

## Chapter 43

# Social Studies Education Game Development as an Undergraduate Immersive Learning Experience

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### ABSTRACT

*The authors describe a model for involving multidisciplinary teams of students in history education game development, focusing on the process as a learning experience. This is described in the context of immersive learning, a model for higher education that emphasizes interdisciplinary problem-solving through creative artifacts. The students involved in this multi-semester experience explored emerging theories of interactive entertainment and learning, diverging from traditional educational game designs to explore why people play games at all, the impact of design decisions on fun, and how to harness this insight to create games that are both fun and educational. The student team worked with educators and historians to create a game that would incorporate Civil War content involving the John Hunt Morgan Raid across Indiana. The game had to fit educational constructs and constrictions. Suggestions for future research and conclusions based on this experience are provided.*

### INTRODUCTION

While digital educational games are a recent invention, games have always been used to promote learning. One can consider, for example, the development of Chess and Go as games that

teach geometric reasoning and military strategy (Vale 2001, Bosulich 2001) or the arithmetic and social lessons of Oware (Hanson 2003). However, the learning is more abstract, at the level of pattern recognition and processing: few contemporary Grandmasters engage in games of Chess in preparation for leading armies on the

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battlefield. The fun of Chess and similar games arises not just from mastery of patterns, but also from competitive play against similarly-skilled opponents—an escalating balance of skill and challenge. The question of what games actually teach is a significant one. Designing games specifically for educational outcomes is a further complication, as educational assessment is challenging enough in itself. Yet, evidence points to the fact that fun and learning are intrinsically connected, even if they are challenging or impossible to tease apart (Klopfer *et al.* 2009).

Combining disciplinary traditions of computer science, history, game design, and education, we designed a multi-semester immersive learning experience in which students developed a social studies educational game. The inspiration for this work came from two observations. The first is that students can effectively learn from interdisciplinary game development experiences (Gestwicki *et al.* 2008). The second is that the conventional coverage of Indiana's Civil War History in the fourth grade does not motivate students to understand history, which involves appreciating the context and considering multiple perspectives. This inspired a multidisciplinary collaboration to develop a game that is legitimately fun for the player and that produces positive learning outcomes relevant to local history.

Our approach involved constant attention to the synergy of fun and learning, never giving one preference over the other but rather discovering how they influence each other. Once the game sacrifices fun for ostensibly higher goals, it becomes yet another form of work rather than play. That is, the benefits of play are lost (Huizinga 1971). Our approach was based instead on the theories of game designer and ludologist Raph Koster, who posits that fun and learning are intrinsically connected: his theory of fun states that fun emerges from the mind's desire for pattern-matching and problem-solving (Koster 2004). This theory is supported by Csikszentmihalyi's (1990, 1996) psychological research on flow, which in games

arises from the balance and progression of challenge against skill.

If we accept Koster's theory, then the primary challenge of educational game design is to match the play-induced learning with pedagogic objectives. This challenge is articulated by Klopfer *et al.* (2009) in their criteria for moving learning games forward as putting "learning and game play first" and finding "the game in the content." In many traditional games, including sports, board games, and politics, the lessons learned are neither pedagogically relevant nor socially responsible: these include xenophobia, blind obedience to leaders, binary thinking, rigid hierarchies, and the use of force to solve problems. While many of these traits were instrumental in the evolution of mankind, they are not the lessons of the 21st century (see Pink 2005, for example).

In this chapter, we describe how we incorporate modern theories of fun and learning with best practices in game design and development within the context of immersive learning. The primary goal of this chapter is to demonstrate how serious game development can be undertaken with a multidisciplinary team of undergraduates. We describe the design considerations and development processes, with particular attention paid to methodologies and both student and faculty evaluation of the experiences.

## **BACKGROUND**

### **Immersive Learning**

This project is contextualized as *immersive learning*, which is a constructivist model for learning experience design that is founded in educational best-practices (Ball State University 2011). An immersive learning experience:

1. Carries academic credit;
2. Is student-driven and faculty-mentored;
3. Is product-oriented;

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