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“Developing tomorrow’s leaders with today’s warfighter research”
WERC Research

WARFIGHTER SUPPORT

TECHNOLOGY TRANSFER

FACULTY DEVELOPMENT

CADET EDUCATION

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WERC Overview

■ Mission
  - Facilitate faculty and cadet research in the Behavioral Sciences through collaborative efforts to enhance warfighter effectiveness

■ Priorities
  1. Enable the warfighter
  2. Facilitate faculty & cadet research
  3. Establish & maintain a world-class Beh Sci research facility
  4. Be the AF’s model for efficient, effective, affordable warfighter research
AY14/15 In Review

- 8 Staff
- 39 Faculty/researchers
- 262 Students
- 5 Dedicated research labs
- Hosted 8 Brown Bags
- Dr. Endsley Visit
- Dr. Zacharias Visit
- AFOSR Trust & Influence Program Review
- Internal WERC Program Review
- $707k Budget
- 40+ Publications/ presentations
- Sponsored 20+ research TDYs
Applied topics in Beh Sci:
Human Factors Eng,
Leadership, Eng Psych,
Cognitive Neuroscience, Human
Systems Integration
MQ-9/X Interface Design
(PI: LtCol McClernon, Dr. Vic Finomore)

- Collaborating with AFLCMC, General Atomics, MQ-9/X SPO
- Investigating data entry for advanced systems
- Met with CET at General Atomics
- Conducted testing on MQ9/X Block 50 GCS
- Laboratory study to test data entry method
Research Themes

Foundations of psychology and/or basic research: Neuroscience, Sensation & Perception, Cognition, Learning, Personality
Mental Health of Embedded RPA Families
(PI: Ms. Michaela Schuster, Dr. Wil Scott)

- Collaborating with AFRL (Dr. Wayne Chappelle), Creech AFB, Cannon AFB, German Air Force
- Investigating the impact of RPA combat operations on co-located family members
- Methods developed (on-line and phone interviews)
- IRB pending

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Research Themes

Social thinking/research within DoD operations/issues:
Sociology, Social Psychology, Anthropology
RPA Field Simulation
(PI: Dr. Wil Scott, Dr. Karen DeAngelis)

- Collaborating with SOCOM, AFA UAV Center
- Behavioral Sciences & Leadership Capstone research project
- Field teams enact challenging legal/ethical dilemmas in irregular warfare setting (Afghanistan)
- Action recorded by RQ-11 Ravens flying overhead
- Video transmitted to AOC team who must make mission-compatible shoot/no-shoot decisions in real-time
Research Themes

Social thinking/research within DoD operations/issues:
Sociology, Social Psychology, Anthropology

Foundations of psychology and/or basic research:
Neuroscience, Sensation & Perception, Cognition, Learning, Personality

Applied topics in Beh Sci:
Human Factors Eng, Leadership, Eng Psych, Cognitive Neuroscience, Human Systems Integration

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Questions?
# RPA Impacts on Military Families
(Schuster & Scott)

## Research Objectives:
RPA assignments generate stress because of the nature of the work, the “deployment-in-place,” characteristic, and, at Creech AFB, lack of on-base services; study is designed to …

- assess how RPA family members are doing
- provide recommendations for improving programs/support services

## Technical Approach:
- Spouses/partners of those in RPA crews/units may access anonymously an Air Force maintained Survey Monkey site to fill out a quantitative questionnaire
- Those who wish may sign up for a follow-up telephone interview

## Key Findings:
None yet, survey/interviews commence 17 August 2015

## Benefits to wider academic or DoD community:
- Potential to improve how RPA assignments are conceptualized and distributed with an eye toward improving moral and family/relationship satisfaction
- Potential to tailor available programs/support services to improve duty performance and family well-being
RPA Field Simulations  
(Scott, DeAngelis, & Kajdasz)

Research Objectives:

- To devise “dilemma training” scenarios to acquaint cadets with legal/ethical issues involving RPAs in irregular warfare settings
- To create initial assessments for evaluating the fidelity and effectiveness of “dilemma training” scenarios
- To generate recommendations for conducting mission-effective “dilemma training” scenarios that may be of use in the operational Air Force

Technical Approach:

- PI, Co-PI, and senior cadets prepared scenarios/ROEs enacted in the field and recorded by RQ-11 Ravens, with video-feed transmitted to an AOC team for challenging “shoot-no shoot” decisions
- Video-recordings of activities “on the ground” and in the AOC are in process of being synchronized for use in further studies

Key Findings:

- AOC team had difficulty translating classroom solutions into quick, legal/ethical decisions in real-time
- Visual/auditory cues affected decision-making
- Recommendations include need for:
  - staging scenarios more effectively, perhaps use of “drama coach” for rehearsing future scenarios
  - gimbal-mounts for Raven’s cameras to improve video-feeds to offset weather conditions

Benefits to wider academic or DoD community:

- PI, Co-PI prepared position paper/research report to explain theoretical thinking and practical steps for RPA Field Simulations
- Paper/research report circulated among colleagues who study RPA issues in military sociology, military psychology
- Human performance team in operational Air Force has expressed interest in such simulations for improving training of RPA operators

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Research Objectives:

- Current NORAD/NORTHCOM Command & Control operations are conducting using a spiral bound paper checklist
- Determine the feasibility of conducting crisis-response C² activities with the aid of a digital checklist

Key Findings:

- Cadet command center digital checklist was (1) more efficient, and (2) resulted in few error compared to traditional paper checklists

Technical Approach:

- Phase 1: Empirically test/compare paper vs. digital checklists for cadet command center checklist
- Phase 2: Develop NORAD/NORTHCOM digital checklist to replace existing paper checklists
- Phase 3: Test/compare new digital checklist to legacy checklist

Benefits to wider academic or DoD community:

- Introduce modern computer-based systems for current military operations and crisis response to improve performance and efficiency
- Test similar digital tools for other military contexts (e.g., aviation, dismounted, nuclear, etc.)
Research Objectives:

• Proposed UAV Ground Control Stations (GCSs) incorporate touch-screen displays for data entry
• Test feasibility of touch-screen displays for UAS operations

Technical Approach:

• Test data entry performance while flying a military flight screening multi-task simulation (MATB)
• Then test similar task in an operationally-relevant GCS

Key Findings:

• When comparing keyboard, number pad, and touchscreen input devices, the touchscreen resulted in less efficient data entry, poorer accuracy, and lower performance on the primary MATB task.

Benefits to wider academic or DoD community:

• Anecdotal evidence reveals that the RPA community is resistant to using touchscreen displays for data entry
• Empirical evidence now suggests primary task and data entry performance also suffer from touchscreen displays
• Need to test in an operational GCS with a flying task