

Implementing New Educational Technology for 21st Century DoD Leadership Development

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ABSTRACT

In educating emerging leaders to meet the challenges of tomorrow's non-traditional conflicts, the DoD must take advantage of new pedagogical and technological methods and venues that provide the learner with perceived risk reduction during education processes. The authors discuss how budding commanders must deeply and effectively experience geopolitical, historical, sociological and psychological material to improve their risk analyses and management to produce decisiveness in complex, diverse situations. An environment is described where they can engage regularly with lower thresholds for taking risks: emotional, intellectual, social and (virtual) physical. This will drive them to truly expand their "live" knowledge base. This paper sets out how High Performance Computing (HPC) is the catalytic enabler for creating complex innovative learning environments in which young leaders can most thoroughly engage with the dynamic situations that they must master to be most effective. The ability of HPC to manage manifold complex factors will allow the DoD to create learning modules that recognize and ameliorate the elements of risk-taking that the learner undergoes when faced with new knowledge. Didactic instruction should be almost entirely provided by this advance in computer-aided education, with the live instructor focusing on the role of coach and guide for the preparation before, and reflection after, the use of the virtual learning environment. There is a valuable cadre of highly experienced leadership instructors who are skilled in integrating didactic material with successful field experience. The DoD can develop the technology to leverage the capabilities of those few instructors to make their talents universally available by capturing their input for HPC-enabled virtual learning environments. The goal is to radically alter instructional interfaces to enhance vital pedagogical processes and thereby improve educational outcomes in fundamental and transformational ways. Documented support for the stated propositions and detailed analyses based on experience are set forth.

ABOUT THE AUTHORS

Laurel K. Davis is the Director of Next Generation Leaders, Inc., an independent educational consulting and research organization in Culver City, California. She is an experienced classroom educator who has served in several public schools in the Los Angeles basin. Her current activities include teacher training, consulting on the transition from one school environment to another, creation of materials to address non-academic skills and techniques to facilitate and enable scholarly pursuits. She has developed and fielded several programs on leadership training and assessment. She has additional experience in commercial and private settings as a programmer and web site designer and manager. She received a B.A. in Communications and a M.Ed., both from the University of California, Los Angeles.

Dan M. Davis is the Director, JESPP Project, Information Sciences Institute (ISI), University of Southern California, and has long been active in large-scale distributed simulations for the DoD. While he was the Assistant Director of the Center for Advanced Computing Research at Caltech, he managed Synthetic Forces Express, a major simulation project. Prior to that, he was a Software Engineer on the All Source Analysis System project at the Jet Propulsion Laboratory and worked on a classified project at Martin Marietta, Denver. An active duty Marine Cryptologist, he recently retired as a Commander, USNR, Cryptologic Specialty. He has served as the Chairman of the Coalition of Academic Supercomputing Centers and the Coalition for Academic Scientific Computation. He received a B.A. and a J.D., both from the University of Colorado in Boulder.