

Aptitude for Command Evaluations Standards: Implementation Opportunities for Cognitive Science

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ABSTRACT *Standards for the aptitude for command is an invaluable characteristic that is most apparent in combat situations, where any failures to elicit appropriate responses from subordinates can result in personnel losses, mission failures and societal catastrophes, including annihilation and even genocidal eradication. Attempts to identify, instruct and inculcate these qualities have long been associated with subjective, almost mystical, approaches, more founded in emotion and bias than in scientific inquiry. Emerging techniques, technologies and analyses now hold the promise of making these ethereal qualities more quantifiable and objective. Emerging capabilities include DNA analyses, Quantitative Trait Locus and Behavioral Genetics. This paper lays out the historical unscientific attempts at ascertaining combat-effectiveness qualities and establishing the methods of enhancing them. Moreover, evaluative instruments have far too often failed to identify the lack of needed leadership capability. Poor selections were costly to those being led, the putative leaders themselves, and those depending on all of them for defense. Now, emerging technologies are enabling the Cognitive Scientists to identify certain physically measurable and quantitatively definable parameters, both their presence and their correlations with various behavioral qualities. These qualities are indicative of desired characteristics to be sought or, in the alternative, undesirable characteristics to be avoided. Supportive work will be offered in the form of a survey of ongoing and related efforts by others in these fields. Analogous research and experience by the authors will be adduced to show that this emerging capability merits consideration. Most especially, the paper lays out how to assist those saddled with the duty of ensuring only the most capable are assigned to critical operational posts. In reaching this result, the paper reviews some adjuncts to Cognitive Science: the disciplines of computer science, artificial intelligence, sensor technology, and analytic techniques. Standards, ethical and esthetic issues will be identified and addressed.*

Ethical Standards
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ABOUT THE AUTHORS

John J. Tran, PhD is the Chairman of the Computer Science Department of the Catholic Polytechnic University and he retired as a Lieutenant Colonel in the California Air National Guard. He has worked at ISI, USC, the Stanford Linear Accelerator Center, Safetopia, and Intel Corporation. At USC, he focused on Object-oriented software engineering, large-scale software system design and implementation, and high performance parallel and scientific computing. Air Force tours included the White House Communications Agency and Kirkuk Regional Air Base (Iraq), where he was the Communications Squadron Commander. He received both his BS and MS Degrees in Computer Science and Engineering from the University of Notre Dame and was awarded his PhD in Computer Sciences at the University of Southern California, where he was an advisee of Dr. Robert F. Lucas. His doctoral dissertation on quantum computing was entitled: Optimization of the Combinatoric Closely Spaced Objects Resolution Algorithm with Adiabatic Quantum Annealing.

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