Incident and Disaster Management Training: An Update on Using Virtual World Scenarios for Emergency Management Training

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ABSTRACT

During the last five years, the maturation of incident and disaster management training has evolved substantially with widespread evidence that ICT positively impacts disaster outcomes. Virtual world (VW) technology with the use of avatars appears commonplace and widely accepted as either a stand-alone or a complementary learning strategy. However, the primary goals of emergency preparedness training (EPT), increased collaboration, leadership, and decision-making skills, have not been altered. This retrospective article briefly reviews the evolution in ICT learning theories and applies them to a virtual world simulation developed in Second Life™ for MHA graduate students completing an Emergency Management course. After five years of implementing the VW training, student results continue to show increased comfortability with the use of virtual worlds as a training platform, positive knowledge attainment, and marked improvement of emergency management skills. Additional research is recommended, but findings suggest that ICT appropriate learning theories (constructivism, situativity, visualization, and interactivity) still remain the most integral components for a successful virtual world training simulation.

Keywords: Emergency, Emergency Preparedness Training (EPT), Healthcare, Performance Improvement, Role-Play, Simulation, Virtual Worlds (VW)

INTRODUCTION

Beginning with the terrorist attacks of 2001, the importance of emergency preparedness and management has escalated due to a confluence of both natural and man-made disasters. The last five years have seen the United States challenged by flooding in urban hospitals centers (Silverstein, 2012) chemical explosions in rural areas such as West Texas (Sheer & Moss, 2013), mass shootings at a indoor entertainment venue in Aurora, Colorado (CNN US, 2013) and terrorist bombings at major outdoor municipal event - the 2013 Boston Marathon.
The Nation has also witnessed carnage in a small elementary school in Newtown, Connecticut (Haigh, 2013), tornado destruction of an entire community in Missouri (The White House, 2013), and other catastrophes that spanned the width of the country from the crash of an Asiana flight at the San Francisco airport (Gray, 2013) to the New Jersey shoreline that endured Hurricane Sandy ("Hurricane Sandy", 2013). These recent disasters reinforce the compelling argument for increased incident and disaster management training at all levels.

Even more important to those who sponsor or facilitate emergency management training (EMT), the last few years have seen indisputable evidence of a causal relationship between training activities and successful disaster responses in multiple and diverse scenarios. Recent publications on the positive impact of emergency responses to Hurricane Sandy, the Boston Marathon bombing, and the devastating tornado in Tuscaloosa, Alabama provide direct linkages to prior EMT and lessons learned (Jangi, 2012; Redlener & Reilly, 2012; Biddinger, et al. 2013; Kanter, 2012; Dean, 2012). Specifically, first responders credit ICS role practice for facilitating better teamwork (CDC, 2013) and improved proficiency in handling complex disasters (London, Min), improved response times (Hoffman & Kelly, 2004), the development of leadership command capabilities (Dean, 2012), and the ability to manage response over multiple judicial boundaries (911 magazine, 2012). Three seminal articles appearing in the New England Journal of Medicine (2013), highlight Boston’s emergency staff and other medical personnel’s attributions to EMT training and practice, and the direct application of drills to the successful medical response that saved countless lives (Biddinger et al., 2013, Jangi, 2013; Kellermann & Peleg, 2013). The value of interagency practice and the application of all hazard planning (Kanter, 2012; Dean, 2012) are mentioned by multiple first responders regardless of the type of disaster.

Looking back, many of the original U.S. government responses focused on training interventions, including: (1) the National Response Plan (NRP) (Jain & McLean, 2006), (2) the Eight Step Training Model for improving public agency disaster management leadership (Slattery, Syverston, & Krill, 2009), (3) the National Emergency Training Center and the Emergency Management Institute (USDHS, 2003; FEMA, 2009) and (5), the National Exercise Simulation Center (NESC) which was designed to offer live, virtual and constructive simulations for disaster management training (FEMA, 2009a). These primary federal initiatives, part of the National Response Framework, formed the incident and disaster management learning network for government entities. Recent publications highlight the successful application and implementation of the NIMS-ICS framework (9-1-1 Magazine, 2011), FEMA training sessions (Dean, 2012) and the value of interagency practice based on community-wide coordination (Kanter, 2012).

The health care system sector remains a key player in providing incident management training to all levels of healthcare employees by serving as a local community disaster planning and coordinating resource. Community hospitals still represent the largest number and type of health care institutions in the country (AHA, 2013), and they continue to function effectively in disseminating emergency preparedness training (EPT) through internal learning and development programs within their institutions. They have successfully integrated the National Incident Management System- Incident Command System (NIMS-ICS) into emergency preparedness plans (Jarventaus, 2007), and the Hospital Emergency Incident Command System (HEICS), which serves as the framework for incident command within a healthcare setting (McLaughlin, 2003). The Joint Commission on Accreditation of Health Organizations (JCAHO) regulations provides a clear requirement for hospital incident management training and mandates the inclusion of community partners for purposes of drills and practices (Joint Commission International, 2008). Other community agencies, including local public health departments, have begun
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