

## Chapter 9

# Online Simulations and Gamification: A Case Study Across an Emergency and Disaster Management Program

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### ABSTRACT

*Higher education has seen a dramatic increase in the number of courses and programs offered in an online environment over the past two decades. As most online educational courses are asynchronous in nature, ensuring that applied learning happens in scenarios that replicate real-life events is of utmost importance especially in certain disciplines such as emergency and disaster management. With the advent of newer and advanced technologies, online gamifications and simulations offer a learning method that requires the students to use decision-making, problem solving, and critical thinking skills in a fictional scenario that imitates events that individuals in the particular career field will experience. This chapter is an examination of the use of gamifications and simulations in online higher education highlighting a holistic approach to gaming and simulations designed and implemented across an undergraduate emergency and disaster program.*

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## **INTRODUCTION**

A vital role for individuals in the emergency management field is protecting a community before and after a disaster strikes. This role requires the completion of an emergency operations plan (EOP) that identifies possible vulnerabilities and hazards that pose a risk to the community. A first critical step in the process is completing a hazard vulnerability assessment (HVA) that identifies those hazards posing the most threat to a community. Consider an individual who steps into an incident commander's role and is responsible for coordinating the information from critical infrastructure resources to secure and protect the community during a disaster. Decisions and activities carried out during emergencies must be appropriately coordinated as failure to do so may cause additional loss of life, injury, and/or damage to the community. Proper coordination requires understanding key actors' roles and responsibilities in the emergency and disaster management space. The question for curriculum leadership, be it a Department Chair or Program Director then becomes how to teach these skills to students in online classrooms allowing them to learn from their mistakes in a learning environment where a wrong decision in real-life could cause harm to life and/or property. Experiential learning not only helps students to succeed on the job but also helps when they are in the job market. For programs with adult learners, students are often looking to up-skill, learn new skills, or looking to transition to a new field. Therefore, higher abilities such as experiential learning is a key concern for program directors. This is why programs engage with an Industry Advisory Council (IAC) to ensure that upon graduation, students have the skills they need to be successful in the workforce. How can online classrooms replicate real-life events allowing the students to make decisions, solve problems, and think critically in a high-energy and emotive environment? The answer is to teach students what it is like by making them do it themselves within a safe and well-controlled environment. The addition of simulations and games in the online classroom allows the students to play an EOP, among other true-to-life tasks.

## **LITERATURE REVIEW**

There are many articles on simulations and gamification in online higher education; however, few exist that focus on the emergency and disaster management discipline. A few books on the market cover simulations and gamification and are specific to nursing and science subjects. However, few books exist that are specific to the field of emergency and disaster management (Aldrich, 2009; Bursens, Donche, Gijbels, & Spooren, 2018; Cai, van Joolingen, & Walker; Carnes, 2014; 2019; Information Resources Management Association, 2018; Nygaard, Courtney, & Lee, 2012). One

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