Extending Hypothesis Testing of Edge Organizations Using Functional Magnetic Resonance Imaging (fMRI) During ELICIT

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http://www.nps.edu/Academics/Centers/CEP/
ELICIT Research

ELICIT: multiplayer online game
- Counterterrorism intelligence domain
- Like game Clue: ID fictitious terrorist plots

Used for C2 experimentation
- Examine organization forms, learning, trust, culture, media richness, virtual environments, others

Open questions
- Individual differences & team performance
- Neurophysiological roots

Interested in understanding linkages
Neural measure of **uncertainty** during a fluid reasoning task where no direct feedback is given (orbital frontal cortex, BA25). Kalbfleisch et al., 2007
The ‘Fix Cycle’
Systems of Reasoning

Varying Conditions and Contexts
- Deadline Pressure
- Difficulty Level
- Uncertainty
- Emotional State
- Individual Strategy

Visual Context and Complexity
(Stoneham et al., *SFN*, 2008,
Debettencourt et al., *OHBM*, 2009,
Halavi et al., submitted)

Hard to Control for but Still Matters:
Motivation (limited models)

State v. Process
(Kalbfleisch et al., *Cognitive Neurodynamics*, 2006, 2007;
Kalbfleisch, 2009, Roberts et al., 2009)

Behavior Paradox in Autism
(Brar, Kalbfleisch et al., *OHBM*, 2009)
Trust isn’t a new commodity: noun, verb, adjective


Physical - Social - Perceived - Implicit
Tools to Help Match Our Inherent Characteristics as Individuals to our Behavior in Groups

**Methods** for stimulating/priming/matching receptivity to specific types of information

*fMRI-EEG Modalities*

**Neuroimaging** – where are these systems, how do they connect and communicate, how do they characterize what someone can do? how are they changed by experience?

Knowledge at that level can re-calibrate how to instruct/support/assess/enrich learning and performance, making someone their most flexible, responsive and agile during individual and team performance.

**Further infusion of CONTEXT into experimental design (Kalbfleisch, 2008, 2009)**

*Awareness/Affect/ELICIT* (Kalbfleisch & Nissen, 2010)
To continue the conversation

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