

## Chapter 8

# Digital Games: Are They the Future of E-Learning Environments?

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### ABSTRACT

*Digital games and simulations are playing an important role in younger generations' lives. Their adoption to e-Learning environments, however, is rather slow because educators are reluctant to change the way they teach. This chapter starts with a brief discussion of game and simulation terminology, including serious games, game-based learning, and game genres. It continues with a review of the current status of educational games and simulations being used in higher education institutions. Important case studies are provided to present examples to the higher education faculty. Finally, a discussion of teaching strategies, instructional design processes, and assessment issues for effective digital game incorporation in e-Learning is included.*

### INTRODUCTION

Games are defined as “organized play” (Prensky, 2001, p.119), or “a competitive activity that is creative and enjoyable in its essence, which is bounded by certain rules and requires certain skills” (Akilli, 2006, p. 4). Gee (2007b) argued

about the importance of video games as “action-and-goal-directed preparations for, and simulations of, embodied experience” (p. 26). Currently, there are many different game platforms (computer games; console games such as Xbox, PlayStation, Nintendo or Wii; or games played on mobile devices); forms (single-player; multi-player; massively multiplayer games) and game genres (first-shooter; strategy, turn-based, etc).

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In addition, there are numerous terms related to games and simulations, such as core games, casual games, video games, and many acronyms, such as alternative reality games (ARGs), massively-multiplayer online games (MMOG), etc.

If we ignore all the differences and varieties in the gaming literature, we can focus on some of the common traits shared by all games. One of these traits is *goal* or *purpose*. Goal is what gamers will achieve at the end of playing a game. This end goal keeps players attentive and active participants throughout the game play. The second trait is *rules*. This trait can also be defined as the game play and it refers to what players can do and how they can do to achieve a game's purpose. The third trait is *feedback*, where players get immediate information about their progress in a game. This may be expressed in points, levels or verbal feedback. The last trait that can be found in every game is *voluntary participation*. It refers to the players' willingness to participate or quit the game anytime they want. It also refers to willingness to accept the gameplay -goal, rules and feedback system (McGonigal, 2011).

What makes games so attractive to younger generations? Why has almost every child in the country played at least one game regularly before graduating high school? While it is very difficult to get younger generations' attention for traditional academic disciplines, why can they play hours of games without even a single complaint? How will these developments in the digital gaming world affect future of e-Learning practices? Will games and game-based learning replace traditional e-Learning courses or are game-based learning and e-Learning represent a natural partnership?

This chapter seeks answers to these questions. It is the author's hope that this information will benefit the e-Learning faculty and enable them to catch up with the latest developments in educational gaming, make learning a fun, engaging and interactive activity. To do this, a basis for discussion will be provided by reviewing the current status of educational games and simulations in

higher education e-Learning environments. This discussion will also include interactive teaching strategies along with examples from various e-Learning or hybrid courses. It will then discuss learning outcome and content, teaching strategies, instructional design processes, and assessment issues which will lay the groundwork for a successful implementation plan. Finally, the chapter will discuss recommendations for educators who are planning to use games in their online courses.

This chapter will use three of the gaming terms: serious games, game-based learning and digital games. Michael and Chen (2006) define *serious games* as "games that do not have entertainment, enjoyment, or fun as their primary purpose" (p.21). In other words, serious games can be entertaining but this is not their main purpose. They are used in education, military, health care, religion, politics, and many other industries. *Game-based learning* is considered a branch of serious games that refers to the learning outcomes that are achieved through games. Johnson, Levine, Smith & Stone (2010) predict that game-based learning will be prevalent in schools in two to three years, because it "has tremendous potential to transform education, and includes open-ended, challenge-based, truly collaborative games" (para.11). Johnson et al. also emphasize that "games, which occur in both massively multiplayer online (MMO) and non-digital forms, can draw on skills for research, writing, collaboration, problem-solving, public speaking, leadership, digital literacy, and media-making" (para.11). The third term that is used in this chapter is *digital games*, which are games played on computers.

## DIGITAL GAME GENRES

*Gameplay* or *game mechanics* refer to the interactive elements within a game. This includes player's interaction with the plot, game's rules and structures. Depending on the gameplay characteristics, games are categorized under game

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