12th ICCRTS
"Adapting C2 to the 21st Century"

Using the Dynamic Model of Situated Cognition to Assess Network Centric Warfare in Field Settings

Suggested Tracks:
Network-Centric Experimentation and Applications
Metrics and Assessment
Cognitive and Social Issues

Corresponding Author:
Lawrence G. Shattuck
Naval Postgraduate School
Operations Research Department
Monterey, CA 93943
Tel: (831) 656-2473
Fax: (831) 656-2595
lgshattu@nps.edu

Nita Lewis Miller
Naval Postgraduate School
Operations Research Department
Monterey, CA 93943
nlmiller@nps.edu

Greg Miller
Naval Postgraduate School
Systems Engineering Department
Monterey, CA 93943
gamiller@nps.edu

Using the Dynamic Model of Situated Cognition to Assess
Network Centric Warfare in Field Settings

Over the past three years, we have presented several papers on a model of data and information flow through a system: the Dynamic Model of Situated Cognition (DMSC). The DMSC has proved useful in a variety of settings: modeling individual performance, military C2, naval operations, human error in military mishaps, team behaviors in complex organizations and, most recently serving as an aid to system designers. Although first proposed as a conceptual model, the DMSC can also be used to assess the flow of data and information in a dynamic field setting, the Tactical Network Topology (TNT) Project. The TNT project is a series of ongoing experiments conducted quarterly by the Naval Postgraduate School in Monterey, CA. and held at a variety of operational venues.

The current research involved 12 trials in which four enemy vehicles attempted to infiltrate a specified region. Unmanned aerial vehicles (UAVs) were flown in either computer-optimized search patterns or manually-generated search patterns. GPS data for enemy vehicles and friendly UAVs, and audio and video tapes of the tactical operations center (TOC) were recorded and used to populate the DMSC. This study validates the utility of the model, extending its use to field settings.