ARI Research Note 2010-05

List of U.S. Army Research Institute Research and Technical Publications for Public Release/Unlimited Distribution

Fiscal Year 2009
October 1, 2008 to September 30, 2009

United States Army Research Institute for the Behavioral and Social Sciences

May 2010

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

Department of the Army
Deputy Chief of Staff, G1

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Technical Review by

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FOREWORD

The means of dissemination of the results of the U.S. Army Research Institute for the Behavioral and Social Sciences' (ARI) research and development/studies and analysis program vary widely depending on the type of research, the subject matter, and the sponsor/proponent. Typically, major findings with immediate policy and procedural implications are briefed to sponsors and proponents in order to enable timely implementation. This is followed up with complete documentation in the form of research and technical publications such as the ones listed here. In many cases, these documents represent the actual item handed off to the sponsor/proponent; this is particularly true of the Research Product category. In other cases, results are published in order to provide a complete record of the research accomplished and for future reference by researchers doing research in the same or similar areas.

This annotated list unlimited reports, and Research Note 2010-06 of restricted reports, provide an idea of both the depth and scope of the ARI FY 09 research effort, and is a valuable resource for anyone interested in military psychology from either a scientific or operational perspective.

MICHELLE SAMS, PhD.
Director

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List of U.S. Army Research Institute Research and Technical Publications for Public Release/Unlimited Distribution

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Introduction

The primary responsibility of the U.S. Army Research Institute for the Behavioral and Social Sciences (ARI) is to maximize Soldier effectiveness. ARI accomplishes its mission through research and development in the acquisition, training, utilization, and retention of Army personnel. ARI research and products affect every Army mission with a human performance component.

ARI publishes lists of its technical and research publications as convenient references for qualified agencies, individuals and sponsors. This issue of the publication list describes reports published during the period October 1, 2008, to September 30, 2009. It contains the abstract of each publication and the bibliographic information needed to identify a publication. The abstracts have been written, as far as possible, to describe the principal research findings in non-technical terms; however, technical language is often used to communicate efficiently the details of research conducted. Author indexing provides access to individual reports and topics.

ARI Publications

ARI publications are divided into separate, consecutively numbered categories appropriate to their intended audience and function. Missing report numbers in this list can be found in Research Note 2010-06, *List of U.S. Army Research Institute Research and Technical Publications for Restricted/Limited Distribution*. During fiscal year 2009, the following types of research and technical reports were issued by ARI:

Technical Report (TR). A report of completed research intended primarily for dissemination to researchers.

Research Reports and Technical Reports published by the U.S. Army Research Institute for the Behavioral and Social Sciences are intended for sponsors of research and development (R&D) tasks and for other research and military agencies. Any findings ready for implementation at the time of publication are presented in the last part of the Executive Summary. Upon completion of a major phase of the task, formal

recommendations for official action normally are conveyed to appropriate military agencies by briefing or memorandum.

Research Report (RR). A report of completed research intended primarily for dissemination to military managers. Research Reports may deal with policy-related issues but typically do not include specific policy recommendations.

Research Product (RP). A user-oriented report intended to aid Army personnel. Examples are handbooks, manuals, and guidebooks.

Special Report (S). A published report on a topic of special interest or in-house research intended primarily for dissemination to a select audience.

Study Report (SR). A published report briefly documenting studies and analyses.

Study Note (SN). A Study Note may contain or consist of technical text, computer code, diskettes or tapes with software, databases, codebooks or other documentation, raw data, data collection instruments, figures, tables, or any other products that do not concisely convey the import of a project but which must be archived for technical completeness.

Research Note (RN). An interim, or final report typically of limited interest outside of ARI. It is filed with the Defense Technical Information Center (DTIC) but is not printed. Research Notes usually fall into one of the following categories:

- An in-house report that is of limited interest outside of ARI but is considered worth submitting to DTIC to be part of the Department of Defense (DoD) archive of technical documentation.

- An interim contract report that is of limited interest outside of ARI but is considered worth submitting to DTIC to be part of the DoD archive of technical documentation.

- A final contract report that is of limited interest outside of ARI but must be submitted to DTIC in accordance with Department of the Army regulations to close a contract.

- Material related to a Research Report or Technical Report (detailed tables, graphs, charts, sample forms, and sample training and testing materials) published as a Research Note to economize on printing and distribution.

Contractor Report (CR). An interim, or final report by a contractor that meets contractual obligations but is not defined by the other report categories.

ARI Distribution Policy

Initial distribution of these publications is made directly by ARI. Research Reports, Technical Reports, Study Reports, and Research Products are distributed

primarily to operational and research facilities and their sponsors in DoD, to other interested Government agencies, and to DTIC. Research Notes, Study Notes, and Contractor Reports are filed with DTIC but are not published.

These publications are NOT available from ARI. Registered DoD agencies and contractors can purchase paper copies from:

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(703) 767-9030 or DSN 284-9030
http://www.dtic.mil

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National Technical Information Service
5285 Port Royal Road
Springfield, VA 22161
(703) 487-4650
http://www.ntis.gov

NOTE: When requesting copies of these reports, use the DTIC accession number (AD - - - - - -) appearing in parentheses following the date of publication of each citation.

Special Reports

S 68
Training Small Unit Leaders and Teams
Kenneth L. Evans, Bruce W. Knerr, & Amanda N. Gesselman. February 2009. (ADA508029)

The Special Report summarizes a recently completed ARI research program in the area of small unit leader and team training. The program involved 27 separate lines of investigation organized into five broad research areas: new and emerging systems, desktop simulation, automated tools, simulation technology assessment, and high performance tasks. While highlighting the major findings from this body of research, the report also illustrates the various ways the research program has benefitted the Army, from providing timely information in support of project and system manager decision making to the development of new automated training tools and improved software for simulation training.

KEYWORDS: training, small unit leaders, team training, leader education and training, training tools, simulation, computer based training

Technical Reports

TR 1231 - See Research Note 2010-06
TR 1232 – 1237 – See Research Note 2010-04

TR 1238
Nonverbal Communication in the Contemporary Operating Environment
Mark Yager, Beret Strong, Linda Roan, David Matsumoto, & Kimberly A. Metcalf. January 2009. (ADA501219)

Nonverbal behavior (NVB) is a key part of communication, arguably accounting for considerably more of the communicative message than that contained in verbal exchanges. This is especially true when a language barrier exists, as it does for many Soldiers stationed overseas. Universal and culture-specific NVB knowledge, skills, and attitudes (propensity) enable Soldiers to better identify opportunities to influence individuals, groups, and situations, especially when seeking cooperation or needing to identify friendly vs. hostile intent. The goal of the training proposed herein is to prepare Soldiers to predict and interpret nonverbal behavior. To develop the training framework, a literature review, a preliminary emblem extraction effort, and SME interviews and surveys were conducted. Competencies identified in NVB training include relevant attention and observation skills; cognitive processes to baseline people and scenes to develop expectancies of normative states and detect changes to a baseline; and knowledge of NVB functions and cues relevant to specific applications such as aggression and deception detection. This report describes a conceptual framework for teaching specific NVB concepts and cues designed to provide maximum benefit to Soldiers and makes specific recommendations about how such a curriculum may be taught.

KEYWORDS: nonverbal communication, nonverbal behaviors, cultural training, cross-cultural skills, cultural understanding

TR 1239
Navigating the Human Terrain: Development of Cross-Cultural Perspective Taking Skills
Douglas B. Rosenthal, Lee Ann Wadsworth, Cheryl Paullin, Amy C. Hooper, Julisara Mathew, & Dharm P. S. Bhawuk. January 2009. (ADA501292)

U.S. military missions often require that our troops work effectively with people from different cultures. To do this requires, at all levels of our force structure, an appreciation of the intricacies of societal and tribal cultures and the complexity of human-to-human interactions. This report describes the concept for a culture-general training system that can enhance multicultural perspective taking using two complimentary and integrated components. The first component teaches intercultural knowledge and theory, and the second is a cultural assimilator, which uses a scenario-based approach. short stories describing realistic and challenging interactions between two or more persons from different cultural backgrounds.

KEYWORDS: perspective taking, cultural skills, intercultural communication

TR 1240
Assessment of The Captains in Command Training Program for Adaptive Thinking Skills
Scott B. Shadrick, & Jeffrey E. Fite. January 2009. (ADA507445)

Adaptive thinking is a key component of competency in battle command. Unfortunately, expertise in adaptive thinking is not easily acquired and training typically requires the presence of a live instructor. This report presents the first evaluations of Captains in Command, an instructorless program for training adaptive thinking skills in company-grade officers. Participants were 36 students enrolled in the Maneuver Captain's Career Course (MCCC) at Fort Knox, Kentucky. Students received instruction on adaptive thinking and themes of battlefield thinking. They then viewed a series of vignettes, which placed them in the role of a company commander faced with complex tactical problems. After each vignette, students were asked to identify the critical tactical information required before a sound decision could be made. Three-dimensional animated characters provided coaching and discussed the relevant information identified by expert tacticians. With Captains in Command training, students showed significant improvements in their ability to identify critical information. They were also able to identify significantly more information than untrained students regardless of prior deployment experience. When the efficacy of instructorless Captains in Command training was compared to instructor-facilitated Think Like a Commander (TLAC) training, there were no significant differences in students' performance at the end of the program.

KEYWORDS: Captains in Command, adaptive thinking, training, deliberate practice, Think Like a Commander, Armor Captains Career Course

TR 1241
Selection for Accelerated Basic Combat Training
Richard R. Hoffman III, Tonia S. Heffner, Stephanie T. Muraca, Ryan Hendricks, & Arwen E. Hunter. January 2009. (ADA494811)

The U.S. Army asked the U. S. Army Research Institute for the Behavioral and Social Sciences (AI) to develop a tool to select qualified candidates for an accelerated Basic Combat Training (BCT) track. The tool was to incorporate non-cognitive measures to provide broader measurement than an existing procedure which relied on a cognitive test and a physical fitness test.

The tool was developed over two phases, a development phase and a validation phase. The results suggested that non-cognitive assessment can contribute to the identification of the most well-prepared Soldiers for a more challenging training regimen. However, the results were not sufficiently consistent across the two phases to suggest a stable model for identifying such Soldiers.

KEYWORDS: behavioral and social science, selection, criterion-related validation, basic combat training

TR 1242

Assessing Professional Competence by Using Occupational Judgment Tests Derived From Job Analysis Questionnaires

Peter Legree, Joseph Psotka, Tiffany M. Bludau, & Dawn Gray. January 2009. (ADA494988)

Based on the historical success of job analysis questionnaires and the related expectation that respondents with technical expertise are required to obtain valid job analysis ratings data, we hypothesized that these questionnaires can be converted into judgment tests to measure individual differences in occupational expertise. As an initial test of this hypothesis, *Occupational Judgment Tests (OJTs)* were derived from job analysis questionnaires, and job incumbents were asked to objectively rate the frequency of job tasks and the importance of employee attributes to occupational performance. The OJTs required 3 minutes to complete, were administered to 302 job incumbents from four diverse occupations, and were scored using consensually derived standards and through factor analysis. As hypothesized, OJT consensus-based scores were valid against measures of incumbent job knowledge (ρ = .34 to .35), cognitive aptitude (ρ = .17 to .25), and career attitudes (ρ = .19). OJT factor scores were valid against career attitudes ($\bar{r}$ = .21 to .29). This method provides broadly sensitive and inexpensive measures of job competence that could expand the predictor and criterion space in personnel selection studies for many occupations.

KEYWORDS: Situational Judgment Tests (SJTs), job analysis questionnaires, consensus based assessment, performance measurement

TR 1243

Temporal Investigations Into the Relationship Between Affect and Discretionary Work Behavior

Howard M. Weiss, Reeshad S. Dalal, Holly Lam, & Eric R. Welch. December 2008. (ADA508304)

After a long hiatus, mood and emotions (collectively known as “affect”) are enjoying a strong resurgence in many areas of psychology. Vis-à-vis the workplace, Affective Events Theory predicts that stochastic workplace events influence workplace affect, which in turn influences various workplace behaviors relevant to job performance. Moreover, like the events and affect that precede them, these behaviors are highly volatile within persons over time. The present set of research projects were designed to test, and extend, Affective Events Theory. The research focuses on the “contextual” or “discretionary” aspects of job performance—namely, organizational citizenship behavior and counterproductive (deviant) work behavior. These behaviors, typically studied at the between-person level, were shown in the present research to be highly volatile within persons over time and reliably related to affect. Moreover, within persons, citizenship and counterproductive behavior were themselves virtually unrelated. Finally, *experiencing* a common form of counterproductive behavior was associated with *enacting* similar behavior as well as other forms of counterproductive behavior. The results are relevant to the Army’s continued search for the “good Soldier”:

one who engages in citizenship behavior and refrains from counterproductive/deviant behavior.

