Chapter 12
Modding and Rezzing in Games and Virtual Environments for Education

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ABSTRACT
Creating new resources in computer games and virtual worlds by modification – also known as modding and rezzing, respectively – is a popular pastime activity of the new generation of learners. Educators need to understand the potentials of these activities for education, and to possibly integrate some of them into school curricula. This chapter provides an overview of the modification process to create new resources within a virtual environment (both games and virtual worlds). It examines the differences in the modification process between game worlds and virtual worlds, and offers practical considerations for using the activities in teaching and instruction.

INTRODUCTION
In this (post-)modern age, the Internet has become a venue for self-expression. Many online “venues,” such as Blogger, Twitter, Second Life (SL), World of Warcraft (WoW), and YouTube, not only allow their users to express themselves in terms of thoughts, words, and actions but their business models depend on user-created and submitted materials in order to work. Despite their claims to be “online social services,” Blogger, Craig’s List, and Twitter are in effect World Wide Web (WWW) environments, or “spaces” that facilitate the establishment of virtual communities and online communications among them.

Specialized environments such as SL and WoW pushed the idea of community building even further by allowing their members to interact among virtual personifications of themselves (in the form of customizable avatars) within a traversable (virtual) environment. While the idea of a traversable three dimensional (3D) Internet might appear rather innovative to most users, it was not so for computer game players, who had experienced virtual environments (albeit a much simpler version), since the days of Pong and Space Commander.
Increasingly, social services, such as YouTube and Second Life, have become so dependent on user-created materials, without which, the continuous existence of the sites could be at stake. Not surprisingly, user-created materials were prevalent in online and console games also. For example, the award winning LittleBigPlanet (for Sony PlayStation 3) allowed players to manipulate simple geometric shapes into more complex objects, and to modify or re-use these user-created objects for the construction of new game levels as peer-to-peer challenges. Serving as a virtual canvas, the online Blueprint Creator (available at http://www.littlebigworkshop.com/en-us/Tools/Blueprint) allowed players to put down their creative thoughts before trying to design new levels within the LittleBigPlanet online world.

Unlike the majority of the digital games in which players interacted with developer-made contents, the idea of: (1) allowing players to create new contents as a new way of ‘play,’ and (2) reusing the created contents for play by other players, was truly revolutionary. The levels of creativity and innovation skills, as well as information and communication technology literacy shown were all part of the 21st century skills that were deemed highly desirable in tomorrow’s education (Partnership for 21st Century Skills, 2006; available at http://www.21stcenturyskills.org). Educators and pundits alike have suggested that game modification could well become the new mode of learning in the future (see Becker & Parker, 2005; Gee, 2008; Prensky, 2001, 2008). Given the history of game modification among the gamers’ community, this is not surprising at all.

GAME MODIFICATION

The origin of game modification could be traced back to 1998, when the U.S. Marines first modified a commercial off-the-shelf (COTS) video game into a training game (from Doom to MarineDoom) (McLeroy, 2008). Over the years, game modification had grown to be another reason for buying/owning video games. Over the next few years, many video game modules have been constructed and distributed by gamers through various online channels. However, not all game modules were sanctioned by the game publishers; some might even be illegal (one example being the infamous Coffee Mod of Grand Theft Auto IV).

On the other hand, many game publishers were eager to support, and even encourage, the game modification process. A publisher’s expressed support of the game modification process would usually be found in the form of a game development toolkit (GDK) that was distributed together with the game. Because GDKs were game specific, anyone interested in learning the game modification process had to tackle the game (and its corresponding GDK) on a one-to-one basis. Hence, the number of game modules available could be taken as an indicator for the size of the game modification community. By far, the largest game modification community was the Neverwinter Nights group, which has made available more than 5000 game modules since the game debuted in 2002.

The game modification process was a win-win situation for many parties involved. Researchers and educators have been known to take advantage of the GDKs in creating test-beds for innovative research (Gorniak & Roy, 2005; Loh & Byun, 2009; Young & Nguyen, 2009), and in experimenting with new instructional approaches (Berger, 2006; Kafai, 2006; Squire, 2004). The game publishers benefitted directly from it because every module released by the user community would help to extend the shelf-life and sales of the product. Last but not least, gamers were delighted with the process because, not only could they customize the games to fit their gaming needs, they could further boast about their role as game designers.

Machinima

The debut of YouTube (http://www.youtube.com) in recent years has provided many independent