cadets seems to support the notion that hardiness as displayed by leaders can be contagious. This study identified factors that help to increase cohesion in small units undergoing a stressful training exercise (Bartone et al., 2002). Results showed that hardiness and leadership influenced cohesion levels in a positive direction, and that hardiness and leadership interacted to influence cohesion. This further suggests that what leaders do, and how they are perceived by their subordinates, can have a team-building or cohesion enhancing effect on the unit. Subordinates appear to be modeling themselves after admired leaders, following the leader’s example as to how to interpret and make sense of stressful events. In a study that looked specifically at leaders attempting to build hardiness in their subordinates, McNeese-Smith (1997) reported that nurse managers who actively encouraged hardiness qualities in their organizations had employees with higher job satisfaction, productivity, and organizational commitment, and fewer stress-related problems. It thus appears that leaders can raise hardiness levels throughout their organizations through multiple avenues, both indirect (e.g., leading by example, positive contagion) and direct (e.g., training programs and policies to improve commitment, control and sense of challenge).
A number of leadership theories are also suggestive of pathways through which high hardy leaders may exert positive influence on hardiness in their subordinates. Transformational leadership theory (Bass, 1998; Burns, 1978) for example indicates that “inspirational motivation” is necessary for stimulating extra effort and performance in work groups. According to Bass and Avolio (1994):

“transformational leaders behave in ways that motivate and inspire those around them by providing meaning and challenge to their followers’ work. Team spirit is aroused. Enthusiasm and optimism are displayed. The leader gets followers involved in envisioning attractive future states. The leader clearly communicates expectations that followers want to meet and also demonstrates commitment to goals and the shared vision.” (p.3)

Thus, transformational leadership is believed to work in part through a process whereby leaders generate an increased sense of meaning, commitment and challenge amongst their subordinates. Gal (1987) argues that transformational leaders exert their positive influence primarily by increasing commitment levels in their subordinates. In fact, some studies have found a direct positive relation between inspirational motivation and subordinate resilience and innovation (Elenkov, Judge & Wright, 2005). The positive influence of transformational leaders appears then to be related to several important features of hardiness, including commitment and a strong sense of purpose or meaning.

The “path-goal” theory of leadership (House, 1971) also places heavy importance on leaders’ building up commitment and motivation in their worker. This perspective focuses attention on how leaders influence the motivation of subordinates by identifying what are the important goals, and then structuring situations so that subordinates experience personal rewards for attaining these goals (House, 1996). Leaders demonstrate Supportive, Directive, Participative, or Achievement leadership depending upon personal style and preference, as well as the demand requirements the situation (House & Mitchell, 1974). According to the theory, the achievement-oriented leader is able to tap into and even increase followers’ motivation to overcome obstacles, and to apply this motivation in the pursuit of group goals. This is just how high hardy individuals react to unexpected or highly stressful situations. They tend to interpret these situations as challenges and opportunities to learn and improve. At the opposite end of the continuum, the low-hardy, low achievement person perceives changes more as threats or disruptions, things that should be avoided. Thus, path-goal leadership theory suggests another pathway through which leaders who are high in hardiness (and achievement orientation) may influence the motivation, thinking and behavior of subordinates in a positive direction.

A more recent perspective which builds on transformational leadership theory is known as «authentic leadership» (Avolio & Gardner, 2005). Authentic leaders are characterized by four principal qualities: (1) relational transparency, or honesty in relationships, including admitting mistakes; (2) internalized moral perspective, strives to do the right thing, including aligning actions with words; (3) balanced processing, is open to different perspectives and points of view; and (4) self awareness, is aware of self and others, and how one’s actions may impact on others. The authentic leader or person takes ownership over his own thoughts and actions, and
accepts responsibility for them. Authentic leaders are believed to exert influence in the workplace largely through positive role modeling (Avolio, Gardner, Walumbwa, Luthans, & May, 2004). This perspective is clearly related to existential ideas on authenticity, active engagement with the world, self and others, and taking control and responsibility for one's own choices and actions (Maddi, 1989).

**Recommendations for Leaders: How to Increase Hardiness**

Based on the above discussion, several recommendations follow for steps that leaders can take to increase hardiness across their organizations. Perhaps most important, leaders should set a clear positive example, providing subordinates with a role model of the hardy approach to life and work, and how to cope with stressful experiences. Through their actions and reactions, leaders should demonstrate a strong sense of commitment, control and challenge, responding to stressful circumstances with an attitude that says stress can be valuable, and that stressful events always at least provide the opportunity to learn and grow. Subordinates observe their leaders closely, and will tend to model themselves after the leader’s example.

- Facilitate positive group sense-making of experience, in how tasks and missions are planned, discussed, and executed, and also in how mistakes, failures, and casualties are spoken about and interpreted. For example, do we accept responsibility for mistakes and seek to learn from them, or do we blame others and avoid responsibility (and learning)? Leaders build resilience by setting high standards, while addressing shortfalls and failures as opportunities to learn and improve. While most of this “sense-making” influence occurs through normal day-to-day interactions and communications, it can also happen in the context of more formal after-action reviews, or debriefings that focus attention on events as learning opportunities, and create shared positive constructions of events and responses around events.

- Provide meaningful and challenging group tasks, while assuring that the work group has the needed resources to accomplish these tasks. When failures occur, look for what went wrong and seek to correct it, rather than punish or berate workers. What can be learned from the experience so that we do better next time? Capitalize on group success by providing recognition, awards, and opportunities to reflect on and magnify positive results, such as photographs, company newsletter stories, employee or team of the month awards, and so forth.

- Always communicate a high level of respect and commitment to subordinates and peers in the organization. This is done by means of respectful communications, as well as supportive actions and policies such as health promotion and personal/professional development opportunities. These help to foster a strong sense of commitment to the organization and its missions and goals.

- Build cohesion in teams and across the organization by providing opportunities for socializing and interacting both on the job and outside of work. At work, provide comfortable areas where workers can meet informally, such as lunch and break rooms. Sponsor offsite team activities such as sports competitions, community and charity benefit projects, and educational or professional development trips. These also build organizational cohesion and commitment.
Tables 1-3 present some further specific leader actions that can build hardiness commitment, control and challenge, as well as actions that can diminish these hardiness tendencies. In considering these, it’s important to remember that the hardiness facets overlap and interact with each other a great deal. Many leader actions and policies thus may influence more than one hardiness facet simultaneously.

**Table 1**

**Leader Actions to Foster Mental Hardiness: Commitment**

<table>
<thead>
<tr>
<th>How to Build Commitment</th>
<th>How to Diminish Commitment</th>
</tr>
</thead>
<tbody>
<tr>
<td>➤ Support workers’ attempts to give their own ideas; use their skills and talents to get tasks accomplished</td>
<td>➣ Do not accept feedback, input from subordinates</td>
</tr>
<tr>
<td>➤ Give recognition, awards, praise for accomplishments</td>
<td>➣ Criticize and denigrate worker initiative</td>
</tr>
<tr>
<td>➤ Use teamwork and cohesion-building activities</td>
<td>➣ Be self-absorbed and self-promoting</td>
</tr>
<tr>
<td>➤ Provide meaningful tasks where progress is visible</td>
<td>➣ Keep apart and take special privileges for yourself</td>
</tr>
<tr>
<td>➤ Support individual professional development (education, learning opportunities)</td>
<td>➣ Be unfair or stingy with rewards, benefits, recognition</td>
</tr>
<tr>
<td>➤ Be fair; do not show favoritism</td>
<td>➣ Avoid direct interactions with workers</td>
</tr>
<tr>
<td>➤ Be visible, spend time with workers</td>
<td>➣ Do not provide workers with information about the mission and goals of the organization, the purpose</td>
</tr>
<tr>
<td>➤ Share hardships with workers</td>
<td>➣ Show favoritism</td>
</tr>
<tr>
<td>➤ Provide information about what you are doing and why, purpose</td>
<td>➣ Show no interest in workers’ individual aspirations</td>
</tr>
</tbody>
</table>

As the left side of Table 1 shows, hardy leaders build up commitment by taking steps to engage workers in the mission in significant ways, seeking their input and ideas. Worker initiative is welcomed and rewarded. Team and cohesion building activities also build enhanced commitment to the group and to the shared values of the organization. Leaders who are fair, and who do not take special privileges for themselves further inspire trust and a desire in workers to emulate them. When hardships occur, such as pay cuts or long hours to meet production deadlines, hardy leaders share those hardships evenly, and do not exclude themselves. They are also visible and interact regularly with employees. Perhaps most important, they take the time and trouble to explain to workers what it is they are doing and why..... what is our purpose? The more workers can understand the overall purpose and meaning behind their activities, the greater will be their sense of commitment. On the right side of Table 1 are listed some parallel actions that leaders should avoid, as they have the effect of diminishing worker commitment.
Leaders who wish to increase the sense of hardiness-control in their employees should see to it that the tasks that are assigned are within the capabilities and skill levels of those employees to perform. Tasks that are too easy can lead to boredom, while those that greatly exceed worker abilities can be overwhelming and anxiety-producing (Csikszentmihalyi, 1975). When work assignments match or slightly exceed a worker’s abilities, he is likely to engage fully and realize success, enhancing the sense of control and mastery. Whether in training programs or production activities, it is best to follow a graduated schedule in which small, manageable tasks are presented first, followed by more demanding ones as skill and confidence develops. Research with security forces trainees has shown that this graduated approach, when coupled with supportive feedback from instructors, results in an increase in hardiness (Zach, Raviv & Inbar, 2007). A contextual factor that is often overlooked involves resources. Workers should be provided the tools, supplies, and needed time to complete a job satisfactorily. No matter the worker’s skills, if essential materials or time are unavailable, the job will not be done properly or to schedule. This can add to the worker’s sense of powerlessness or inability to control outcomes. Related to this, the effective leader needs to make a realistic appraisal of what can be accomplished with the time, resources, and workforce available, and set high but achievable standards of performance.

Table 2
Leader Actions to Foster Mental Hardiness-Control

<table>
<thead>
<tr>
<th>How to Build Control</th>
<th>How to Diminish Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provide tasks that are challenging but within employees’ capabilities to achieve</td>
<td>Assign too many tasks for the time available</td>
</tr>
<tr>
<td>Establish graduated training and production programs: crawl—walk—run</td>
<td>Assign tasks that are too difficult for workers’ skill levels</td>
</tr>
<tr>
<td>Provide resources and time needed to accomplish goals</td>
<td>Criticize and punish workers for failure</td>
</tr>
<tr>
<td>Set achievable standards</td>
<td>Do not listen to feedback</td>
</tr>
<tr>
<td>Build on success; seek short-term wins to build on</td>
<td>Do not provide needed resources</td>
</tr>
</tbody>
</table>

The challenge aspect of hardiness likewise can be encouraged across the organization by a number of leader actions and workplace policies. Number one is by leaders setting a good example to follow. The high-challenge person enjoys variety and sees change as a chance to learn and grow, rather than something to be feared and avoided. Leaders should demonstrate this approach in their own daily lives, especially at where they are most visible to employees – at work. When confronted with some surprising event, even something negative, the high hardy leader will show a calm demeanor, and an interest in learning more and solving the problem if possible. He accepts responsibility for failures, and avoids blaming others when things go wrong.
Also, the high hardy leader is willing to shift and change approaches in the face of changing conditions, and is willing to experiment with new ideas. In addition to modeling these qualities, the leader also seeks to create a work environment that rewards and reinforces them across the workforce. This can be done for example via policies that permit flexible routines and schedule changes. Highly regimented schedules and inflexible systems tend to frustrate innovation and experimentation. While organizations differ in terms of the challenges and risks that must be managed, leaders should strive for a reasonable balance between standardization and flexibility. Even in high-risk organizations where the costs of failure can be very high, some flexibility in rules and routines can lead to increased resilience (Grote, Weichbrodt, Günter, Zala-Mező & Künzle, 2009).

Table 3
Leader Actions to Foster Mental Hardiness-Challenge

<table>
<thead>
<tr>
<th>How to Build Challenge</th>
<th>How to Diminish Challenge</th>
</tr>
</thead>
<tbody>
<tr>
<td>↑ Role model enjoyment, fun in variety</td>
<td>↓ Avoid change or surprise at all cost</td>
</tr>
<tr>
<td>↑ Always emphasize value of change for learning</td>
<td>↓ Never take a risk</td>
</tr>
<tr>
<td>↑ Incorporate surprises and variation into schedules</td>
<td>↓ Restrict innovation and experimentation by requiring rules and permission for everything</td>
</tr>
<tr>
<td>↑ Be willing to change the plan to meet changing circumstances</td>
<td>↓ Never change the plan or schedule</td>
</tr>
<tr>
<td>↑ Treat failures as chance to learn</td>
<td>↓ Blame others for mistakes and failure</td>
</tr>
<tr>
<td></td>
<td>↓ Denigrate others for failure</td>
</tr>
</tbody>
</table>

Conclusion

Worker resilience has become a more important concern for leaders and organizations, in part because periods of rapid change and uncertainty can mean increased stress for workers, and more stress-related problems. This has led many organizations to institute “quick-fix” training programs aimed at building individual “resiliency skills,” most of which have met with limited success. As discussed by Cooper, Flint-Taylor & Pearn (2013), this may be due to leaders failing to recognize and address contextual factors in the workplace that influence worker stress and resilience. This chapter has taken a close look at the concept of psychological hardiness, an individual trait as well as a state that contributes to stress resilience and adaptability across a range of circumstances and occupations. Understanding how the hardiness facets of commitment, control and challenge operate to make people more stress resilient, leaders can act to facilitate more positive and resilient thinking and behavior – increased hardiness – across the entire organization. Leaders exert positive influence on worker hardiness, adaptability and resilience by the examples they provide, and by establishing policies that support high levels of engagement and commitment, personal control, and challenge perspectives in their employees.
References


Psychological Hardiness Predicts Adaptability in Military Leaders: A prospective study

Paul T. Bartone*, Dennis R. Kelly** and Michael D. Matthews**

*Center for Technology and National Security Policy, National Defense University, Washington, DC, USA. bartonep@ndu.edu
**United States Military Academy, West Point, NY, USA

To perform effectively in complex mission environments, security personnel and leaders must be flexible and adaptable in responding to rapidly changing conditions. Psychological hardiness marks resilient people who maintain their health and performance despite stressful situations. The present study evaluates psychological hardiness at entry to West Point military academy as a predictor of leader performance and adaptability over time. Predictors also included Scholastic Aptitude Test (SAT) scores, and a composite indicator of leader potential (Whole Candidate Score) taken from admissions records. Using the Pulakos adaptability taxonomy as a guide, adaptability performance items were taken from a survey of graduates given 3 years after graduation. Also, military leadership grades as West Point seniors provided an index of traditional military performance. Hierarchical regression analyses showed that Whole Candidate Scores predict military leader performance at West Point, but not leader adaptability after graduation. However, hardiness predicts leader performance at West Point, and also leader adaptability (self- and supervisor ratings) after graduation. SAT scores and the challenge facet of hardiness are negative predictors of leader performance at West Point. Results indicate that while the traditional measures Whole Candidate Score predicts leader performance in the stable, highly regulated environment of West Point, it does not predict leader adaptability and performance in the uncertain environment of real-world operations. In contrast, psychological hardiness (commitment and control facets) measured as academy freshmen predicts leader adaptability in officers measured 7 years later. Psychological hardiness appears to be a promising factor in promoting the development of adaptability.

1. Introduction

In today’s rapidly changing world, the challenge for workers to adjust and adapt quickly to changing circumstances has grown substantially (Ilgen & Pulakos, 1999). New technologies, equipment, and systems appear at a fast pace, changing the way many work tasks get accomplished (Thach & Woodman, 1994). In addition to changing technologies, increasing globalization of operations for many firms means that employees often must learn to function effectively in unfamiliar cultures and languages (Molinsky, 2007).