KEYWORDS: affect, emotions, affective events theory, organizational citizenship behavior, counter productive work behavior, deviant behavior, job performance, within-person, dynamic, ecological momentary assessment, experience sampling method

TR 1244
Investigations into Army Enlisted Classification Systems: Concurrent Validation Report
Michael Ingerick, Ted Diaz, & Dan Putka. January 2009. (ADA500985)

The Army faces a number of personnel needs as it transforms to meet the challenges of today and the near future. To meet these challenges, the Army is seeking recommendations on predictor measures, in particular measures of non-cognitive attributes (e.g., interests, values, and temperament), that could be administered to enhance Soldier selection and classification decisions. The U. S. Army Research Institute for the Behavioral and Social Sciences (ARI) conducted a Concurrent Validation (CV) research effort to advance this objective. The objectives of this research were twofold: (a) to examine the value of using new, experimental predictor measures to select recruits into the Army; and (b) to investigate the potential of new, experimental predictor measures to enhance the classification of recruits into entry-level jobs.

Criterion measures and experimental predictors were administered to 424 first-term Active Army Soldiers representing five military occupational specialties (MOS): (a) 11B Infantryman, (b) 19K Armor Crewman, (c) 25U Signal Support Systems Specialist, (d) 63B Light Wheeled Vehicle Mechanic, and (e) 68W Health Care Specialist. The value of the experimental predictor measures to enhance recruit selection and classification were examined. Overall, the results indicate that the experimental predictors show potential to increment the existing Armed Services Vocational Aptitude Battery (ASVAB) for the purposes of selecting recruits into the Army and classifying them into entry-level jobs.

KEYWORDS: behavioral and social science, personnel, criterion-related validation, selection and classification, manpower

TR 1245
Anytime, Anywhere Terrain Visualization Training System: Combining Training Theory and Technology to Train Human-Computer Visualization
Marcia J. Rossi, M. Javed Khan, Sanjeeb Nanda, Carl W. Lickteig, & Peter S. Schaefer. January 2009. (ADM002200)

This report describes the design and evaluation of a new system for training terrain visualization, an important but difficult skill to train and acquire. Recognizing the inherent limitations of traditional paper-and-pencil methods of training terrain visualization, the U.S. Army awarded a Small Business Technology Transfer (STTR) contract to combine training theory and technology to improve terrain visualization training. The prototype training system (Anytime, Anywhere Terrain Visualization Training, or A2TV) allows trainees to interactively view and vary digital representations

of terrain by flying and driving through terrain, morphing terrain, and overlaying contour information. In two experiments with novices, one or more of the training methods was shown to significantly improve important terrain visualization skills. Terrain visualization performance was also correlated with spatial ability measures. A training potential and usability evaluation was conducted with active duty military personnel. Military participants affirmed the need for training terrain visualization, acclaimed the potential of the A2TV system for training as well as mission planning and support, and provided constructive recommendations on refinements needed for Phase III commercialization.

KEYWORDS: technology, terrain visualization, classical training methods, innovative training methods, spatial ability

TR 1246
Augmented Performance Environment for Enhancing Interagency Coordination in Stability, Security, Transition, and Reconstruction (SSTR) Operations
Anna T. Cianciolo, Noelle LaVoie, Peter Foltz, & Linda G. Pierce. February 2009. (ADA499528)

Stability, security, transition, and reconstruction (SSTR) operations are a core U.S. military mission (United States Department of Defense, 2005). The objective of these missions is to help establish order with the aim of attaining a sustainable peace while advancing U.S. interests. To conduct SSTR operations, U.S. military forces work with a host of partners representing non-governmental aid organizations and other U.S. government agencies, as well as international agencies and multinational military forces. These partners may share an overarching goal, but differ significantly in how the goal or goals should be achieved. The purpose of this effort was to investigate the implications of organizational and national culture on SSTR operations and to define requirements for performance support and training. With a focus on the provincial reconstruction team (PRT), we specified cultural identities (beyond nationality) that influence interagency operations, used consensus-building as a metaphor for understanding SSTR planning, and linked cultural differences to SSTR planning tasks and collective skill breakdowns. A prototype, automated system to enhance interagency collective performance in SSTR operations was demonstrated. The system integrated latent semantic analysis with cultural reference materials, readiness assessments, rehearsal opportunities and individual skill development exercises. Follow on work is planned to refine our understanding of interagency collaboration and implement and test an interagency consensus forum.

KEYWORDS: multi-cultural teams, multi-national teams, collaboration, communication analysis, consensus-building

TR 1247 - Cancelled

TR 1248
The Human Dimension of Advising: An Analysis of Interpersonal, Linguistic, Cultural, and Advisory Aspects of the Advisor Role
Michelle Ramsden Zbylut, Kimberly A. Metcalf, Lt Col Brandon McGowan, MSG Michael Beemer, Jason M. Brunner, & Christopher L. Vowels. July 2009. (ADA507713)

A survey targeting interpersonal, cultural, language, and advisory activities was administered to 565 Army and Marine advisors returning from Iraq and Afghanistan. Advisors rated how frequently they engaged in 151 activities, as well as indicated how important those activities were to advisor performance. Results indicated that the most frequent activity engaged in by advisors was communicating through an interpreter, followed by role modeling behaviors and behaviors demonstrating consideration and respect. Results suggest that advisors did not view language proficiency as necessary to perform their job, but that knowledge of common words and greetings in the host nation language is important. Results also highlight the importance of impression management skills, skill at interpreting nonverbal behavior, mentoring and coaching skills, the ability to compare one's culture with the counterpart's culture, the ability to detect manipulation, rapport building, and interacting with coalition forces.

KEYWORDS: advisor, cross-cultural skills, cultural understanding, culture, foreign language, influence, interpersonal skills, security force, transition team, coaching, mentoring, advising, COIN

TR 1249
Team Composition Optimization: The Team Optimal Profile System (TOPS)
Jamie S. Donsbach, Scott I. Tannenbaum, George M. Alliger, John Mathieu, Eduardo Salas, Gerald F. Goodwin, & Kimberly A. Metcalf. June 2009. (ADA501355)

Teams have become strategic features in organizations. Research and practice suggest team effectiveness is driven considerably by the mix of team member attributes. Given the impact a team's composition has on its objectives, private industry and military leaders place a premium on making optimal team staffing decisions. Nonetheless, the challenges associated with achieving optimal team composition are significant and indicate a need for a tool/system to help commanders optimize personnel allocation. Accordingly, this report lays the foundation for a system that incorporates the elements required to help leaders optimize team composition. For our first task, leaders with extensive team staffing experience were interviewed to uncover the implicit decision models used by team staffing experts. Supplementing extant research, the interviews contributed to our second task: the development of a team composition decision taxonomy. The taxonomy defines and organizes elements of the team staffing decision domain. The interviews and taxonomy culminated in the development of a generic, customizable team composition optimization algorithm that models team composition-effectiveness relationships. Finally, we designed a

framework/methodology for a Team Optimal Profiling System (TOPS) and demonstrated its use for making an optimal team composition decision.

KEYWORDS: teams, team composition, team composition optimization, personnel allocation, team staffing

TR 1250
The Leader AZIMUTH Check: Factor Structure of Common Competencies
John P. Steele, & Sena Garven. June 2009. (ADA501598)

Enhancing the leadership skills of Soldiers is of primary importance to the U. S. Army. A critical step in the process of leader development is self-awareness through self-assessment. Such insight is important because identifying and assessing trainable competencies that facilitate maximum leadership effectiveness creates a strategic advantage. This report describes the psychometric properties and common competencies assessed by the Leader AZIMUTH Check, a 360-degree feedback instrument for Army leaders. The AZIMUTH was designed and implemented by the Army Research Institute (ARI) to improve leader common competency development, leader-directed feedback, and enhance leader self-awareness. The purposes of the present research project were to establish a factor structure of common competencies, the minimum number of raters required for adequate reliability, conceptual agreement across rating sources, rating patterns and behaviors, and validity evidence of the AZIMUTH.

KEYWORDS: multisource feedback, leadership skills, rating psychometrics, leader development

TR 1251
Identifying the Core Content and Structure of a Schema for Cultural Understanding
Joan Rentsch, Iona Mot, & Allison Abbe. June 2009. (ADA501597)

Multicultural perspective taking skills enable Army leaders to adapt quickly when encountering individuals or groups from unfamiliar cultures and function effectively in multinational alliances. In previous research, a schema for cultural understanding was identified as a key component of multicultural perspective taking. The primary objective for the present research was to identify core content and structure of a schema for cultural understanding that can be used to inform training for Soldiers deploying to unfamiliar cultures. Using a combination of qualitative and quantitative methods, we extracted schema content through interviews and identified common themes and concepts. This process resulted in schema content consisting of attributes of culture, goals in using cultural knowledge, and tactics for cultural learning. Findings indicated that concepts of religion, values and beliefs, and customs or traditions were central attributes of cultural understanding. These findings can inform training development and guide further research on the skills needed to function effectively in multicultural environments. Whereas traditional cultural awareness training typically focuses on understanding members of a specific culture or country, augmenting this training by

focusing on a schema for cultural understanding developed through practical experience will afford Army leaders broader cultural capability.

KEYWORDS: cultural understanding, culture, cultural schema, cultural expertise

TR 1252
Operational Assessment of Tools for Accelerating Leader Development (ALD): Volume I, Capstone Report
Bruce C. Leibrecht, David H. McGilvray, Douglas L. Tystad, & Sena Garven. June 2009. (ADA507714)

This report, in two volumes, describes the operational demonstration and assessment of an innovative toolkit resulting from a research program aimed at enhancing self-development of junior leaders in the Army. The toolkit contains online diagnostic and training tools that build self-awareness, metacognitive abilities, critical thinking skills, and interpersonal skills. Soldiers in units and user juries provided feedback on the tools. The pressures of the operational environment seriously limited the time available to work with the tools. The user satisfaction results indicated the toolkit provides a reasonable mix of capabilities, but completeness remains an open question. The tools appear to be especially suitable for use in pre-commissioning and military education programs. They offer moderately favorable acceptability, learning effectiveness, and value. However, the online learning methods may need modification to accommodate the importance Army leaders place on interpersonal interaction with mentors and peers. The findings, lessons learned, and recommendations can help decision makers, program architects, training developers, and research investigators advance the state of the art for leadership development programs. Volume II, ARI Research Note 2009-09, presents the report's appendices.

KEYWORDS: leader development, web-based training, self-assessment, cognitive skills, interpersonal skills, critical thinking skills, army excellence in leadership, leader adaptability, field demonstration

TR 1253 – See RN 2010-06
TR 1254 - Cancelled

TR 1255
Cross-Cultural Strategies for Improving the Teaching, Training, and Mentoring Skills of Military Transition Team Advisors
Andi O'Conor, Linda Roan, Kenneth Cushner, & Kimberly A. Metcalf. July 2009. (ADA507715)

Military doctrine currently provides guidance on various methods to train host-nation security forces (FM3-24); yet U.S. advisors typically have little training in teaching methods, particularly in a cross-cultural environment. This document presents a conceptual framework that identifies individual advisor and counterpart differences, as well as the situational and cultural factors that impact the success and failure of training, coaching, or mentoring. This report includes a comprehensive literature review, data from iterative interviews with host nationals, military transition team members, cross-

cultural education experts, educators and trainers from the U.S., Afghanistan, Iraq and the Horn of Africa. It also includes recommendations which outline innovative methods for training military advisors to more effectively teach and coach their counterparts in a cross-cultural setting. In order to provide effective advising to host nationals, advisors need expertise in two areas: 1) cross-cultural competencies related to teaching and learning and 2) cross-cultural teaching strategies. Key cross-cultural competencies pertinent to the military advisor are identified and include understanding the cross-cultural teaching/advising relationship, culturally relevant curriculum and methods, cross-cultural communication, and effective cross-cultural assessment. The report also includes a discussion of structural barriers to effective advising, and recommendations for developing a cross-cultural teaching and training curriculum for Soldiers.

KEYWORDS: cross-cultural training, advisor, transition team, teaching, mentoring

TR 1256
Leader and Team Adaptation: The Influence and Development of Key Attributes and Processes
Stephen J. Zaccaro, Deanna Banks, Lee Kiechel-Koles, Cary Kemp, & Paige Bader. August 2009. (ADA507989)

This report summarizes the results of a series of investigations that examined (a) the role of feedback processes as a leadership tool in team adaptation, (b) the influence of developmental work experiences on team and leader adaptability, and (c) the effects of combinations of leader qualities on the display of adaptation processes and performance in dynamic military and business settings. The results of these investigations indicated that (a) process-oriented, team level, and public feedback from leaders was most effective in facilitating team adaptation, particularly when team members possess high levels of cognitive skills; (b) developmental assignments are associated with growth in social competencies, but only when participating leaders have high levels of metacognitive skill, cognitive complexity, and tolerance for ambiguity; (c) social competencies influence leader adaptability, but only when the organizational climate supports innovation; and (d) several cognitive, social, and dispositional leader attributes were related singly and in combination to leader adaptability.

KEYWORDS: leader training and development, leader adaptability, team leadership, and team adaptation

TR 1257
Validating Future Force Performance Measures (Army Class): End of Training Longitudinal Validation
Deirdre J. Knapp, & Tonia S. Heffner (Editors). September 2009. (ADA507669)

The Army needs the best personnel to meet the emerging demands of the 21st century. Accordingly, the Army is seeking recommendations on new experimental predictor measures that could enhance entry-level Soldier selection and classification decisions, in particular, measures of non-cognitive attributes (e.g., interests, values,

temperament). The U. S. Army Research Institute for the Behavioral and Social Sciences (ARI) is conducting a longitudinal criterion-related validation research effort to collect data to inform these recommendations.

