Investigating Narrative Capabilities in Virtual Humans: Requirements, Analysis and Technologies

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ABSTRACT

The gift of narrative has been recognized as an important and valued skill since *Homo sapiens* have been literate and more so in pre-literate societies. In today's professional endeavors to create virtual humans and environments, the identification, characterization, and implementation of narrative takes on an even more critical role. This paper examines the early historical manifestations of narrative and their impact. Effective modern uses of narrative are contrasted with sterile environments of presentations devoid of that skill. Current Modeling and Simulation (M&S) efforts exhibit a vital need for better understanding this phenomenon so as to better communicate the benefits of interactive systems to humans. An ONR research effort to improve STEM outreach by implementing virtual mentors is given as a case in point. The impact of the presence or lack of narrative skill was observed early on in the project and attempts to rectify lack of narration were not ostensibly effective. The literature was notably absent of research in this area, which led to the consideration of this being a hitherto unstudied area in M&S. The work of Harvard's Howard Gardner in multiple intelligences gave birth to the possibility that this was an instance of a new, potentially distinct, skill and that it might meet Gardner's nine criteria. Further, the need to rapidly and effectively identify those with the gift of narrative or to remediate those who showed a lack of that skill became a very real issue with the research team. Turning to colleagues in the performing arts, it was found that attention has been paid to recognition, analysis, and cultivation of good narration. To quantify some of these issues, a psychometrician is developing and assessing an approach to enable the M&S community to better implement virtual reality environments and interfaces. Narration and narrators merit further study.

ABOUT THE AUTHORS

Dan M. Davis is a consultant for the University of Southern California, focusing on large-scale distributed DoD simulations. Prior to his retirement, for a decade he was the Director of USC's JESPP Project for JFCOM. In the '90's, as the Assistant Director of Caltech's Center for Advanced Computing Research, 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, Cryptologic Specialty, U.S.N.R. He received B.A. and J.D. degrees from the University of Colorado in Boulder.

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