

Chapter 9

Educational Games: Moving from Theory to Practice

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ABSTRACT

This chapter describes and analyzes the design and development of an educational game, Contagion. In this account, we examine how knowledge is constructed through character selection, art, narrative, goals, and activity structures within the game, and attempt to show how those inter-related elements are mobilized to create an educational experience.

INTRODUCTION

In the spring of 2004, a small team of researchers, graduate students and college co-op students in Toronto and Vancouver¹ set to work developing an educationally-focused web-based game, *Contagion*. Not having many precedents for what a game about contagious disease might look like, we sought to create a game world “just real enough” in its invocations and analogies of what we witnessed first during the 2003 SARS crisis in Toronto, what we know already of the ongoing HIV/AIDS epidemic, and what we saw during the emergence of avian flu: fear and mistrust towards at risk populations, governments seemingly acting in the interests of

their own self-preservation, and the tragic confluence of contagion and poverty.

This chapter charts our process of designing a game that, in attempting to engage players with these themes, departs from conventional approaches to deploying digital play for educative purposes. These varied approaches include articulating the ways classroom-based pedagogy can learn from commercial games (Gee, 2003), conceptualizing and building educational resources that play like commercial games but follow the disciplinary structures of formal schooling (Rieber, 1996; Woods et al., 2005), and framing commercial games as inherently educational, and arguing for their use in the classroom (Squire, 2004; Steinkuehler, 2004, 2006). After briefly sketching out these theoretical positions, we describe our own alternative, design-based approach

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to making and understanding digital play-based learning, one in which we have tried to mobilize our early theoretical work with educational gaming (de Castell & Jenson, 2003) to recover the classical connections between play and learning. We have done so through carefully tacking between educational and commercial game design traditions, while trying to avoid the pitfalls of both: on the one side, a conceptualization of learning as the delivery of quantifiable and testable content; and on the other, an over-reliance on formulaic violence and predictably misogynistic, racist, and homophobic representational modes.

The result is a bricolage of game mechanics, art styles, and environments in which content is both everywhere and nowhere, in so far as we have largely avoided framing the game's learning outcomes in propositional terms, but have instead tried to infuse educationally-valuable knowledge throughout all aspects of the game. We explore each of these aspects (character selection, art, narrative, goals, and activity structures) in turn to demonstrate how knowledge is constructed through these inter-related elements. The account we give is not intended as an exhaustive, or even particularly coherent, program for educational game development; rather, it should be read as a provisional coming to terms with sets of questions that have arisen for us in the very practical work of designing an educational game.

GAMES IN EDUCATION

Perhaps most prominent among educational theorists currently working on the educative possibilities of digital play is Jim Gee, whose approach is most fully available in his 2003 book, *What Videogames Have to Teach Us About Literacy and Learning* (Gee, 2003). Gee cites the great divide between the slow, painful, fragmented, decontextualized, and often unsuccessful, approaches to teaching reading and comprehension which define daily life in far too many schools

and classrooms, and the pleasure-filled, engaged, and astonishingly sophisticated reading and comprehension of complex information which characterizes children's participation with videogames. Gee isn't asking how we can get games into classrooms, but rather what kinds of pedagogy can we extrapolate from studies of how videogames teach and players learn.

Gee's approach is very different from that initially articulated by Lloyd Rieber, in an article called "Seriously Considering Play" (1996), and enacted recently in educational game design projects by Kurt Squire (2004) and Henry Jenkins (2004). Their work, heading up the Education Arcade (<http://www.educationarcade.org>), as well as work by research teams at Carleton University (Woods et al., 2005) and the University of Minnesota (Berger, 2006), follows conventional disciplinary structures in designing and developing educational games, often by infusing modifiable commercial games (such as *Neverwinter Nights*®) with deliberately educative content. The results are games that look and play like commercial games, but cover the curriculum in traditional school subjects.

A third trajectory is one that seeks to identify educational value and significance in the (mostly commercial, mostly entertainment-oriented) games that children and young adults already play. Constance Steinkuehler (2004, 2006) looks primarily to the online, networked play of massively multiplayer online games (MMOGs), contending that the informal, apprenticeship-based and spontaneous learning opportunities that arise when playing MMOGs such as *World of Warcraft*® are more relevant to post-industrial workplaces and vocations than the didactic culture of schooling found in most classrooms (Steinkuehler, 2006). Commercial games, particularly those that allow for direct forms of player-to-player interaction, offer opportunities to learn, master, and in turn instruct other players in the complex social and cognitive skills required for successful play. From this perspective, the problem might be first to get

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