Addressing Change of Command Disruptions: Potential Roles for Virtual Humans

Brian L. Morgan
Operations Research Department
Naval Postgraduate School
Monterey, California
blmorgan@nps.edu

Dan M. Davis
Institute for Creative Technologies
University of Southern California
Los Angeles, California
ddavis@hpc-educ.org

ABSTRACT

This paper considers the role of Virtual Humans in ameliorating and mitigating the disruptive impacts of the change of command in the uniformed services. The authors first lay out the periodicity of such changes and the disruptions as observed, documented, or represented in fictionalized historical accounts. The negative influences such changes can have on morale, operations, retention, discipline, and sustainability are enumerated. This analysis includes the organizational behavior view of unit capability, the multi-faceted goals of command over decades, the U.S. military tradition of rotating personnel between commands, and the countervailing pressures to demonstrate short term achievements. An example from recent operations is adduced to indicate the perilous nature of the transition period and the untoward consequences of unmitigated disruptions. The paper then focuses on the pressures on the members of the command to balance loyalty to a number of major spheres. The authors next examine the constraints upon the various entities concerned, as they trying to optimize the benefits of new leadership while minimizing the negative effects. One of the conundrums faced by personnel at all levels is that the typical source of mentorship is often also the locus of the issues of conflict, the immediate senior officer. The authors then report on their research into the conception, implementation, and experimentation with interactive Virtual Humans in a number of settings. They adduce data to show that Virtual Humans often are more available, more accessed, and more effective than live counterparts. The parameters of invoking such an asset during a change of command are reported: time, staffing, costs, and logistics. The paper concludes with a discussion of how such a program could be implemented, evaluated, and maintained. Based on this, the potential beneficial effects are presented and considered. The extensibility of this approach to other areas is advanced and justified.

ABOUT THE AUTHORS

Brian L. Morgan, CAPT, USN, is on the faculty in Operations Research Department at the Naval Postgraduate School where he is a Program Officer and Senior Instructor. His current research thrusts are in the areas of analysis of battlespace simulations to gain insights into the comparative efficacies of differing approaches to operations. Captain Morgan is a Naval Aviator and has extensive experience in DoD organizational and operational planning. His previous tours of duty include nearly eight years at the Pentagon, where he was the Deputy, Campaign Analysis and Modeling Branch. Before that he served in various Naval Aviator billets in the E-2 flight community, capped off by being the Commanding Officer of VAW-117. CAPT Morgan was commissioned after completing his NROTC training at the University of Virginia. He received a B.S. degree from the University of Virginia and an M.S. degree from the Naval Postgraduate School, where he completed his research with work at the California Institute of Technology, where his co-advisor was Dr. Thomas D. Gottschalk.

Dan M. Davis is a consultant for the University of Southern California, focusing on large-scale distributed DoD simulations and virtual conversational computer agents and avatars. Pre-retirement, he was the Director of USC's JESPP project at JFCOM for a decade. As the Assistant Director of the Center for Advanced Computing Research at Caltech, he managed Synthetic Forces Express, bringing HPC to DoD simulations. Prior experience includes serving as a Director at the Maui High Performance Computing Center and as a Software Engineer at the Jet Propulsion Laboratory and Martin Marietta. He has served as the Chairman of the Coalition of Academic Supercomputing Centers and has taught at the undergraduate and graduate levels. As early as 1971, Dan was writing

programs in FORTRAN on one of Seymour Cray's CDC 6500's. He saw duty in Vietnam as a USMC Cryptologist and retired as a Commander, USN. He received B.A. and J.D. degrees from the University of Colorado in Boulder.