Chapter 8
Integrating Simulations Across a Curriculum

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ABSTRACT

Emergency managers, firefighters, and homeland security professionals are a valuable resource at the local, state, and federal levels. Conducting live training and exercises is a high-cost endeavor, more so when the exercise is a "full-scale" exercise as identified in the Homeland Security Exercise and Evaluation Program (HSEEP) manual. In an online program, the cost of creating highly interactive simulations can be cost-prohibitive; however, simulations that are designed to challenge students and provide a quality learning environment are possible using a systems approach from planning to evaluation. Simulations creation is not difficult; however, it requires a team of experts to create a learning experience that is productive from the first course to the final course in a degree program. This chapter will provide material on one way to accomplish this. How others choose to create their program is based upon their degree needs, budget, and expert knowledge.

INTRODUCTION

Degree programs that graduate students who are actively engaged in a high level of application relevant to the job are better prepared to enter the emergency and disaster management profession. Theory-based courses meet a need; however, application through simulation provides the student with examples that are as realistic as possible to design and develop in an online university environment. This chapter, which is based upon its authors' experience and practices, provides a view of the processes and thoughts that should be followed when creating simulations for students enrolled in a quality emergency and disaster management degree program.

BACKGROUND

Bahsoun et al., (2017) in *BMJ Simulation & Technology Enhanced Learning* describe the use of simulations for surgeons as a method of learning skills in an environment that provides repetition, safety, and no risk to patients. The FEMA (2013) Homeland Security Exercise and Evaluation Program (HSEEP) Manual defines simulation as "(1) An electronic simulation is a method for predicting the results of implementing a model over time, i.e., modeling and simulation. (2) Simulation of nonparticipating personnel and agencies is a technique for increasing realism in exercises" (Glossary - 10).

Clark (2013), offers a reason to create learning using scenario-based methods. She presents the rationale for using scenarios to introduce the transfer of knowledge and skill to a profession using a specific design model for eLearning.

- Identify the benefits of a scenario-based eLearning (SBeL) design for learners and learning outcomes.
- Determine when SBeL might be appropriate for your needs.
- Identify specific outcomes of SBeL relevant to common organizational goals.
- Classify specific instructional goals into one or more learning domains.
- Apply a design model to present content in a task-centered context.
- Evaluate outcomes from SBeL lessons.
- Identify tacit expert knowledge using cognitive task analysis techniques.
- Make a business case for SBeL in your organization.

A "deep dive" was conducted on an Emergency and Disaster Management Bachelor's Degree program at an award-winning online university. The deep dive allowed university and program leadership to provide resources to differentiate the degree program. Using scenario-based learning and simulation (text-based and a

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