Chapter 2.16

Bridging Game Development and Instructional Design

James Belanich
U.S. Army Research Institute for the Behavioral Social Sciences, USA

Karin A. Orvis
Old Dominion University, USA

Daniel B. Horn
U.S. Army Research Institute for the Behavioral Social Sciences, USA

Jennifer L. Solberg
U.S. Army Research Institute for the Behavioral Social Sciences, USA

ABSTRACT

Instructional video game development is occurring in both the commercial game development and the instructional design/development communities, but regularly in isolation from one another. While many proclaim that game-based learning offers an instructional revolution, the empirical results on instructional effectiveness have been mixed. These mixed findings may be due to the contrasting approaches utilized within these two communities. These communities differ with respect to prioritizing goals and design/development processes. However, the creation of an effective instructional video game—one that both motivates and teaches—is dependent on the successful partnering of these communities. Accordingly, this chapter elucidates the commonalities and differences in the development goals and approaches of these communities and discusses how best practices of each community should be blended for optimal instructional video game design. This chapter also includes relevant experiences from an instructional PC-video game development project, illustrating challenges faced

and new opportunities afforded via a collaborative development effort.

INTRODUCTION

With traditional instructional methods, such as formal classroom instruction, one fundamental challenge can be motivating students to fully engage in the instructional content. PC-based instructional video games have become an increasingly popular instructional medium, as many proclaim that video games engage and motivate learners in ways that traditional instruction hasn't in the past (Gee, 2003; Herz & Macedonia, 2002; Prensky, 2001). Further, some proponents of instructional video games suggest that today's learners (and game-players) are wired differently than learners of the past, and that game-based learning leverages this difference, capturing their motivation to learn (e.g., Prensky, 2001).

While many assert that game-based learning offers a new revolution in instruction (Gee, 2003; Herz & Macedonia, 2002; Prensky, 2001), the empirical results concerning its effectiveness with respect to student knowledge acquisition and retention have been mixed to date (Hays, 2005). Thus, utilizing this engaging medium may help alleviate the concern of low student motivation; however, motivation alone is not a sufficient condition for learning. This suggests that the important question for instructional game developers is not whether a learner is fully engaged in game play; rather, is the "engaged" learner actually learning the instructional objectives embedded in the video game or merely playing the game? In short, both student motivation and pedagogical structure are necessary determinants of the effectiveness of instructional video games.

The development of instructional video games represents new territory. Experts in the instructional design/training development community have typically developed tools used for instruction, while commercial game development experts have mastered the development of video games for entertainment purposes. Video games designed specifically for instructional purposes represent a gray area, with training game development occurring in both communities but many times in isolation from one another.

It is possible that the demonstrated mixed effectiveness of instructional video games (e.g., Beal, 2005; Hays, 2005) can be attributed to the contrasting approaches utilized within these two communities. Many believe that the commercial game development and instructional design/training development communities differ greatly with respect to their fundamental goals (i.e., entertainment versus learning) and processes involved in design/development (i.e., game development versus instructional design processes).

The creation of an effective instructional video game—a game that motivates and also successfully teaches the intended instructional objectives—is dependent on the successful partnering of these two communities. While these communities may hold different goals or definitions of a successful development initiative, these goals are not incompatible. Further, while on the surface these communities may appear to utilize unique design/development approaches, these two communities actually embrace complementary approaches. Accordingly, the purpose of this chapter is to elucidate the commonalities and differences in the development goals and approaches of these two communities, and discuss how the best practices of each community should be blended for optimal instructional video game design.

The remainder of the chapter is organized as follows. First, the overarching development goals of both game developers and instructional designers are described. This includes how these goals differ, as well as overlap. Next, is a description of the different developmental processes that game developers and instructional designers are likely to follow in product development. Again, differences and similarities in the product development processes of both communities are highlighted.

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/bridging-game-development-instructional-design/51834

Related Content

Key Success Factors in an Online English Learning Environment From Tertiary Learners' Perspectives
Atima Kaewsa-ard (2022). *International Journal of Online Pedagogy and Course Design (pp. 1-15).*
www.irma-international.org/article/key-success-factors-in-an-online-english-learning-environment-from-tertiary-learners-perspectives/311436

Leading Pedagogical Change with Innovative Web Tools and Social Media
Catherine McLoughlin (2012). *Encyclopedia of E-Leadership, Counseling and Training (pp. 1-11).*
www.irma-international.org/chapter/leading-pedagogical-change-innovative-web/58423

Iterative Design and Evaluation of a Web-Based Experimentation Environment
Anh Vu Nguyen-Ngoc, Yassin Rekikand Denis Gillet (2007). *User-Centered Design of Online Learning Communities (pp. 286-313).*
www.irma-international.org/chapter/iterative-design-evaluation-web-based/30666

Delivering Integrated Early Childhood Education and Development Through Family in Focus: A South African Case
Ndwakhulu Stephen Tshishonga (2020). *International Perspectives on Modern Developments in Early Childhood Education (pp. 233-250).*
www.irma-international.org/chapter/delivering-integrated-early-childhood-education-and-development-through-family-in-focus/255235

A Challenge for the Flipped Classroom: Addressing Spatial Divides
Russell G. Carpenter, Charlie Sweet, Hal Blythe, Rachel Winterand Adam Bunnell (2015). *Implementation and Critical Assessment of the Flipped Classroom Experience (pp. 139-156).*
www.irma-international.org/chapter/a-challenge-for-the-flipped-classroom/123927