Announcing the Final Examination of M. Beth H. Pettitt for the degree of Doctor of Philosophy

Time & Location: October 27, 2017 at 10:00 AM in ENG2 310  
Title: ASSESSMENT OF TATTOO AND SILICONE WOUNDS

At the point of injury, critical medical tasks include locating and identifying an injury as well as applying the appropriate initial care. Over the past decade, to increase the fidelity of wound representation and ultimately the quality of medical care, a considerable amount of research and development has occurred to increase the fidelity of simulated wounds during training, primarily at the point of injury. As material and techniques mature and as more relevant data is collected on tissue properties, examining what fidelity is required for training at the point of injury is crucial. The main objective of this effort was to assess a three dimensional silicone wound versus a two dimensional tattoo wound for training and to examine differences in user perceptions and treatment time.

This was accomplished with a test population of 158 City of Orlando Fire Department First Responders which were randomly assigned to each group (three dimensional silicone wound group versus a two dimensional tattoo wound group). The data analyses incorporated the use of non-parametric statistics (Mann-Whitney U Test) to compare the differences between the two groups on depth perception, sense of urgency, immersion, and time on task.

Other factors that were examined included the costs for the average tattoo wound and silicone wound as well as the number of uses before the synthetic wound is visibly damaged. The data results indicated that at the point of injury, there were relatively few statistically significant differences in the survey data or time on task between the silicone and tattoo wounds. Additionally, the cost analysis revealed that the silicone wound is significantly more expensive than the tattoo wound. Supporting the military and civilian first responder communities, the results of this study provides statistically reliable data on the use of trauma tattoos as a tool for mastering point of injury treatment during training exercises.

Major: Modeling and Simulation

Educational Career:  
Bachelor's of Mechanical Engineering, BS, 1987, Old Dominion University  
Master's of MBA, MS, 1999, Webster University  
Master's of Modeling and Simulation, MS, 2013, UCF

Committee in Charge:  
Waldemar Karwowski, Chair, Industrial Engineering  
Randall Shumaker, UCF IST  
Robert Sottilare, Army Research Laboratory Human Research and Engineering Directorate  
Juan Cendan, College of Medicine

Approved for distribution by Waldemar Karwowski, Committee Chair, on September 19, 2017.

The public is welcome to attend.