The concept of adaptability has been broadly applied at many levels, from biological systems (Darwin, 1859; Ben-Jacob, 2003) to individuals (Burke, Pierce, & Salas, 2006), to teams (Hackman, 2002), organizations (Zaccaro & Banks, 2004), and even entire nations or cultures (Ben-Dor, 2004; Gaillard, 2007). Regardless, adaptability always has to do with effective change or adjustment in response to changing conditions (Mueller-Hanson, White, Dorsey, & Pulakos, 2005). A recent report by the Defense Science Board (2011) goes even further, defining adaptability as ‘… the ability and willingness to anticipate the need for change, to prepare for that change, and to implement changes in a timely and effective manner in response to the surrounding environment.’ (p. 3). This report also notes that in the new and rapidly changing global environment, the ability of defense agencies and military organizations and personnel to adapt is essential to successful performance.
A more detailed and work-behavior-oriented definition of adaptability is provided by Pulakos, Arad, Donovan, and Plamondon (2000). Based on a review of relevant literature, these authors posit a ‘taxonomy’ of adaptive performance that includes the following eight dimensions: (1) handling emergencies or crisis situations; (2) handling work stress; (3) solving problems creatively; (4) dealing with uncertain and unpredictable work situations; (5) learning new work tasks, technologies, and procedures; (6) demonstrating interpersonal adaptability; (7) demonstrating cultural adaptability; and (8) demonstrating physically oriented adaptability. These dimensions were supported by exploratory and confirmatory factor analytic findings (Pulakos et al., 2000), and by additional empirical studies examining predictors of adaptive job performance (Pulakos et al., 2002). The authors found that (self-reported) past experience in behaviors related to the eight adaptability dimensions was a predictor of adaptive performance (as measured by supervisor ratings). In addition, adaptive performance was predicted by cognitive ability ($r = .14$), and even more significantly by the noncognitive variables of achievement motivation ($r = .31$) and emotional stability ($r = .18$). These findings highlight the potential importance of noncognitive variables as well as cognitive ones to influence successful adaptive performance (Rumsey & White, 2010).

The present study was undertaken to test the potential influence of a promising noncognitive or personality variable, psychological hardiness, on later adaptive performance of military officers. Military personnel today are called upon to perform a wide variety of functions, from peacekeeping, nation building, and disaster response to counterinsurgency and combat operations. As noted in the Defense Science Board (2011) report, successful performance in this new and rapidly changing security environment calls for military personnel, and especially leaders, who are agile and quick to adapt to novel situations, and are relatively unperturbed by uncertainty. In this context, it is important to select officer candidates who are most likely to develop into adaptable leaders, and also to train and develop them in ways that maximize later adaptive performance.

Psychological hardiness is a constellation of personality qualities found to characterize people who remain healthy and continue to perform well under a range of stressful conditions (Kobasa, Maddi, & Kahn, 1982; Bartone, 1999; Bartone, Roland, Picano, & Williams, 2008). The key facets of hardiness are commitment—an active engagement and involvement with the world, and a sense of meaning in life (vs. isolation), control—a belief that through effort one can influence events and outcomes, and challenge—a receptivity to variety and change. As a personality variable, hardiness and the facets of commitment, control, and challenge appear to be distinct from any of the ‘Big Five’ personality dimensions.

The Big Five, or ‘Five Factor Model’ of personality (neuroticism, extraversion, openness, agreeableness, and conscientiousness) has emerged in recent years as a potential unifying framework for describing normal personality (Digman, 1990; McCrae & John, 1992). A growing body of research has explored the influence of these five general personality dimensions on leadership and job performance (e.g., Barrick & Mount, 1991; McCormack & Mellor, 2002; Rubenzer, Faschingbauer, & Ones, 2000). Several meta-analytic studies have examined the effects of Big Five personality dimensions on leadership, across multiple studies and groups (Judge & Bono, 2000; Judge, Bono, Ilies, & Gerhardt, 2002). A comprehensive review by Judge et al. (2002) indicates that of the Big Five dimensions, extraversion and conscientiousness show the most consistent effects on leadership performance, while effects of openness, neuroticism, and agreeableness are more variable. Big Five-corrected mean correlations with leader performance have ranged from .31 (extraversion) to .08 (agreeableness; Judge et al., 2002). Further inconsistencies with the Big Five are seen in cross-cultural research. For example, in a sample of Chinese business school students, extraversion was negatively related to transformational leadership style, while neuroticism correlated in the expected direction (Shao & Webber, 2006).

Thus, while the Big Five model represents a significant advance in personality research, it nevertheless does not encompass all of the important personality factors that may influence performance. Block (1995) for example has criticized the Five Factor approach as being too global to be of practical value in understanding actual behavior. Similarly, Hough (1992) argues that the Big Five factors are too broad to adequately predict important life outcomes or criteria. Judge et al. (2002) attempt to address this problem by focusing on the 30 underlying, more specific Big Five facets (according to Costa & McCrae, 1992) as predictors of leadership. Their results are somewhat mixed, but they did find that leadership performance was more strongly predicted by facets of conscientiousness (achievement and dependability) and extraversion (sociability and dominance) than by any of the global dimensions.

The question of whether the Five Factor model is fully adequate for describing normal personality extends beyond this levels-of-analysis perspective of Judge et al. (2002) and even earlier by Mount and Barrick (1995). It is conceivable that some important personality characteristics are not captured at all by the Big Five, no matter how finely the general dimensions are broken down. Conceptually and empirically, hardiness appears to be independent of all of the Big Five dimensions. In a study that examined hardiness alongside the ‘Big Five’
personality dimensions of neuroticism, extraversion, openness, conscientiousness, and agreeableness, hardness emerged as a unique predictor of cadet performance during the summer field training months, as well as during the academic year (Bartone, Eid, Johnsen, Laberg, & Snook, 2009). In this study, the effects of hardness were over and above any variance accounted for by the Big Five personality factors. And while hardness did show modest correlations with Big Five conscientiousness ($r = .18, p < .01$), extraversion ($r = .14, p < .01$), and neuroticism ($r = -.25, p < .001$), these correlations were all substantially lower than several intercorrelations within the Big Five factors, as for example, conscientiousness with neuroticism ($r = -.67, p < .001$); extraversion with neuroticism ($r = -.40, p < .001$); and conscientiousness with extraversion ($r = .50, p < .001$). This further argues for the independence of hardness from the Big Five dimensions.

The concept of hardness is theoretically grounded in the work of existential philosophers and psychologists (Kobasa & Maddi, 1977) such as Heidegger (1986), Frankl (1960), and Binswanger (1963). It is a broad, generalized perspective that affects how one views the self, others, work, and even the physical world (in existential terms, umwelt, the ‘around’ or physical world; mitwelt, the ‘with’ or social world, and eigentwelt, the world of the self). People high in hardness see life as meaningful and worthwhile, even though it is sometimes painful and disappointing. The commitment facet of hardness builds on the work of Antonovsky (1974), whose ‘sense of coherence’ entails commitment and engagement with others, which lends resistance to the ill effects of stress. White’s (1959) ideas on self-awareness and striving for competence also influenced Kobasa’s understanding of commitment. Hardiness-commitment provides a sense of internal balance and confidence, which is important for realistic assessment of stressful and threatening situations.

The control facet of hardness derives primarily from Rotter’s concept of locus of control (Rotter, Seeman, & Liverant, 1962) and Lefcourt (1973) on control beliefs. Kobasa’s emphasis on control was also influenced by extensive experimental research showing that when subjects have control over aversive stimuli, the stress effects are substantially reduced (e.g., Averill, 1973; Seligman, 1975). In the hardness model, challenge involves an appreciation for variety and change in the environment, and a motivation to learn and grow by trying new things. Primary theoretical influences on challenge are Fiske and Maddi (1961) on variety in experience, and Maddi (1967) on engagement versus alienation. Maddi (1967) used the term ‘ideal identity’ to describe the person who lives a vigorous and proactive life, with an abiding sense of meaning and purpose, and a belief in his/her own ability to influence things. This is contrasted with the ‘existential neurotic’ who shies away from change, seeking security, and sameness in the environment. Although Kobasa described hardness in terms of these three personality traits (commitment, control, and challenge), it is best considered as a general style, a holistic pattern rather than individual, discrete traits. In Adler’s (1956) terms, hardness would be a ‘worldview’ or broad framework that people apply to interpret their entire experience. It is a generalized style of functioning that includes cognitive, emotional, and behavioral features, and characterizes people who stay healthy under stress in contrast to those who develop stress-related problems.

Since Kobasa’s original report on hardness and health in executives (Kobasa, 1979), an extensive body of research has accumulated showing that hardness protects against the ill effects of stress on health and performance. Studies with diverse occupational groups have found that hardness operates as a significant moderator or buffer of stress (e.g., Contra, 1989; Kobasa et al., 1982; Roth, Wiebe, Fillingim, & Shay, 1989; Wiebe, 1991; Maddi & Kobasa, 1984). Hardiness has also been identified as a moderator of combat exposure stress in Gulf War soldiers (Bartone, 1993; Bartone, 1999; Bartone, 2000). Psychological hardness has emerged as a stress buffer in other military and security groups as well, including US Army casualty assistance workers (Bartone, Ursano, Wright, & Ingraham, 1989), peacekeeping soldiers (Bartone, 1996; Brit, Adler, & Bartone, 2001), Israeli soldiers in combat training (Florian, Mikulincer & Taubman, 1995), Israeli officer candidates (Westman, 1990), and Norwegian Navy cadets (Bartone, Johnsen, Eid, Brun & Laberg, 2002). Studies have found that troops who develop post-traumatic stress disorder (PTSD) symptoms following exposure to combat stressors are significantly lower in hardness, compared to those who do not get PTSD (Bartone, 1999). Moreover, there is evidence that high-hardy soldiers not only adapt better during operational deployments, but also adjust more favorably in the months following their return from deployments (Britt et al., 2001).

Earlier research at West Point found that psychological hardness is a predictor of several important outcomes. For example, across multiple West Point classes, Kelly and Bartone (2005) found the hardness facet of commitment to be particularly important in predicting cadets who successfully complete the rigorous 6-week Cadet Basic Training, versus those who drop out. Hardiness-commitment also predicts retention throughout the 4-year West Point experience, and successful graduation. Total hardness and the hardness facet of commitment were also found to predict military program scores, which are grades received by cadets for their performance of military and leadership tasks. Other studies found hardness-commitment to be a stronger predictor of retention at West Point than the
traditional weighted composite (Whole Candidate Score; WCS) of academic aptitude, leadership, and physical fitness indicators (Kelly, Matthews, & Bartone, 2005). Also, hardness was second only to high school class rank in its relationship to military program scores (Kelly et al., 2005).

Based on these earlier findings as well as theoretical considerations, it was expected that psychological hardness in cadets would be predictive of adaptive performance as army officers. Conceptually, hardness is a set of qualities that confers resistance to the ill effects of stress. Many studies have confirmed that people who are high in hardness adjust to stressful conditions more effectively than those low in hardness, both in terms of health (Beehr & Bowling, 2005; Contrada, 1989; Hystad, Eid, Laberg, Johnsen & Bartone, 2009; Kobasa et al., 1982; Waysman, Schwarzwald, & Solomon, 2001) and performance (Bartone et al., 2009; Golby & Sheard, 2004; Hanton, Evans, & Neil, 2003; Johnsen, Eid, Pallesen, Bartone, & Nissestad, 2009). This entails adjusting effectively in the face of changes and unexpected events in life. High-hardy persons typically interpret experience as (1) overall interesting and worthwhile (commitment), (2) something they can exert control over (control), and (3) challenging opportunities to learn and grow (challenge).

We expect all three hardness facets to contribute to adaptive performance. Commitment should help people be more adaptable in novel and rapidly changing situations since the high-commitment person tends to see all experience as interesting and meaningful, and also has a strong sense of self and confidence in his own abilities (Kobasa, 1979). People high in commitment are more intimately engaged with the world, seeing their experience as generally meaningful and important. They are more interested in what is going on around them, more attentive, and thus, more likely to perceive different aspects of situations, as well as to envision multiple possible response alternatives.

Control should likewise lead to greater adaptability since people high in control approach novel situations with the belief they can respond well and influence outcomes. Regardless of changing conditions, those with a strong sense of control tend to believe they can influence and manage events effectively. Studies have shown, for example, that hardness increases the sense of self-efficacy, which in turn can lead to more positive and healthy behaviors (Oman & Duncan, 1995; Delahajj, Gaillard, & van Damb, 2010).

Challenge should also facilitate greater adaptability. By definition, hardness-challenge involves an abiding acceptance of change in life, and a proclivity for variety. People high in challenge enjoy novelty and tend to see changing circumstances as an opportunity to learn. Thus, challenge should facilitate a person’s adapting to changing conditions. Specifically, we hypothesize that:

1. Hardiness-commitment is related to adaptive performance.
2. Hardiness-control is related to adaptive performance.
3. Hardiness-challenge is related to adaptive performance.

There has been some debate in the field as to whether hardness is best considered a unitary construct, or whether it is three separate but related constructs of commitment, control, and challenge (Funk, 1992; Maddi & Kobasa, 1984). Early studies often considered only the three facets (e.g., Florian, Mikulincer, & Taubman, 1995). More recent work has examined hardness total scores as well as the facets, finding meaningful effects under both approaches (Johnsen et al., 2009; Eid, Johnsen, Bartone & Nissestad, 2008). A recent confirmatory factor analysis conducted in a large sample of Norwegian defense workers suggests that both approaches make sense (Hystad, Eid, Johnsen, Laberg & Bartone, 2010). Here, the best fitting model was a hierarchical one in which the three hardness facets are nested under general higher order factor of hardness. For this reason, we also examine the impact of the higher order construct of hardness on adaptability.

2. Method

2.1. Participants

At the start of the research, participants were all freshmen cadets in the West Point classes of 2005 and 2006 (n = 2,383 combined). These were typical West Point cohorts in terms of gender (16% female) and race (24% non-White), and graduation rate (n = 1,818; 76%). Initial survey distribution to the graduates of the Classes of 2005 and 2006 was conducted in September 2008 and September 2009, respectively. Graduates had typically attained the rank of first lieutenant in the United States Army.

Of the 1,731 graduates from both classes that received a survey, 694 responded with completed surveys (40% response rate). Of these 694 respondents, 259 also forwarded the companion commander survey to their direct supervisors for completion (37%). This is consistent with previous graduate surveys, where only about 40% of graduates pass the commander survey on to their supervisors. Of the 259 commander surveys distributed, 145 were completed and returned (56% response rate).

2.2. Predictor variables

2.2.1. Hardiness

To measure hardness, this study used the Dispositional Resilience Scale – DRS-15 (v.1), which includes five items each to measure the hardness facets of commit-
ment, control, and challenge (Bartone, 1995). The scale was administered as part of the Reception Day battery of tests taken by all new West Point cadets shortly after they arrive as freshmen. The commitment scale of the DRS-15 measures active engagement or involvement in life (as opposed to alienation). Control measures the belief that one can influence events in his/her experience (as opposed to a sense of powerlessness). Challenge measures openness and receptivity to variety and changes in life, which are seen as opportunities (as opposed to a threat perspective, or the tendency to see change as threatening and frightful). Cronbach’s alpha reliability coefficients for the DRS-15(v.1) are reported at .82 for total hardness, and commitment = .77; control = .68; challenge = .69 (Bartone, 1999). The 3-week test-retest reliability coefficient is .78 (Bartone, 2007).

2.2.2. Whole Candidate Score
The Whole Candidate Score (WCS) is a weighted composite of academic (greatest weight; includes high school rank, Scholastic Aptitude Test Verbal and Math scores), leadership (moderately weighted; extracurricular activities including school officers, newspaper, music, scouting, debate, foreign study, etc., and faculty appraisals) and physical fitness (lightly weighted; assessment on standardized physical exercises, including kneeling basketball throw, long jump, pull-ups, and shuttle run) indicators. WCS scores were obtained from the West Point Admissions Office records.

