Veteran Learning in a "Maker" Environment

(Center) Anthony Dean, assistant dean for research in the Batten College of Engineering and Technology, leads the NSF project. The team also includes co-principal investigators, (from left to right) Vukica Jovanovic, Otilia Popescu, Krishnanand Kaipa and Karina Arcaute.

By Keith Pierce

While many Navy jobs require the use of strong science, technology, engineering and math (STEM) skills to solve significant real-world problems, many Navy veterans choose non-STEM-related careers when they separate from the military.

A new National Science Foundation (NSF) grant, involving "maker" education, aims to steer STEM-skilled Navy vets toward fulfilling the growing workforce demand for engineers and scientists.

Commonly associated with STEM learning, "maker education" is hands-on, problem-based and project-based learning that often relies on collaboration to solve authentic problems. From idea and design, to development and creation, maker education satisfies a natural human instinct to create. Thanks to affordable, yet powerful, technologies such as 3D printing, robotics, microprocessors, open-source software and the internet, "making" is fast becoming a buzzword for effective learning at all levels.

Leveraging the rapid growth of the maker movement, the one-year, $100,000 grant is aimed at addressing the nation's need for a workforce equipped with the most current and emerging STEM skill sets.

The Old Dominion University project, entitled "EAGER: Understanding the Impact of Making on Veterans in Pursuing STEM Degrees," includes the development and delivery of two maker workshops for military veterans, designed to foster knowledge and expand interest in STEM careers.

"We plan to use these workshops to test the maker pedagogy and its potential for improving the effectiveness of learning for military veterans as it relates to STEM disciplines," said Anthony Dean, assistant dean for research in the Batten College of Engineering and Technology. "The workshops will provide training and awareness in engineering subjects and will include computer-aided design (CAD), rapid prototyping, 3D printing and bio-inspired robotics"

Using data collected through surveys, as well as observations of teaching and related activities, the evaluations will focus on the before and after attitudes, behaviors and skills of workshop participants.

Results and resources will be disseminated through conferences held by a wide range of veterans' organizations and the American Society of Engineering Education, as well as through relevant educational and professional journals. It will support the development of an educational model that can be replicated in veteran or adult student learning institutions across the country.

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