Data on experimental predictors were collected from about 11,000 Soldiers. Training criterion data were collected for differing subsets of the predictor sample in the first of three planned criterion measurement points. Soldiers were drawn from two samples: (a) job-specific samples targeting six entry-level Military Occupational Specialties (MOS) and (b) an Army-wide sample with no MOS-specific requirements. In the analyses reported here, the value of the experimental predictor measures to enhance new Soldier selection was examined. Overall, many of the experimental predictors significantly incremented the Armed Forces Qualification Test (AFQT) in predicting Soldier performance and retention during training. In addition, the experimental predictors generally exhibited smaller subgroup mean differences (by gender, race, and ethnicity) than the AFQT.

KEYWORDS: behavioral and social science, personnel, criterion-related validation, selection and classification, manpower

TR 1258
Social Awareness and Leader Influence: Development of Classroom and Web-Based Learning Interventions
Rose A. Mueller-Hanson, Erin C. Swartout, & Johnathan K. Nelson, Carolyn Parish, Cody Martin, & Tim McGonigle. September 2009. (ADA507832)

This research entailed developing and testing a detailed program of instruction to help Army leaders improve their social awareness and influence skills. Based on input from Soldier subject matter experts and the behavioral sciences literature, two training programs were developed: a six-hour classroom course and a parallel web-based course. Additionally, four assessments were created: a Social Awareness and Influence Skills Self-assessment to assess self-perceptions of skills, a knowledge test to assess learning in the course, a situational judgment test (SJT) to assess the students' ability to apply social insight and judgment to interpersonal situations, and a web-based role-play to assess the students' ability to apply influence tactics. These courses and assessments were then subsequently tested in two pilot samples. Results of the participant reactions questionnaire indicated that the training programs in both the classroom and web-based formats were well received by the target audience and that participants gained new knowledge as a result of the course. Results also indicated promise for the measures piloted in this project. The outcomes of this effort include a fully developed classroom-based POI and a companion prototype web-based POI that are suitable for first-line Army leaders (E4 to E6 and O1 to O3).

KEYWORDS: social awareness, self awareness, influence training

Research Reports

RR 1880
Computerized Training in Critical Thinking $(CT)^2$: A Skill-Based Program for Army Personnel
Susan C. Fischer, V. Alan Spiker, Douglas H. Harris, Evan R. McPeters, & Sharon L. Riedel. February 2009. (ADA494961)

This report describes the development and assessment of Web-based training in critical thinking (CT) for Army personnel. The product of this research program was easily distributed and accessible training for eight critical thinking skills that are important and problematic for Army battle command. The development of the training was supported by preliminary research that reviewed the research literature in critical thinking, developed a model of critical thinking, identified high impact CTS for Army personnel, and developed a prototype training system for two critical thinking skills (Fischer, Spiker, & Riedel, 2008 a,b,c). This report documents the development and evaluation of an expanded version of the training which provides training. A user-centered design process, which included four formative evaluations, was used to ensure that the resulting training and assessment products were usable, useful, and well accepted by potential training populations. The effectiveness of the resulting training system was evaluated in two additional investigations. The results of both evaluations indicated that the training improved participants' skills on the two critical thinking skills that were evaluated.

KEYWORDS: critical thinking, computer-based training, web-based training, critical thinking skill

RR 1881
Critical Thinking Training for Army Officers Volume One: Overview of Research Program
Susan C. Fischer, V. Alan, & Sharon L. Riedel. February 2009. (ADA494960)

This is the first of three volumes of a report describing a multi-year research program to develop and validate web based training in critical thinking for Army officers. This first volume presents an overview of the research efforts that developed and validated a theoretical model for the training, selected and validated eight high impact critical thinking skills for Army officers, and developed and evaluated the training course. The report documents the systematic approach that was used to develop a computer based, on-line, training program designed to promote CT in Army officers. Volume two of this series presents, in more detail, the model and theoretical basis for the training and the experiments that were conducted to validate the model. Volume three describes a prototype training system for two critical thinking skills, including the functional requirements, pedagogical principles, course content, and evaluation of the training. A succeeding report describes an expanded version of the system that was developed to train eight critical thinking skills.

KEYWORDS: critical thinking, computer-based training, web-based training, critical thinking skill

RR 1882
Critical Thinking Training for Army Officers Volume Two: A Model of Critical Thinking
Susan C. Fischer, V. Alan Spiker, & Sharon L. Riedel. February 2009. (ADA494959)

This report is the second of three volumes describing a multi-year research program to develop and evaluate web based training in critical thinking for Army officers. The first volume presents an overview of the research effort that developed and validated a theoretical model for the training, selected and validated eight high impact critical thinking skills for Army officers, and developed and evaluated the training course. This volume describes the results of a literature review on critical thinking, a model of critical thinking that forms the theoretical basis for the training, and investigations that were conducted to validate the model. Volume Three describes a web-based prototype training system that trains two critical thinking skills. Included in Volume Three are a description of the functional requirements, pedagogical principles, course content, and evaluation of the training. A fourth report (Fischer, Spiker, & Riedel, 2008) describes an expanded version of the training system that provides training for eight critical thinking skills for Army officers.

KEYWORDS: critical thinking, computer-based training, web-based training, critical thinking skill

RR 1883
Critical Thinking Training for Army Officers Volume Three: Development and Assessment of a Web-Based Training Program
Susan C. Fischer, V. Alan Spiker, & Sharon L. Riedel. February 2009. (ADA494970)

This is the third volume of a three-volume report describing a multi-year research program to develop and validate web based training in critical thinking for Army officers. The first volume presents an overview of the research effort that developed and validated a theoretical model for the training, selected and validated eight high impact critical thinking skills for Army officers, and developed and validated the training course. The second volume describes, in more detail, the model and theoretical basis for the training and the investigations that were conducted to validate the model. This, the third volume, describes the prototype training system that was developed for two of the skills, including the functional requirements, pedagogical principles, course content, and evaluation of the training. A succeeding report (Fischer, Spiker, Harris, McPeters, & Riedel, 2008) describes an expanded training system which provides training for eight critical thinking skills for Army officers.

KEYWORDS: critical thinking, computer-based training, web-based training, critical thinking skill

RR 1884 – RR 1887 – See RN 2010-04
RR 1888 – See RN 2010-06

RR 1889
Training Situation Awareness and Adaptive Decision-Making Skills Using a Desktop Computer Simulation
Robert J. Pleban, Jennifer S. Tucker, Vanessa Johnson, Katie Gunther, & Thomas R. Graves. January 2009. (ADA494799)

This report describes research designed to: 1) determine the feasibility of a low-fidelity desktop computer simulation called Simulation Field Exercise (SimFX) to train small unit leader situation awareness (SA) and adaptive decision-making skills; and 2) assess the effectiveness of a training protocol consisting of advance organizers (information to familiarize individuals in the areas of SA and the application of key leader processes to facilitate decision-making) and formative, process oriented feedback. Thirty-five Infantry junior officers were randomly assigned to either an experimental or control condition. The Soldiers, role playing a dismounted Infantry Platoon Leader, conducted three mission scenarios reflecting current operations. Adaptive decision-making capability and SA were assessed for each mission. The experimental group obtained significantly higher adaptive decision-making scores than those in the control group. SA and adaptive decision-making scores were significantly correlated for scenarios 1 and 2 such that higher adaptive responding was associated with higher SA ratings. The experimental group used significantly more assets (a measure of SA) than the control group. Strategies for enhancing the training effectiveness of low-fidelity desktop computer simulations such as SimFX are described. SimFX refinements are identified for application to large classes with high student throughput.

KEYWORDS: decision-making, virtual environment, low-fidelity desktop computer simulations, situation awareness, small unit leader training

RR 1890 – See RN 2010-06

RR 1891
Identifying the Training Challenges and Needs of Deploying Units
William R. Sanders, & Peter S. Schaefer. March 2009. (ADA495194)

In response to rapidly evolving mission requirements and changing tactics, techniques, and procedures (TTP), U.S. Army small unit leaders (company level officers and non-commissioned officers [NCOs]) are required to develop new training methods and/or adapt existing products to meet training needs. The core challenge for the small unit leaders is to develop and implement pre-deployment training to incorporate lessons learned experiences and TTP. At the same time the leaders must develop training for newly inserted capabilities and technologies. To identify training requirements and tools available for training development, the U.S. Army Research Institute for the Behavioral and Social Sciences gathered information through semi-structured interviews and surveys with both Active Component and Reserve Component leaders. Survey results were used to compare the needs of Active Component and Reserve Component units. Results identify language training, cultural skills training, and human terrain mapping as high priority areas where follow-on training development research would support Army needs.

KEYWORDS: pre-deployment training, cultural skills training, language skills training, human terrain mapping, individual skills training, collective skills training

RR 1892
Instructor-Facilitated vs. Stand-Alone Tactical Game Training
Scott A. Beal. January 2009. (ADA494812)

Sixty-nine Infantry small unit leaders attending the Basic Non-Commissioned Officer Course (BNCOC) at Fort Benning, Georgia, participated in an experiment that investigated the impact of instructor-facilitated versus stand-alone game training on tactical decision making. Thirty-two leaders were assigned to complete two urban operations-based missions (patrol and defense) using the SimFX game. These leaders worked under the direction of an instructor and interacted with peers. Thirty-seven more leaders completed the two missions, but worked in the absence of an instructor and peer interaction. Pre-exercise measures included military and game experience and tactical situation judgment. A questionnaire administered to leaders following the exercise documented their perceptions of training value, opportunities to implement tactical decisions, and motivation. Leaders in both groups were assessed individually for their ability to recognize and implement sound tactical decisions while serving as leader of a light Infantry squad during patrol and defense missions in a simulated urban environment. Results showed that tactical decision making performance was not impacted by training methods, but that leaders' perceptions of training value and decision making were more favorable when the exercise was facilitated by an instructor and when they interacted with peers. A discussion of the results and their applicability to the Army's trend towards distributed methods of instruction is included.

KEYWORDS: game, simulation, tactical decision making, infantry small unit leader, stand-alone training, instructor-facilitated training

RR 1893
Training Digital Skills In Distributed Classroom Environments: A Blended Learning Approach
Jennifer S. Tucker, David H. McGilvray, Bruce C. Leibrecht, Christopher Strauss, Andy Perrault, & Amanda N. Gesselman. March 2009. (ADA495731)

Specific goals of the present research were to 1) report lessons learned from instructors in a distributed blended learning environment; 2) report student reactions to this type of learning environment; and 3) compare the training approaches with those reported for traditional classroom environments. Both the dL instructors and students acknowledged substantial value in the blended approach (video teletraining with computer software) for training digital skills remotely. The students offered some good suggestions for improving the training in distributed environments such as having hands-on training with tactical equipment and additional training aids (acronym list, commander's guide, train-the-trainer materials, etc.). Overall, the findings indicate that the dL instructors were able to adapt to using the technology to teach FBCB2 operations, resulting in training that is very comparable to the traditional courses. The positive student comments and similar training approaches and topical coverage support these findings. Additionally, major advantages and disadvantages of the dL

method of instruction are noted. Several specific recommendations for dL instructors were made in the areas of (a) leveraging student strengths, (b) emphasizing problem-centered instruction, and (c) leveraging training aids. The findings contribute to the Army's efforts to enhance blended learning solutions to meet critical training needs.

KEYWORDS: digital training, ABCS operator skills, training technology, Army training, FBCB2 training, blended learning, distributed learning

RR 1894 – See RN 2010-06

RR 1895
Drill Sergeant Candidate Transformation
M. Glenn Cobb, Stephanie T.Muraca, David Sluss, Raina Rutti, & Robert Ployhart. February 2009. (ADA495798)

While Drill Sergeant Schools (DSSs) are charged with preparing Noncommissioned Officers (NCOs) for the role and responsibilities of Drill Sergeants (DS), few attempts have been made to systematically examine the impact this training actually has on its graduates. Rather, previous research has largely focused on manning alternatives such as determining if Sergeants should be readmitted to DS duty, potential interventions employing DS to reduce Initial Entry Training (IET) attrition, and various strategies that could be employed by DSs to train and reinforce various tasks emphasized during IET. As requested by the Commanding General (CG), Fort Jackson, the U. S. Army Research Institute for Behavioral and Social Sciences (ARI) empirically assessed the changes in NCO leadership style, confidence, commitment, and motivation that occur as a function of DS training. Its purpose is to provide leaders at Fort Jackson with information and recommendations upon which they can base decisions that will impact the DSS and subsequent training of DS candidates.