2.2.3. Scholastic Aptitude Test total score
In addition to WCS, total Scholastic Aptitude Test (SAT) score (verbal + math) was included as a separate predictor of adaptability performance. These scores were also obtained from West Point Admissions Office records.

2.3. Criterion variables
Measures of performance were obtained at two intervals, as seniors at West Point, and as graduates 3 years later. For the measure of leader performance at West Point, we used the cumulative Military Program Score (MPS). The MPS is the cumulative (overall 4 years of undergraduate work) weighted average of grades received in 16 domains of leadership and military performance. Evaluations are made by the cadet’s military chain of command and instructors, including cadet summer training and military duty performance during each term (70% total) and military science courses during the academic year (30% total). The scores are weighted progressively, with activities completed at higher levels of responsibility receiving greater weight in the overall MPS score.

Adaptability as graduates was measured by means of self- and supervisor ratings of adaptability 3 years after graduation, in a survey administered to the Classes of 2005 and 2006. The survey questions were part of a larger set developed by the West Point Institutional Assessment Committee to evaluate the military, leadership, intellectual, physical, moral-ethical, and human spirit dimensions of development. Response options reflect ratings of the graduate’s ability to perform in each of the skill areas, using a 5-point Likert rating scale ranging from ‘very confident’ to ‘not at all confident’.

2.3.1. Adaptability
The adaptability scale was constructed from a subset of 10 survey items (Cronbach’s alpha = .90) that were judged to closely map with the dimensions of the Adaptive Performance Taxonomy of Pulakos et al. (2000). Only items that appeared in both the 2005 and 2006 surveys were used in this scale. The adaptability scale covers all eight of the Pulakos et al. (2000) adaptability dimensions. Scores reflect the mean rating of the 10 items making up the scale (Table 1).

2.4. Procedures
The DRS-15 hardness measure was completed by all members of the West Point Classes of 2005 and 2006 at entry (July 2001 and July 2002, respectively). On the second and third days after arrival, the new cadets attended routine group testing sessions. After agreeing to participate, the cadets completed the hardness measure as one of a battery of tests administered at the testing session. The WCS composite, SAT scores, and cumulative (includes freshman through senior year grades) military program scores were taken from official college records, and then cross-linked with the predictor data.

Three years after graduation from West Point (7 years after completing the hardness measure as a new cadet at West Point), graduate surveys were sent to the army e-mail addresses of all Class 2005 and Class 2006 graduates, with surveys to commanders attached. Graduates were asked to complete their own survey, and also forward the commander survey to their present commander for completion and electronic submission to researchers at West Point. Thus, measures of West Point graduate performance were derived from survey ratings provided by graduates themselves, as well as by their immediate commanders.

3. Results
Table 1 lists the survey items chosen to assess adaptability, and shows how these align with the eight adaptability dimensions of Pulakos et al. (2000)
Correlations of all predictor and outcome variables are presented in Table 2. Predictors include the three measures obtained at entry to West Point: WCS; total SAT score; and self-ratings on the hardiness facets of commitment, control, and challenge. Criterion variables include cumulative (as a senior at West Point) Military Program Score (MPS); and self- and commander ratings of leader adaptability.

Results reveal that WCS is a significant predictor of military leader performance while at West Point – but has no apparent relation to military performance as a junior army officer. Hardiness-commitment is correlated with military performance while a cadet at West Point, and also with later self-ratings of adaptability, but not with commander ratings. Hardiness-control shows a significant correlation with military performance at West Point, and also correlates with self- and commander ratings of adaptability. Finally, total hardiness scores are correlated with military performance at West Point, and with self-ratings of adaptability.

To follow-up on these correlational findings, hierarchical multiple regressions were performed with SAT scores entered at Step 1, WCSs at Step 2, and the hardiness facets of commitment, control, and challenge at Step 3. The three performance variables were examined in three separate regressions: military leader performance at West Point (Table 3), self-rated leader adaptability as officers 3 years after graduation (Table 4), and commander-rated leader adaptability, also as officers 3 years after graduation (Table 5).

As is seen in Table 3, SAT scores alone do not predict military performance at West Point. However in the final model including WCS and the hardiness facets, SAT scores are a negative predictor of military performance. Hardiness-challenge is also a negative predictor. WCS is the strongest positive predictor of military performance, with hardiness-commitment and control also contributing positively. The pattern suggests that more intelligent (SAT score) and adventurous (challenge) cadets do not perform as well in the conventional military and leadership tasks in the West Point environment.

A different pattern emerges for adaptability ratings (self) as army officers 3 years after graduation (Table 4). Here, hardiness facets commitment and control are positive predictors of adaptability, while SAT, WCS, and challenge scores do not contribute.

For supervisor ratings of adaptability as army officers, hardiness-control is the only significant predictor (Table 5). However, the overall model accounts for a larger percentage of variance ($R^2 = .18$) than any previous model. Traditional predictors of leadership success (WCS) appear unrelated to later performance as adaptable, flexible leaders, either by self- or supervisor ratings. As a further check on these findings, we repeated these regressions but with total hardiness entered in the third step rather than the three hardiness facets. A similar pattern emerged, with total hardiness a significant predictor of military performance at West Point and also later adaptive performance measured by self-report. However, total hardiness did not predict supervisor ratings of adaptive performance. Also, all models using the facets of hardiness rather than total hardiness yielded higher $R^2$ coefficients, accounting for more variance in performance outcomes.

### 4. Discussion

Results of this study show that WCS, a measure that reflects a range of high school activities including sports and leadership roles, serves as a good predictor of military and leader performance of cadets while they are at West Point. In addition, SAT scores and hardiness-challenge emerged as negative predictors of military performance at West Point. Like other military service...
Table 2. Means, standard deviations, and intercorrelations for all study variables (graduating cadets only)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>SD</th>
<th>SAT</th>
<th>WCS</th>
<th>COMM</th>
<th>CONT</th>
<th>CHAL</th>
<th>HARDY</th>
<th>MPS</th>
<th>Adapt-Self</th>
<th>Adapt-Supv</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAT score</td>
<td>1,209.99 (1,698)</td>
<td>256.71</td>
<td>1.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>WCS score</td>
<td>6,065.38 (1,798)</td>
<td>380.18</td>
<td>.24*** (1,698)</td>
<td>1.0</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Commitment</td>
<td>10.79 (1,768)</td>
<td>1.96</td>
<td>.02 (1,669)</td>
<td>.05* (1,768)</td>
<td>1.0</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Control</td>
<td>10.20 (1,762)</td>
<td>1.98</td>
<td>.06*** (1,664)</td>
<td>.10*** (1,762)</td>
<td>.50*** (1,755)</td>
<td>1.0</td>
<td></td>
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<tr>
<td>Challenge</td>
<td>8.67 (1,761)</td>
<td>2.57</td>
<td>.04 (1,664)</td>
<td>.04 (1,761)</td>
<td>.17*** (1,750)</td>
<td>.02 (1,748)</td>
<td>1.0</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Hardiness total</td>
<td>29.69 (1,742)</td>
<td>4.49</td>
<td>.01 (1,664)</td>
<td>.00 (1,742)</td>
<td>.75*** (1,742)</td>
<td>.67*** (1,742)</td>
<td>.66*** (1,742)</td>
<td>1.0</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>MPS – Military</td>
<td>2.92 (1,798)</td>
<td>.42</td>
<td>.00 (1,698)</td>
<td>.27*** (1,798)</td>
<td>.12*** (1,768)</td>
<td>.08** (1,762)</td>
<td>.04 (1,761)</td>
<td>.06** (1,742)</td>
<td>1.0</td>
<td></td>
<td></td>
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<tr>
<td>Program Score</td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Adapability – self-rating</td>
<td>45.62 (862)</td>
<td>4.00</td>
<td>.03 (650)</td>
<td>.06 (682)</td>
<td>.24*** (670)</td>
<td>.25*** (671)</td>
<td>.09* (670)</td>
<td>.27*** (664)</td>
<td>.05 (682)</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>Adapability – supervisor rating</td>
<td>44.42 (132)</td>
<td>5.49</td>
<td>.11 (126)</td>
<td>.03 (132)</td>
<td>.10 (130)</td>
<td>.36*** (131)</td>
<td>.09 (131)</td>
<td>.14 (130)</td>
<td>.20* (132)</td>
<td>.23*** (128)</td>
<td>1.0</td>
</tr>
</tbody>
</table>

Note: *=p < .05, **=p < .01, ***=p < .001. Pairwise deletion of missing data; n for the correlations (shown in parentheses) vary due to missing data for some variables. SAT scores = total Scholastic Aptitude Test achievement scores. WCS (Whole Candidate Score) is a weighted composite of academic, leadership, and physical fitness indicators used in the admission process at West Point. Hardiness ratings were made by West Point cadets from the Classes of 2005 (n = 1,186) and 2006 (n = 1,197) at entry into academy (July 2001 and July 2002, respectively). Only those cadets from both classes who graduated are included here (n = 1,798). The MPS (Military Program Score) reflects cadets’ cumulative grades over four years in military and leadership performance.

A strong sense of control is perhaps especially important for positive, adaptive development in high-risk environments. A strong sense of control is needed to adjust and adapt quickly to rapidly changing conditions. The ability to adjust and adapt quickly to rapidly changing conditions is increasingly important in many occupational environments, especially in military personnel who are being deployed, especially in military personnel who are working today.

Looking prospectively over a 7-year period, we found that military academy cadets, including 7 years of academic training, followed by demanding first assignments as army leaders, often involving overseas deployments, may be those who begin their academy training with a stronger level of commitment and internal sense of control who are better able to capitalize and build on their experiences, even highly stressful ones, building confidence in their ability to shift modes quickly as conditions change. The ability to adjust and adapt quickly to rapidly changing conditions is increasingly important in many occupational environments, including military personnel who are working today.
occupations such as the military, which typically have strict routines and protections in place due to the dangerous nature of the work, and the risks associated with performance failures (Weick & Sutcliffe, 2001). In such relatively proscribed organizational environments, the strongly internal control-oriented person is more likely to take initiative to get things done, adjusting and adapting systems and procedures as needed. This balancing between regulation and flexibility is reminiscent of what Grote and colleagues have described at the organizational level as ‘flexible routines,’ or rules and patterns of behavior in high-risk organizations that are necessary to guide actions and maintain safety, yet must also be readily adapted when the situation changes, as is often the case in ambiguous and uncertain environments (Grote, Weichbrodt, Günter, Zala-Mezö, & Künzle, 2009). According to these authors, this flexible routine approach fosters resilience through ‘loose coupling’ in high-risk organizations. Similarly, the high-hardy, high-control person makes constructive use of routines and standards, yet is not overly constrained or rule-bound by them, and will find ways to adapt or adjust the rules to fit a changing situation.

While hardiness is often treated as a unitary construct, the present results show that the facets of commitment, control, and challenge can operate somewhat differently with respect to important performance outcomes. This underscores the value of examining the hardiness facets separately, along with total hardiness scores.
4.1. Study limitations

A potential limitation of this study concerns the generalizability of findings beyond the military occupation. Military training academies like West Point provide unusual environments and experiences, and the military occupation itself is not directly comparable to most other occupations. However, the military does provide a valuable context for studying leader performance under highly stressful and demanding conditions. As such, our results provide some promising new leads for understanding the determinants of adaptability under stress. Still, this research will need to be replicated in other, nonmilitary groups.

Another potential limitation of this study concerns the relatively small sample size obtained for supervisor ratings of officer adaptability. To assess the representativeness of this sample, we compared those with supervisor performance ratings (n = 145) to those with only self-ratings of performance on the graduate survey (n = 544). These two groups did not differ on any of the hardiness facets or other study variables. Next, we compared all of the graduate survey respondents (n = 694) to those graduates who did not respond (n = 1,104). These groups also did not differ with respect to hardiness or SAT scores. However, those who responded to the graduate survey showed slightly higher WCSs (p < .05) and military performance grades (p < .001) while at West Point. This likely reflects a tendency for better performing officers to be more inclined to complete the graduate survey. This should not influence our results regarding hardiness and later performance differences as officers. If anything, having a sample of somewhat better performers would create a range restriction problem for performance ratings in this group, making any associations with predictor variables more difficult to detect, not less. This should lend greater confidence to any observed significant predictive associations.

5. Conclusions

The present findings should be useful in informing policy and training programs for developing or encouraging higher levels of adaptability in personnel entering high-risk occupations, such as fire, police, and rescue personnel (Zaccaro, Weiss, Hilton, & Jeffries, 2011). For example, rather than trying to train mental agility or adaptability directly, our results suggest that a more successful approach would involve providing individuals with challenging tasks and experiences in an organizational context that maximizes and encourages individual initiative and control. By providing trainees with more choice and control in a challenging, stressful environment, the organization is fostering the growth of a sense of control and self-efficacy in its personnel, which should in turn lead to greater readiness and willingness to adapt in the face of changing conditions.

Our study adds to the growing evidence that noncognitive or personality factors are important predictors of human performance, in addition to cognitive ones. For example, in other research with West Point cadets, character strengths according to Peterson and Seligman (2004) were found to be associated with retention and academic, military, and physical fitness performance (Matthews, 2007). Also, ‘grit’ – a measure of passionate pursuit of long-term goals – has been linked to retention and a variety of other outcome measures among cadets (Duckworth, Peterson, Matthews, & Kelly, 2007). Another recent study with cadets found that the Big Five personality factors of extraversion and conscientiousness, as well as hardiness predicted academic and military performance (Bartone et al., 2009).

The present research shows that over a 7-year time frame, hardiness-control is predictive of later adaptability in army officer leaders. In contrast, traditional measures emphasizing cognitive abilities did not predict adaptability. Future efforts to understand the determinants of human adaptability should thus focus more attention on noncognitive motivational and personality factors that may contribute both directly and indirectly (e.g., in interaction with training approaches) to the development of greater adaptability.

References


Grit and Hardiness as Predictors of Performance Among West Point Cadets

Dennis R. Kelly and Michael D. Matthews
U.S. Military Academy, West Point, New York

Paul T. Bartone
National Defense University, Washington, District of Columbia

The U.S. Military Academy has historically used an academically weighted composite of aptitude, leadership, and physical ability indices for selection of candidates and to predict their performance at the Academy. Researchers at West Point have begun to investigate the incremental contribution of a variety of less traditional nonaptitude or noncognitive factors in predicting performance. Particular focus has centered on hardiness and grit because they have been shown to predict persistence through Cadet Basic Training (CBT) and achievement in the first year at the Academy. In the current investigation, we further examined the predictive validity of grit and hardiness, and their subfacets, on retention and performance through the full 4-year West Point program with data from 1,558 cadets, comprising the West Point classes of 2009 and 2010. Results of regression analyses indicate that whereas grit interest and hardiness commitment were the sole predictors of attrition from CBT, only grit effort predicted persistence across the remaining 4-year period. College Entrance Exam Rank (CEER), a traditional measure of academic success, did not predict persistence. In terms of performance, grit interest, and hardiness control added to CEER in the prediction of 4-year academic performance. Although CEER continued to be the best predictor of military performance, grit effort and hardiness commitment were also important contributors. Finally, grit effort also added to the Athletic Activities Score and CEER in predicting physical performance. These results indicate that the noncognitive factors grit and hardiness are important predictors of success in military officer candidates. We discuss the implication of our findings for selection and prediction of performance of within military environments.

Keywords: grit, hardiness, leadership, noncognitive

Central to the mission of the U.S. Military Academy (USMA) at West Point is providing leaders of character who are prepared for a career of service to the nation as officers in the U.S. Army. Similar to other highly selective colleges and universities, West Point accomplishes this charge in a manner designed to maximize retention and conserve valuable resources by striving to attract, select, and train individuals with the greatest likelihood of success. With a long-established application process, containing sequential hurdles, and a favorable pool of highly qualified and motivated applicants, good selection decisions are typically made. Those accepting an offer of admission generally go on to have a positive developmental experience, graduate, and continue to demonstrate exemplary performance as U.S. Army officers. Despite these appealing circumstances, there is continual interest in understanding additional factors that might incrementally contribute to what is predictive of successful performance. Where practical, these insights could be incorporated into the selection and training processes, offering the potential for an even more effective selection system or de-
velopmental experience and subsequent performance at, and beyond, West Point.

