Virtual World Research

S&T Campaign: Human Sciences
Human Capability Enhancement
Training

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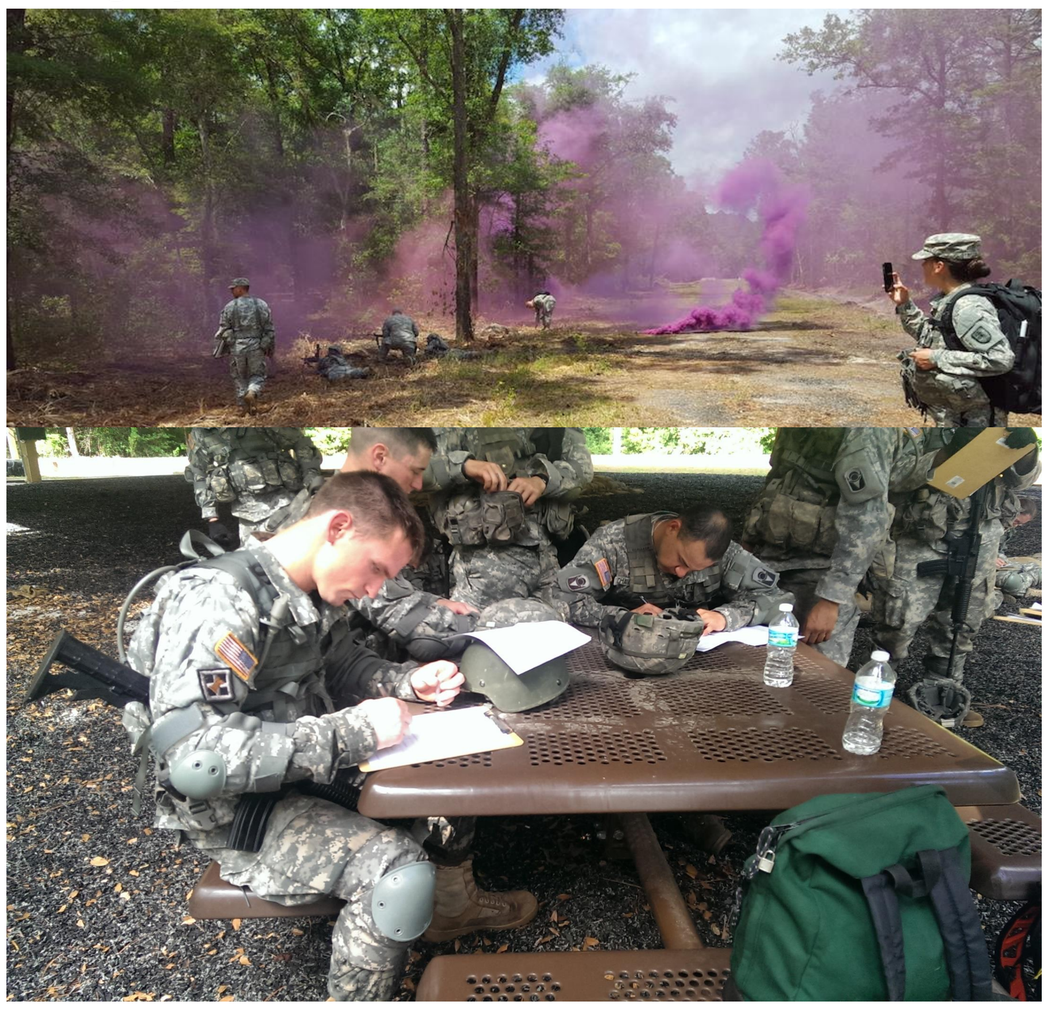
Research Objective

- **Establish Return on Investment for Simulation Based Training Systems for Infantry Soldier Skills**
- **Very little is known about the impact on infantry soldier skills performance for individual and teams when trained using virtual means**
- **Establish "Applicability Continuum" where performance, funding, and time can be estimated for usage of Simulation Based Training for any given infantry training activity**

Simulation Based Training

Challenges

- **Establishing correct and applicable tasks for simulation based skills training; Not a Boolean decision**
- **Simulator interfaces present a significant challenge to the immersion and presence maintenance in the training systems**



