Educational Options for Oral Communications: Fundamental Approaches via Newfound Technologies

Judith L. Jacobus
Speech & Language Therapist
Seal Beach, California
jjacobus@hpc-educ.org

Dan M. Davis, John J. Tran & Jennifer H. Nolan
Catholic Polytechnic University
Los Angeles, California
{jnolan, jtran & ddavis}@catholicpolytechnic.org

ABSTRACT

This paper addresses the criticality of communications by military personnel and focuses on the often under-recognized importance of oral speech and voice training. The authors assembled a team of speech, pedagogy, neuro-science and military professionals to evaluate historical needs, current practices, and future opportunities of this critical capability. Without denigrating the importance of written communications, they set out the ubiquitous necessity of clarity, cogency, and inexorability of the "command voice." They review the associated fields of speech therapy and theatrical performance to identify current practices in other disciplines. A review is included of interventions in these fields to optimize individual innate endowments to either improve the inadequate to levels of acceptability or advance the adequate to levels of excellence. Experiences of the ability to make salutary changes in speech in primary school children is set forth in both anecdotal and statistical formats, then the extensibility thereof into the military environment presented. Data is adduced to show several extant approaches and their abilities to effect significant improvements via various techniques. Then, the applicability of these methodologies to the military via educational frameworks is covered at length. The special needs for active duty personnel are considered, especially the impact of frequent geographical dispersion uncertainties and accelerated operations requirements. These hurdles are addressed by way of the emerging abilities in global dissemination by means of electronic distribution and various systems utilizing artificial intelligence to provide a more nurturing environment that more closely emulates a personal relationship of a mentor, tutor or therapist. Data supporting these contentions will be offered to show the feasibility of implementations in the immediate future and significant improvements in that capability in the near future. The paper concludes with a call for the professionals in the Simulation, Education and Training community to recognize and address this issue.

ABOUT THE AUTHORS

Judith L. Jacobus, MA is retired from a career of conducting speech therapy as a Speech and Language Specialist for more than two decades. Her experiences were in public schools settings in Orange County. California. She also previously taught for 12 years as a classroom teacher in multi-cultural communities there. Judith currently volunteers her professional skills for a local police department, so has extensive experience with communication issues in adults and children in a variety of both every-day and more traumatic situations. Her participation in amateur theatrics has more fully familiarized her with the characteristics of human behavior as they are projected via verbal, facial and body-language cues. This experience has also exposed her to the skill and art of the selection of appropriate persons for specific on-screen roles. Judith holds a lifetime Special Education Credential in Speech and Hearing Therapy, K-12 from the State of California. She earned a B. A. Degree in Speech Communications from the California State University Long Beach and an M. A. Degree in Teaching and Teacher Leadership from the Grand Canyon University in Glendale, Arizona. She is also an accomplished thespian.

Jennifer H. Nolan, PhD, is the President of Catholic Polytechnic University and Professor of Psychology in their College of Arts and Sciences. Her earlier work specialized in memory, dementias, stroke and insulin resistance. She is a brain plasticity specialist and certified Cogmed provider. Previously, she was the C.O.O. and co-founder of a stroke and brain injury rehabilitation center. Dr. Nolan has taught university courses at UC Irvine, Loyola Marymount University, and Glendale Community College. She has conducted local and nationwide clinical trials, and published in both scientific journals and popular magazines. She received a BA in Psychology from Loyola Marymount and a Ph.D. in Psychology from the Dept. of Cognitive Science at the University of California, Irvine.

Dan M. Davis, CDR. USN, Ret. is a Research Associate Professor at Catholic Polytechnic University and a consultant at the Institute for Creative Technologies, University of Southern California (USC), focusing on large-

scale DoD simulations and avatar uses. Prior to retirement, he was the Director of the JESPP project at USC for a decade. As the Assistant Director of Advanced Computing Research at Caltech, he ran Synthetic Forces Express, bringing HPC to DoD simulations. He also served as a Director at the Maui High Performance Computing Center and in computer research roles at the Jet Propulsion Laboratory and Martin Marietta. He was 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. While in the Marine Corps, he saw duty in Vietnam as a Cryptologist and retired in 2002 as a Commander, U.S.N. He received B.A. and J.D. degrees from the University of Colorado in Boulder.

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 sys-tem 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