

## Chapter 9

# Utilizing Digital Educational Games to Enhance Adult Learning

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### ABSTRACT

*As adult educators, we strive to facilitate learning using a variety of teaching strategies that engage learners. Learning by doing is a powerful method that combines both application and practice to address the needs and motivations of adult learners. Digital educational games provide one type of an engaging instructional strategy for adult learners that can be delivered in both synchronous and asynchronous learning environments. Digital educational games are not something new, however, as they were developed soon after the first computer games (Wolfe & Crookall, 1998). Additionally, game-based educating has been used in many adult learning contexts, including the corporate environment to train staff in financial and economic skills, and in the military system for combat and strategy training (Whitton & Hollins, 2008). Despite these successful applications, there is a lack of recognition of digital educational games as a significant instructional method for the adult learner (Connolly, Boyle, MacArthur, Hainey, & Boyle, 2012; Gros, 2007). In this chapter, we review the research literature on adult learning via games in terms of learner motivation and engagement, specifically focusing on adult learning in the online environment. We will define key terms and essential characteristics of educational games, share best practices for developing and designing engaging educational games as an instructional strategy, and discuss the types of learning outcomes that can be achieved through the use of effective educational games, concentrating on adult learners in the online environment.*

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## **INTRODUCTION**

As adult educators, we strive to facilitate learning using a variety of teaching strategies that engage learners. Learning by doing is a powerful method that combines both application and practice to address the needs and motivations of adult learners. Digital educational games provide one type of engaging instructional strategy for adult learners that can be delivered in both synchronous and asynchronous learning environments. Digital educational games are not new, however, as they were developed soon after the first computer games (Wolfe & Crookall, 1998). Additionally, game-based education has been used in many adult learning contexts, including the corporate environment to train staff in financial and economic skills, and in the military system for combat and strategy training (Whitton & Hollins, 2008). Despite these successful applications, there is a lack of recognition of digital educational games as a significant instructional method for the adult learner (Connolly, Boyle, MacArthur, Hainey, & Boyle, 2012; Gros, 2007).

Research studies have noted for both adults and children that playing games has a powerful influence on learning, and can promote engagement and mastery of developmental tasks (Colarusso, 1993; Gros, 2007; Rieber, 1996; Whitton, 2007). Games can provide learners with the opportunity to practice and explore within the confines of a safe environment, as well as provide them with a variety of skills related to strategy, power and decision-making (Koster, 2005). As a result, using games to teach can be motivating for both adults and children (Becker, 2001; Grice & Strianese, 2000; Kirriemuir & Mcfarlane, 2004; Oblinger, 2004; Prensky, 2007; Trollip & Alessi, 2001; Whitton, 2007; Whitton, 2011) but it is important to recognize that not all types of games will motivate all learners in all learning context. Understanding motivation in relation to games is nuanced and complex; different genres of game can engage learners in different ways, and have different benefits and affordances for learning.

Assessment studies of educational based games have primarily focused on leisure-based games. While such studies are informative, the underlying game objectives limit them as effective evaluation methods of learning outcomes from game-based learning or for their use in the online environment (Gee, 2003; Prensky, 2001; Squire, 2002).

Whitton (2007) noted that “computer games have the potential to transform the way in which students learn, and motivate and engage a new generation of learners in a way that traditional education does not” (p. 1063). Similarly, Oblinger (2004) concluded that “Games also offer advantages in terms of motivation; oftentimes students are motivated to learn material (e.g., mythology or math) when it is required for successful game play – that same material might otherwise be considered tedious” (p. 13). Although games can intrinsically motivate some learners (Trollip & Alessi, 2001; Kirriemuir & Mcfarlane, 2004; Oblinger, 2004; Prensky, 2001), others may regard playing games as a waste of time or inappropriate for academic learning (Gee, 2003). Additionally, some research shows that older learners who have less time and are more strategic in their learning aspirations may not find educational games motivating (Knowles, Holton, & Swanson, 2014; Whitton, 2007; Whitton, 2011; Wlodkowski, 2011). While these concerns are valid and must be addressed when educational gaming is employed, the reality is that computer-to-human interfaces designed for learning are being developed at an exponential rate and are now part of daily life for many adults.

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