Innovative Methods for Evaluating Human Performance in a Military Command and Control System

Lawrence G. Shattuck
Department of Behavioral Sciences and Leadership
United States Military Academy
West Point, NY 10996
larry-shattuck@usma.army.mil

Nita Lewis Miller
Naval Postgraduate School
Operations Research and Systems Engineering Departments
Mail Code OR/MN
Monterey, CA 93943
nlmiller@nps.navy.mil

ARL Sponsor: Michael Strub

Human Research and Engineering Directorate
U.S. Army Research Laboratory
Aberdeen Proving Ground, Maryland

ABSTRACT

Complex cognitive systems couple humans with machines for the purpose of accomplishing a specific goal. It is often the case that human factors practitioners focus their attention on the humans while designers tend to focus on the technological aspects of the system. The point of intersection between humans and technology has become a boundary with respect to evaluation. In addition, human factors practitioners have often studied the result of cognitive activity (e.g., a decision) rather than the processes that lead to the outcome. In this presentation, the authors describe a model of a command and control system they refer to as the Process Model of Situated Cognition. They propose innovative methods to evaluate various aspects of this model, including workload and situation awareness, which combine physiological and subjective measures. Empirical evidence is provided that provides support for the use of these measurement techniques.

KEY WORDS: Human Performance, Situated Cognition, Situation Awareness, Workload

CONTACT: COL Lawrence G. Shattuck, Department of Behavioral Sciences and Leadership, United States Military Academy, West Point, NY 10996
Tel: (845) 938-5629; email: larry-shattuck@usma.army.mil

Nita Lewis Miller, Naval Postgraduate School, Operations Research and Systems Engineering Departments, Mail Code OR/MN, Monterey, CA 93943
Tel: (831) 656-2281; email: nlmiller@nps.navy.mil

Peter Plostins, Ph.D., ARL, APG, MD, 21005
Tel: (410) 278-8878, email: plostins@arl.army.mil