

Cultural neuroscience.

The Next Big Thing in military training?



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Hofstede's Cultural Value Country Comparison

Country	United States	Afghanistan	Mexico	Iraq	Germany	South Korea
High Value	~85	~40	~65	~55	~75	~80
Low Value	~20	~80	~35	~45	~25	~30

Pyramid Diagram of Cultural Learning Stages:

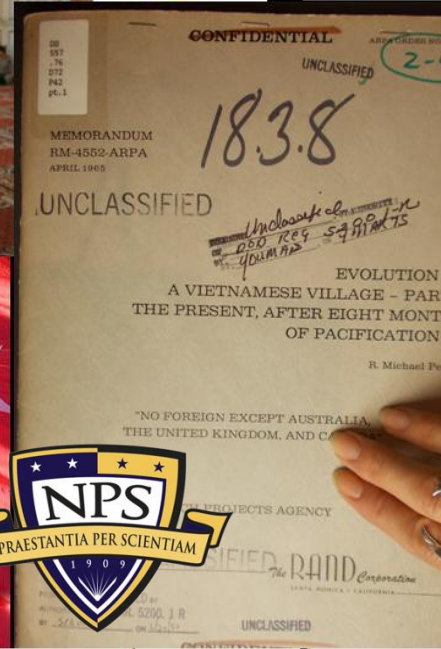
- CREATE** (Top): Able to synthesize (as in a plan) ... Tells us how to
- EVALUATE** (Second): Able to determine what is mission relevant
- ANALYZE** (Third): Able to systematically deconstruct into component parts
- UNDERSTAND & APPLY** (Fourth): Able to identify and describe basic cultural ideas
- REPEAT BACK** (Bottom): Know the WHATs of culture but - Can't yet Operationalize Culture

GOAL (Circled in red)

CULTI COMPE (Circled in red)

UFCMS (United States Foreign Cultural Mission Support)

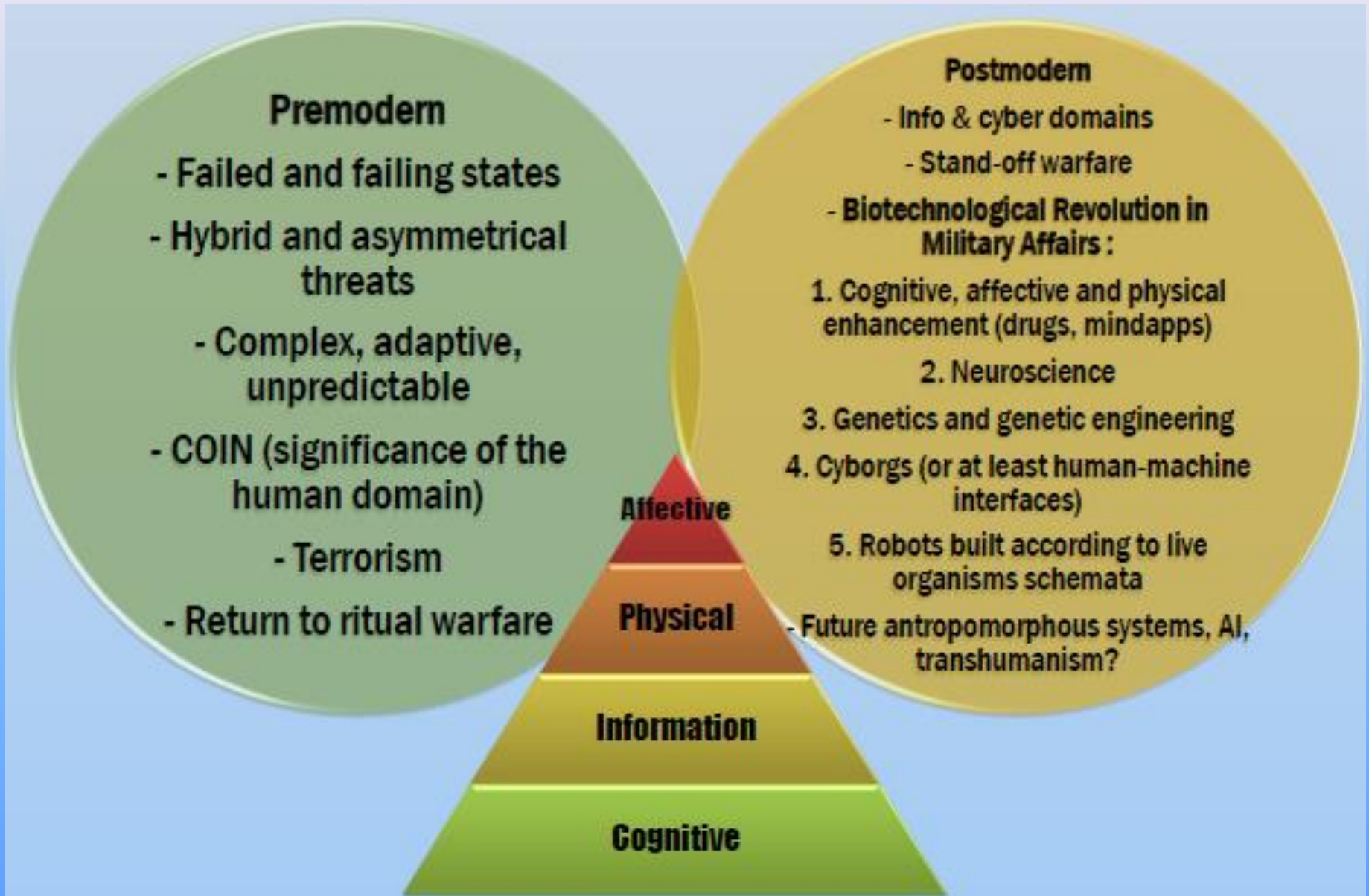
IRAQ Culture Smart Card
Guide for Communication and Cultural Awareness