KEYWORDS: Drill Sergeant School, Drill Sergeant transformation, Drill Sergeant training, Initial Entry Training

RR 1896
Flexible Method for Developing Tactics, Techniques, and Procedures for Future Capabilities
Richard Topolski, Bruce C. Leibrecht, Robert D. Kiser, Jamie Kirkley, & Brian T. Crabb. February 2009. (ADA501254)

The goal of the research described in this report was to create a flexible and iterative method for exploring, developing, and refining tactics, techniques, and procedures (TTP). The approach harnessed knowledge elicitation (KE) methodology and simulation-based vignettes to provide a flexible set of tools to structure and guide the TTP development process. The resulting TTP development support package was implemented with Soldiers to assess and improve the method. The effectiveness of the method was measured by participant ratings as well as the research team's ability to implement the process. Using the structured KE process to facilitate TTP development was productive across all simulation vignettes. A majority of participants and researchers rated all aspects of the KE method highly, but identified shortcomings in the

technical aspects of the simulation system used. Lessons learned and future recommendations are provided, including simulation requirements and improvements.

KEYWORDS: tactics, techniques, and procedures; knowledge elicitation, simulation-based vignettes, future combat systems

RR 1897- cancelled

RR 1898
Mental Models for Effective Training: Comparing Expert and Novice Maintainers' Mental Models
Robert C. Hubal. May 2009. (ADA499530)

For a well-defined domain of knowledge, the process of learning can be characterized as a student's construction of a mental model of the domain's elements and their inter-relationships. It follows that a student's mental model can be compared against a desired mental model (such as an expert's) before, during, and at the conclusion of instruction. Differences between mental models could be useful for student diagnosis and assessment and for curriculum modification. In this investigation mental models of test, measurement, and diagnostic equipment (TMDE) usage for novice, intermediate, and expert U.S. Army ordnance electronics maintenance personnel were characterized and compared. Comparisons revealed differences between non-experts and experts, and also differences among experts.

KEYWORDS: mental models, test maintenance and diagnostic equipment (TMDE), ordnance electronics training, training assessment

RR 1899 Assessment Tools for Basic Army Noncommissioned Officer Training
Jason Sidman, Gary Riccio, Robert Semmens, Alexandra Geyer, Courtney Dean, & Frederick Diedrich. May 2009. (ADA499492)

The Army Research Institute Ft. Benning Research Unit and the Henry Caro Noncommissioned Officer Academy at Ft. Benning identified the need to create an objective assessment scheme for the Infantry Basic Noncommissioned Officer Course (BNCOC). The intent was to produce an assessment instrument that could be used for formative and summative assessment both of different versions of BNCOC and also of different research interventions into BNCOC. Assessment instruments were developed for two major training modules: small arms proficiency training (SAPT) and troop leading procedures (TLP). During development of the assessment instruments, the Infantry BNCOC pedagogical model changed from direct, instructor-led training to outcome-based training and education (OBTE) and a corresponding emphasis on intangibles. With the change to OBTE, the SAPT and TLP instruments are now being used by BNCOC cadre as instructional job aids. Lessons learned from both instruments were incorporated into an outline for OBTE instructor preparation. Additionally, both

instruments will serve as foundation for follow-on development of assessments of the effect of research interventions associated with OBTE upon BNCOC students.

KEYWORDS: measure development, outcomes based training, infantry training, institutional Army, training design, feedback

RR 1900
Self-Assessment: Review and Implications for Training
John T. Breidert, & Jeffrey E. Fite. June 2009. (ADA501346)

Across the spectrum of self-assessment research, a topic of debate concerns the accuracy by which individuals can evaluate their own performance. While some research has found self-assessment to be an effective measure, the majority typically found it to be an under- or over-estimation of actual performance. Although the accuracy of self-assessment has seen skepticism, benefits have been well documented. The current review is the result of examination concerning self-assessment accuracy and utility. The literature was searched to evaluate the ability of trainees/job incumbents/students to accurately report their level of ability or performance. Upon examination of the self-assessment accuracy literature, problems arose concerning terminology and differential utilization of self-assessment. This review reports that self-assessment, as currently used, is generally inaccurate; but given appropriate consideration of the moderating variables and clarification of terminology, self-assessment accuracy could increase. The Army should utilize a continuum of self-assessment, considering domain and skill level as determinant factors. Self-grading could be useful for the introduction and training of new skills. Self-impression may be useful for assessing Soldiers' confidence, self-perception of personality or traits, and continuous performance appraisal. Implementation of the continuum has potential to improve training quality and skill retention throughout the Army.

KEYWORDS: self-assessment, assessment, training, performance appraisal, confidence assessment, metacognition, self-grading

RR 1901
Assessment of the Warrant Officer Technical and Tactical Certification Course (WOTTC)
Scott A. Beal, Robert Kilcullen, James W. Lussier, Don Martin, & Gonzalo A. Ferro. June 2009. (ADA508025)

In response to a request from the U.S. Army John F. Kennedy Special Warfare Center and School, U.S. Army Research Institute for the Behavioral and Social Sciences (ARI) initiated a research effort to assess the effectiveness of the new Warrant Officer Technical and Tactical Certification Course (WOTTC) in terms of producing Special Forces (SF) Warrant Officers (WO) who could perform effectively on the job. A behaviorally anchored rating scale (BARS) was developed to assist the assessment process. Seventeen SF battalion commanders and 13 senior WOs provided individual job performance ratings for 91 WOTTC graduates, in addition to rating their performance as a group relative to other SF WOs of the same rank and experience. In

general, the ratings for junior WOs suggest that the WOTTC produces graduates who perform capably on the job. Written comments provided by leaders reinforced the positive assessment of the WOTTC graduates' job performance. This report describes the methods used to complete the effort, documents the results, and discusses how the findings reflect the utility of the WOTTC for SF WOs.

KEYWORDS: Special Forces, Warrant Officer, technical training, tactical training, field performance assessment

RR 1902
Initial Research on Multitask Training and Transfer: Research Issues for the Future Force
Peter S. Schaefer, & Brian T. Crabb. June 2009. (ADA503357)

New technologies currently under development will provide Soldiers with unprecedented amounts of information. However, these technologies will also require Soldiers to multitask (MT) under demanding circumstances. In two experiments, Soldiers were trained to complete single tasks (ST) or to MT. Their ability to multitask trained and novel tasks was then measured. Results indicate that although performance during training is superior for the ST trained participants, this pattern reverses when participants are required to MT both trained and novel tasks. Further, MT training performance is a better predictor of MT performance on both trained and novel tasks than ST training performance. Finally, working memory appears to be a relevant predictor only for individuals who have not received MT training. Future research issues should include an examination of task characteristics which may impact the transfer of multitasking skills. Implications for multitask training and personnel selection are discussed.

KEYWORDS: multitasking, multitask training, prediction of multitask performance, transfer of training, working memory

RR 1903
Decision Making with Digital Systems
Gregory A. Goodwin & David R. James. July 2009. (ADA507441)

Access to current, accurate battlefield information via the Army Battle Command System (ABCS), is supposed to improve decision making by leaders and commanders, but some research suggests that information systems may, paradoxically, have the opposite effect by overwhelming leaders with information or by emphasizing irrelevant information. There are currently no published reports examining the impact of ABCS systems on decision-making. This report is an effort to address this important research gap through an investigation of the ways the ABCS impacts decision-making by Army leaders at the Joint Readiness Training Center (JRTC). Observer/controllers (O/Cs) at JRTC reported that few units are fully trained to use their ABCS systems. Nevertheless, most units were able to leverage some system capabilities to accomplish mission objectives. The most common decision errors were the result of the availability heuristic (e.g., making a decision with incomplete information). Of the six decision errors examined, only two were reported to involve ABCS systems. O/Cs also indicated that when digital systems increased errors, it was due to improper use rather than the design of the system.

Thus, the data suggest that these systems do not increase decision errors; however, their potential to reduce errors has not yet been fully realized by units training at JRTC.

KEYWORDS: digital system employment, decision error, decision making, Army Battle Command System, joint readiness training center, AFATDS, ASAS, MCS, FBCB2

RR 1904
Training Analyses Supporting the Land Warrior and Ground Soldier Systems
Jean L. Dyer, & Jennifer S. Tucker. July 2009. (ADA507444)

This report documents two training analyses conducted in 2005 through 2007 on the Land Warrior (LW) and Ground Soldier System (GSS), respectively, as part of Analysis of Alternatives efforts on these systems, which supported milestone decisions for each system. One analysis assessed the sufficiency of the LW New Equipment Training conducted for a Stryker Battalion. The other examined the institutional impact of equipping seven Stryker Brigade Combat Teams with the GSS. The assessment and research techniques used in the training analyses have general applicability to estimation of training requirements and resources for other developing systems. The report also provides an audit-trail of individual tasks associated with dismounted ground Soldier systems.

KEYWORDS: land warrior, ground soldier system, analysis of alternatives, new equipment training, DOTMLPF, training plans, training resources

RR 1905
The Development of Planning and Measurement Tools for Casualty Evacuation Operations at the Joint Readiness Training Center
Kenneth L. Evans, MAJ Michael F. Coerper, & 1SG Jeffery A. Johnson. July 2009. (ADA507442)

The present investigation sought to quantify small unit casualty evacuation (CASEVAC) practices at the Joint Readiness Training Center (JRTC) and to determine the extent to which a job performance aid, the Warrior Leaders Casualty Evacuation Guide, might improve unit CASEVAC performance. Unit CASEVAC practices were measured by trainers/mentors using the Casualty Evacuation Checklist, a tool developed especially for the investigation. Over the course of ten unit rotations at JRTC, 768 checklists were collected and analyzed. The Warrior Leaders Casualty Evacuation Guide was found to positively influence unit performance in the areas of CASEVAC planning and execution. Unit strengths and weaknesses in CASEVAC operations were identified. Overall, units that rehearsed their CASEVAC plans were significantly less likely to have their CASEVAC operations interrupt mission accomplishment than units that did not rehearse their plans. This finding was consistent with previous research on troop leading procedures and unit information management practices at JRTC.

KEYWORDS: casualty evacuation, joint readiness training center, job performance aids, medical evacuation

RR 1906
Determining a Critical-Skill Hierarchy for Command Post of the Future (CPOF)
Richard Catrambone, Richard L. Wampler, & Martin L. Bink. July 2009. (ADA507712)

The Command Post of the Future (CPOF) is a dynamic visualization tool that supports collaborative decision-making in tactical units. The system uses a customizable workspace based on the user's needs rather than a static format. While such an approach to digital-systems design offers flexibility and generality of use, it might also increase the complexity of learning to use the interface. As a precursor to examining alternative training approaches for CPOF, this report documents an analysis of and hierarchical structure for underlying CPOF skills. A knowledge extraction process was conducted with CPOF domain experts (DEs) to uncover the knowledge needed to use CPOF. The DEs performed a series of tasks based on the practical exercises developed for training Soldiers. A Critical Skills Document was iteratively updated and reorganized in order to identify the major components of the system and the procedures for accomplishing various tasks. The Critical Skills Document represents CPOF skills in a way to show their generality and applicability. Instructional designers can use it to determine what to train as well as a guide for developing learning assessments. The findings provide a foundation for comparing training approaches for CPOF and similar digital systems.

KEYWORDS: Command Post of the Future, CPOF, task analysis, skill hierarchy, knowledge elicitation, command and control, training analysis, knowledge extraction, critical skills

RR 1907
Developing an Onboarding Program to Improve Senior Leader Transitions in the Army
Lori Foster-Thompson, & Scott A. Beal. August 2009. (ADA507481)

The U.S. Army has long had an institutionalized form of personnel rotation among its leaders. As such, a large amount of senior leadership time is spent learning unfamiliar organizational culture, adjusting to new roles, and developing new critical networks of relationships needed to command effectively. Presently, much of this happens in a relatively non-systematic fashion, sometimes resulting in inefficiencies and preventable mistakes. The purpose of this paper is to discuss the difficulties that accompany senior leadership transitions and propose onboarding as a solution to help military leaders and organizations deal with these challenges. Drawing from best practices developed in the civilian sector, this paper describes a hypothetical Army onboarding program in order to illustrate the concepts and principles associated with it. It includes recommendations for tailoring a senior leader onboarding program to the particular requirements of an individual command. Although a number of the issues presented in this paper likely apply to many military settings, they are discussed and

illustrated here in the context of U.S. Army leaders who are responsible for overseeing support staff in an office-type (e.g., headquarters) environment.

KEYWORDS: onboarding, organizational development , senior leader transition, command rotation, command climate, command culture

RR 1908
END STATE – Commander's Visualization at the Company Level
Carl W. Lickteig, Peter S. Schaefer, Jeffrey E. Fite, Tristan Hendrix, Steven Puchino, James Harrison, & Anna T. Cianciolo. August 2009. (ADM002296)

Visualization is the process of developing situational understanding and envisioning how to move the force from its current state to the desired end state. It is a critical command skill that must be acquired earlier in a leader's career than ever before given today's challenging operational environment. Training is needed that provides deliberate reflection and practice opportunities to improve visualization. To meet the requirement, U.S. Army Research Institute for the Behavioral and Social Sciences (ARI) conducted research on developing training that improves company and battalion commanders' visualization. This report describes the design, development, and formative evaluation of END STATE – Commander's Visualization at the Company Level which provides instructorless, interactive training and testing to help company commanders and their units visualize the operational environment. Forty-eight captains and lieutenants participated in a formative evaluation that concluded END STATE is effective, relevant, and worth using. Revisions based on participant recommendations resulted in an END STATE product ready for pilot implementation. Ongoing ARI research on END STATE will develop parallel pre- and post-tests to assess training effectiveness and normative standards of novice, intermediate, and expert performance. Research and implementation will establish an empirical base to understand and improve the ability of company commanders and their units to visualize operations in today's operational environment.

