


Chapter 13

Fostering Collaborative Open Simulation for Next-Gen Enterprise Learning Ecosystems

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ABSTRACT

Leaders seek models of healthy ecosystems to better foster systemic, predictable performance improvement for their learning enterprises. Ecosystems may be viewed narrowly, involving information technology architecture, content, and standards for interoperability or expansively where stakeholders connect to seek next-generation, transdisciplinary learning opportunities across society. Ecosystem stewardship is a responsibility of community/societal leaders and citizens who must collaborate to shape and harness forces and drivers of emerging technology. Mass collaboration is needed to push open simulation into an enterprise capability that monitors and models what was, what is, and can be. This chapter frames academic need and United States military use of open simulation suitable for exploring new ways to steward ecosystem wealth in the interest of learning enterprises and beyond.

INTRODUCTION

Academic institutions and military organizations are part of an interdependent ecosystem facing similar challenges to obtain rapid value from emerging technologies involving simulation. While academic institutions exist to improve the quality of life within societies, military organizations must secure and defend them. Computer-based simulation has been an effective training strategy for the United States military and means are sought for educational uses as well. Determining the optimal fit for integrating simulation use across curriculum requires consistent use of terms for studying effectiveness. Transfer of technological innovation from the military to the educational domain is viewed as a return on investment for public funding, yet few institutions have enterprise simulation capabilities.

DOI: 10.4018/978-1-5225-9679-0.ch013

Innovative, cost-effective means is sought by organizations across industry sectors to educate and train learners. Organizations try to identify elements that contribute to a learning ecosystem necessary to support next-generation solutions. This chapter describes recent examples of open simulation used by the United States military and how advances may translate for use in higher education.

The feasibility for higher education to adopt and adapt open source software technology for open simulation is becoming within reach of institutions which can commit to partnering on next-generation learning efforts. Besides the benefit for higher education to use open simulation within online learning programs, the technology can support the core teaching, learning, and research missions on university campuses. In fact, to learn how to apply knowledge flexibly in authentic situations requires users to learn first how to handle routine situations to progressively tackle complex scenarios and solve complex problems (Clark, 2008, p. 5). Simulations can help bridge the gap between synthetic and authentic environments. These principals of handling routine to complex tasks apply to support faculty as well. “So that each new project does not have to forge the exact same path, there needs to be a community of practice at each institution, even if that only consists of a small but accessible team” (Gregory et al., 2015, p. 10).

HIGHER EDUCATIONS NEED FOR OPEN SIMULATION

Three primary sources were used to obtain the most recent trends and issues in higher education related to learning online in the United States. These sources include Grajek & Grama (2018) an EDUCAUSE Center for Applied Research (ECAR) report; the Babson Survey Research Group (2018); and Seaman, Allen & Seaman, J. (2018). “Grade Increase: Tracking Distance Education in the United States”, also produced by the Babson Survey Research Group. The word ‘simulation’ does not appear in these reports.

As of fall 2016, there were 6,359,121 students taking at least one distance education course, comprising 31.6% of all higher education enrollments. “The majority of students taking distance courses (3,356,041 of the total 6,359,121, or 52.8%) also took at least one course on campus. These students may take their “distance” courses while sitting in their dorm room or in the campus student center, and are just as likely to be on the institution’s physical campus as students taking only on-campus courses (Seaman et al., 2018, p. 16). Faculty have held mixed views of online learning due to a variety of factors such as inexperience and unfamiliarity with emerging technology. In order to engage in using, creating, and shaping the evolution of open simulation, faculty will need assistance from centers of academic technology whose maturity comes from more constant, cross-institutional collaboration using simulation technologies.

As campuses created faculty development programs and staffed their support centers to adopt online learning, attitudes to experiment became more favorable; although the 2016 scorecard report of online learning indicated that faculty skepticism is slipping and worse, only 29.1% of chief academic officers believe their faculty accept the value and legitimacy of online education. This rate is lower than the rate recorded in 2004 (Allen et al., 2016, p. 6). Technology-mediated learning is a continually moving target where new digital literacies are required to master pedagogical techniques. If faculty become isolated in their discipline, practice, and brick and mortar classrooms, they risk missing opportunities to improve learning outcomes, especially for those learners that need intervention to persist. If institutions outsource their online learning solutions, they may not benefit from organizational learning and the digital literacies that could flourish across disciplines.

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