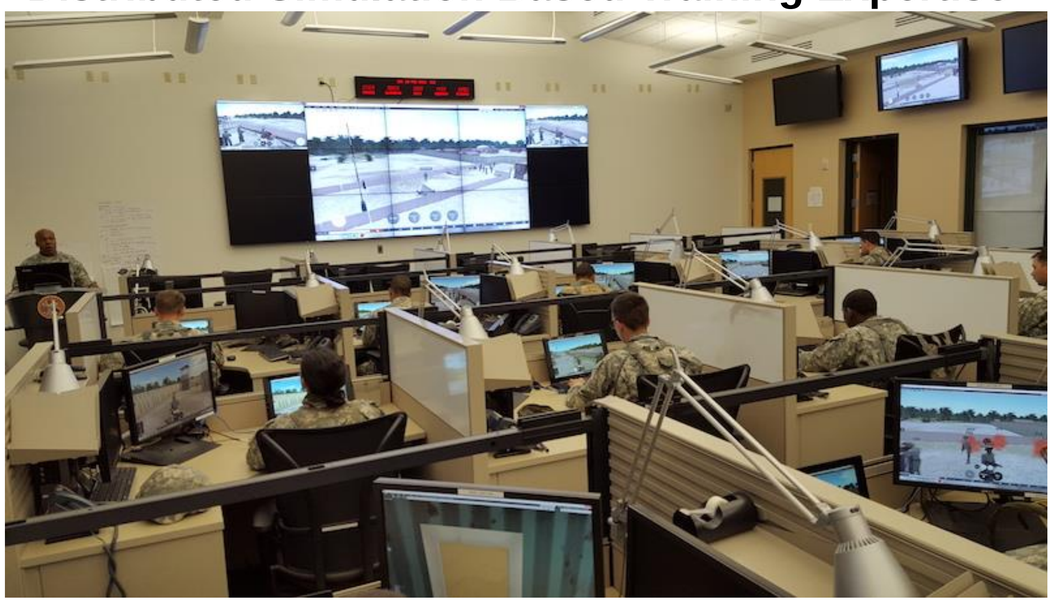
Field Data Collection

ARL Facilities and Capabilities Available to Support Collaborative Research

- **ARL Simulation and Training Technology Center, Orlando Florida**
- **In-house developed Open Source simulation based trainer, MOSES (Military Open Simulator Enterprise Strategy)**
- **Access to large pools of soldiers, relevant leadership classes and curriculum**
- **Data collected only from correct soldier demographics**
- **Significant Early Findings:**
  - Current assessment methods inadequate to determine ROI/Need new Rubric with scale.
  - Dramatic increases in performance happen when SBT is combined with kinesthesis & feedback.
  - Need more data to make any conclusions for team training conditions.
  - Time in simulator a critical factor.
- **Selected Publications:**
  - Maxwell, D.B., "Application of Virtual Environments for Infantry Soldier Skills Training" HCII 2016 Toronto, July 17-22, 2016.
  - Maxwell, D.B., Stevens, J., Maraj, C.S., "Alternate Rubric for Performance Assessment of Infantry Soldier Skills Training", HCII 2016 Toronto, July 17-22, 2016.
  - Lackey, S.J., Salcedo, J.N., & Maxwell, D., (2014). Virtual World Room Clearing: A Study in Training Effectiveness. Proceedings of the 2014 Interservice/Industry Training, Simulation, and Education Conference, December 1-4.
  - Maraj, C. S., Badillo-Urquiola, K. A., Martinez, S. G., Maxwell, D.B., Stevens, J., "Preliminary Review of Usability." Proceedings from the Human Computer Interaction International, HCII 2016 Toronto, Canada, July 17-22, 2016.
  - Maraj, C.S., Lackey ,S.J., Badillo-Urquiola, K. A., Ogreten, S.J. & Maxwell, D.B., (2015). Empirically Derived Recommendations for Training Novices Using Virtual Worlds. Proceedings of the 2015 Interservice/Industry Training, Simulation, and Education Conference, Nov 30-Dec 4.
  - Maraj, C.S., Lackey ,S.J., Badillo-Urquiola, K. A ., Martinez, S., & Maxwell, D.B.,. Exploring the Virtual World Experience for Kinetic Tasks: A study in Room Clearing Training. 2016 Spring Simulation Multi-Conference April 3-6.

Complementary Expertise / Facilities / Capabilities Sought in Collaboration

- **Advanced Human – Computer Interface Expertise**
- **Distributed Simulation Based Training Expertise**



MOSES Prototype in Use