Chapter LVIII
The Design, Play, and Experience Framework

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ABSTRACT

This chapter introduces a framework for the design of serious games for learning, called the design, play, and experience framework. The author argues that the great potential of serious games will not be realized without a formal design approach. To that end, the author presents and thoroughly explains the design, play, and experience framework which provides a formal approach to designing the learning, storytelling, game play, user experience, and technology components of a serious game. The author concludes by detailing how the framework provides a common language to discuss serious game design, a methodology to analyze a design, and a process to design a serious game for learning.

INTRODUCTION

The *serious games movement* asserts that the game medium can serve many functions, and a sole focus on entertainment significantly undersells its potential (Jenkins, 2006). Serious games have a purpose beyond entertainment, including (but not limited to) learning, health, advertising, and social change (Prensky, 2001; Sawyer, 2002). Some serious games are thought to provide *stealth learning* as players are focused not on learning but on playing (Shreve, 2005).

Serious game design is a relatively new discipline. As such, there is a lack of a common language and a lack of standard practices for designing serious games. To date, serious game development teams have utilized a diverse mix of game design and instructional design methodologies to help realize their designs, but often without a unifying framework to bring these diverse perspectives together. This chapter describes a unifying framework to help serious game development teams achieve their full potential.

BACKGROUND

While learning through play is not a new concept (Dewey, 1916; Malone, 1981; Papert, 1998; Piaget, 1951), increasing technical and aesthetic sophistication, and growing popularity of commercial digital games across diverse demographics (ESA, 2006), have attracted a rebirth of interest on the part of scholars and teachers to create new and improved games for learning (Van Eck, 2006). Evidence of perceptual, cognitive, and social benefits of playing games is growing (e.g., Gee, 2003, 2005; Johnson, 2005; Kierrimuir & McFarlane, 2004; Lieberman, 2006; Ritterfeld, Weber, Fernandes, & Vorderer, 2004; Shaffer, 2006). Linguist and learning scholar James Gee (2003, 2005) believes that games are enjoyable because of learning—they present just the right amount of challenge, support, and feedback, progressively rewarding mastery with new challenges. This experience parallels other known optimal states of happiness, or *flow* (Csikszentmihalyi, 1990).

The structure of games mirrors good pedagogy, offering progressive problem solving and scaffolded learning. Van Eck (2006) demonstrates that games embody all phases of Gagne's (1985) Nine Events of Instruction (events that activate processes needed for effective learning). These events are: gain attention, inform learner of objectives, stimulate recall of prior learning, present stimulus material, provide learner guidance, elicit performance, provide feedback, assess performance, and enhance retention and transfer.

Games excel where traditional in-person classroom training and online Web-based training fall short. Most notably, games are effective at engaging students and making them an active participant in their education process. Among education scholars, this is referred to as active learning. Active learning is a form of constructivism, based on a student-center model of instruction (Svinicki, 1999). Active learning assumes the student must be active in the construction of his or her own knowledge, what Dewey (1916) referred to as learning by doing, rather than a passive recipient of information. Active learning has been shown to promote better recall, enjoyment, and understanding than traditional instructional techniques, such as lecturing (Gibbs, 1992; Mujis & Reynolds, 2001; Petty, 2004) and is the cornerstone of other progressive pedagogy, including problem-based learning and collaborative learning.

Communication and education scholar Deborah Lieberman (2006) lists eight learning benefits of games:

- Games provide the player with an active experience.
- Games encourage the player to learn by doing.
- Games are a social medium providing the player with human-to-human like interactions and emotional responses.
- Games are participatory by providing the player with customized, rapid feedback.
- Games are engaging. Participation makes the player pay close attention. It demands thoughtful planning and decision making. It demands learning in order to succeed (if you don't learn, then you can't succeed).
- Games promote behavioral learning. The game gives the player rewards for behavior (points, power, rank, and so forth). This positive feedback in the game can encourage desired behaviors in real life.
- Games offer consequences. These are not abstract or hypothetical; they are represented in the game directly. The player plays a character and identifies with him or her. Success and failure map directly to the player's actions; one's ego and self-image are invested in the experience.
- Games provide role models for the player. The player can learn from the game characters and understand their behavioral experiences.

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