



U.S. Army Research Institute for the Behavioral and Social Sciences

Assess and Develop Squad-level Psychological Intangibles

International Military Testing Association
(IMTA)

March 7 -11, 2022



Dr. Steve Aude & the ICF Research Team



Dr. Christopher Vowels & Dr. Nate Keiser,
ARI Fort Hood Research Unit



Disclaimer



- The research described herein was sponsored by the U.S. Army Research Institute for the Behavioral and Social Sciences, Department of the Army (Contract No. W911NF-2-C-0036). The views expressed in this presentation are those of the author and do not reflect the official policy or position of the Department of the Army, DOD, or the U.S. Government.



Research Objectives



- **Identify a set of psychological intangible (PI) factors predictive of ad hoc squad performance**
 - Develop a squad PI measure
 - Assess the PI measure in an ad hoc squad training environment
 - Develop and pilot test a squad huddle intervention to enhance PI performance
 - Conduct initial validity and reliability analyses
 - Revise the PI measure and adjust the squad huddle intervention
 - Reassess the PI measure & squad huddle using an experimental design to demonstrate its ability to improve squad PI performance

Working definition of squad psychological intangibles: psychological concepts that contribute to Soldier mission readiness across the human dimension.



Research Background



- **Previous research identified Psychological Intangibles (PI) predictive of *individual* Soldier readiness**
 - Conducted an extensive literature review of concepts such as grit, hardiness, resilience, adaptability, sense-making ...
 - Initiative and perseverance emerged as important PI concepts not currently assessed in unit training
 - Initiative and perseverance field-usable assessments developed and validated.
- **The Psychological intangibles of Soldier readiness is published as a technical report and in a series of NCO Journal articles**
 - <https://www.armyupress.army.mil/Portals/7/nco-journal/images/2019/November/Intangibles-1/Measuring-Intangibles.pdf>
- **Individual Soldier PI research instigates and is leveraged to conduct the present squad-level PI research**



Research Method

Squad Psychological Intangibles



- **Literature Review (LR):**
 - Reviewed the previous individual Soldier PI literature for factors that might also possess squad/team equivalents
 - Scanned team literature reviews for candidate PI
- **Develop and Adapt PI Measure:**
 - Generated a list of 32 candidate PI, their literature source, definition, and existing measures
 - NCO trainer interview and focus group identify PI most likely to influence squad performance (reducing PI from 32 to 17)
 - Resulting 17 candidate PI are subjected to research team ratings
 - Eight (8) research team members rate each PI on 7 key principles
 - Principles range from scientific to practical criteria



Research Method

Squad Psychological Intangibles



- **Develop and Adapt PI Measure (continued):**
 - Ten (10) PI emerge from research team ratings
 - Item pools are generated for each of 10 PI:
 - leveraging existing measures
 - complimented by research team item generation
 - NCO trainer's conduct rating of:
 - PI items based on importance to squad performance and observation frequency
 - Squad performance criterion statements
 - Research team refines the PI measure to thirty-two (32) items across seven (7) factors plus six (6) criterion



Research Method

Squad Psychological Intangibles



- **Develop squad huddle intervention:**
 - Sought to differentiate the squad development intervention from the traditional After-Action Review (AAR)
 - Created a brief *in situ* intervention designed to rapidly make the squad aware of their PI performance and identify an action to take into subsequent performance
 - Leveraged sports psychology to identify scientific principles and practices used by coaches during competitive game timeouts
 - Created a brief sequence of actions for NCO trainers to use for providing feedback, motivating and generating action for improved performance
 - Developed a job aide to guide NCO trainers in conducting a squad huddle during periods of brief pause/transition during field training



Research Method

Squad Psychological Intangibles



- **The seven (7) psychological intangibles:**
 - Communication
 - Support Each Other
 - Initiative
 - Agility, flexibility, adaptability
 - Perseverance
 - Shared Leadership
 - Formal Leadership



Research Method: Squad Psychological Intangibles



- **Field Site and Data Collection procedures**

- The Medical Simulation Training Center (MSTC) conducts traumatic wound care and casualty evacuation training
- ARI/Research team able to integrate PI assessment and squad huddle into existing MSTC course lane training:
 - Soldier students formed into ad hoc squads for culminating exercise designed to have them experience performing casualty care and evacuation as a group (squad) in a high stress, simulated, combat environment
 - NCO instructors receive orientation to the PI assessment & squad huddle job aide
 - First of two PI assessments conducted on casualty care and evacuation obstacle lane. Squad is rated on performance criterion at the conclusion of the lane
 - Squad huddle conducted during brief pause before squads enter an indoor nighttime, under simulated fire, mass casualty evacuation and critical care scenario
 - Second PI assessment conducted during the indoor training lane, followed by criterion performance rating



Squad Psychological Intangibles Preliminary Phase I Findings



- **The assessment performed well with minor adjustments:**
 - Select PI items are eliminated or modified based on statistical analysis (reliability, etc.)
 - One performance criterion removed
- **The squad huddle improved over time and with research team coaching of NCO's to:**
 - Assess arousal levels and act to moderate them (provide for a break, encourage to drink water, catch breath, etc.)
 - Solicit/cite one positive initially to gain and maintain attention
 - Solicit/cite a limited number of key needs for improvement
 - Conclude huddle with squad verbally stating what one PI behavior they are going to do better at during the follow-on indoor exercise



Psychological Intangibles

Phase I Next Steps – Phase II



- **Phase I - Obtain 100+ squad PI assessments:**
 - Perform descriptive and reliability statistics
 - Perform confirmatory factor analysis on the PI measure
 - Perform correlation statistics between PI and criterion measures
 - Adjust PI measure and criterion accordingly
- **Phase II Research:**
 - Devise an experimental design to further test PI assessment and squad huddle intervention, e.g.
 - Intervention, control group design: squad huddle impact
 - Outdoor/Indoor (T1/T2) lane performance comparison



Squad Psychological Intangibles



Questions/Discussion

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to Washington Headquarters Service, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188) Washington, DC 20503.

PLEASE DO NOT RETURN YOUR FORM TO THE ABOVE ADDRESS.

1. REPORT DATE (DD-MM-YYYY)		2. REPORT TYPE		3. DATES COVERED (From - To)	
4. TITLE AND SUBTITLE				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSORING/MONITORING AGENCY REPORT NUMBER	
12. DISTRIBUTION AVAILABILITY STATEMENT					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT	b. ABSTRACT	c. THIS PAGE			19b. TELEPHONE NUMBER (Include area code)