Theses

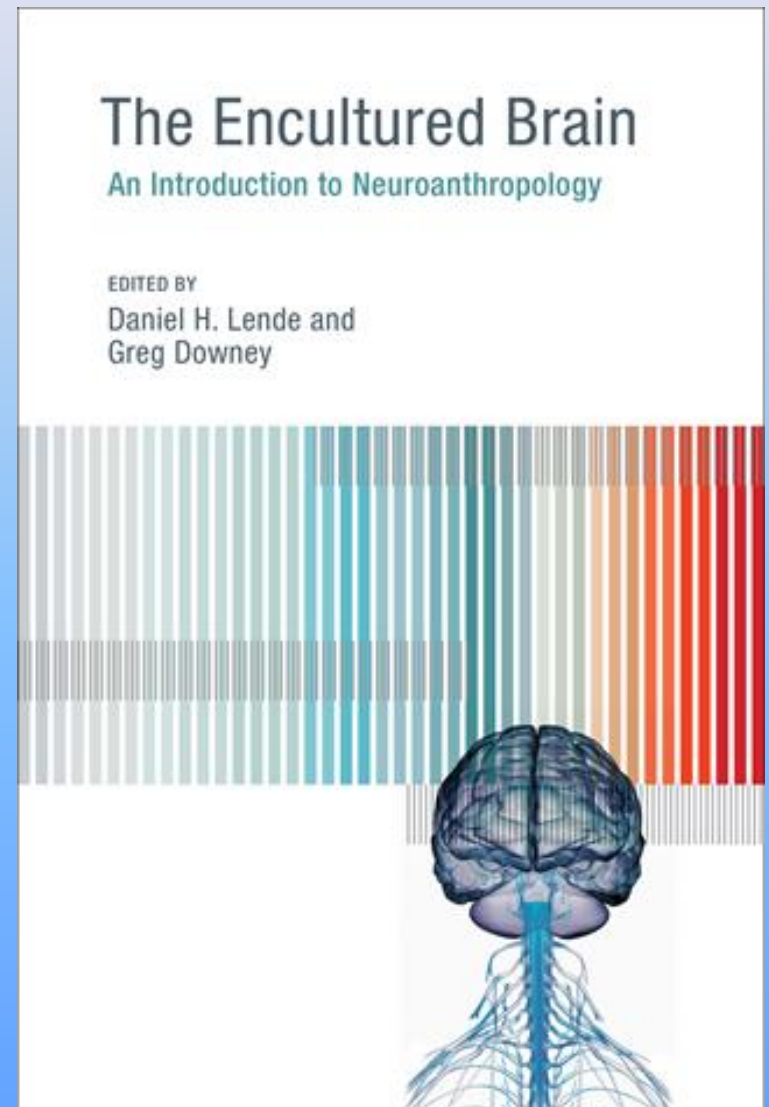
- 1. Brain develops and functions slightly differently due to cultural influences which results in cognitive, affective and behavioral differences among individuals.**
- 2. The military can apply findings from cultural and social neuroscience and neuroanthropology to improve its effectiveness in the domains of training, conduct of non-kinetic tasks during military operations and post-operational force sustainment.**
- 3. Although the field is controversial, scientific ethical standards do not have to be violated during the application of cultural and social neuroscience for security and defense purposes**

