



ACQUISITION INNOVATION
RESEARCH CENTER

INCUBATOR EXECUTIVE SUMMARY | 2022

GAMIFICATION IN DEFENSE ACQUISITION TRAINING AND EDUCATION

**NC STATE
UNIVERSITY**



NAVAL
POSTGRADUATE
SCHOOL

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BACKGROUND & PURPOSE

The objective of this incubator project is to demonstrate that gamified learning in non-traditional defense contexts (acquisition v. flight simulation, for example) can support the Department of Defense (DoD) in improving its workforce education and training. Traditional military schoolhouse models are ill-suited for a target population of 18–24-year-olds raised in the digital age. In addition, defense acquisition (DA) specialists operate in a high-risk, tightly regulated, zero-defect environment that hinders experimentation and learning.

The research led by Principal Investigator Lt. Col. Daniel J. Finkenstadt (Naval Postgraduate School) provides an in-depth explanation of gamification and the potential benefits of its application to enhance learning, using defense acquisition as a test case. The work led by Co-Principal Investigators Dr. Rob Handfield (North Carolina State University) and Lt. Col. Finkenstadt builds upon this research to create an ensemble of game experiences to enhance acquisition education and training.

METHODOLOGY AND APPROACH

In the initial study Lt. Col. Finkenstadt illustrates that infusing learning with game-like elements can increase engagement with and motivation for content and offers the potential for deeper processing and retention. Games provide low consequence environments (in contrast to the highly risk averse acquisition environment), strong feedback and variable degrees of operational realism, increasing the potential for creative thinking. The research identified design and development efforts for effective game modalities that can be used for learning and sharpening skills, and recommends departments be open to offering various learning modalities to meet heterogenous student preferences. Also noted was that disparate cells across the DoD ecosystem are independently exploring the potential of gamification to enhance learning in DA.

The work in game design, led by Dr. Handfield and Lt. Col. Finkenstadt developed a methodology for designing game experiences that can be systematically applied to acquisitions training and that provide affordances for learning specific content and consider varied student preferences. Two prototype games are presented. The Escape Room prototype incorporated content from the Federal Acquisitions Regulations (FAR) manual related to protest risk; its slower pace allows players to look up textbook content for solving puzzles and can involve communication and coordination between team members. The Base Building Tower Defense prototype was designed to have a contracting interface for procuring base defenses, workers, and site construction facilities. The dynamic pacing supports development of resource management and strategic reasoning.

RESULTS AND CONCLUSION

An ensemble of game experiences to enhance acquisition education and training was produced and tested. Future work proposes: increasing collaboration across defense-focused entities to explore the potential of gamification in defense education and training; encouraging departments to allow for self-selection and offer various learning modalities to meet heterogenous student preferences; further refinement of the prototyped game types; and development of additional insights into game types that can benefit training for contract officers and other areas.

DISCLAIMER

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The Acquisition Innovation Research Center is a multi-university partnership led and managed by the Stevens Institute of Technology and sponsored by the U.S. Department of Defense (DoD) through the Systems Engineering Research Center (SERC)—a DoD University-Affiliated Research Center (UARC).

This material is based upon work supported, in whole or in part, by the U.S. Department of Defense through the Office of the Under Secretary of Defense for Acquisition and Sustainment (OUSD(A&S)) and the Office of the Under Secretary of Defense for Research and Engineering (OUSD(R&E)) under Contract HQ0034-19-D-0003, TO#0309.

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