Assessments of cadet personality, aptitude, and performance have been demonstrated to be of importance to subsequent officer performance and leadership. In a classic study, Ricciuti (1955) reported that ratings of aptitude for service in Naval Academy cadets were significantly correlated with their subsequent performance as officers serving in the Navy. The aptitude for service ratings consisted of peer and superior officer ratings, relative to the student’s performance of duty, attitude, bearing and dress, and overall desirability as a potential junior Naval officer. Yammarino and Bass (1988) found that ratings of Naval Academy cadet military performance predicted subsequent leadership performance evaluations after graduation. Matthews (2011) found that two character strengths—bravery and persistence—were associated with successfully coping with combat stress among Army officers deployed in Afghanistan and Iraq. We have found that among West Point cadets, personality assessments made at time of entry predict ratings of officer leadership up to 3 years following graduation from West Point (Bartone et al., 2013). As past research has indicated (Ricciuti, 1955; Yammarino & Bass, 1988), precommissioning performance is linked to officer performance. To the extent that predictions of cadet performance can be improved, it should ultimately result in better performing officers.

Successful performance at West Point has been forecast through the use of weighted preselection composites, including measures of: academic aptitude called the College Entrance Examination Rank (CEER), comprised of grade point average, high school class rank, and standardized test scores (SATs or ACTs); leadership ability (extracurricular involvement); and physical fitness (Athletics Activities Score [AAS], reflecting a candidate’s high school athletic participation). These composites are combined to produce a Whole Candidate Score (WCS). The WCS has been shown in previous studies to be the best predictor for West Point cadet academic, military, and physical performance (Matthews, Peterson, & Kelly, 2006; Westphal, Bonanno, & Bartone, 2008).

Over the last decade, West Point researchers have been engaged in an exploration of the contribution of other, more noncognitive or nonaptitude factors to the performance of cadets at the USMA and beyond. The term noncognitive has been used broadly to include nonacademic or personality attributes, attitudes, values, or social beliefs, such as persistence, conscientiousness, motivation, and emotional intelligence (see, e.g., Schmitt, 2012; Hyatt, 2003). Schmidt and Hunter (1998) highlighted the importance of noncognitive factors in their analysis across numerous studies, typically providing a 20% increase over more traditional cognitive ability measures in predicting outcomes such as training success and job performance.

The USMA at West Point provides an ideal setting for investigation of the value of both traditional predictors of successful performance, such as the WCS, and more innovative indices that might offer increased explanatory power and insight into effective performance at West Point and beyond. With its inherent challenges in academic work, military training, physical fitness, and character development, the 47-month West Point experience provides ample demands and stressors that draw upon both traditional academic and noncognitive capability for successful adaptation and performance. Not only do new cadets encounter the challenges and obstacles facing other college students (academics, adjusting to a new environment, gaining new friends, growing apart from old ones, etc.), but they must also adjust to military life. The adjustment is profound. Prior to arriving at West Point, the new cadets reported they slept an average of nine hours per night and arose at eight o’clock in the morning. At West Point, they awake well before six o’clock and average only 4 hours and 50 minutes of sleep on school nights during the fall semester (Miller & Shattuck, 2005). Their day continues until lights-out/taps at midnight.

Cadets must learn military customs, courtesies, and history. Male cadets receive a “high and tight” haircut, and female cadets must keep their hair within strict grooming standards. Suddenly, they find themselves at the bottom of a rigid military command and control hierarchy—their mistakes (and there are many) are corrected on the spot with assertive, if not aggressive, corrections. They must complete basic training in the field, learning how to march, fire weapons, and fight with bayonets and pugil sticks. The week before classes begin, field
training concludes with a lengthy and grueling road march, requiring the carrying of rifles and a combat field load, beginning well before dawn.

If they make it through cadet basic training in their first summer, cadets then face a daunting academic schedule. The first 2 years consists of core courses in science, math, English, a foreign language, and the behavioral and social sciences. There is no grading “curve” at West Point. Cadets must perform to a high academic standard or fail a course. Failing two courses ordinarily results in dismissal from the academy. Moreover, cadets must adhere to a rigid code of conduct and honor, violations of which might also result in dismissal. In addition to academic courses, all cadets take courses in military science, physical training, and military development.

All cadets must compete in a sport—either intercollegiate or intramural. They do not get their summers “off.” Summers are spent attending Army schools like Airborne, Air Assault, and others. Between the freshman (or “plebe”) and sophomore (“yearling”) year, they participate in a lengthy infantry leadership exercise. Between the yearling year and the junior (“cow”) year, they spend three weeks attached to an operational Army unit, often in distant parts of the globe, serving as “third” lieutenants. During this summer they might also complete a 3-week long academic internship. Upon graduation from their senior (“firstie”) year, the new second lieutenants are obligated to spend a minimum of 5 years of active duty in the Army. These days, duty is dangerous—to date, more than 40 West Point graduates have died in combat operations in Iraq and Afghanistan.

Our research program has been directed toward the study of a variety of noncognitive factors with conceptual links to successful adaptation in a stressful environment: personality hardiness, grit, resilience skills, and a broad array of character strengths. The central research question addressed is in this article is “What contribution do specific noncognitive factors provide beyond that of the more conventional whole person measures, such as the WCS, or the more academically focused, CEER? The general approach to this research has been to collect the more traditional preselection indicators of success utilized in the WCS and CEER noted in preceding paragraphs. In addition to these measures, other metrics of a more noncognitive nature were captured from the same individuals/cohorts at entry to West Point. These cognitive and noncognitive measures were then matched with subsequent indices of cadet cumulative academic, physical, and military performance at graduation and retention at the academy. The noncognitive measures were then generally examined to determine their incremental contribution over the composite of traditional indicators toward predicting important outcomes. These included two noncognitive variables noted above that have been studied frequently within the context of West Point: grit and psychological hardiness.

Earlier research examining grit and hardiness at West Point generally focused on these constructs separately and their relationship to early attrition at CBT. Maddi, Matthews, Kelly, Villarreal, and White (2012) examined both grit and hardiness, but they focused on attrition and overall cadet performance at the end of the first academic year at West Point. Further, the predictor of cadet retention and overall performance was the WCS, a global composite that included both cognitive (SATs, class rank, etc.) and more noncognitive (leadership roles and engagement with extracurricular activities) elements that are likely expressions of grit and hardiness, thus clouding the unique contribution of these noncognitive factors to the prediction of important outcomes. Although these studies have been insightful, the present study will examine the extent to which the more specific factors and facets of grit and hardiness are predictive of earlier attrition during CBT and longer term attrition and specific (academic, military, and physical) performance measured at the end of the 4-year period at West Point. In addition, the present study uses a cleaner measure of cognitive ability (CEER) in examining the contribution of grit and hardiness beyond cognitive ability to success in important retention and performance outcomes.

Grit

Initial work explored the construct of grit, defined as the sustained and passionate pursuit of a given interest or goal (Duckworth, Peterson, Matthews, & Kelly, 2007). Its emphasis is long-term stamina rather than short-term intensity—maintaining effort and interest over years,
despite such problems as distractions, lack of feedback, plateaus in progress, setbacks, and failures (Duckworth & Eskreis-Winkler, 2013; Duckworth et al., 2007). Conceptually, grit has an obvious link with the demands required for successful performance at West Point. Grit, or “firmness of character,” is synonymous with fortitude or courage and is the essence of what the Academy sustains and builds in its cadets and graduates. Further, its importance to successful performance as an Army Officer and leader of character might be particularly important given the growing demands on today’s Army, which have led to more frequent and lengthy deployments, resulting in little time at home and with their community and which has an impact on morale and retention.

In the original work (Duckworth et al., 2007), with two separate classes, grit was found to be a robust predictor of attrition from CBT, whereas the WCS was not. Cadets who were a standard deviation higher than average on grit were over 60% more likely to complete summer training (\( \beta = .48, OR = 1.62, p < .001 \)).

**Hardiness**

Another psychological construct relevant to adaptation to demanding environments is hardiness, a personality dimension linked to continued health and performance in a variety of stressful circumstances (Kobasa, 1979). Hardiness develops early in life and is reasonably stable over time, though it is amenable to change and is probably trainable under certain conditions (Kobasa, 1979; Maddi & Kobasa, 1984). Conceptually rooted in existential psychology (Maddi, 1967), hardiness involves a set of attitudes or beliefs, including a high sense of commitment (vs. alienation), the capacity to feel deeply involved or engaged in activities of life, confidence in one’s ability to control (vs. powerlessness) events and influence outcomes, and greater openness to challenge (vs. threat) in life—perceiving variety and change as a chance to learn and grow (Kobasa, 1979; Maddi & Kobasa, 1984). Because hardiness involves how one responds to stressful circumstances (i.e., willingness to stay engaged, struggle to have influence on outcomes, and posture toward the need to change), it has been conceptualized as an expression of existential courage (Maddi, 2004). Persons high in hardiness have been demonstrated to be more resilient when exposed to a range of environmental stressors and tend to remain healthy and perform well despite high stress levels (Bartone, 1989; Bartone, 1999; Bartone, 2000). They seem to interpret stressful and even painful experiences as a normal aspect of existence, a part of life that is, overall, interesting and worthwhile. In sum, the available evidence suggests that hardiness is an important noncognitive construct that is relevant to successful military performance.

Early research on hardiness was conducted in 2005 (Kelly, Matthews, & Bartone, 2005) with the USMA Class of 2008 (\( N = 1,223 \)) as Plebes. A measure of cadet hardiness and the WCS were examined with respect to retention during the first summer training experience (CBT) and first academic semester at West Point and cadet performance during that same period. The hardiness facet of commitment was found to be a predictor of retention, \( R = .17, F(7, 1116) = 2.19, p < .03 \). Both hardiness commitment and hardiness control added to WCS in predicting military performance during that first year at West Point, \( R = .36, F(7, 1,061) = 22.79, p < .001 \).

The present study follows up the work on grit and hardiness reviewed above by examining the degree to which these personality constructs would be useful in predicting more long-term measures of attrition and academic, military, and physical performance beyond the first year, including the full 47-month tenure at West Point leading to graduation. Here, brief self-report measures of hardiness (Bartone, 1995) and grit (Duckworth et al., 2007) were collected at entry and linked with the traditional preselection composites of academic success. These predictor measures were then subsequently linked with indices of retention and performance 4 years later at graduation. The central question to be addressed was to what degree grit and hardiness would be associated with longer term, sustained performance, beyond the novel experience of CBT and the first academic year to the end of the 4-year program.

**Method**

**Participants**

The primary population of interest was the 1,310 cadets comprising the West Point Class of
2010. This class entered the Academy in July, 2006 and was typical of recent West Point cohorts in terms of gender (14% female), race (24% non-White), recruited athletes (17%), combat veterans (2%), and age ($M = 19$ years). After attrition of 52 cadets (4%) during the 7 weeks of basic training and another 264 cadets over the remaining 3.5 years at the academy, the original class cohort was reduced by 20.2%, resulting in 1,046 cadets (79.8%) retained until graduation.

A secondary comparison population of participants was the 1,248 cadets comprising the West Point Class of 2009. This class entered the Academy in July, 2005 and was 15% female, 25% non-White, 21% recruited athletes, 2.6% combat veterans, and had a mean age of 19 years. After attrition of 61 cadets (5%) during the 7 weeks of basic training and another 191 cadets over the remaining 3.5 years at the academy, the original Class of 2009 cohort was reduced by 20.2%, resulting in 996 cadets (79.8%) retained until graduation.

The CBT provides a fast-paced series of physically demanding military training activities and drills that take place primarily in a field environment. This training includes, for example, individual and team obstacle courses, land navigation exercises, timed road marches while carrying heavy military gear, and marksman- ship training. In contrast, the academic cycle emphasizes academic work, with a greater focus on individual study and writing.

### Predictor Variables

Summary statistics for the eight predictor and three criterion variables are included in Table 1.

#### CEER. The CEER is calculated by using either the ACT or SAT Verbal and Math score, along with class rank in a weighted formula. This is used as the primary predictor of academic achievement during the first year at West Point.

#### AAS. The AAS is a composite score calculated by the USMA admissions office that reflects a candidate’s high school athletic participation in accordance with the number of sports, years, and team role (e.g., Team Captain is scored higher than mere participation). This score provides a measure of a candidate’s athletic involvement or participation.

#### WCS. The WCS is a weighted composite score that reflects past performance of applicants to West Point, including academic aptitude and performance (grade point average, high school rank, SAT scores, CEER score), community leadership score (involvement in leadership roles within extracurricular activities, including school officers, newspaper, music, scouting, sports teams, debate, foreign study, and faculty appraisals of math, English, and science), and physical fitness (performance on standardized physical exercises including push-ups, pull-ups, crunches, shuttle run, basketball throw, and mile run). The WCS was collected from official application records.

Table 1

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**Note.** CEER = College Entrance Exam Rank; AAS = Athletics Activities Score; WCS = Whole Candidate Score; APS = Academic Program Score; MPS = Military Program Score; PPS = Physical Program Score.
Hardiness. Personality hardiness can be defined as a pattern of attitudes or skills that provides the existential courage and motivation needed for enhanced performance in stressful circumstances (Maddi, 2004; Maddi, 2007). As noted earlier, hardy individuals tend to interpret stressful and painful experiences as a normal aspect of existence, part of a life that is overall interesting and worthwhile. The three facets associated with hardiness (Kobasa, 1979) are (a) a high sense of life and work commitment (vs. alienation), which means vigorous engagement with others and activities of work and life; (b) a greater feeling of control (vs. powerlessness), which is the belief that you can choose and influence events of your experience; and (c) an openness to change and challenge (vs. threat) in life, which is appraising trying situations as an opportunity for growth and learning.

Hardiness was measured with a brief 15-item survey covering the three conceptually important hardiness facets of commitment, control and challenge. Sample items, include following: “Most of my life gets spent doing things that are meaningful” (commitment), “By working hard you can nearly always achieve your goals” (control), and “Changes in routine are interesting to me” (challenge).

It shows excellent psychometric properties, including Cronbach’s alpha coefficients ranging from .70 to .77 for the facets to .83 for the overall scale (Bartone, 1995). This scale has demonstrated appropriate criterion-related validity in several samples, with respect to both health and performance under high-stress conditions. Notably, scores on this hardiness measure were predictive of illness/symptom indicators and health behaviors in a large group (N = 787) of male and female Army Reservists mobilized for the Gulf War (Bartone, 1999). Also, as hardiness theory would predict, Army Special Forces candidates who scored high on this measure were more likely to succeed in a rigorous and highly stressful selection course (Bartone, Roland, Picano, & Williams, 2008).

Cadets were provided the following brief instructions: “Below are statements about life that people often feel differently about. Please show how much you think each one is true. Give your own honest opinions... There are no right or wrong answers.” Response options included “Not at all true,” “A little true,” “Quite true,” and “Completely true.”

Grit. Grit involves an unswerving, sustained, and passionate pursuit of a given interest or goal. Its emphasis is on long-term perseverance, despite setbacks and distractions. This study used a 12-item scale for measuring grit (Duckworth et al., 2007) derived from a pool of items tapping the attitudes and behaviors characteristic of high-achieving individuals, including the ability to sustain effort in the face of adversity (e.g., I have overcome setbacks to conquer an important challenge”) and the consistency of efforts over time (“I have difficulty maintaining my focus on projects that take more than a few months to complete”). The 12 items cover two factors labeled consistency of interests and perseverance of effort. This scale has demonstrated excellent psychometric properties, including measures of internal consistency for the overall scale (α = .85) and for each six-item factor (consistency of interests: α = .84; perseverance of effort: α = .78), and criterion-related validity across a variety of achievement realms requiring sustained and focused application of talent over time (Duckworth et al., 2007). Instructions ask the respondent to use the response options to indicate how much the statements are like him or her. Response options on a five-point Likert-type rating scale, ranging from 5 (very much like me) to 1 (not like me at all).