KEYWORDS: training, visualization, company-level operations, deliberate practice, human performance

RR 1909
Innovative Methods to Acquire and Adapt Soldier Skills (INMASS) in the Operational Environment
Jennifer K. Phillips, William A. Ross, Carl W. Lickteig, & Jeffery D. Livingston. August 2009. (ADA510819)

This report documents an effort initiated by the U.S. Army Research Institute for the Behavioral and Social Sciences (ARI) to 1) specify a set of high-priority competencies required in counter-insurgency (COIN) missions, and 2) identify innovative training methodologies to help Soldiers acquire cognitive competencies for COIN. The analysis focused only on high-priority cognitive competencies. Following the analysis of COIN cognitive competencies, faculty from the Consortium Research Fellows Program (CRFP) identified innovative approaches to train performance of the competencies and their corresponding knowledge, skills, abilities, and attitudes (KSAAs). The CRFP consultants

documented their recommended approaches in white papers that also examined requirements for development and implementation. The research team then considered the applicability of the training approaches to the identified COIN cognitive competencies and the feasibility of each approach for incorporation into the U.S. Army's training system in order to prioritize the training methodologies accordingly. As a result, recommendations were made on further development of the training approaches and multimedia demonstrations of the three most promising approaches were created and included in this report to promote future training development efforts.

KEYWORDS: counter-insurgency, innovative training, cognitive skills, Soldier competencies, human performance

RR 1910
Assessment of a User Guide for One Semi-Automated Forces (OneSAF) Version 2.0
David R. James, & Jean L. Dyer. September 2009. (ADA510823)

A User Guide was developed for One Semi-Automated Forces (OneSAF) version 2. It was designed to assist Army Research Institute (ARI) researchers and other first-time users who desire to use this simulation capability in their research or training application. The User Guide contains detailed, illustrated steps of the core procedures required to develop a basic scenario at the platoon and company echelons, thus serving as a prototype for guides that support future versions of OneSAF. Subject matter experts from the Maneuver Battle Lab at Ft. Benning, GA reviewed the User Guide and completed an assessment of it. Additions were made to the User Guide to address their recommendations. The revised User Guide is included as an Appendix to the report. A copy of the User Guide (CD-ROM) can obtained from the ARI Research Unit at Ft. Benning GA.

KEYWORDS: One Semi-automated Forces, OneSAF, constructive simulation, training support materials, training guide, training aid

RR 1911
Peer-to-Peer Training Facilitator's Guide: Development and Evaluation
Michele N. Costanza, Bruce C. Leibrecht, William Cooper, & William R. Sanders. September 2009. (ADA508309)

The peer-to-peer (P2P) training approach involves small groups of people from similar social groupings, who are not professional teachers, helping each other to learn. The P2P approach has great potential for rapidly identifying emerging lessons learned and integrating them into wide-reaching Army training. The present research identified the instructional principles and best practices for P2P from academia, industry, and the military supporting effective P2P training and incorporated them into a Soldier-friendly facilitator's guide. A formative evaluation was conducted with Soldiers using the guide to prepare and conduct group discussions for a face-to-face group setting and a distributed group setting where Soldiers were linked via video teleconference. One group of Soldiers served as "facilitators" and used the facilitator's guide to prepare and lead discussions with other Soldiers who served as "learners." Feedback on the guide

was mostly positive with Soldiers indicating that the guide provided an appropriate amount of information and a usable format and tools for structuring and fostering group discussions. Ongoing efforts to transition P2P methods into Army training are discussed.

KEYWORDS: peer-to-peer training, peer learning, video-teleconference, peer collaboration, unit training program, facilitation

RR 1912
Initial Evaluation of a U.S. Army Training Need: Soldier Skills to Develop, Enhance, and Support Local Level Host-Nation Governance
Jeffrey E. Fite, John T. Breidert, & Scott B. Shadrick. September 2009. (ADA507921)

During recent interviews with U.S. Army commanders, researchers from the U.S. Army Research Institute for the Behavioral and Social Sciences learned of a critical requirement for training to support missions aimed at developing and supporting legitimate host-nation governance (HNG). Unfortunately, such training is not currently available. Therefore, the primary purposes of this report were to document the Army's need for governance-related training and provide a tool to aid upcoming efforts to address that need. Through interviews with Soldiers and leaders, we confirmed the training needs initially communicated to us, and learned of the governance activities of Soldiers at squad, platoon, company, and battalion levels. Through a review of recent Army Field Manuals 3-24, 3-07, and 3-24.2, we demonstrated that doctrine has provided an extensive framework upon which governance training can be developed. Through a review of academic and non-governmental literature, we identified commonly used indicators of governance and made note of important considerations for their use. We conclude our report with a preliminary research plan with which we will pursue the development of training that will prepare Soldiers to develop, enhance, and support local level HNG.

KEYWORDS: U.S. Army, Soldiers, Officers, Non-Commissioned Officers, legitimate governance, local government, web-based training, tactics, techniques, and procedures, job aids

Research Products

RP 2009-01
Social Awareness and Influence Workshop Materials
U.S. Army Research Institute, Fort Leavenworth Research Unit. February 2009. (ADM002185)

The purpose of the Social Awareness and Influence Workshop is to help improve the ability of participants to influence others. While participants are likely to know about influence already from their experience as Army leaders, this course is designed to provide participants with some additional tools, techniques, and different ways of thinking about the topic of influence in order to refine and focus skills necessary for effective influence attempts. Influence is a core component of effective Army leadership and as such it is important to continually improve one's skills related to influence in order to be a more effective leader. In support of this goal, this work- shop consists of a PowerPoint presentation accompanied by numerous practical exercises including role plays and a video based situational judgment test. This workshop covers a wide range of topics related to influence including bases of power, various influence tactics, factors to consider in selecting an influence tactic, and a model of social awareness and influence that outlines how one can most effectively proceed through the phases of an influence attempt.

KEYWORDS: social awareness, self awareness, influence training

RP 2009-02 – See RN 2010-06

RP 2009-03
Peer-to-Peer Training Facilitator's Guide
Michele N. Costanza, Bruce C. Leibrecht, William Cooper, & William R. Sanders. January 2009. (ADA502277)

The peer-to-peer (P2P) training approach involves small groups of people from similar social groupings, who are not professional teachers, helping each other to learn. The P2P approach has great potential for rapidly identifying emerging lessons learned and integrating these into wide-reaching Army training. However, to ensure that the potential of P2P training is realized, the Army needs to identify the instructional principles and best practices supporting effective P2P training and incorporate these into a Soldier-friendly facilitator's guide. The present research resulted in the development of a P2P Training Facilitator's Guide which incorporates best practices in P2P training from academia, industry, and the military. As part of the research process, the guide was reviewed during formative evaluation and revised. This report contains a brief overview of the project and the complete P2P Training Facilitator's Guide.

KEYWORDS: peer-to-peer training, peer learning, video-teleconference, peer collaboration, unit training program, facilitation

RP 2009-04
Metrics for Assessing Cognitive Skills in the Maneuver Captains Career Course
Bruce C. Leibrecht, Jennifer S. Tucker, R. Bruce Haverty, Paul N. Blankenbeckler, & D. Chris Green. March 1009. (ADA495761)

This report presents the products of research conducted to create student assessment metrics for the Maneuver Captains Career Course–Reserve Component (MC3-RC). Two Student Assessment Packages (SAPs) were developed, one for company command competencies and one for battalion staff competencies. This report describes the contents, organization, and special features of both SAPs. It also discusses guidelines for using the metrics to meet research, instructional, and programmatic goals and offers recommendations for disseminating and leveraging the products. Both SAPs are included in their entirety as appendixes. They support MC3-RC instructors in developing testing activities, tracking student progress, and providing grounded feedback to augment the learning process. The SAPs are currently being used to provide feedback to course proponents at Ft. Knox, KY, regarding the cognitive skill proficiency levels of the Captains in the courses.

KEYWORDS: Army training, officer education system, student assessment , knowledge testing, cognitive skills, situational judgment test, test methodology, Captain competencies

RP 2009-05
Methodology for Evaluating Transfer of Learning from the U.S. Army's Advanced Leaders Course
Bruce C. Leibrecht, Richard L. Wampler, & Robert J. Pleban. June 2009. (ADA501599)

The research reported here established the foundation for a unit-focused evaluation of the new Infantry Advanced Leaders Course (ALC, formerly known as the Basic Noncommissioned Officer Course), with the emphasis on transfer of training. The work produced an Evaluation Design Plan, a Data Collection and Management Plan, measures of ALC impact, the architecture for data collection instruments, and a Data Collector's Guide. This document describes and characterizes each product, and presents intermediate products involved in developing the impact measures. It also summarizes design options considered and rejected, and delineates assumptions behind the data collection strategy. The primary products are included in appendixes. The research paves the way for a comprehensive evaluation of Infantry ALC's operational impact.

KEYWORDS: noncommissioned officer education system, program evaluation, assessment planning, evaluation methodology, infantry advanced leaders course

RP 2009-06 – See RN 2010-06

RP 2009-07
Annotated Bibliography of the Army Research Institute's Training Research Supporting the Land Warrior and Ground Soldier Systems: 1998-2009
Jean L. Dyer. July 2009. (ADA508002)

This report summarizes a body of research and analyses conducted by the Army Research Institute at Fort Benning Georgia between 1998 and 2009 on the Land Warrior (LW) system and the Ground Soldier System (GSS). These Soldier systems include a wearable computer, global positioning system, and a communication system all linked to a network. Some references in the annotated bibliography are published ARI reports; others are special reports submitted to the TRADOC Capabilities Manager (TCM)-Soldier, Project Manager (PM) Land Warrior/Soldier and/or US Army Infantry School (USAIS). Collectively, they provide a picture of LW training and system changes since 1998, summarize additional ARI research generated by training issues and questions associated with Soldier systems such as LW and GSS, and summarize the short-term and longer-term impacts of the research.

KEYWORDS: land warrior, ground soldier system, training, reduced exposure firing, new equipment training

RP 2009-08 – Cancelled
RP 2009-09 – See RN 2010-6

RP 2009-10
Developing Adaptive Training in the Classroom
Rose A. Mueller-Hanson, Michelle M. Wisecarver, David W. Dorsey, Gonzalo A. Ferro, & Kip Mendini. September 2009. (ADA507620)

The need for self-aware and adaptive leaders in the Army has been widely documented; however, the study of adaptability and how it is developed is still relatively new. This product provides end users with information about what it means to be adaptive, how to identify adaptive performance training needs, how to develop and evaluate adaptability training for a classroom setting, and factors to consider beyond the classroom. It provides usable tools and guidance for each of these steps, including a sample course outline, sample evaluation tools, and a planning guide for self-development. Individual characteristics that may predispose one to act in an adaptable way are also discussed.

KEYWORDS: adaptive performance, mental adaptability, interpersonal adaptability, leader adaptability, training adaptive performance, training Army leaders

RP 2009-11

Validating Future Force Performance Measures (Army Class): Reclassification Test and Criterion Development

Karen O. Moriarty, Roy C. Campbell, Tonia S. Heffner, & Deirdre J. Knapp.
September 2009. (ADA507668)

To meet the challenges facing the Army, the Army needs predictor measures that will enhance entry-level Soldier selection and classification. One of the purposes of the Army Research Institute for Behavioral and Social Sciences' (ARI's) Army Class project is to provide the Army with recommendations on which predictor measures, in particular measures of non-cognitive attributes (e.g., interests, values, and particular temperament), demonstrate the greatest potential to inform entry-level Soldier selection and classification decisions. The present report documents the development of criterion measures to assist in these analyses.

A second purpose of the Army Class project is to develop and pilot job knowledge tests (JKTs) that can be used to aid reclassification decisions. If Soldiers are shown to possess critical knowledge, skills, and attributes (KSAs) for their new jobs, this could reduce training requirements and increase force readiness. This report documents the development of reclassification JKT test items.

KEYWORDS: behavioral and social sciences, personnel, criterion development, selection and classification

Study Reports

SR 2008-06
Transfer and Generalizability of Foreign Language Learning
Allison Abbe. February 2009. (ADA495037)

Knowing a foreign language provides an advantage for understanding, working in, and building relationships with a particular language community. However, military personnel can expect to encounter multiple languages in their operational experiences over a career. Thus, it is important to understand what impact learning a foreign language has beyond its applications with a specific population. This report reviews research on the extent to which foreign language proficiency facilitates further language and cultural learning. Empirical research shows relationships among language learning and intercultural and language-related outcomes, but evidence for a direct causal contribution is lacking. In children, knowing a second language develops metalinguistic awareness, which can contribute to further language learning. However, other factors limit the degree of proficiency that can be expected. Evidence of benefits for cross-cultural attitudes and behavior is similarly scarce. The likely impact of language education and training on adults is therefore unknown, particularly for personnel who lack intrinsic motivation or language aptitude, or who hold negative attitudes about the language community. General characteristics such as intercultural sensitivity and interpersonal skills have been shown to contribute more to outcomes than do language skills. Evidence is currently insufficient to view language as the cornerstone of cultural capability.

