Announcing the Final Examination of Dylan Morelle for the degree of Master of Science

Time & Location: April 4, 2016 at 8:30 AM in Partnership Building II 301
Title: Live Versus Virtual: Cost Benefit Analysis for Applying Simulation Towards Army Aviator Flight Minimums

The Longbow Crew Trainer (LCT) is a cost effective, safe alternative to live training missions in the AH-64D/E Longbow. Current Army doctrine and regulation have provisions for the limited use of simulator in lieu of aircraft hours toward semiannual flight hour requirements. With the defense budget in decline, the Army must find innovative, cost effective methods to conduct realistic, relevant training to sustain proficiency in their warfighting capabilities. The LCT is a realistic, modular, and transportable solution that fully replicates the cockpit environment through training scenarios for requisite crew tasks and missions. An attack helicopter crew can safely train in customizable scenarios ranging from basic aviation tasks to crew-level missions and gunneries. The Army is currently aligning one LCT per attack battalion under the Aviation Restructure Initiative (ARI). There are 20 Armed Reconnaissance Battalions/Squadrons (ARB/Ss) in the active component with approximately 35 aircrews per battalion. The premise of this study was to review cost benefits of training in a virtual environment over a live training environment while exploring the effects on proficiency. The difference in cost per hour between an AH-64D and the LCT is approximately $3,998. Using this figure and the semiannual flight hour requirements from the current ATM in a weighted average between Flight Activity Category (FAC) 1 and FAC 2 pilot's flight minimum requirements, this study analyzed four models: low, status-quo (baseline), moderate, and high simulator usage to determine the optimum virtual to live balance. This study found that while the High Virtual Simulation Model resulted in the most cost savings, the current budget does not require such drastic measures. The Low Virtual Simulation Model resulted in higher costs. Therefore, the Status-Quo and Moderate Virtual Simulation Models proved most relevant to budget analysts, aviation unit commanders, and pilots without decrements in proficiency.

Major: Modeling and Simulation

Educational Career:
Bachelor's of Business Management, BS, 2001, University of Central Florida

Committee in Charge:
Peter Kincaid, Chair, Modeling & Simulation
Jonathan Stevens, Co-Chair, Jonathan Stevens Acquisition, Research & Engineering Services
Michael Proctor, Industrial Engineering & Management Systems, Interdisciplinary Studies, and Modeling & Simulation

Approved for distribution by Peter Kincaid, Committee Chair, on March 10, 2016.

The public is welcome to attend.