Criterion Variables

Academic Program Score (APS). The APS represents the cumulative grade point average for all academic subjects completed at West Point, excluding Military Science and Physical Education core courses. The grade point average is the sum of the numeric grades (on a 4.0 scale) earned in each course, times the credit hour weight of the course, divided by the total credit hours completed.

Military Program Score (MPS). The Military Program Score at West Point consists of 16 activities evaluated by the cadet’s military chain of command and instructors. These include summer training, military performance during each term, and Military Science (MS) courses. MS courses are graded like other academic courses. All other Military Program activities (summer detail and academic year duty positions) are evaluated using the Military Development (MD) grade. The MPS represents the
weighted average of the MD grades in each activity combined with MS course grades. The weights are progressive; activities completed at higher levels of responsibility generally have greater weight.

The MD grade is assessed for every cadet twice each term and during each summer training detail. Thus, the MD grade is the experience-based, summative assessment of a cadet’s performance for a specified performance period in an assigned duty position and a corresponding class role. The MD grade represents an overall judgment by cadet and officer/NCO raters and is based on developmental data, personal observations, and other reports as measured against a set of criteria that identify expectations of growth and achievement across a range of performance.

Information regarding cadet performance and behavior that is used to formulate the MD grade comes from multiple sources, including feedback from above (chain of command), across (through peer reviews), and below (through subordinate reviews), as well as observations from others in the cadet’s environment who have a unique view of cadet performance (e.g., coaches, club officers-in-charge, staff, and faculty). As the cadet participates in class, company duties, chain of command positions and other activities, performance feedback is generated for deriving the MD grade.

Both Cadet Observation Reports (CORs) and Periodic Development Reports (PDRs) are used by the cadet’s tactical officer in assignment of an MD grade. Observations from the numerous opportunities to observe leader behavior and duty performance might be formally recorded on CORs or PDRs. Cadets will receive some number of CORs as, for example, they receive a minimum of two or three CORs depending upon their summer detail. CORs are used to provide feedback on specific observed behavior, (e.g., “unshined shoes” or “excellent performance on quiz”) and its impact on the mission. They are sent to the observed cadet and the cadet’s tactical officer.

Cadet chain of command, staff and faculty, and officers also regularly complete PDRs. These provide an important tool in evaluating a cadet’s performance and development. They allow an evaluator to observe performance, record specific leadership behaviors of the rated individual, categorize them as effective or ineffective, and provide immediate feedback to the observed cadet and chain of command. Opportunities would include for example, conduct of unit training, such as Physical Fitness Training, road marches, or other performance-oriented training, preparation or conduct of unit inspections, or leading peers in any structured situation.

PDRs are completed regularly by staff and faculty as an important tool in evaluating a cadet’s development and providing him or her with feedback. The form contains 48 behaviors, which are grouped under “Character” (e.g., “Demonstrate personal values consistent with Army’s values”) or “Competence” (e.g., “Arrive on time and prepared for formations, classes, and duty assignments” or “Demonstrate an appropriate level of professional knowledge/judgment”). Raters select an option reflecting the frequency of the observed behavior in the time period under evaluation from never to always. Open-ended comments are also encouraged.

The MD grade serves several functions. It is used for coaching and feedback, to formulate recommendations to further the development of each cadet, and for selection for appropriate duty positions and summer training options. The Military Program graded events (or activities) for the summer training periods include CBT, Cadet Field Training, Cadet Leader Development Training, Summer Garrison Regiment, Summer Leader Experience, Cadet Troop Leader Training/Drill Cadet Leader Training, and participation in the Air Assault School chain of command.

**Physical Program Score (PPS).** The PPS at West Point is used to capture the performance of cadets in the physical athletic program. The PPS is computed at the end of each academic year. The PPS comprises three components: Instructional coursework (weighted 50%), fitness testing (weighted 30%), and Competitive Sports Index (CSI; weighted 20%). The CSI is used to evaluate athletic performance at the corps squad (recruited athlete), competitive club, and intramural level. Performance is captured four times per year through a system combining input from sports monitors, cadets, officers in charge, and coaches.

**Attrition/retention.** This represents a cadet’s status as either separated from or retained at the military academy. For this study, attrition
was examined at two key points. The first was at the conclusion of CBT. CBT begins in late June. The new cadet reports to the West Point football stadium and, after a short greeting, is given 90 s to say goodbye to his or her family. Within 8 hours of arrival, new cadets will receive vaccinations, gear, and clothing. They begin to learn to stand, march, and behave like a West Point cadet. New cadets start their day at 0530 with physical conditioning (stretching, running, close quarters combat, and conditioning road marches). The following weeks include nuclear, biological, chemical training; mountaineering; general military subjects; warrior competition; basic rifle marksmanship; individual and squad tactics and techniques; hand grenades; leader reaction course; confidence obstacle course; individual proficiency training; and first aid training. By the end of CBT, the new cadet will have completed several 3-mile, 6-mile, and 8-mile road marches with full equipment to prepare for the 12-mile road march out to Lake Frederick and a 15-mile road march back to the barracks at the end of the second detail.

The second key point for examining attrition starts at the end of CBT and continues until graduation. A typical daily schedule begins with breakfast at 0655, followed by 4 hr of class or study, lunch, 1 hr for activities sponsored by the Commandant or Dean, an additional 2 hr of class or study, and 1.5 hr of athletics, parades, extracurricular activities, or free time. The evening is devoted to supper, cadet duties, extracurricular activities, 3 hr of study time, taps, and lights out at midnight.

Attrition rates at West Point have shifted over the past decade reflecting USMA’s evolution from an attritional model toward a more developmental approach that seeks growth and improvement of cadets. Nonetheless, the 10-year separation average is 4.4% separating from West Point during CBT and an additional 10-year average of 17.6% separating during the remaining 45 months of tenure at the Academy. The 10-year average West Point graduation rate is 78%, with an attrition rate of 22%.

**Procedures**

Each entering class of West Point cadets participates in a routine institutional group testing activity on their second or third day after arrival. The testing session typically consists of a battery of paper-and-pencil measures requiring two and one half hours. The testing is administered by staff from the Office of Institutional Research. For the present study, cadets were provided systematic instruction and allotted ample time to complete each of the instruments. The test administrator informed cadets of the value of their participation and encouraged them to be forthright in their responses. Cadets were also informed that their participation was voluntary and that the information provided would be treated as confidential. Cadets were observed to be highly motivated and diligent in completing the testing.

The preselection composites (WCS, AES, and CEER) along with follow-up measures of academic, military, and physical performance at West Point were collected from official cadet records. Retention information was collected at two key intervals, at the end of CBT, and at the end of the 4-year program (at graduation). The general statistical approach involved examining grit and hardiness for their contribution to predicting (beyond the preselection composites) cadet performance and retention across the 47-month tenure at West Point.

As noted earlier, in prior work at West Point, grit was found to be a robust predictor of attrition from CBT, whereas WCS was not. It was also found to be a modest predictor of first-year military performance ($r = .19, p < .001$). The present study was a follow-up to this research, involving the collection of longer term measures of attrition and of academic, military and physical performance beyond the first year, to include the full 47-month tenure at West Point leading to graduation.

**Results**

The bivariate correlations among the independent and dependent variables for the Class of 2010 are presented in Table 2. Grit is shown to have had a moderate correlation with hardiness ($r = .34, p < .01$), with grit effort being most highly correlated with the facets of hardiness commitment ($r = .43, p > .01$), and control ($r = .37, p > .01$). The grit total, grit effort, and hardiness control scores were modestly correlated with the MPS ($rs = .14 - .15, p > .01$), and to a lesser degree with the PPS ($rs = .09 - .10, p > .01$). The grit and hardness total scores, along with their respective facet scores,
were generally unrelated to the APS. As expected, the more traditional academically weighted CEER \((r = .59, p > .01)\) and WCS \((r = .56, p > .01)\) composites were strongly predictive of APS.

Initial analyses were conducted to examine potential differences in the two noncognitive variables under consideration, grit and hardiness, as well as the traditional preselection indices, between cadets who separated from West Point versus those who persisted. Analyses were conducted comparing USMA Class of 2010 cadets (a) who separated during the initial 6 weeks of CBT with scores from cadets who persisted and (b) who separated any time after CBT through graduation with those who persisted through that same period.

The means and \(t\) test results displayed in Table 3 confirm that grit was a significant and meaningful differentiator between those cadets who separated during CBT \((N = 52, M = 3.54, SD = .60)\) versus the vast majority of the class who persisted beyond CBT \((N = 1,256, M = 3.76, SD = .54, p = .004, d = .38)\). An examination of the two factors of grit indicates that the grit interest factor is what differed between the two groups \((d = .44)\). Cadets who persisted beyond CBT \((M = 3.45, SD = .75)\) reported higher levels of grit-interest (at entry) than cadets who separated during CBT \((M = 3.09, SD = .88, p = .001, d = .44)\), but no significant differences were observed between these two groups on the grit effort factor. Grit was also shown to be a significant differentiator for post-CBT attrition. During this academically focused period of time, grit effort was shown to be a differentiating factor between cadets who separated from West Point \((N = 212, M = 3.98, SD = .62)\) and those who persisted through graduation \((N = 1,044, M = 4.08, SD = .52, p < .01, d = .18)\).

In terms of hardiness, differences between separated and persistent cadets were observed during the perhaps more novel and demanding CBT but not during the extended and academically focused period of time following CBT. Although the hardiness total score was statistically different \((p < .05, d = .27)\) for those separated during CBT \((N = 50, M = 1.86, SD = .29)\) compared with those who persisted \((N = 1,183, M = 1.94, SD = .30)\), the hardiness commitment facet was shown to be the sole significant hardiness facet \((p < .01; d = .40)\) that was helpful in discriminating between the CBT attrition group \((N = 52, M = 1.96, SD = .44)\) and the group exhibiting persistence throughout this period \((N = 1,258, M = 2.13, SD = .40)\).

None of the three composites supporting the admissions process (WCS, CEER, and AAS) was found to be significantly different between those cadets who persisted and those who sep-
arated during CBT. As expected, the academically weighted CEER and WCS were shown to differentiate cadets who separated (CEER: N = 212, M = 588, SD = .54; WCS: N = 212, M = 5.951, SD = 432) from those who persisted (CEER: N = 1,046, M = 605, SD = .27; WCS: N = 1,046, M = 6,086, SD = 407) during the much more academically intensive post-CBT tenure at West Point (CEER: p < .001, d = .27; WCS: p < .001, d = .32). Grit and hardiness were further examined for their ability to predict attrition during CBT, and attrition during the 45-month period from the end of CBT through graduation. Logistic re-

Table 3
Differences in Study Variables for Separated and Persistent USMA Class of 2010 Cadets During Cadet Basic Training (CBT) and Post-CBT

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<td></td>
<td>SD</td>
<td>370</td>
<td>415</td>
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<td>407</td>
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<tr>
<td></td>
<td>N</td>
<td>52</td>
<td>1,258</td>
<td>212</td>
<td>1,046</td>
<td></td>
</tr>
<tr>
<td>CEER</td>
<td>Mean</td>
<td>600</td>
<td>603</td>
<td>.05</td>
<td>588</td>
<td>605</td>
</tr>
<tr>
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<td></td>
<td>N</td>
<td>52</td>
<td>1,258</td>
<td>212</td>
<td>1,046</td>
<td></td>
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<tr>
<td>AAS</td>
<td>Mean</td>
<td>610</td>
<td>612</td>
<td>.02</td>
<td>621</td>
<td>610</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td>112</td>
<td>103</td>
<td></td>
<td>103</td>
<td>103</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>52</td>
<td>1,258</td>
<td>212</td>
<td>1,046</td>
<td></td>
</tr>
</tbody>
</table>

Note. WCS = Whole Candidate Score; CEER = College Entrance Exam Rank; AAS = Athletics Activities Score. *p < .05. **p < .01. ***p < .001.
gression analyses were conducted separately with the West Point Classes of 2010 and 2009 that included the grit and hardiness facet scores and the academically oriented CEER score as predictors of attrition during CBT (see Table 4), and attrition occurring after completing CBT (see Table 5). The predictor variables were standardized to assist in interpretation of the results. The individual facets and factors were used as independent variables to highlight their unique contributions to predicting attrition. CEER was included as an independent variable since it was considered to be the best available measure of academic, that is, cognitive, ability. As Table 4 indicates, grit interest was a significant predictor of CBT attrition with the Class of 2010 (β = .39, OR = 1.47, p = .006) and also the Class of 2009 (β = .55, OR = 1.73, p = .000). It is not surprising that the two most highly correlated factors (r = .43, p < .01), hardiness commitment (Class of 2010: β = .40, OR = 1.49, p = .02) and grit effort (Class 2009: β = .31, OR = 1.36, p = .03) were alternately demonstrated as important to predicting CBT attrition. Although not interchangeable, the addition of one to the other does not result in a significant increase in the ability to predict CBT attrition. Results in Table 5 show that in both of the classes, grit effort (Class of 2010: β = .18, OR = 1.20, p = .03; Class of 2009: β = .19, OR = 1.21, p = .03) and CEER score (Class of 2010: β = .29, OR = 1.34, p < .000; Class of 2009: β = .35, OR = 1.41, p < .000) were predictive of the more academically oriented post-CBT attrition.

Stepwise multiple regressions were conducted separately again for Class 2010 and 2009, examining both the traditional and more noncognitive predictors of academic, physical, and military performance at USMA. In terms of academic and military performance, the separate grit/hardiness factors and facets were included as predictors, along with the traditional predictor of academic performance, CEER score. Table 6 shows prediction of academic performance over the 4-year period at West Point was dominated, as expected, by the academically weighted CEER score (R² = .343, p < .001). Both grit interest (F for Δ in R² = 10.82, p < .001) and hardiness control (F for Δ in R² = 4.05, p < .05), not unexpectedly, added only slightly to CEER in the prediction of the APS, incrementally increasing the explained variance from .34 to .35 for the Class of 2010. The more noncognitive factors did not significantly contribute to APS for the Class of 2009.

Table 7 demonstrates both grit effort and hardiness commitment to be important unique contributors, beyond CEER score, in predicting military performance in the Class of 2010. Grit effort added to the predictive power of the CEER, increasing the explained variance in 4-year cumulative military performance from .077 to .104 (F for Δ in R² = 29.88 p < .001). Hardiness commitment provided additional

Table 4

<table>
<thead>
<tr>
<th>Predictor</th>
<th>β</th>
<th>SE β</th>
<th>χ²  (df = 1)</th>
<th>p</th>
<th>OR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>3.328</td>
<td>.159</td>
<td>440.269</td>
<td>.000</td>
<td>27.876</td>
</tr>
<tr>
<td>Hardiness Commitment</td>
<td>.399</td>
<td>.165</td>
<td>5.839</td>
<td>.016</td>
<td>1.491</td>
</tr>
<tr>
<td>Grit Interest</td>
<td>.388</td>
<td>.142</td>
<td>7.442</td>
<td>.006</td>
<td>1.475</td>
</tr>
</tbody>
</table>

Class of 2009*

<table>
<thead>
<tr>
<th>Predictor</th>
<th>β</th>
<th>SE β</th>
<th>χ²  (df = 1)</th>
<th>p</th>
<th>OR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>3.276</td>
<td>.164</td>
<td>400.275</td>
<td>.000</td>
<td>26.459</td>
</tr>
<tr>
<td>Grit</td>
<td>.547</td>
<td>.136</td>
<td>16.160</td>
<td>.000</td>
<td>1.728</td>
</tr>
<tr>
<td>Interest Effort</td>
<td>.317</td>
<td>.149</td>
<td>4.526</td>
<td>.033</td>
<td>1.373</td>
</tr>
</tbody>
</table>

Note. Variables entered on Step 1 were grit effort, grit interest, hardiness commitment, hardiness control, hardiness challenge, and College Entrance Exam Rank.

