

Chapter XVIII

Using Online Simulation to Engage Users in an Authentic Learning Environment

Brian Ferry

University of Wollongong, Australia

Lisa Kervin

University of Wollongong, Australia

ABSTRACT

This chapter describes how we used an authentic learning framework (Herrington & Oliver, 2000) to inform the design of an online simulation that included gaming features specifically designed to enhance learner engagement. We describe our analysis of user responses to the simulation, focusing particularly on learner engagement and what the users learned from using the software. Our research revealed that users initially approached the software from a gaming framework, however with extended interaction with the software, moved toward treating the virtual experience as an authentic environment, even to the point of empathizing with some of the virtual characters and downloading some of the support material that they might use in real classrooms. We offer some explanations for this change and conclude the chapter by identifying future directions for researchers who may be interested in this field.

INTRODUCTION

In an era when many teachers will retire, countries like the United States, Canada, and Australia cannot afford to lose up to one in four of its begin-

ning teachers (MCEETYA, 2003). There has been debate about whether this high attrition rate can be solely attributed to deficiencies in pre-service teacher education. Within the Australian context, recent state and national reports are strongly criti-

cal of teacher preparation courses (e.g., DEST, 2003; Education & Training Committee, 2005). Research also asserts that the focus on theoretical rather than practical approaches to teaching as well as the varied and problematic nature of the practicum experience can lead to teacher disillusionment (e.g., Korthagen, 2004; Ramsey, 2000). Our own experiences in supervising the practicum over a number of decades supports this view, as we have consistently found that many pre-service teachers find school-based practical experiences consist of a series of isolated, decontextualized lessons prepared and implemented according to the requirements of the supervising teacher. While there is a need to find new and innovative ways to gain access to expert teacher knowledge and to better link the theory and practice of teacher education (DEST, 2003; Education & Training Committee, 2005), there is also a need to improve the quality of the practicum experience (House of Representatives, 2007). Typically governments respond to such issues by mandating additional practicum time in schools, but quietly ignore the issue of the quality of the experience. The purpose of the software we designed is to provide additional school-based experience through an authentic online learning simulation that challenges users to link newly acquired education theory to classroom practice. Such an experience allows for pre-service teachers to engage within a context that is known and can be formally deconstructed as a learning experience. Carter and Doyle (1989) found that much of expert teachers' knowledge is structured around authentic classroom events and is episodic in nature, thus supporting this approach. We draw from the premise that expert teacher knowledge is developed in context, stored together with characteristic features of classrooms and activities, organized around tasks accomplished in the classroom, and accessed when needed for new situations.

A number of researchers assert that online environments can assist pre-service teachers in learning important pedagogical skills. For ex-

ample, Putnam and Borko (2000), Herrington and Oliver (2000), Lampert and Ball (1998), and Marx, Blumenfeld, Krajcik, and Soloway (1998) have all investigated the efficacy of a range of technology tools that offer flexible ways of representing and connecting information, enabling in-depth exploration of unfamiliar pedagogical practices and problems by teachers. More recently, Lambert and Brown (2007) have reported the advantage is using technology tools to capture collective wisdom for others to interact with. Simulations and games are examples of technology tools and are the focus of the research reported herein. In response to the critiques of pre-service teacher education and literature acknowledging the advances in technology, we developed a simulation that employed many of the features of gaming design. In this chapter we aim to explore the following questions:

- What processes do users engage with while using the simulation?
- Which features of the virtual environment do users identify as 'authentic'?
- Does the virtual environment contribute to the development of users' understandings of teaching, learning, and classrooms?

SIMULATION AS A 'GAME'

Simulations and games have a long history of use in education and training (Gredler, 2004). Jonassen (2000) and Aldrich (2004) assert that computer-based simulations can be powerful vehicles for learning by focusing on the acquisition of knowledge and skills in contexts that reflect the way that the information is used in real life. Such assertions emerge from the viewpoint that learning manifests itself from critical thinking, opportunities for reflection, and the support of a community of practice (Calverley, 2003). Studies into the complex learning situations presented in computer games and other simulations (e.g., Gee,

14 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage: www.igi-global.com/chapter/using-online-simulation-engage-users/20093

Related Content

Virtual Tutor Training: Learning to Teach in a Multi-User Virtual Environment

Lee L. Mason, Tae Jeon, Peter Blair and Nancy Glomb (2011). *International Journal of Gaming and Computer-Mediated Simulations* (pp. 51-67).

www.irma-international.org/article/virtual-tutor-training/53153

Sustain City: Effective Serious Game Design in Promoting Science and Engineering Education

Ying Tang, Christopher Franzwa, Talbot Bielefeldt, Kauser Jahan, Marzieh S. Saeedi-Hosseiny, Nathan Lamb and Shengtao Sun (2019). *Design, Motivation, and Frameworks in Game-Based Learning* (pp. 57-91).

www.irma-international.org/chapter/sustain-city/208021

Identifying Latent Semantics in Action Games for Player Modeling

Katia Lida Kermanidis (2019). *International Journal of Gaming and Computer-Mediated Simulations* (pp. 1-21).

www.irma-international.org/article/identifying-latent-semantics-in-action-games-for-player-modeling/238743

Enhancing Wireless Signal Quality Through Data-Driven Signal Processing in Noisy Communication Channels

Katherine Lim, Charles Lee Kim and Ankit Bijalwan (2025). *Innovations and Challenges in Computing, Games, and Data Science* (pp. 135-148).

www.irma-international.org/chapter/enhancing-wireless-signal-quality-through-data-driven-signal-processing-in-noisy-communication-channels/380931

Towards a Role-Playing Game Procedural Dungeon Generation Strategy to Help Developing Working Skills

Esteban A. Durán-Yañez, Mario A. Rodríguez-Díaz and César A. López-Luévano (2023). *Research Anthology on Game Design, Development, Usage, and Social Impact* (pp. 944-965).

www.irma-international.org/chapter/towards-a-role-playing-game-procedural-dungeon-generation-strategy-to-help-developing-working-skills/315523