KEYWORDS: foreign language learning, language proficiency, cross-cultural competence, cultural understanding, culture, intercultural communication

SR 2009-01 – See RN 2010-06

SR 2009-02
Best Practices for Using Mobile Training Teams to Deliver Noncommissioned Officer Education Courses
John C. Morey, Michael D. Bush, Robert Beebe, Scott McPhail, & William R. Bickley. January 2009. (ADA500349)

As part of Noncommissioned Officer Education System implementation, U.S. Army Training and Doctrine Command (TRADOC) schools have begun delivery of Phase 2 of Basic Noncommissioned Officer Courses (BNCOC) by mobile training teams (MTT). To provide input for emerging TRADOC MTT guidelines and policies, this effort identifies current BNCOC MTT best practices, proposes future best practices, and provides a notional timeline for conducting a BNCOC MTT. Best practices were developed from interviews with BNCOC graduates, personnel from proponent schools responsible for BNCOC training, and supervisors of MTT-trained noncommissioned officers.

KEYWORDS: mobile training team, MTT, best practices, training, NCOES, BNCOC, noncommissioned officer

SR 2009-03 – See RN 2010-06

SR 2009-04
The Impact of Basic Noncommissioned Officer Course Attendance on Promotion Timing
Martin L. Bink, David R. James, & Amanda M. Thomas. February 2009. (ADA496204)

World events and current promotion policies have created conditions where many noncommissioned officers (NCOs) cannot attend NCO education system (NCOES) courses at the desired points in their careers. The U. S. Army Training and Doctrine Command requested ARI investigate whether on-time attendance at NCOES courses impact promotion and retention of NCOs. In this research, the timing of basic NCO course (BNCOC) completion was analyzed on two outcome measures: the duration of enlistment after completion of BNCOC and the timing of promotion to Sergeant First Class (SFC). Overall, the timing of BNCOC completion was related to longer delays in promotion to SFC but not related to the probability of being promoted to SFC. More importantly, the relation between BNCOC completion and promotion timing changed as the global war on terrorism (GWOT) progressed. The relation was weakest during periods of highest NCO demand in GWOT, but the relation has strengthened in the most recent years. These changes corresponded with changes in NCO promotion policy that occurred during GWOT. In short, delays in NCOES attendance had an impact on SFC promotion when NCOES was stressed in the promotion policies, and NCOES delays had little impact on promotion when NCOES attendance was not stressed.

KEYWORDS: BNCOC attendance, NCO promotion, NCO retention, GWOT Operations Tempo

SR 2009-05
Noncommissioned Officer Education System (NCOES): Considerations for Testing-out and Awarding Equivalent Credit
Richard L. Wampler, & Paul N. Blankenbeckler. November 2008. (ADA495610)

This research examined the viability of allowing noncommissioned officers (NCOs) to receive NCO Education System (NCOES) credit based on experience or testing-out. Surveys and interviews were completed with 164 participants, varying in rank from Lieutenant Colonel to Staff Sergeant. Participants were serving in duty positions ranging from U.S. Army Training and Doctrine Command School Leaders and staff to actual NCO and Officer course instructors, at six Army installations representing 11 Schools. The majority (58%) agreed that testing-out of selected NCOES content is a viable option and 61% agreed that no credit should be awarded solely for experience. An overwhelming majority (90%) agreed that all NCOs should attend some resident NCOES classes to foster interpersonal relationships, 86% agreed that testing-out should include both hands-on and written components, and 85% agreed that all NCOs, active and reserve, should be handled the same concerning testing-out or receiving equivalent credit. Perspectives differed by rank group and duty position. Participants

identified numerous educational, administrative, logistical, and sociological items that could be negatively impacted by testing-out. They also suggested some testing-out procedures that might mitigate potential impacts.

KEYWORDS: NCO Education System, NCOES, BNCOC, ANCOC, equivalent credit , testing

SR 2009-06
Initial Development and Validation of Assessments for Predicting Disenrollment of Four-Year Scholarship Recipients from the Reserve Officer Training Corps
Dan J. Putka, (Ed.). January 2009. (ADA495510)

The Reserve Officer Training Corps (ROTC) is an essential commissioning source for the U.S. Army. ROTC has recently produced the majority of the Army's new Officers and yields Officers that eventually reach the highest ranks. Analyses have indicated that Officers graduating from the four-year ROTC scholarship program tend to be more likely than their non-scholarship ROTC, U.S. Military Academy (USMA), and Officer Candidate School (OCS) counterparts to leave after their initial Active Duty Service Obligation (ADSO). Furthermore, relative to non-scholarship Cadets, four-year scholarship Cadets tend to be less likely to complete the ROTC program and become commissioned Officers. Data collected for the current project showed that approximately 10.3% of four-year scholarship freshmen in 2007 disenrolled between their freshman and sophomore years. The primary purpose of the current project was to develop and validate a new measure that would improve the prediction of ROTC continuance for four-year scholarship recipients. The long-term objective of this project is to provide the foundation for future longitudinal research that examines the impact of the new measures for predicting ROTC program completion, commissioning, and career continuance in the Army. This report describes the development of the Cadet Background and Experience Form (CBEF) and its initial validation for predicting disenrollment criteria.

KEYWORDS: ROTC, attrition, validation, Cadets, personnel screening tests, psychological tests

SR 2009-07 – See RN 2010-06
SR 2009-08 – See RN 2010-06
SR 2009-09 – See RN 2010-06

Study Notes

SN 2009-05
The Relationship between Enlisted Deployment and Retention
Paul F. Hogan, Ellen Bouchery, Patrick Mackin, & John Blayne. June 2009. (ADB353808)

This Study Note reports the results of analysis investigating the relationship between Soldier combat zone deployment history and retention, based on data from FY2003 through FY 2005. Using administrative data on actual re-enlistment decisions and combat zone deployments, we found that measures of a Soldier's most recent deployment history were positively associated with the probability of re-enlisting for both first and second term Soldiers. In contrast, when the expectation of deployment in the next term was considered instead of recent deployment history, we found that deployment has a negative impact on retention. When a measure of the hazard of deployment, fatality rates among Army Soldiers, was added to the model, a large negative impact on reenlistment was observed. However, the time period indicators still remained large and significant suggesting other unidentified factors impact reenlistment. In sum, the measures of deployment history used in this study did not fully explain the substantial declines in retention observed between FY 2003 and FY 2005. In particular, measures of expectations of future deployments were lower in FY 2005 than in FY 2004, but retention continued to decline between FY 2004 and FY 2005.

KEYWORDS: deployment, retention, retention incentives, re-enlistment

Research Notes

RN 2009-01
The Impact of Extending the Special Forces Warrant Officer Service Obligation on the Recruitment and Accessioning of Special Forces Warrant Officers
Robert Kilcullen, & James Lussier. January 2009. (ADA495035)

This research assesses the potential impact of increasing the U.S. Army Special Forces (SF) Warrant Officer (WO) service obligation from six to 10 years on SF Non-commissioned Officer (NCO) interest in applying to become SF WOs. A survey was administered to 293 SF NCOs to assess their attitudes toward applying to become a WO under the current system and under a system in which the WO service requirement was increased from six to 10 years. A separate survey was completed by 98 SF WOs to provide information on how a longer WO service requirement would have affected their decision to apply. An analysis of both surveys suggests that increasing the WO obligation from six to 10 years will result in fewer WO applications. A rough estimate is that the number of applications will drop by 50% if the 10 year obligation is introduced without compensatory incentives. The right package of incentives along with an extended obligation may result in roughly a 25% drop in applications. The incentive package should include financial incentives and options for longer service on Operational Detachment Alpha (ODA) to be maximally effective. The WO recruiting efforts can be maximized by focusing on sergeant first class (SFC) and those with 11-15 Years of Service (YOS), excluding 18Es. Follow-up surveys and/or focus groups can be conducted to better specify the precise level of financial and other incentives necessary to achieve the desired impact.

KEYWORDS: Special Forces, Warrant Officers, extending service obligations, accessions

RN 2009-02
Culturally Aware Agents for Training Environments (CAATE): Phase I Final Report
Scott Neal Reilly, Clare Bayley, David Koelle, Stephen Marotta, Jonathan Pfautz, Michael Keeney, & Michael J. Singer. January 2009. (ADA495036)

Recently, the U.S. Army has conducted a wide range of missions within the context of very different cultures and languages. These missions often require junior leaders and Soldiers to interact and communicate effectively with people whose cultures, languages, lifestyles, and beliefs are very different from those found in the U.S. Computer-based training in virtual environments has the potential to train Soldiers to rehearse missions with a sound knowledge of the relevant local cultural context. Existing computer simulations of culturally situated agents representing humans are currently very limited in fidelity, making them unsuitable for training and rehearsal. This effort investigated, designed and demonstrated the feasibility of a two-step approach addressing the modeling of believable cultural agents. First, a mission essential competencies approach identifies key skills needed in training. Second, a modeling toolkit for designing computer-controlled agents for cultural training applications was described. The approach uses social network modeling technologies to develop models of interconnected agents within a graphical environment and a human behavior

modeling tool for simulated agents based on the cultural context. This approach was demonstrated by developing an integrated prototype that dynamically created cultural behavior in a virtual environment.

KEYWORDS: cultural modeling, behavior modeling, virtual training environments, behavior moderators, artificial intelligence, cognitive modeling, simulated environments

RN 2009-03 – See RN 2010-06
RN 2009-04 – See RN 2010-06

RN 2009-05
Training Collaboration in a Network-assisted Environment
Brooke Schaab, J. Douglas Dressel, Mark Sabol, & Andrea Rittman Lassiter. January 2009. (ADA497060)

This report investigates the effects of continuous vs. discrete control methods and the number of simultaneous camera views on operator performance during training to manually control a simulated micro-unmanned aerial vehicle (MAV). Seventy-two participants were trained to operate a MAV in a simulated environment, to designated criterion levels. They were then given training missions during which performance was measured. Eight conditions were investigated, formed by crossing three 2-level factors: input device (mouse vs. game controller), input control display (discrete vs. continuous), and number of simultaneous camera views (one vs. two). Superior performance was observed when a continuous input method (e.g., multiple degrees of freedom) was provided for continuous MAV functions (e.g. maneuvering in space) and a discrete input method (e.g., single action) was provided for discrete MAV functions (e.g., command to hover). Under these conditions, mission times were shorter, collisions were fewer, and more targets were photographed. Effects of video game experience and spatial ability were also investigated. Recommendations for the design of unmanned vehicle controls were discussed.

KEYWORDS: spatial ability, video game, user-interface, remote control, robot

RN 2009-06 – See RN 2010-06

RN 2009-07
The Human Dimension of Advising: Descriptive Statistics for the Cross-Cultural Activities of Transition Team Members
Michelle Ramsden Zbylut, Kimberly A. Metcalf, Lt Col Brandon McGowan, MSG Michael Beemer, Jason M. Brunner, & Christopher L. Vowels. June 2009. (ADA507716)

A survey targeting interpersonal, cultural, language, and advisory activities was administered to 565 Army and Marine advisors returning from Iraq and Afghanistan. Advisors rated how frequently they engaged in 151 activities, as well as indicated how important those activities were to advisor performance. This Research Note is a companion to ARI Technical Report 1248 (Ramsden Zbylut, Metcalf, McGowan, Beemer, Brunner, & Vowels, 2009), which presented analyses regarding the interpersonal, linguistic, advisory, and cultural activities performed by the 565 transition

team advisors in the sample. This document is a supplemental appendix that presents the descriptive statistics for advisor activities within specific positions on military transition teams. The following team member positions are included: Team Chief, Communications Advisor, Company Mentor, Deputy Team Chief, Fires and Effects Advisor, Intelligence Advisor, Logistics Advisor, Maintenance Advisor, Medic, NCO in Charge, Operations Advisor, Personnel Advisor, and Staff/Maneuver Advisor.

KEYWORDS: advisor, cross-cultural skills, cultural understanding, foreign language, influence, interpersonal skills, security force, transition team, coaching, mentoring, advising, COIN, culture

RN 2009-08
Learning to Decode Nonverbal Cues in Cross-Cultural Interactions
Shatha N. Samman, Michael Moshell, Chantel Brathwaite, & Bryan Clark**.** May 2009. (ADA507717)

Report developed under STTR Phase I contract for topic OSD07-T004. The overall objective of the project is to generate guidelines for the conceptual design of an interactive, computer-based training tool to improve Soldiers' ability to decode nonverbal cues and behavior in multiple channels (i.e., vocal tones, gestures). The tool will assist Soldiers to exhibit effective cross-cultural communication skills and prepare them to interpret and predict behavior more accurately in cross-cultural environments. The specific objectives of this Phase I research are to (1) conduct a comprehensive review to identify universal and culture-specific nonverbal cues that are particular to a specific Middle Eastern culture; (2) examine which nonverbal cues are more reliable across American and Arab cultures to determine similarities; (3) investigate which nonverbal cues and behaviors may be misinterpreted across cultures; (4) identify methods for teaching the recognition and interpretation of nonverbal cues cross-culturally; and (5) generate guidelines for the conceptual design of a training approach that is computer-based and interactive to improve Soldiers' ability to decode nonverbal cues and behavior. In Phase II, the development and testing of a prototype system in a realistic environment was to be undertaken.