* N = 52 separated at CBT vs. 1,256 cadets who persisted.  
  * N = 60 separated at CBT vs. 1,188 who persisted.
unique predictive power for MPS ($F$ for $\Delta R^2 = .104-.11 = 6.4, p < .001$). For the Class of 2009, only grit effort added to CEER in predicting cumulative military performance (MPS: $F$ for $\Delta R^2 = .138$ to .158 = 23.06, $p < .001$).

In terms of physical performance, the grit/hardiness factors and facets and CEER score were again used as predictors along with the traditional predictor of physical performance, the AAS. Table 8 shows that grit effort significantly added to the contributions of the AAS and CEER in predicting the PPS in both classes, slightly increasing the explained variance from .079 to .087 ($F$ for $\Delta R^2 = 9.49, p < .01$) for the Class of 2010, and from .091 to .108 ($F$ for $\Delta R^2 = 18.65, p < .01$) for the Class of 2009.

To summarize the key results, analyses with the West Point Classes of 2009 and 2010 indicate that the facets of grit and hardiness which were helpful in predicting cadet persistence are specific to the situational demands of CBT (CBT) and the more academically focused post-CBT period. Although the total scores for grit and hardiness were different for those who separated from CBT than for those who persisted through, cadets who at entry had rated themselves higher on their ability to sustain and focus the application of their talent (grit-

Table 5
Logistic Regression Analysis for Predicting Attrition After Cadet Basic Training (CBT) Until Graduation From West Point

<table>
<thead>
<tr>
<th>Predictor</th>
<th>$\beta$</th>
<th>$SE\beta$</th>
<th>$\chi^2 (df = 1)$</th>
<th>$p$</th>
<th>OR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class of 2010a</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>1.630</td>
<td>.78</td>
<td>440.182</td>
<td>.000</td>
<td>5.104</td>
</tr>
<tr>
<td>CEER</td>
<td>.294</td>
<td>.078</td>
<td>14.218</td>
<td>.000</td>
<td>1.341</td>
</tr>
<tr>
<td>Grit effort</td>
<td>.183</td>
<td>.085</td>
<td>4.615</td>
<td>.032</td>
<td>1.201</td>
</tr>
<tr>
<td>Class of 2009b</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>1.644</td>
<td>.081</td>
<td>412.221</td>
<td>.000</td>
<td>5.153</td>
</tr>
<tr>
<td>CEER</td>
<td>.347</td>
<td>.080</td>
<td>18.809</td>
<td>.000</td>
<td>1.414</td>
</tr>
<tr>
<td>Grit effort</td>
<td>.194</td>
<td>.092</td>
<td>4.439</td>
<td>.035</td>
<td>1.214</td>
</tr>
</tbody>
</table>

Note. Variables entered on Step 1 were grit effort, grit interest, hardiness commitment, hardiness control, hardiness challenge, and College Entrance Exam Rank (CEER).

$^a$ $N = 52$ separated at CBT vs. 1,256 cadets who persisted.  $^b$ $N = 60$ separated at CBT vs. 1,188 who persisted.

Table 6
Stepwise Multiple Regression Predicting Cumulative Academic Performance as West Point Seniors

<table>
<thead>
<tr>
<th>Variable</th>
<th>Model 1</th>
<th></th>
<th></th>
<th>Model 2</th>
<th></th>
<th></th>
<th>Model 3</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$B$</td>
<td>$SE$</td>
<td>$\beta$</td>
<td>$B$</td>
<td>$SE$</td>
<td>$\beta$</td>
<td>$B$</td>
<td>$SE$</td>
</tr>
<tr>
<td>Class of 2010a</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CEER</td>
<td>.01</td>
<td>.00</td>
<td>.59***</td>
<td>.01</td>
<td>.00</td>
<td>.59***</td>
<td>.01</td>
<td>.00</td>
</tr>
<tr>
<td>Grit interest</td>
<td>.05</td>
<td>.02</td>
<td>.08***</td>
<td>.05</td>
<td>.02</td>
<td>.08***</td>
<td>.05</td>
<td>.02</td>
</tr>
<tr>
<td>Hardiness control</td>
<td>.06</td>
<td>.03</td>
<td>.05*</td>
<td>.06</td>
<td>.03</td>
<td>.05*</td>
<td>.06</td>
<td>.03</td>
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<tr>
<td>$R^2$</td>
<td>.349</td>
<td>.349</td>
<td>.352</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$F$ for change in $R^2$</td>
<td>551.78***</td>
<td>10.82***</td>
<td>4.047*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Class of 2009b</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CEER</td>
<td>.01</td>
<td>.00</td>
<td>.67***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$R^2$</td>
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<td>.46</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

Note. Variables entered on Step 1 were grit effort, grit interest, hardiness commitment, hardiness control, hardiness challenge, and College Entrance Exam Rank (CEER).

$^a$ $N = 1,060$. Final model, $F(3, 1057) = 191.13, p < .001$.  $^b$ $N = 987$. Final model, $F(1, 986) = 822.70, p < .001$.  $^* p < .05$.  $^** p < .01$.  $^*** p < .001$.  
If you maintain an attitude of commitment or engagement with others and to the work or activities required for success (hardiness commitment) were more likely to persist at CBT. Grit interest and hardiness commitment were found to be the key drivers in predicting persistence in CBT. Further, the traditional indices of academic success were not able to discriminate between or help predict those cadets who persisted and those separated. Analysis of persistence beyond CBT across the remaining 4-year period found grit effort to be a better predictor than the more traditional CEER score.

In terms of cumulative (over a 4-year period) academic performance, as expected, CEER was a strong predictor of performance. Table 7 presents the results of a stepwise multiple regression analysis predicting cumulative military performance as West Point Seniors.

Table 7
Stepwise Multiple Regression Predicting Cumulative Military Performance as West Point Seniors

<table>
<thead>
<tr>
<th>Variable</th>
<th>Model 1</th>
<th></th>
<th>Model 2</th>
<th></th>
<th>Model 3</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>SE</td>
<td>β</td>
<td></td>
<td>B</td>
<td>SE</td>
</tr>
<tr>
<td>CEER</td>
<td>.00</td>
<td>.00</td>
<td>.29***</td>
<td></td>
<td>.00</td>
<td>.00</td>
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<tr>
<td>Grit effort</td>
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<td>.02</td>
<td>.17***</td>
<td></td>
<td>.09</td>
<td>.02</td>
</tr>
<tr>
<td>Hardiness commit</td>
<td>.10</td>
<td>.03</td>
<td>.10**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R²</td>
<td>.086</td>
<td></td>
<td>.114</td>
<td></td>
<td>.32.86***</td>
<td>.122</td>
</tr>
<tr>
<td>F for change in R²</td>
<td>99.78***</td>
<td></td>
<td></td>
<td></td>
<td>9.98***</td>
<td></td>
</tr>
</tbody>
</table>

Note. Variables entered on Step 1 were grit effort, grit interest, hardiness commitment, hardiness control, hardiness challenge, and College Entrance Exam Rank (CEER).

Class of 2010

Class of 2009

AAS             | .00        | .00      | .23***      |          | .00         | .00      | .26***  |
CEER             | .00        | .00      | .17***      |          | .00         | .00      | .17***  |
Grit effort      | .06        | .02      | .09**       |          |             |          |         |
R²               | .052       |          | .079        |          | .087        |          |
F for change in R² | 58.58***   |          | 30.27***    |          | 9.49**      |          |

Note. Variables entered on Step 1 were grit effort, grit interest, hardiness commitment, hardiness control, hardiness challenge, athletic activities score (AAS) and College Entrance Exam Rank (CEER).

Class of 2010

Class of 2009

AAS             | .00        | .00      | .21***      |          | .00         | .00      | .24***  |
CEER             | .00        | .00      | .22***      |          | .00         | .00      | .23***  |
Grit effort      | .09        | .02      | .13***      |          |             |          |         |
R²               | .042       |          | .091        |          | .108        |          |
F for change in R² | 43.50***   |          | 53.16**     |          | 18.65**     |          |

Note. Variables entered on Step 1 were grit effort, grit interest, hardiness commitment, hardiness control, hardiness challenge, athletic activities score (AAS) and College Entrance Exam Rank (CEER).

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the predominant predictor, with grit interest and hardiness control adding to its prediction. The added value of grit and hardiness was perhaps most important with respect to military performance at West Point. Although CEER continued to be the best predictor, grit effort and hardiness commitment were important contributors to the prediction of military performance. Finally, grit effort also added to both the AAS and CEER in predicting physical performance.

Discussion

This study focused on the related constructs of grit and hardiness and their unique factors or facets and their effects beyond traditional indices on measures of effectiveness, including persistence, and academic, military, and physical performance. The findings are somewhat intuitive: For example, commitment implies an action orientation toward others and the demands of the situation. Individuals high in hardiness commitment were thus more likely to obtain the benefits of social support and identification with the group, with a concomitant avoidance of passivity or isolation—all of which are ingredients for success. In a similar fashion, cadets who maintain greater levels of that element of grit defined as sustained effort were more likely to endure and complete the arduous 47-month West Point experience. Individuals exerting sustained effort not only stayed in the game but also focused their energy and activity toward attaining the desired outcome of graduation.

These findings are in line with earlier studies suggesting grit as a predictor of CBT retention (Duckworth & Quinn, 2009; and Duckworth et al., 2007). They also support other findings, including the earlier work of Bartone, Eid, Johnsen, Laberg, and Snook (2009), who found that hardiness, as well as Big Five extraversion, predicted performance in cadet summer field training, whereas only Big Five conscientiousness and hardiness predicted performance during the academic cycle. Thus, noncognitive factors like grit effort and hardiness appear to be especially important for successful adaptation to the nonacademic demands of military academy life.

The attrition measure used in the present study was a global one, incorporating all categories of cadet attrition. But we know that those who leave do so for a variety of reasons. For example, some cadets leave because of injury, some leave because of unforeseen family illness, some fail to meet weight or fitness standards, and some leave for “motivational” reasons. Considering that very different influences might be at work for these different attrition groups, a more fine-grained analysis should be undertaken that looks at the potential influence of personality variables like hardiness or grit on different attrition groups.

Results also point out the difficulty of predicting persistence, as none of the three composites supporting the admissions process (WCS, CEER, and AAS) were found to be effective in predicting whether cadets would persist or separate during CBT. In fact, only hardiness commitment and grit interest were of value in predicting attrition from CBT. Likewise, grit effort was more important than CEER score in predicting post-CBT persistence through graduation.

In terms of performance at West Point, prior investigation by Duckworth et al. (2007) with this same class of USMA cadets found overall grit provided an increase over the traditional WCS in predicting academic performance during the cadet’s first academic year. The present study used a cleaner metric of prior academic performance, in addition to grit and hardiness, to predict academic performance over an extended period of 4 years, finding only a slight contribution of grit to the prediction of academic performance. It appears that, at least for this unique population of academically accomplished USMA cadets, grit’s contribution to forecasting academic success, beyond that provided by an academically weighted composite, dissipates after the particularly strenuous first year.

More important, and in line with expectations, grit effort, as well as hardiness commitment added significant value to the academically oriented CEER composite for predicting cumulative military performance across the 4-year West Point experience. In terms of physical performance, there was some modest increase in the ability to explain this outcome provided by grit effort that reached beyond that provided by a measure of physical aptitude and by the CEER.

We have seen that cadet performance predicts subsequent officer performance (Ricciuti, 1955; Yammarino & Bass, 1988). There is clear evi-
dence that hardiness, measured shortly after cadets arrive for initial training at West Point, is predictive of leadership ratings following graduation and commissioning. A recent follow-up with the Classes of 2005 and 2006 (Bartone, Kelly, & Matthews, 2013) examined the same hardiness rating made at entry to West Point and its ability to predict performance ratings made by commanders of those same cadets as junior officers 3 years after graduation (a total of 7 years after the rating). WCS was also used as a predictor. Results found the hardiness control facet to be the sole significant predictor of adaptability performance, explaining 11% of the variance, and the strongest predictor of leadership performance, explaining 9% of the variance. Although prior “military performance” at West Point was the best predictor of military performance as a junior officer, the hardiness facets of challenge and control increase the explained variance from 7% to 15%.

In sum, the noncognitive attributes of grit and hardiness are clearly important contributing factors to retention and performance in the demanding professional military environment of West Point. The results offer additional evidence supporting the notion that factors other than a traditional cognitively weighted composite can provide incremental, and in some instances, singular ability to predict important outcomes of persistence and performance in a strenuous training environment. These findings indicate that the explanatory power of cognitive aptitude alone is incomplete, particularly for predicting important nonacademic outcomes.

Although the observed mean differences, correlations, and effect sizes are modest, we judge them to be meaningful and of practical significance in this context, especially considering that attraction and selection to West Point effectively restricts entry to only those candidates with the highest levels of achievement—or the grit/hardiness intrinsic to their levels of success. The inherent restriction in the range of ratings has not been corrected and is perhaps operating to diminish and mask the full strength of the relationship (Cohen, 1988). Thus, the true strength of the grit performance–retention relationship is likely stronger and might be more demonstrable in settings where there is greater variation in the trait-like qualities of grit and hardiness and performance.

The results from this study lead to more practical considerations of their utility. The addition of grit or hardiness as a component in a selection system, for example, though compelling, would need to overcome the transparency inherent in a self-report measure of this socially desirable construct. Measures of grit and hardiness could also be useful in a diagnostic sense, with implications for appropriate support, particularly during the type of novel, highly demanding experience requiring sustained commitment and effort, like CBT. Intervention programs might be developed; for example, pairing individuals, perhaps on the basis of risk levels, to serve as a support mechanism through the more turbulent initial training. Others might need some level of coaching, social/peer support, or perhaps would benefit from one of several available hardiness training or resilience-skills development programs to increase one’s resilience—perhaps similar to the hardiness training developed by Maddi (2007) involving coping, socially supportive interactions, and self-care exercises.

References


Head Strong
How Psychology is Revolutionizing War

Michael D. Matthews, Oxford University Press, 2013, 288 pages, $29.95

Maj. Andrew B. Stipp, U.S. Army

Major Stipp is a student at the Command and General Staff College, Fort Leavenworth, Kan. He holds a B.A. in psychology from Purdue University, West Lafayette, Indiana, and an M.A. in business and organizational security from Webster University, St. Louis, Missouri.

The need to understand and anticipate human behavior has been an integral part of war since the very inception of armed conflict between organized groups, dating back to (and most likely before) Sun Tzu. He contended that knowing yourself as well as your enemy was vital to consistent success in battle, while not understanding either force was certain to result in peril.¹

Notwithstanding, the science of psychology as a formal tool for refining the necessary understanding of human behavior as it relates to war is relatively new within the scientific community. As such, when compared to the longer histories of other fields of applied science, psychology has only been defined and formally organized for research relatively recently.

Despite its relatively short history as a formal discipline, modern psychological research has evolved as modern warfare has evolved, expanding its influence on measures taken to shape a war’s onset, conduct, and outcome.

Dr. Michael D. Matthews captures this progression in his book Head Strong: How Psychology is Revolutionizing War, effectively arguing that current...
and forthcoming changes in psychological research and development will be vital to the composition, training, equipping, and employment of the military of 2030 and beyond. Matthews served as a professor of engineering psychology and deputy head of the Department of Behavioral Sciences and Leadership at the United States Military Academy. His background as a former service member and psychologist provides the requisite knowledge and expertise to address current and future impacts of psychology on the military.

The book begins by addressing the impacts of psychology on recruiting and training soldiers. Matthews predicts that the use of advanced personality testing will help identify the qualities needed for success as a service member, while modernized neuroscience mapping may potentially identify individual susceptibility to disorders such as anxiety and post-traumatic stress disorder.

