Chapter 59
Authentic Online Branching Simulations:
Promoting Discourse around Problems of Practice

Eric Bernstein
University of Connecticut, USA

Sarah A. McMenamin
University of Southern California, USA

Michael C. Johanek
University of Pennsylvania, USA

ABSTRACT

This chapter describes the use of online branching simulations, with varying levels of production value and using a variety of different development tools, to create authentic experiences for students in online courses. Simulations are a method of increasing student engagement, providing authentic learning experiences that enhance critical thinking skills and foster meaningful collaborative interactions among students. By creating simulations that are online, they are scalable and especially effective for use in distance and online learning environments. The use of these simulations draws on research supporting the effectiveness of simulations in education and in other professional fields, leveraging Social Learning and Social Cognitive Theories and builds off of a Computer-Supported Collaborative Learning (CSCL) framework.

INTRODUCTION

This chapter describes the development and use of online simulations, with varying levels of production value and using a variety of different development tools, to create authentic experiences for students in education courses. The use of these simulations draws on research supporting the effectiveness of simulations in education (to a limited extent) and in other fields (to a larger extent), leverages Social

Learning and Social Cognitive Theories, and also builds off of Stahl, Koschmann, and Suthers' (2006) Computer-Supported Collaborative Learning (CSCL) framework.

The types of simulations discussed offer opportunities for participants to explore problems that they will "predictably...encounter in the world of practice" and thus "serve as the stimulus for acquiring new knowledge" as participants examine and define the problems and "wrestle with how to apply [their]... knowledge to resolving the problem they face" (Bridges & Hallinger, 1997, pp. 132-133). Gokhale (1996) suggested that integration of simulations into traditional teaching structures is a promising pedagogical approach to building students' ability to "transfer and apply the knowledge to real-world problems" (p. 6). Because of the multi-faceted nature of educator praxis, there is a need for experiential approaches to preparing educators and school leaders that both build on research-based practices as well as the real-life experience and expertise of experienced practitioners in the field.

The authors' specific approach to simulation does not intend for the online simulation to be a stand-alone instructional tool. Rather, the simulation provides the shared experience that will form the basis for critical conversations with peers around practice and decision-making. Indeed, with simulations in other fields, like healthcare, the debriefing of the simulation experience is essential to the effectiveness of the simulation in promoting learning outcomes (Fanning & Gaba, 2007). Vygotsky's Social Learning Theory (e.g., Wertsch, 1985) and Bandura's Social Cognitive Theory (Bandura, 1989; Bandura, Ross, & Ross, 1961) heavily influenced the development of a Computer-Supported Collaborative Learning (CSCL) framework proposed by Stahl, Koschmann, and Suthers (2006) and based specifically on collaboration theory (Stahl, 2004). The CSCL framework suggests the use of "microanalyses of collaborative learning with and through technology in order to identify the features of designed artifacts that seem to be correlated with effective learning" (Stahl et al., 2006, p. 14).

The chapter will also describe previous and proposed uses of simulations, also referred to as "sims," in educational courses and professional learning environments and the ways that simulations have supported the depth of the learning experiences of students. The chapter will also offer an overview of ways to design simulations—including a discussion on the use of simulation authoring, itself, as a pedagogical tool within a course—and guidelines for facilitating discussions around simulations in various online formats. The formats discussed will include asynchronous, LMS-based tools as well as synchronous discussion options on video-based platforms and internet discussion applications like Twitter.

BACKGROUND

Online simulations have been used successfully in higher education, since 2003, though they were used even earlier, in the 1990's, for military and medical training (Beckem & Watkins, 2012). Those earlier sims were primarily focused on business, engineering, and students in the medical fields. Only in the last several years have applications of simulations in educator preparation been considered. According to Beckem and Watkins (2012), "the common element in each of these [applications] is the focus on the learner and concern for the learner's experience to be meaningful, engaging, and transferable to the real world" (p. 62).

Beckem and Watkins (2012) identified several ways that online simulations are effective tools to enhance learning. They described simulations as: Personalized—that online simulations offer a "student-centered approach to learning;" Multi-Modal—that online simulations allow students to use a variety of modes to learn while doing, which they assert is "the most effective way to transfer short-term knowledge

Related Content

Pedagogical Mini-Games Integrated into Hybrid Course to Improve Understanding of Computer Programming: Skill Building Without the Coding Constraints
Walter Nuningerand Jean-Marie Châtelet (2020). *Learning and Performance Assessment: Concepts, Methodologies, Tools, and Applications (pp. 1305-1348).*
www.irma-international.org/chapter/pedagogical-mini-games-integrated-into-hybrid-course-to-improve-understanding-of-computer-programming/237582

A Sandbox Approach to Online Exam Administration
Stu Westin (2012). *International Journal of Online Pedagogy and Course Design (pp. 49-62).*
www.irma-international.org/article/sandbox-approach-online-exam-administration/74173

Impact of the Digitalization Level on the Assessment of Virtual Reality in Higher Education
Álvaro Antón-Sancho, Diego Vergaraand Pablo Fernández-Arias (2023). *International Journal of Online Pedagogy and Course Design (pp. 1-19).*
www.irma-international.org/article/impact-of-the-digitalization-level-on-the-assessment-of-virtual-reality-in-higher-education/314153

Online Mentoring in Education
Taralynn Hartsell (2008). *Encyclopedia of Information Technology Curriculum Integration (pp. 686-691).*
www.irma-international.org/chapter/online-mentoring-education/16778

Historically Black Colleges and Universities (HBCUs) and Education of Marginalized Populations
Victor Eno (2019). *Critical Essays on the New Moral Imperative for Supporting Marginalized Students in PK-20 Education (pp. 60-76).*
www.irma-international.org/chapter/historically-black-colleges-and-universities-hbcus-and-education-of-marginalized-populations/227497