KEYWORDS: Nonverbal, Cross-culture, Communication, training methods

RN 2009-09
Operational Assessment of Tools for Accelerating Leader Development (ALD): Volume II, Appendices
Bruce C. Leibrecht, David H. McGilvray, Douglas L. Tystad, & Sena Garven. June 2009. (ADA507718)

This report, in two volumes, describes the operational demonstration of an innovative toolkit designed to enhance self-development of junior leaders in the Army. The toolkit contains online diagnostic and training tools that build self-awareness, metacognitive abilities, critical thinking skills, and interpersonal skills. Volume I presents the body of the report including introduction to the demonstration, description of the toolkit, methods, findings and discussion, lessons learned, and conclusions and recommendations along with the references. This Volume II contains the appendices to

the report. Presented are the planning documents that guided the development and execution of the research (Detailed Test Plan, Implementation Support Plan, and Student Guide) and examples of the manual data collection instruments. These appendices contribute to the understanding of this research effort as well as the findings, lessons learned and recommendations presented in Volume I, Technical Report 1252. Further, the appendices provide valuable insights for researchers in future inquiries.

KEYWORDS: leader development, web-based training, self-assessment, cognitive skills, interpersonal skills, critical thinking skills, Army excellence in leadership, leader adaptability, field demonstration

RN 2009-10 – See RN 2010-06

RN 2009-11
Internet Delivery of Captains in Command Training: Administrator's Guide
Scott Shadrick, Tony Fullen, & Brian Crabb. June 2009. (ADA507719)

In support of developing adaptive leaders, the research leading to this research note explored methods to implement an Internet-delivered version of the Captains in Command research product. Additional enhancements include student input tracking, data collection, and storage on a client side server. Original source video files were compressed to meet web standards and system requirements. Vignettes were posted to a server and tested for functionality and playability. The research note describes how to post files to a client side server and how to use the training product.

KEYWORDS: theme-based training, adaptive leader training, web access, training vignettes, feedback strategies

RN 2009-12
Training Soldiers to Decode Nonverbal cues in Cross-Cultural Interactions
Douglas B. Rosenthal, Lee Ann Wadsworth, Hillary Anger Elfenbein, Jeffrey Sanchez, & Gregory A. Ruark. July 2009. (ADA507720)

The objective of this effort was to obtain information to increase Soldiers' ability to decode nonverbal cues (NVCs) in cross-culture interactions. Iraq was selected as the target location for this effort. We conducted a literature review, ran two focus groups with Soldiers, and videotaped Iraqi actors hired to display a series of emotions, actions, and gestures exhibited in Iraqi culture. The findings paint an unclear picture of the extent to which differences exist in NVCs between Americans and Iraqis and their impact on mission outcomes for U.S. Soldiers. The literature describes a strong universal element to nonverbal communication. However, more recent work also documents an in-group advantage. The Iraqi actors displayed some, but not many, gestures that are unlikely to be seen in the United States. U.S. Soldiers in our focus groups felt they were generally able to read most Iraqi's nonverbal behaviors. We recommend that future NVC research target specific, well defined contexts such as negotiations. We also recommend starting such efforts by carefully collecting and validating Iraqi culture-specific NVC. The final recommendation is to develop a training

program that gives careful attention to the setting, training stimuli, practice and feedback, and training impact evaluation.

KEYWORDS: nonverbal communication, nonverbal behaviors, cultural training, cross-cultural skills, cultural understanding

RN 2009-13
Review of Interventions for Reducing Enlisted Attrition in the U.S. Military: An Update
U. Christean Kubisiak, Elizabeth Lentz, Kristen E. Horgen, Rebecca H. Bryant, Patrick W. Connell, Matthew D. Tuttle, Walter C. Borman, Mark C. Young, & Ray Morath. July 2009. (ADA508188)

The U.S. Army Research Institute for the Behavioral and Social Sciences (ARI) has been conducting research on first-term enlisted attrition as part of a broader research project entitled “STAY: Strategies to Enhance Retention.” In support of the larger project, this report reviews past and ongoing interventions that support, either directly or indirectly, attrition interventions that assist Army recruits, trainees, and Soldiers in completing training and their first-term enlistment. This report provides a review of attrition interventions that deal primarily with social and behavioral factors affecting first-term attrition since 1973, the time of the transition to the all-volunteer force. The review is based on a number of sources, including published articles, papers, technical reports, previous reviews, and briefings. In addition, Subject Matter Experts were contacted to supplement the published information with anecdotal reports and feedback about interventions. Based on these reviews, recommendations are provided to guide research on and development of future enlisted attrition interventions.

KEYWORDS: project STAY, Army enlisted retention, attrition

RN 2009-14 – See RN 2010-06
RN 2009-15 – See RN 2010-06
RN 2009-16 – See RN 2010-06

RN 2009-17
Review of Initiatives for Increasing Enlisted Reenlistment in the U.S. Army
Rebecca H. Bryant, Anna Tolentino, Walter C. Borman, Kristen E. Horgen, Ulf C. Kubisiak, & Elizabeth Lentz. November 2009. (ADA510824)

The U.S. Army Research Institute for the Behavioral and Social Sciences (ARI) initiated a three-year research program titled "STAY: Strategies to Enhance Retention." The goals of this effort were to develop and test a conceptual model of the career continuance process, and to identify, implement, and evaluate promising interventions that encourage Army reenlistment among first-term Soldiers. To achieve these broad objectives, this report reviews past and ongoing interventions that support, either directly or indirectly, Army enlisted Soldier retention efforts. The review is based on a number of sources, including a literature search, interviews and focus groups with Army personnel, and anecdotal reports from subject matter experts. We also review the limited amount of research available that has evaluated the impact of Army initiatives on

reenlistment decisions and related attitudes. The majority of initiatives discussed in this paper have not been formally evaluated, and the evaluations that do exist need updating. While this information adds to our knowledge about Army initiatives, more research is necessary. The Army would benefit from more recent research assessing whether relationships exist between use of specific Army programs or incentives and reenlistment intentions/decisions.

KEYWORDS: project STAY, Army enlisted retention, reenlistment

Contractor Reports*

*These additional reports submitted by contractors are not listed in the previous categories

CR 2009-01
Survey Software Evaluation
Beth Heinen, Ed Meiman, Daniel Fien-Helfman**,** Sydney Ayine, & Asad Khan. January 2009. (ADA495855)

ICF International reviewed 74 COTS Web-based survey software products for potential use by ARI researchers in survey development and administration. Products were reviewed based on their ability to meet the following key criteria: 1) survey development and hosting could be on ARI servers; 2) company size and reputation suggest the company would be able to provide quality service for many years; 3) the survey product meets Army and DoD security regulations and technical requirements, and 4) the survey features meet the feature needs of ARI researchers. Based on our review and analyses, we conclude that Confirmit EFM Professional and Vovici EFM Community best meet ARI's research needs and technical requirements. Confirmit EFM Professional, although expensive compared to the other products reviewed, has a high percentage of desired survey features available (81.58%) and is compatible with the IT and security requirements of ARI. Vovici EFM Community has a slightly lower percentage of survey features available (72.37%) than Confirmit EFM Professional, but is a more cost-effective solution and has a Certificate of Networthiness for an earlier version of the current product.

KEYWORDS: commercial off the shelf (COTS) web-based survey software, online data collection

CR 2009-02 – See RN 2010-06
CR 2009-03 – See RN 2010-06
CR 2009-04 – See RN 2010-06

CR 2009-05
The Impact of Knowledge on Team Development
Mark Handel, Paul R. Jackson, & Marie Murray. August 2009. (ADA509881)

Successful teamwork requires development of trust (as well as appropriate distrust) among the team members, and understanding how trust develops in newly formed teams is essential for the development of new team-building methodologies. Research on trust formation in teams has primarily been conducted in either a lab or a classroom, which ignores factors important in the real world such as reputation/prior knowledge of teammates, knowledge of the role played on the team, and knowledge of processes and routines to support the team. We conducted research to understand the impact these factors play in team development in emergent, ad-hoc, geographically distributed teams. We found that organizational tenure had a slight negative effect in trust development, prior knowledge of team members had no effect, and an ambiguous relationship was found between processes and tool knowledge on team development.

We concluded our research with some observations about project versus process teams.

KEYWORDS: Team members, role understanding, process knowledge, trust formation, leadership, work experience

CR 2009-06 – See RN 2010-06

CR 2009-07
Automated Support for After Action Review (AAR) Presentation
Jeanine Ayers, & Nick Caler. September 2009. (ADA507982)

Although the Army developed the after action review (AAR) for live simulation, it is now applying the process to exercises conducted within virtual environments. Virtual AAR systems provide can significantly facilitate understanding of scenario performance; however, these systems require automated performance assessment capabilities to realize their full potential. We developed Automated Support for AAR Presentation (ASAP), a suite of intelligent technologies designed to enhance virtual AAR systems such as the Dismounted Infantry Virtual After Action Review System (DIVAARS). For this effort, Aptima leveraged its A-Measure product, which provides automated support for authoring, capturing, and synthesizing measures of human performance in simulated environments. The team worked closely with subject matter experts to design a system that enables search and synthesis of simulation-based performance data. Moreover, it organized analytical conclusions into various formats that integrated with AAR systems such as DIVAARS. The resulting toolkit enhanced the capabilities of AAR systems and provided intelligent event recognition and assessment support that extends a human observer's ability to document, understand, and describe scenario-based performance.

KEYWORDS: after action review, performance measurement, training, simulation-based training

Index of ARI Publications

Abbreviations

S Special Report	SR Study Report
TR Technical Report	SN Study Note
RR Research Report	RN Research Note
RP Research Product	CR Contractor Report

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FY09 Conference Papers

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Abbe, A. (2009, August). *HSCB direction in the Army*. Paper presented at the Human, Social, Culture, and Behavior Modeling Focus 2010 Meeting, Chantilly, VA..

Abbe, A., Geller, D., & Everett, S. (2009, August). Comparing developmental, trait-based, and multi-dimensional measures of cross-cultural competence. In J. L. Herman, & A. Abbe (Chairs), *Cross-cultural competence: Assessing the construct, its predictors, and outcomes*. Symposium conducted at the Annual Meeting of the Academy of Management, Chicago, IL.

Billings, D. R., & Durlach, P. J. (2009, October). *Mission completion time is sensitive to teleoperation performance during simulated reconnaissance missions with a micro-unmanned aerial vehicle*. Paper presented at the Human Factors and Ergonomics Society 53rd Annual Meeting, San Antonio, TX.

Bink, M. L., & Carroll, C. (2008, November). *Attention and action: Motor enactment interferes with prospective memory.* Paper presented at the 49th Meeting of the Psychonomic Society, Chicago, IL.

Bink, M. L., Goodwin, G. A., Dyer, J. L., & Wampler, R. L. (2008, December). *Combat veterans' use of FBCB2: Lessons for training*. Paper presented at the 2008 Interservice/Industry Training, Simulation, and Education Conference (ITSEC), Orlando, FL.

Bruskiewicz, K. T., Hezlett, S. A., Katz, L. C., & Houston, J. S. (2009, April). *Development of a classification method and assessment instrument for advanced aircraft training.* Paper presented at the Society for Industrial and Organizational Psychology (SIOP) 24th Annual Conference, New Orleans, LA.

Cushner, K., Roan, L., & Metcalf, K. A. (2009, August). *Training tools to improve the teaching and coaching of military advisors.* Paper presented at the International Academy for Intercultural Research (IAIR): World Peace through Understanding, 6th Biennial Conference, Honolulu, HI.

Durlach, P. J. (2009, March). *Developing adaptive technologies for army training and education.* Paper presented at the Adaptive Training Technologies Conference, Charleston, SC.

Dyer, J. L., & James, D. R. (2008, December). *Potential value of OneSAF for small-unit leaders*. Paper presented at the 2008 Interservice/Industry Training, Simulation, and Education Conference (I/ITSEC), Orlando, FL.

Engel, K., Langkamer, K., Kaplan, S., Cortina, J., Ruark, G. A., Hu, X., & Gilrane, V. (2009, August). *Emotion management and the role of military leaders*. Paper presented at the 117th Annual Convention of the American Psychological Association, Division 19, Toronto, Canada.

Garven, S., & Mueller-Hanson, R. A. (2009, August). Developing leader social awareness and influence. In K. Orvis & M. Zbylut (Chairs), *Military influence: From theory to application.* Symposium conducted at the 117th Annual Convention of the American Psychological Association Conference, Division 19, Toronto, Canada.

Garven, S., & Mueller-Hanson, R. A. (2009, August). *Developing leader social awareness and influence.* Paper presented at the 117th Annual Convention of the American Psychological Association, Division 19, Toronto, Canada.

Goldberg, S. L. (2009). *Focusing on training*. Paper Presented to the Joint Forces Command Irregular Warfare Conference, Orlando, FL.