Next he addresses the criticality of building soldier resilience. Matthews lauds the implementation of the Comprehensive Soldier and Family Fitness Program and predicts that the program will continue to evolve in both efficiency and application to different services. Matthews places strong emphasis on highlighting cultural awareness (or competence) as key to understanding human behavior. He illustrates that language training by itself is inadequate as cultural training, and predicts that success in future conflicts will be greatly influenced by the understanding of the indigenous culture in and around which the military operates. Overall, the future force will be more thoroughly selected, vetted, and trained to conduct its assigned missions.

Matthews also tackles the contentious topics of diversity and generational differences in the military. He identifies the racial desegregation of military units, as well as the integration of women and homosexual service members, as significant developments of the past 70 years. Matthews predicts that the military of 2030 and beyond will be comprised of more minority races, females, and members of alternate sexual orientation. An undertone of social change is present in each of his topics and predictions. As the military is currently comprised of three to four different generational types (e.g., X, Y, Millennials), the predictions indicate paradigm shifts that many mid-to-senior-level leaders may not fully understand or personally support. The author highlights the evolving requirements for future leaders.

He believes the proficiency of the new generation’s leaders must extend beyond technical skills and knowledge of systems to include political, social, and cultural competencies. Additionally, future leaders will be more successful using an egalitarian personality or approach more than an authoritarian one. Matthews does not believe that a leader like Gen. George S. Patton would be successful in the 21st century.

The book concludes by addressing the use of technology and its psychological implications to develop better soldiers, which will help build a more efficient and capable future force. Matthews believes psychologists will work in partnership with engineers and physical scientists to advance soldier and system performance. He clearly articulates a major theme: technology and physical advances are not the only means to improve the force. The armed forces of 2030 and beyond must have soldiers who are psychologically capable, resilient, and highly trained to effectively take advantage of technological advances. The author states, “to get the most out of its soldiers and systems, the military must aggressively incorporate state-of-the-art psychology into all aspects of its missions.” He also discusses the possibility of psychology helping to improve diplomatic and international relations to (hopefully) prevent unnecessary war.

Head Strong is a fascinating and insightful text; however, there are some minor shortcomings worth mentioning. The first is the author’s inherent bias toward the “softer” science of psychology and related fields that permeates the text. Even so, this bias does not undermine the credibility of the issues, predictions, and the majority of contentions that Matthews presents.

Another minor flaw involves the citation of Army doctrine, specifically references to field manuals (e.g., FM 6-22) which have since been replaced by Army doctrine publications (e.g., ADP 6-22). This second issue is indicative of the timing of publication, as the manuscript was most likely published before the Army introduced Doctrine 2015, its current doctrinal reference structure.

A third shortcoming is Matthews’ occasional use of absolute terminology to support future predictions. He sporadically structures his claims in such a way as to negate the possibility of the other outcomes. One example concerning resilience is his statement that, in the future, “all soldiers will want to improve their...
resilience.”12 The general point the author intended to make is clear, but the verbiage used creates an absolute postulation and does not account for an inevitable standard deviation. A different example concerns the use of aptitude test results to select soldiers for the most appropriate jobs. He states that soldiers “placed into optimal jobs will work together better as teams.”13 The overall argument is accurate, but similar technical aptitudes may not be an infallible predictor of enhanced teamwork and productivity.

A final deficiency is Matthews’ perspective on baseline physical fitness standards. His discussion on the topic implies disagreement with standardized assessments of physical fitness. Although he clearly highlights the positive psychological benefits of physical fitness for overcoming obstacles, Matthews also argues that new technologies require enhanced cognitive skills. His implicit argument that technical skills may be of more importance than physical attributes results in a claim that “the relevance of a one-size-fits-all physical training standard may be called into question.”14

This premise is false; the Army physical fitness standards are not currently one-size-fits-all. Alternate events and standards exist for individuals with legitimate physical limitations such as injuries. For those who do not possess physical limitations, the baseline standard exists as a measure of performance and a degree of separation from the average U.S. citizen. I predict that the military of 2030 and beyond will not want average U.S. citizens, but those who can be molded to become above average in all dimensions (to include the physical).

Overall, Matthews presents a well-structured, relevant, and multidimensional argument about the future impacts of psychological research and development for the armed forces. He discusses current trends in recruiting, training, and developing soldiers, and provides predictions on every topic. Matthews broaches the contentious topic of diversity within the ranks; his current assessment of the impact to the force is credible, and his thoughts on projected changes are certainly feasible.

Despite the previously discussed issues, Head Strong is certainly a worthwhile read for all officers. I also recommend this book for mid- to senior-level noncommissioned officers across all branches of the military. These audiences comprise key populations currently leading soldiers in the midst of changes driven by psychology. They will be influential as future changes come to fruition. If understanding ourselves and our adversaries is essential to success in warfare, then the significance of psychological developments on our future military force cannot be understated.

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NOTES

3. Ibid., 29.
4. Ibid., 90.
5. Ibid., 106.
6. Ibid., 123.
7. Ibid., 163.
8. Ibid., 169.
9. Ibid., 174.
10. Ibid., 193.
11. Ibid., 215.
12. Ibid., 86.
13. Ibid., 30.
14. Ibid., 49.
Chief of Staff of the Army
Strategic Studies Group-III
Executive Summary *

July 2015

Submitted on behalf of SSG-III
by COL Patrick J. Mahaney, Jr.
Director, Chief of Staff of the Army Strategic Studies Group

*The following is an excerpt from the full report. For the complete report please contact Dr. Mike Matthews at mike.matthews@usma.edu
Human Performance Optimization Concept Team (HPO CT)

Members:

Colonel David Bolduc, USA  
Command Sergeant Major Craig Davis, USA  
Dr. Jessica Gallus, Army Civilian  
Major Robert Green, USA  
Dr. Michael Matthews, Army Civilian

The CSA tasked the HPO CT to conduct research on ways the Army can better optimize human performance. In his view, achieving this goal will strengthen the Army’s ability to achieve mission success, and also allow Soldiers who return to civilian roles following their military service to do so having experienced personal growth. Consistent with emerging Human Dimension (HD) doctrine, the group focused on three broad aspects of human performance: cognitive, physical, and social. The team appointed a lead investigator for each of these three domains.

Over the course of five months, the HPO CT interviewed scores of subject matter experts in the military, academia, and industry. Members organized a February 2015 HPO workshop at West Point that brought together 50 thought leaders across all three domains. We organized a similar March 2015 workshop in Arlington, VA that included leaders in the social domain. Research and development relevant to HPO conducted by DARPA and the sister services was examined. Internationally recognized experts were interviewed in depth. Throughout the research period, members worked with the Combined Arms Center (CAC) and other Army entities involved in the larger HD effort in order to develop and maintain a common operating picture for how to best achieve HPO.
STRATEGIC CONTEXT

Fourteen years of war has stressed the all-volunteer-force. Economic contingencies resulting in a smaller Army puts additional strain on the Soldiers who remain. And the nature of contemporary warfare, characterized by unpredictable asymmetric and hybrid threats, poses additional challenges to the men and women tasked with defeating the enemy. To continue to dominate and win in this context, it is imperative that the Army actively seek ways to optimize the performance of its Soldiers and Civilians.

The HPO CT’s research shows that there are steps the Army can undertake immediately to achieve HPO. This includes specific intervention/training protocols, organizational changes to provide HPO with strategic advocacy and administrative power within the research and development domain, and developing a process to more quickly bring HPO solutions into the general force.

We also see a need for the Army to aggressively support high risk/high payoff research and development, particularly in neuroscience, in order to identify and develop HPO strategies for the long-term future. Doing so will enable the Army to further enhance Soldier cognition, physical performance, and social behavior in ways that are unattainable with present science and technology.

This combined focus on near and long term HPO solutions is necessary to obtain the best performance from a smaller Army, to protect its members against the stresses and adversity of prolonged operations, and to strengthen individuals and teams in ways that allow them to grow and thrive by virtue of their Army experience. Altogether, this enhances the nation’s return on investment for both today’s and tomorrow’s Soldiers.

Through the course of our research, the HPO concept team identified the following obstacles and barriers that may need to be addressed in achieving HPO.

- Lack of a well-defined institutional advocate for HPO needs.
- Insufficient structure or incentives for communication among DoD entities conducting or sponsoring HPO research, leading to excessive duplication of effort.
- HD and HPO programs being developed without adequate input by appropriate subject matter experts, chiefly psychologists. This can result in adoption of “flashy” HPO solutions that lack empirical validation and will fail over the long run.
- The Army’s Institutional Review Board (IRB) process is excessively bureaucratic and is perceived by scientists as more of a barrier to conducting research than a resource vital to ensuring and protecting the rights and wellbeing of research participants.
- A reluctance to engage in cutting edge research and development, especially in neuroscience, for fear of how it may be interpreted by the media. This prevents the Army from sponsoring high risk/potentially high payoff research and development in cognitive and behavioral neuroscience, the fields most likely to significantly impact HPO in the future.

Our research yielded recommendations for an HPO governance structure, priorities for future research, the development of brigade-based HPO training programs and facilities, and promoting the development of a network of Army/partner HPO organizations.
GOVERNANCE

HPO CT Recommendation 1: Integrate the Soldier as a System at the strategic level and under one governing authority. HQDA must champion the Human Dimension (HD) process, collaborating with the Under Secretary of the Army to link policy, research, capability gaps, resources, solutions, and implementation of HPO priorities.

HPO CT Recommendation 2: Designate an existing Army organization as the coordinating agency for research efforts in the social domain of human performance. This organization should be responsible to the CSA and SECARMY for coordinating research efforts within the Army, the other services, industry, and academia to address a prioritized list of research gaps.

RESEARCH

HPO CT Recommendation 3: We propose the following list of key research areas to close critical gaps in human performance in the physical, social, and cognitive domains. Priorities should be approved by the CSA or higher (depending on the development of governance structures), and should guide efforts of Army research organizations, acquisition, and collaboration with civilian partners in support of Army efforts. Longitudinal studies should be initiated in many of these areas to set conditions for future research.

**Genetics, epigenetics, and biomarkers:**

- Pursue, develop, and capitalize on revolutionary research in the field of “Precision Medicine,” seeking to improve patient health and treat disease at the individual genetic level.

- Expand research into the genetic basis of behaviors critical to mission success (cognitive function, sleep, resilience, etc.) and into understanding how the environment (internal or external) can modulate gene expression. This holds tremendous potential for optimizing human performance.

- Expand funding for biological markers (e.g., proteins, neuropeptides, etc.) that predict the ability of the Soldier to adapt to mission-relevant settings, self-regulate, and perform at the higher limits of potential.

**Improved Learning Methods**

- Capitalize on current adaptive leader learning methods and emerging technologies to increase learning proficiency, promote higher learning, and develop critical skills for Soldiers and DA Civilians to win in a complex environment. Improved pedagogical approaches offer the potential for significant enhancements of basic cognitive processes crucial to learning and critical thinking, including optimization of memory, attention, reasoning, and innovative thinking, will result.

- Continue and expand research into brain function as it impacts mission relevant behaviors and skills. This includes neurochemistry, proteomics, and brain physiology. Critical over the long run to optimizing soldier performance.
Focus research on Brain–Machine Interface (BMI) and Human–Robot Interactions to optimize human interaction with external war fighting platforms, to include brain-controlled robotic systems that can function as a proxy for the human controller, and do so at great distances.

Capitalize on recent advancements in cognitive science and simulation technology to produce the next generation of Army-centric mission simulators. Biggest impact and need is in simulating the full spectrum of dismounted infantry operations. Outcome will be "bloodless learning" for dismounted small unit leaders.

Conduct cognitive science research to develop optimum protocols for developing systems-level critical thinking skills, allowing emerging senior leaders to better grasp so-called "wicked" problems.

**Social Performance**

Identify the social performance requirements needed for mission success and articulate the performance impact of social domain capabilities to drive the demand for and use of social resources (e.g. assessments, skill development resources, research, etc).

Leverage social performance requirements to impact and shape all phases of the talent management lifecycle including workforce planning, recruitment, selection and assessment, training and development, and succession management. Develop talent management systems that support changes to talent management processes.

Develop profiles of high performing individuals to inform deliberate and robust succession planning. Support long-term talent management efforts in assessment, selection, identification, and assignment of high-potential personnel for succession management purposes.

Identify critical non-cognitive skills (a prime example is grit) and leverage this understanding to enhance selection, assignment, and training of the force. Develop understanding of "team grit" in small units, and develop ways to instrumentally promote it.

**BRIGADE-LEVEL FITNESS AND MEDICAL CARE PROGRAM**

**HPO CT Recommendation 4:** We recommend that the Army institute a Warrior Task and Battle Drill methodology for physical training across the Army to fundamentally change how and why the Army does physical training. Mandate that only certified trainers are authorized to conduct physical fitness training. Adopt an individualized physical fitness training approach based on individual functional assessments to scientifically assess individual Soldier physical strengths and weaknesses in order to drastically reduce injury rates.

**HPO CT Recommendation 5:** We further recommend implementing this physical training approach through a network of brigade level fitness and medical care centers that provide individualized Soldier care at the point of need. Develop plans to pool health care and fitness experts and facilities at brigade-level Human Performance Optimization facilities.

- Provide each brigade level command the appropriate expertise in the following areas: Physical Therapists, Physical Therapy Technicians, Athletic Trainers, Strength and Conditioning Coaches, Master-Fitness Trainers, Medics, Master Resiliency Trainers, and Chaplains. Pool these experts.
in each brigade's HPO facility in order to provide one stop access to care thereby reducing the
time a Soldier needs to wait to get intervention for a non-medical emergency injury from weeks
to hours.

- Develop facilities plans that support consolidation of equipment and expertise at the brigade level
  in order to increase Soldier access to care and more efficiently and effectively train, diagnose,
  rehabilitate, and return Soldiers to duty. USASOC's THOR3 facilities and the Navy's SMART
  Clinic concepts provide excellent models that are scalable to the Army. Procure scientifically
  researched functional movement screening equipment (MP3) for immediate fielding to brigade
  HPO facilities.

- Work toward a long-term goal of placing professional experts in various disciplines (e.g.
  industrial/organizational psychology, certified social workers, sports psychologists) within units
  at the brigade level to advise and assist commanders in assessing, diagnosing, and developing
  human capital. The Army resources comparable efforts in support of maintaining materiel
  platforms, and should explore providing similar levels of support to maintain and develop its
  human platforms. These teams of internal experts would also facilitate data collection and
  research in support of Army initiatives and in support of local commander concerns.

- Conduct research into motion capture technology that could be deployed at brigade HPO facilities
  to conduct highly analytical functional movement screening quickly for large formations in order
  to baseline individual functional movement and reassess periodically at specific intervals
  throughout a career to help identify physical strengths, weaknesses, and vulnerabilities in an
  effort to prevent injury.

**BUILD THE HPO NETWORK**

**HPO CT Recommendation 6: The Army needs to illuminate and solidify its HPO network,
strengthening connections with DoD and non-DoD research partners by sharing data and
participating in formal professional forums.**

- Establish a Soldier Performance Center to integrate applied research, materiel and non-materiel
  solutions to resolve Cognitive, Physical, and Social (CPS) lifecycle needs in the HD, illuminating
  and formalizing the HPO network (possible locations include Natick Soldier System Center, Ft.
  Benning, Ft. AP Hill, and Aberdeen Proving Grounds).

- DCS G3/5/7 should provide resources for Army Analytics Group (AAG) to create the
  infrastructure to facilitate secure analytical data sharing between the Army, academia, and
  industry.