Contemporary security environment and the „scientific way of warfare”



Cultural variation in the brain

- Cultural, social neuroscience v. neuroanthro
- Culture-nervous system-behavior-genetic expression
- Biosociality: CGC theory
- Brain plasticity and cognitive retooling



Military in the neurobio wonderland

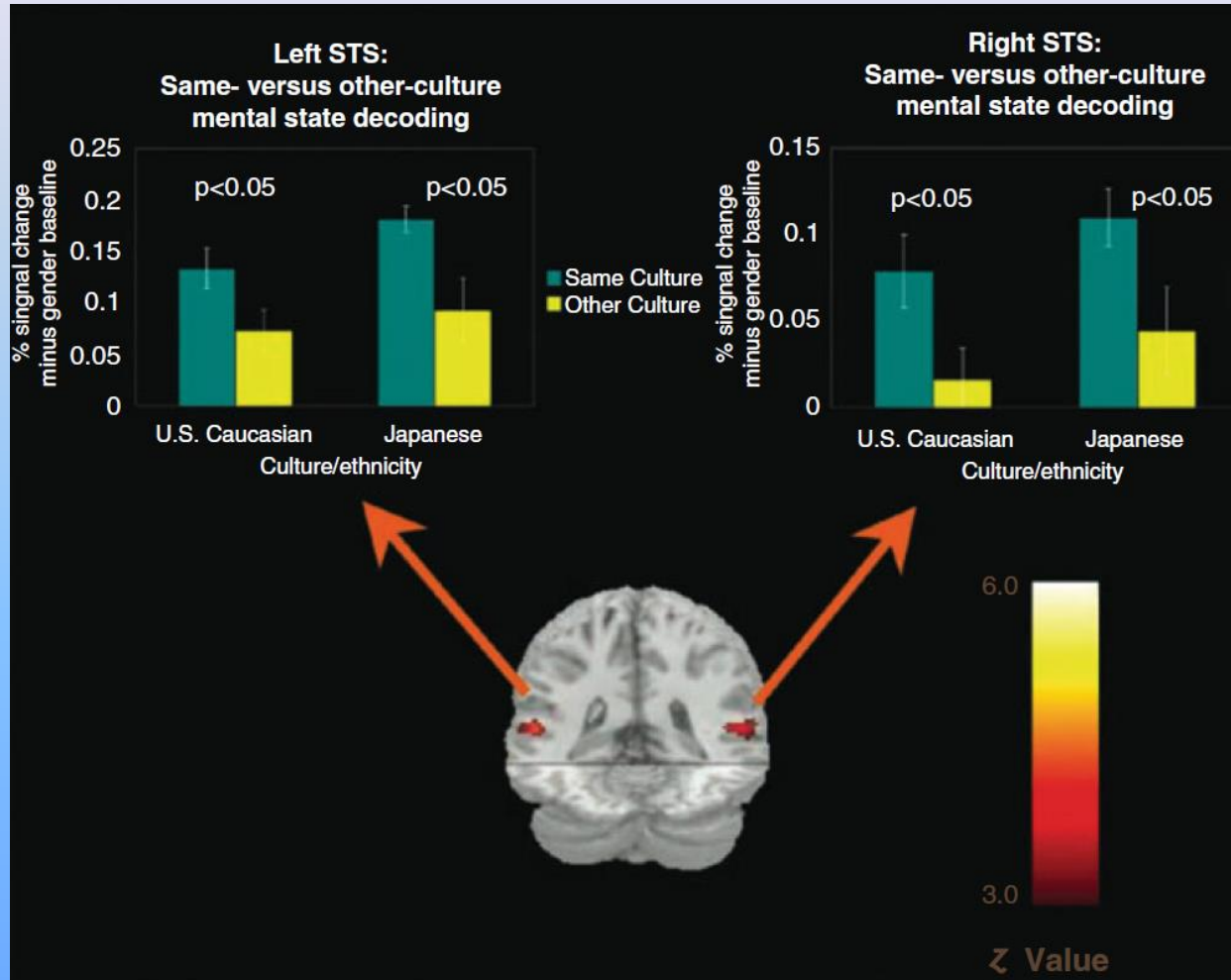
- Opportunities in Neuroscience for Future Army Applications, 2009
- DARPA: Aug-Cog, CT2WS, N4IA (P300), SyNAPSE, NN, BRAIN
- IARPA: ICArUS (AI and sensemaking), KRNS (HFA linguistics), MICrONS (neural architecture), SHARP
- Pharmacologization: modafinil, propranolol, oxytocin



