Addressing Misconceptions in Career Selection: Research-based Implementations for STEM Students

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ABSTRACT

This paper discusses the response to a long-standing issue, that of the lack of a solid foundation of valid and germane information on which young people can make one of the most important decision of their life: what college major to pursue and what career path to follow. The major issue that is established by previous research is lack of exposure to practicing professionals, the reliance on dramatic-arts' portrayals of the profession and the common assumptions that professionals make that everyone, especially their children, know what they do day-to-day.The authors report on a recently completed study that proposed to provide a prototype of an Artificial Intelligent (AI) agent acting as a conversational mentor to inform student candidates for STEM careers in the service and in civilian life. This was needed due to the shortfalls in STEM professionals to support DoD objectives, as well as bolster civilian technical advances necessary for the defense of the nation. What the researchers found from discussions with the 16 to 18 year-olds was that it was not detailed knowledge of the STEM professional lifestyles, it was an almost total loss of the major parameters of what made up a fulfilling career. The adolescents were too taken by the stereotypes of the professions and by "eye-candy" dreams of a fanciful work experience. The paper then outlines the work on the virtual mentor and explains the dichotomy between the data conveyed and the receptivity of the students. Then the program to ameliorate the missing analytic framework and rectify the gap between that which they should have asked and the questions they really had. Other researchers" efforts and findings, as well as the local team's insights will b adduced to support the papers thesis that this effort is both vital and of significant for both this issue and is extensible for other projects focusing on the computer/human interface that now are almost certain to follow. The authors suggest the use of meta-disciplinary approach and outline its value in such situation that call for computer science, behavioral science and system engineering.

ABOUT THE AUTHORS

Dan M. Davis, JD is a Research Associate Professor at Catholic Polytechnic University and is active as 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 2071, 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.

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