- Break down the barriers preventing data sharing between the Army and other services and
  organizations within the DoD, between the Army and outside organizations such as academic
  partners, and also among organizations internal to the Army. Many of the Army's high priority
  and high profile efforts suffer from a lack of collaboration caused by stove-piped data (e.g.
  SHARP, resilience, PTSD). The Army has processes and structures to enable data sharing in a
  secure manner (e.g. the Person-Event Database managed by the Army Analytics Group in
  Monterey, CA) though these capabilities do not always ensure sharing across DoD agencies.
- The Army Research Institute (ARI) will establish a baseline to begin universal administration of non-cognitive assessments designed to capture social/interpersonal aptitudes and abilities. ARI will identify basic core and career field-specific social performance requirements and articulate the performance impact of social domain capabilities.

- Begin universal administration of non-cognitive assessments (e.g., Tailored Adaptive Personality Assessment System [TAPAS]) to capture social/interpersonal aptitude and ability in Soldiers and Officers. Establish a baseline of data to enable further/future research, and to better understand gaps in social capability. This will provide a stable source of information to support future research, particularly with respect to talent management (e.g., workforce planning, selection and assessment, training and development), and policy.

- Expand the use of longitudinal studies at the unit level (e.g., brigade and below) to enable better assessment of individual and team performance. Increased unit participation coupled with increased awareness and internal resources supports understanding, acceptance, and application of social skill assessments and developmental resources.
View Preservation of the Force and Family Resilience Video at:

https://www.youtube.com/watch?v=KKK1OAsARao&app=desktop
Navy Combat Operational Stress Control web site

Biographies of Participants
### Annen Hubert

**Last / first name:** Annen Hubert  
**Title:** Ph.D.  
**Military rank:** Colonel  
**Function:** Head of Military Psychology and Military Pedagogy Studies  
**Date of birth:** 11. Juli 63  
**Place of origin:** Zug and Ingenbohl / Switzerland  
**Marital status:** married  
**Mother tongue:** German  
**Other languages:** English, French  
**Address:** Military Academy at ETH Zurich  
Kaserne  
8903 Birmensdorf  
Tel: +41 44 739 82 31  
e-mail: hubert.annen@milak.ethz.ch

### Professional career:

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<tr>
<th>1965-90 Teacher</th>
<th>Military career:</th>
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<tr>
<th>1990-96 Studies in psychology and pedagogy at the University of Zurich</th>
<th>Officer of the psycho-pedagogical service at Army base Drognens</th>
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<td>1996-99 Research assistant with teaching and research unit leadership and communication at MILAK</td>
<td>Working group for military sciences reporting to chief of Land Forces</td>
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<td>Lecturer for leadership at the Zurich University of Applied Sciences Winterthur</td>
<td>Project manager</td>
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**Since 1st July, 1999 Head of Military Psychology and Military Pedagogy Studies**

| 1999 - 2003 information of in logistic regt staff 6 |
| 2004 - 2006 PIO ter rgn staff 4 |
| 2007 - 2008 Staff officer in infantry brigade 4 |

| Since 2008 Head of research, Psycho-pedagogical service of the Army |

### Further activities:

- Scientific leader of Assessment Center for prospective career officers (ACABO), career NGOs (ACABU), general staff officers (AC Gst Of), and defence attachés (ACAVA)
- Oct 2007 - March 2008 visiting scholar at University of South Florida, Tampa
- Founding president of Swiss Assessment, honorary member 2012
- Member of the board of the International Military Testing Association (IMTA), Chairman IMTA Conference 2010, Harry Greer Award 2012
- Chairman of the International Applied Military Psychology Symposium (IAMPS), 2013
- Founding member and member of the board of International Association on Military Pedagogy
- July 2014 - July 2015 Visiting professor at BS&L Dept, USMA West Point
Lieutenant Colonel Suzanne Bailey joined the Canadian Forces in 1986, beginning her career at the Royal Military College of Canada. After graduation in 1990 she completed her Military Police Officer training at the CF School of Intelligence and Security and worked with the Military Police Special Investigations Unit for a few years. In 1994 she was accepted for occupation transfer to Social Work and completed her Master of Social Work degree at the University of Toronto in 1996.

After doing clinical work on military bases in Canada for nine years, she was posted to CF Health Services Group HQ in 2005. Since 2008 LCol Bailey has been involved in the standardization of CF Mental Health and Leadership curriculum through the Road to Mental Readiness (R2MR) career and deployment cycle education packages and web site.

In August 2011 LCol Bailey was promoted to her current rank and appointed National Practice Leader for Social Work in DND, MOSID advisor for Social Work, and Senior Staff Officer Mental Health Training and Education.
## BIOGRAPHICAL SKETCH

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<th>NAME</th>
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<td>Paul T. Bartone</td>
<td>Senior Research Fellow</td>
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<td>University of Massachusetts, Boston</td>
<td>BA</td>
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<td>University of Chicago, Chicago IL</td>
<td>MA</td>
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<tr>
<td>University of Chicago, Chicago, IL</td>
<td>PHD</td>
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**SUMMARY:** Colonel (Retired) Paul T. Bartone, Ph.D. is Senior Research Fellow at the Institute for National Strategic Studies, National Defense University. Trained as an interdisciplinary research psychologist at the University of Chicago, he is a seasoned expert in applying psychological, social, cultural, and biological perspectives to the understanding of human behavior. Bartone’s research has focused on understanding and measuring resilient or “hardy” responding to stress, identifying underlying biomarkers for resilience, and applying this knowledge to improve selection, training and leader development programs. A Fulbright Scholar (Norway, 2006-07), Bartone has taught strategic leadership at the Industrial College of the Armed Forces, National Defense University, and at the U.S. Military Academy, West Point, where he also served as Director of the West Point Leader Development Research Center. As a U.S. Army Research Psychologist, Bartone also served as the Consultant to the Surgeon General for Research Psychology, and as Assistant Corps Chief for Medical Allied Sciences. He is a past-President of the American Psychological Association’s Division 19, Society for Military Psychology, a Fellow of the American Psychological Association, a charter member of the Association for Psychological Science, and a Fulbright Research Scholar (Norway, 2007). He holds a U.S. government Top Secret security clearance.

**RESEARCH AND PROFESSIONAL EXPERIENCE:**

- **2015-present** Visiting Professor and Senior Research Fellow, Center for Technology & National Security Policy, National Defense University
- **2007-2015** Professor and Senior Research Fellow, Center for Technology & National Security Policy, National Defense University
- **2011-present** Senior Scientist, Henry M. Jackson Foundation for the Advancement of Military Medicine
- **1988-present** Adjunct Assistant Professor, Department of Psychiatry, Uniformed Services University of the Health Sciences, Bethesda, Maryland
- **2010-2012** Senior Advisor in Strategy & Operations, Deloitte Consulting LLP
- **2007-2009** Assistant Corps Chief for Medical Allied Sciences, U.S. Army Medical Service Corps
- **2005-2008** Research Psychology Consultant to the U.S. Army Surgeon General
- **2006-2007** Fulbright Research Fellow and Visiting Professor, Dept. of Psychosocial Science, University of Bergen, Norway (September 2006 – February 2007).
- **2003-2007** Professor of Behavioral Sciences, Dept. of Leadership & Information Strategy, Industrial College of the Armed Forces – National Defense University
- **2000-2003** Director, Leader Development Research Center, U.S. Military Academy, West Point
- **2000-2003** Associate Professor, Dept. of Behavioral Sciences & Leadership, U.S. Military Academy
- **1997-1999** Research Scientist & Assistant Professor, Center for Leadership and Organizations Research, Dept. of Behavioral Sciences & Leadership, U.S. Military Academy, West Point
- **1999 (June)** Visiting Professor, Royal Norwegian Naval Academy, Bergen, Norway
- **1993-1997** Commander, U.S. Army Medical Research Unit-Europe, Heidelberg, Germany
Biographical Sketch

Michael D. Matthews is currently Professor of Engineering Psychology at the United States Military Academy. He served as President of the American Psychological Association’s Society for Military Psychology from 2007 to 2008 and is a Templeton Foundation Senior Positive Psychology Fellow. Collectively, his research interests center on Soldier performance in combat and other dangerous contexts. He has authored over 200 scientific papers, is the co-editor of Leadership in Dangerous Situations: A Handbook for Armed Forces, Emergency Services, and First Responders (Naval Institute Press, 2011) and the Oxford Handbook of Military Psychology (Oxford University Press, 2012), co-author of The Millennial Generation and National Defense: Attitudes of Future Military and Civilian Leaders (Palgrave Pivot, 2013), and the author of the recently published Head Strong: How Psychology is Revolutionizing War (Oxford University Press, 2014). Dr. Matthews is on sabbatical for the 2014-2015 academic year, serving as a Fellow with the Army Chief of Staff’s Strategic Studies Group.
SUMMARY: Colonel (Retired) Bob Roland is an Army Brat and served 31 years on Active duty including 10+ years as a Regular Army officer before becoming a Licensed Clinical, Health Fellow and Operational Psychologist. His Undergraduate and Graduate degree(s), APA internship and Post-Doctoral fellowship focused upon Military Psychology. Dr. Roland is an internationally recognized expert in the application of psychological, social, cultural, and biological perspectives to the understanding of human behavior in military settings. His teaching experiences span 4 decades having held ten academic appointments at County, State, Private and USG institutions from Instructor to Professor and Senior Research Fellow. His bibliography includes over 60 military oriented Publications, Presentations, Articles, Book Chapters and Media Interviews. Prior to retirement, he established The Professor of Behavioral Sciences position for a military psychologist at the Industrial College of the Armed Forces (now The Eisenhower School), National Defense University (NDU) in Washington D.C. He mentored hundreds of foreign and US senior service students from all branches (05 to GO and GS/FS) at NDU and at The Army War College in Carlisle Pa. He served as Special Operations SME, Peer elected Faculty Counsel, and as panel member for The Chairman, JCS Strategic Writing Award. As an Officer and Psychologist, he has exceptionally broad experience. www.linkedin.com/in/drbobroland

Tactical: Commanded 33 months in Berlin, Germany during the occupation of the city by Allied Forces. He is still active in support of SOF, Intelligence, other units and OGAs in deployment and training. Currently provides oversight and training consultation to several NATO partners FBI, DEA, US State Department and OGAs.

Operational: Developed and directed consultation and assessment programs for critical, globally dispersed Medical, Intelligence and PsyOps units, Special Forces Command, JSOC, SOCOM, OGAs, and NATO partners for more than 28 years. For The Office of Military Support (OMS) Washington, DC (1990-2012) he designed, supervised and supported assessment, selection and support programs for personnel and their families deployed worldwide. He is a founding member (1992) of The Joint Personnel Recovery Agency Psychology Committee and assisted in coordinating clinical aspects of repatriation and media management for US POWs during Operation Iraqi Freedom. Dr. Roland is a past and current Selection Psychologist for the NASA Astronaut program.

Strategic: CGSC and SSC Graduate -Army War College. First Military Psychologist appointed to The NDU Leadership Faculty and establishing a permanent position there. Former Research Fellow at the Center for Technology and National Security policy at NDU. He consults frequently with US military and NATO Partners on program development, personnel issues, assessment, selection and long-range planning. Following 31 years of military commissioned service in 2004, his career as an Operational and Health Psychologist continued when he founded a company to provide services to DOD, OGA, Corporate and International Military customers. He has developed and executed more than a twenty Research and Development contracts covering Recruitment, Assessment, Selection, and Training (RAST), Service Member and Family Support and other direct Military Operational Support services. He is current Chair of The International Psychology Committee of Division 19 APA and Member the Society of Military Psychology.

Honors:
Fellow of the American Psychological Association and Society of Military Psychology, 2014.
Flanagan Lifetime Achievement Award, Division 19 (military) APA, 2102.
Urlaner Award for Excellence in Assessment and Selection, Division 19 APA, 2012.
Gersoni Award for Outstanding Contributions to Military Psychology, Division 19 APA, 2005
Order of Military Medical Merit, US Army Medical Department, 1996.
Awarded “A Designator” highest professional achievement within Psychology, Army Medical Department, 1995.
DoD sponsored Full-Time Post-Doctoral Medical/Health Fellowship, Beaumont Army Medical Center, 1988-89.
DoD sponsored Full-time Doctoral Student (Denver University) and Intern (Ft Ord, CA) 1983-86.
Four Year ROTC Scholar, Distinguished Military Student and Graduate, Widener University 1969-73.

US Military awards include: Defense Superior Service Medal, Legion of Merit, Army Occupation Medal (Berlin), South West Asia Service Medal (2), Kuwait Liberation Medal, Special Forces Combat Patch, Parachutist, Ranger and Expert Field Medic. Summary as of 7/2015.
Dr. Michael Schwerin is a Senior Survey Director and Research Psychologist with extensive experience designing research studies, collecting data, and performing quantitative and qualitative data analysis.

Dr. Schwerin’s primary areas of expertise include organizational behavior, studies to identify factors affecting employee retention, customer experience research, survey research, multivariate statistics, focus group interviews, qualitative research, text analysis, prediction market, and program evaluation.

Specialties: Developing data-based models of customer experience that link customer perceptions with business outcomes. Developed theory-based, data-based models of employee retention that leverages both work and life needs to identify factors most strongly related to employee retention for organizational development. Workforce analytics also include predictive models for "what if" scenarios to explore the potential impact of increases or decreases in employee work/life satisfaction.
Sako Maki Thompson is a Senior Associate at Booz Allen leading the Behavioral Health, Neuroscience and Clinical Operations capability across programs within the Department of Defense (National Intrepid Center of Excellence, US Special Operations Command and Defense Centers of Excellence), and select civil agencies. Portfolio of work is focused on direct clinical service delivery, healthcare infrastructure and operational support, performance metrics and scientific analysis, and resiliency training and curriculum development. Sako is a former chief executive with over 20 years’ experience leading private and public health care organizations. She has specialized training and expertise in behavioral health and healthcare operations, with extensive experience in the start-up, turnaround, and program design of community based programs, inpatient hospital departments, and healthcare systems. She has led health institutions and systems on projects and initiatives to develop and drive best practice, with a keen focus on improving quality, safety, and access to care.

Prior to joining Booz Allen Sako was the President of the behavioral health division for Adventist HealthCare in Rockville, Maryland. In her role, she provided strategic leadership and operational guidance to the Adventist Behavioral Health campuses in Montgomery and Anne Arundel Counties, and the Eastern Shore; and to the Reginald S. Lourie Center for Infants and Young Children, and Washington Adventist Hospital’s Behavioral Health Unit. Prior to that she was the Assistant Chief Executive Officer of a large medical center outside of St. Louis, Missouri.

Sako attended the University of Southern California (USC) where she earned a master’s degree in social work and a master’s degree in public administration.
Walter Wiggins

Colonel, Special Forces at US Army

- **Walter Wiggins**

  **Current**  
  Student at US Army War College, Director of Combat Development at United States Department of Defense

  **Past**  
  Lieutenant Colonel, Special Forces at US Army, Lieutenant Colonel at USASOC

**Education**  
The United States Naval Postgraduate School, University of California, Santa Barbara
Thomas J. Williams, PhD, serves as director, Senior Leader Development and Resiliency, U.S. Army War College, Carlisle, Pa. During his 30 plus year career as an Army officer, he was incredibly honored to serve soldiers and their families in various places around the world. Highlights of his past assignments include serving as the deputy director, Policy Analysis, Office of the Assistant Secretary of Defense (Health Affairs) and as the assistant to the Chief, Medical Corps Affairs, Office of the U.S. Army Surgeon General, The Pentagon. He also served simultaneously as Chief, Department of Psychology and as Chief, Strategic Planning pision, Walter Reed Health Care System. He subsequently was assigned as the Command Psychologist, 902d Military Intelligence Group, Fort Meade, Md., a position he held until his 2002 assignment to the U.S. Army War College. From 2002 to 2012, Dr. Williams directed and oversaw the dramatic expansion of The Army War College's Army Physical Fitness Research Institute (APFRI). Dr. Williams is the co-editor of, "The Ethical Practice of Operational Psychology: Military and Intelligence Applications," published in 2010 by the American Psychological Association.