Goodwin, G. A., Dyer, J. L., Leibrecht, B., & Wampler, R. L. (2008, December). *Techniques and practices for training digital operator skills.* Paper presented at the 2008 Interservice/Industry Training, Simulation, and Education Conference, (I/ITSEC), Orlando, FL.

Heffner, T. S., & White, L. (2008, December*). Non-Cognitive Measures for Army Enlisted Accessions*. Paper presented at the Annual Meeting for Army Accessions Command Consortium, San Antonio, TX.

Heffner, T. S., & White, L. (2009, September). *Expanded Enlistment Eligibility Metrics*. Paper presented at the Annual Meeting for Army Accessions Command Consortium, Hampton, VA.

Heffner, T. S., White, L., Drasgow, F., & Knapp, D. J. (2009, April). *Tier One Performance Screen (TOPS)*. Paper presented at the Annual Meeting for Joint Accessions Research and Best Practices Symposium, Cape May, NJ.

Heffner, T. S., White, L., Drasgow, F., & Knapp, D. J. (2009, May). *Tier One Performance Screen (TOPS)*. Paper presented at the Annual Meeting for the Human Performance Group of the Technical Cooperation Program (TTCP), Portsmouth, England.

Horn, Z., Jefferson, T., Orvis, K. L., Tetrick, L., & Ramsden Zbylut, M. (2009, August). *A theoretical model of ethical climate setting.* Paper presented at the 117th Annual Convention of the American Psychological Association, Division 19, Toronto, Canada.

Hunter, D. R., & Stewart, J. E. (2009, April). *Locus of control and hazardous attitudes among US Army aviators.* Paper presented at the15th Annual Symposium on Aviation Psychology, Dayton, OH.

Johnson, V., Pleban, R. J., & Tucker. J. S. (2009, October). *Investigating the effects of desktop computer simulation training on situation awareness and adaptive decision-making skills.* Paper presented at the Human Factors and Ergonomics Society 53rd Annual Meeting, San Antonio, TX.

Katz, L. C. (2008, November). *Selecting for collective skills in army unmanned aerial system operators.* Paper presented at the Department of Defense Human Factors Engineering Technical Advisory Group, Meeting 60, Washington, DC.

Kilcullen, R., Tremble, T., Babin, N., Robbins, J., & Russell, T. (2009, August). *Predicting performance and career intentions among officer candidates with differing backgrounds*. Paper presented at the 117th Annual Convention of the American Psychological Association, Division 19, Toronto, Canada.

Lampton, D. R., Bliss, J., Orvis, K., & Kring, J. (2009, August). *Training applications of online distributed multiplayer gaming systems.* Paper presented at the Interactive Technologies 2009 Washington SALT Conference, Arlington, VA.

Lampton, D. R., Knerr, B. W., Bliss, J. Orvis, K., & Kring, J. (2009, October). A distributed game-based simulation training research testbed. In L.Strater (Chair). *Leveraging VR and Computer-based Games for Training*. Symposium conducted at the Human Factors and Ergonomics Society 53rd Annual Meeting, San Antonio, TX

Lampton, D. R., Martin, G. A., & Saffold, J. (2009, August). *Technical Issues in distributed online multiplayer gaming training systems.* Paper presented at the Society for Applied Learning Technology, Interactive Technologies Conference, Arlington, VA.

Langkamer, K., Engle, K., Kaplan, S., Cortina, J., & Ruark, G. A. (2009, August). *Emotion management and the role of military leaders*. Paper presented at the 117th Annual Convention of the American Psychological Association, Division 19, Toronto, Canada.

Legree, P. J., Kilcullen, R. N., Sauser, J. E., Psotka, J., & Tremble, T. R. (2009, August). A*ssessing leadership knowledge with judgment tests derived from adjective checklists*. Paper presented at the 117th Annual Convention of the American Psychological Association, Division 19, Toronto, Canada.

Legree, P.J., Psotka J., Bludau, T. M., Kubisiak, C., Lentz, E., Horgen, K., (2009, April). *Opinion questionnaires to judgment tests*. Paper presented at the Society for Industrial and Organizational Psychology (SIOP) 24th Annual Conference, New Orleans, LA.

McDaniel, M., Psotka, J., Legree, P J. (2009, April). *Toward an understanding of situational judgment test item validity*. Paper presented at the Society for Industrial and Organizational Psychology (SIOP) 24th Annual Conference, New Orleans, LA.

Matsumoto, D., & Ruark, G. A. (2009, June). *Interpreting nonverbal behavior in cross-cultural interactions*. Paper presented at the Office of the Secretary of Defense Human, Social, Cultural, Behavioral Modeling (HSCB) Focus 2010 Conference, Washington D.C.

Metcalf, K. A., & Ramsden Zbylut, M. (2008, October*). Advisor cross-cultural survey and critical incidents: ARI collaboration with JCISFA.* Paper presented at the meeting of the Joint Center for International Security Force Assistance (JCISFA) Advisor Working Group, Quantico, VA.

Metcalf, K. A., & Ramsden Zbylut, M. (2008, October). *Advisor and culture related research projects and tools.* Paper presented at the meeting of the Joint Center for International Security Force Assistance (JCISFA) Advisor Working Group, Quantico, VA.

Metcalf, K. A., Ramsden Zbylut, M., Freeman, T., & Brunner, J. (2009, March). *Building and applying influence in the advising environment.* Paper presented at the Joint Center for International Security Force Assistance (JCISFA) Advisor Working Group, Fort Dix, NJ.

O'Conor, A., Roan, L., Cushner, K., & Metcalf, K. A. (2009, August). *A review of new communications and cultural training for U.S. Soldiers*. Paper presented at the International Academy for Intercultural Research (IAIR), Honolulu, HI.

Orvis, K. L., & Ramsden Zbylut, M. (Co-Chairs). (2009, August). *Military influence: From theory to application.* Symposium conducted at the 117th Convention of the American Psychological Association, Division 19, Toronto, Canada.

Sinclair, A., Russell, T., Erdheim, J., Ingerick, M., Owens, K. S., Peterson, N. G., & Pearlman, K. (2009, April). Using O*NET abilities and skills to describe military jobs. *In M. Rose (Chair), Exploring the validity and utility of the O*NET.* Symposium conducted at the 24th Annual Conference of the Society for Industrial and Organizational Psychology, New Orleans, LA.

Psotka, J., Legree, P., & Mller, C. E. (December, 2008). S*elf awareness, cognitive consistency and cognitive ability*. Paper presented at the 8th Annual Conference of the International Society for Intelligence Research (ISIR), Atlanta, GA.

Psotka. J., McDaniel, M. A., & Legree, P. J. (2009, April). *Situational judgments tests, self-insight, and personality*. Paper presented at the Society for Industrial and Organizational Psychology (SIOP), 24th Annual Conference, New Orleans, LA.

Ramsden Zbylut, M., Metcalf, K. A., & Brunner, J. M. (2009, August). *Influence and the advising mission: An analysis of proactive influence and impression management strategies.* Paper presented at the 117th Annual Convention of the American Psychological Association, Division 19, Toronto, Canada.

Ramsden Zbylut, M., Metcalf, K. A., McGowan, B. D., Beemer, M., Vowels, C. L., & Brunner, J. M. (2008, December). *An analysis of cross-cultural behaviors for military advisors in the middle east.* Paper presented at the 2008 Army Science Conference, Orlando, FL.

Ray, J. M., & Barnett, J. S. (2009, October). *An evolution of tutoring and training from human tutors to intelligent systems: Human factors considerations*. Paper presented at the Human Factors and Ergonomics Society's 53rd Annual Meeting, San Antonio, TX.

Roan, L., Gehlbach, H., & Metcalf, K. (2009, August). *Social perspective taking*. Paper presented at the Office of the Secretary of Defense Human, Social, Cultural, Behavioral Modeling (HSCB) Focus 2010 Conference, Washington D.C.

Roan, L., Gehlbach, H., & Metcalf, K. (2009, August). *Social perspective taking*. Paper presented at the International Academy for Intercultural Research (IAIR): World Peace through Understanding, 6th Biennial Conference, Honolulu, HI.

Sanders, W. R. (2009, June). *Investigating U.S. Army company intelligence support team manning and training requirements*. Paper presented at the Military Operations Research Society Symposium, Fort Leavenworth, KS.

Shadrick, S. B., Leedom, D. K., Bell, J., Manning, D., & Lickteig, C. W. (2008, November). *Development and assessment of battlefield visualization training for battalion commanders.* Paper presented at the 2008 Interservice/Industry Training, Simulation & Education Conference (I/ITSEC), Orlando, FL.

Yager, M., Matsumoto, D., & Ruark, G. A. (2009, August). *Interpreting nonverbal behavior in cross-cultural interactions*. Paper presented at the International Academy of Intercultural Research (IAIR): World Peace through Understanding, 6th Biennial Conference, Honolulu, HI.

Young, M. C., Tremble, T.R., Kubisiak, C., & Lentz, L. (2009, April). *A review of military attrition interventions: Major findings and recommendations.* Paper presented at the Annual Meeting for Joint Accessions Research and Best Practices Symposium, Cape May, NJ.

FY09 Poster Sessions

Billings, D. R., & Durlach, P. J. (2009, October). *Mission completion time is sensitive to teleoperation performance during simulated reconnaissance missions with a micro-unmanned aerial vehicle.* Poster session presented at the Human Factors and Ergonomics Society 53rd Annual Meeting, San Antonio, TX,

Gade, P. (2009, August). *Cognitive neuroscience and military psychology*. Poster session presented at the 117th Annual Convention of the American Psychological Association, Canada.

Gesselman, A. N., & Tucker, J. S. (2009, February). *An investigation of behaviorist, cognitive, and constructivist principles in digital skills instruction.* Poster session presented at the Eastern Educational Research Association (EERA) Annual Conference, Sarasota, FL.

Johnson, V., Pleban, R. J., & Tucker, J. S. (2009, October). *Investigating the effects of desktop computer simulation training on situation awareness and adaptive decision-making skills*. Poster session presented at the Human Factors and Ergonomics Society 53rd Annual Meeting, San Antonio, TX.

McAlinden, R., Durlach, P.J., Lane, H. C., & Hart, J. (2008, December). *Urbansim: A game-based instructional package for practicing stability-focused operations*. Poster session presented at the Army Science Conference, Orlando, FL.

Miller, M., & Schlenker, B. (2008, February). *Covert aggression: The means and motive of "getting away with it*". Poster session presented at Society for Personality and Social Psychology, 10th Annual Conference, Tampa, FL.

Monden, K. M., & Key-Roberts, M. J. (2009, August). *Role of self-control and regulatory focus in saving behavior*. Poster session presented at the 117th Annual Convention of the American Psychological Association, Division 14, Toronto, Canada.

Priest-Walker, H. (2009, October). *Initial, individual decisions to trust in newly forming teams: what is the impact of 'not knowing'?* Poster session presented at the Human Factors and Ergonomics Society 53rd Annual Meeting, San Antonio, TX.

Ray, J. M., & Barnett, J. S. (2009, October). *An evolution of tutoring and training from humans to intelligent systems: human factors considerations.* Poster session presented at the Human Factors and Ergonomics Society 53rd Annual Meeting, San Antonio, TX.

Rivera, I. D. & Murphy, J. S. (2009, April). *Development of a visual threat detection scale*. Poster session presented at the Society for Industrial/Organizational Psychology (SIOP) 24th Annual Conference, New Orleans, LA.

Stark, S., Chernyshenko, O. S., White, L. A., Heffner, T. S., & Hunter, A. E. (2008, October). Using multidimensional pairwise preference personality tests in military contexts: The development and criterion validation of TAPAS-S95. In M. Schwerin (Chair), *Recruiting and retention among military personnel: maintaining a robust military workforce.* Symposium conducted at the 50th Annual Conference of the International Military Testing Association, Amsterdam, Netherlands.

White, L. A., & Hunter, A. E., (2009, April). *Update on the U.S. Army's tier two attrition screen.* Poster session presented at the Annual Meeting for Joint Accessions Research and Best Practices Symposium, Cape May, NJ.

White, L. A., Hunter, A. E., & Young, M. C. (2008, October). Update on the U.S. Army's tier two attrition screen. In M. Schwerin (Chair), *Recruiting and retention among military personnel: maintaining a robust military workforce*. Symposium conducted at the 50th Annual Conference of the International Military Testing Association, Amsterdam, Netherlands.

Wildman, J. L., Fiore, S. M., & Salas, E. (2009, July) *Toward measurement of trust and distrust: separate constructs or ends of a continuum?* Poster session presented at INGroup Annual Conference, Colorado Springs, CO.

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13. SUPPLEMENTARY NOTES

14. ABSTRACT *(Maximum 200 words)*:

ARI publishes lists of its technical and research publications as a convenient reference for qualified agencies and individuals and sponsors. This issue of the publication list describes reports which are for public release/unlimited distribution during the period October 1, 2008 to September 30, 2009. It contains the abstract of each publication and the bibliographic information needed to identify a publication. The abstracts have been written, as far as possible, to describe the principal research findings in non-technical terms; however, technical language is used to communicate efficiently the details of research analysis. Author indexing provides access to individual reports and topics.

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