Neuroenhanced training 101

- **Visual perception – holistic v. analytical, 3D in 2D (learning materials, serious games, training environments)**
- **Attention - focal v. contextual**
- **Memory: context v. object, literacy, reminescence bump, affective domain (mnemonic reinforcements)**
- **Motivation (group or individual, non-western andragogy: holistic, lifelong and communal)**

Decoding mental states (Chiao 2008)



Culturally-informed education systems, serious games and VR, HUMINT

Other applications

Cultural diversity of military learners in CAP domains.

Virtual training tools and immersive environments.

Neuroergonomics and neurofeedback.

Improved leadership and management of multicultural groups and units.

Better incorporation of cultural factors in operational planning and conduct.

Support to PSYOPS and other non-kinetic operations.

Projecting military mindapps.

Pharmacologization of warfare.

Treatment and prevention of PTSD.

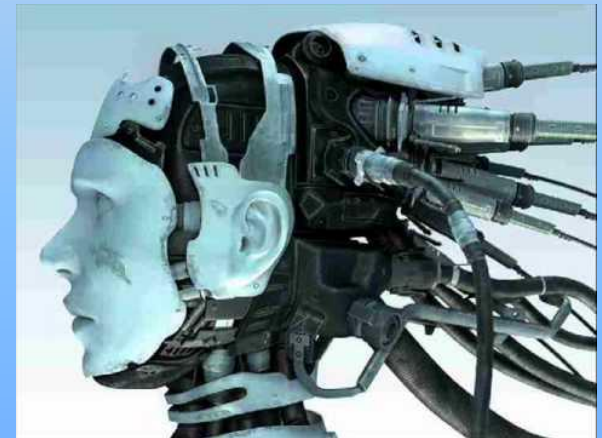
Projecting perceptions, decoding the role of narratives and measuring responses to PTSD treatment.

**CULTURALLY
AFFECTED
DOMAINS**

*Emotional
antecedents,
Conditioning,
Moral reasoning,
Perception –
situational
awareness,
Cognitive
processes,
Approach to
death, Somatic
health,
Aggression, Group
relations,
Situational
awareness, ...*

Controversies

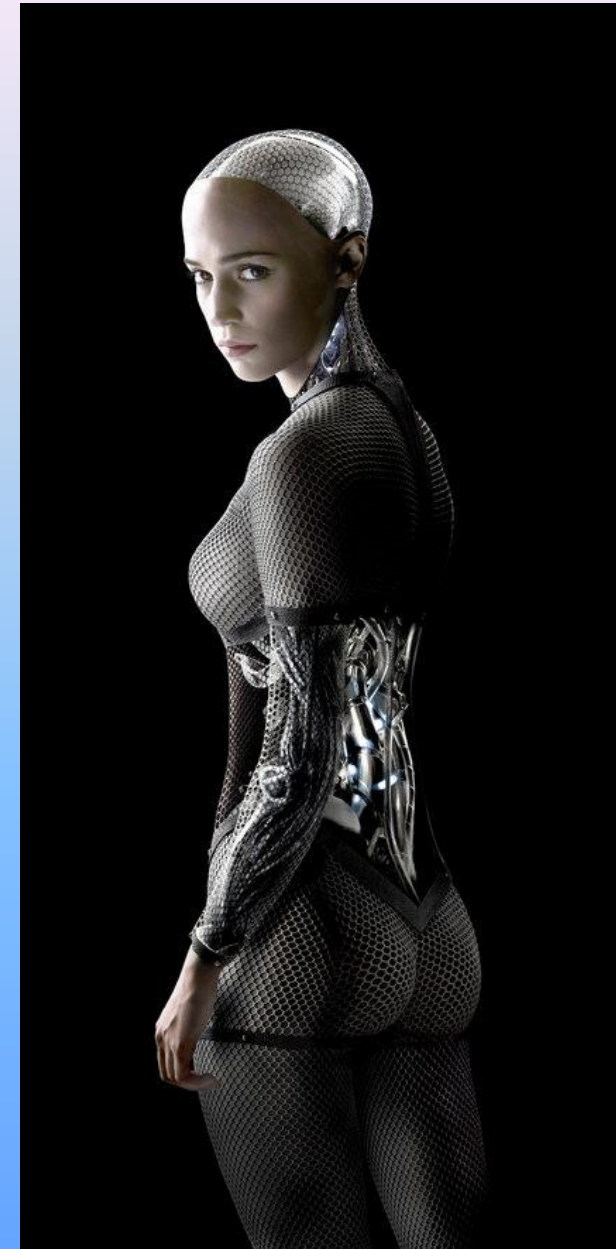
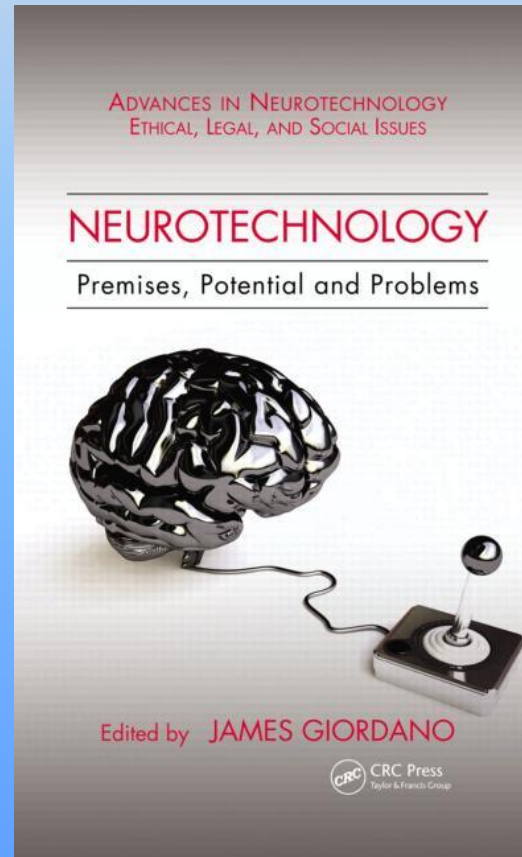
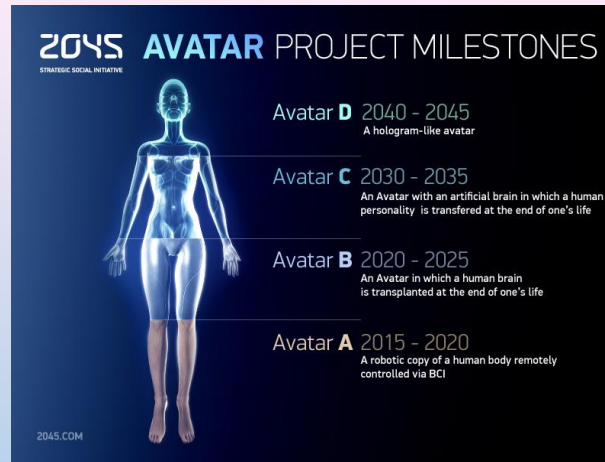
- Samples (computational and population-scale)
- Some of the cross-cultural brain research is deemed politically incorrect
- Ethical issues, return to eugenics
- Social and human sciences ethics – working with the military
- Warrior ethos , dehumanization
- MK-ULTRA revisited?
- P300 wave - the next step is ... mind-hacking?



Limitations: **explains only an aspect of the MIND/BODY SYNERGY that creates humans.**

Future

- Antropomorphous systems
 - Artificial Intelligence?
- Implications of H+ v. Chomsky?
- Anthropological revolution?
- Cyberspace?
 -?



Thank You

