

Chapter XXVI

Developing a Serious Game for Police Training

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ABSTRACT

The design of serious games based on sound learning and instructional principles is important to ensure learning is integrated in the 'game-play'. However, the process of achieving this is not yet fully understood, and research is hampered by the lack of practical demonstrations of how effective instructional design is when used alongside game design. This chapter provides an example of a successful application of instructional design to the development process of a serious game for traffic accident investigators in the Dubai police force. We use the findings from an experiment conducted for 56 police officers to analyze how learning objects are affected by the instructional principles used. To conclude the chapter, we describe the implications of the use of serious games in the police force for policymakers, educators, and researchers.

INTRODUCTION

Battlezone, which was used for military training in the 1980s, and *The Colony*, a first-person space survival game created in 1988 (Stone, 2005) are early examples of the use of serious games for learning. More recently, the growth of interest in serious games has accelerated, with the U.S. Department of Defense (DOD) showing a keen interest in video game technology (Zyda & Sheehan, 1997; Keller-McNulty et al., 2006), and with initiatives such as the Serious Games Initiative, the International Simulation & Gaming Association (ISAGA), the North American Simulation and Gaming Association (NASAGA), the Education Arcade, the Games-to-Teach Project, Game Research, Social Impact Games, and the UK Serious Games Alliance.

While there is a lot of interest in serious games, the term itself is variously used. In defining what a serious game is, the Serious Games Initiative focused on the link between games companies and projects involving the use of games, for example in education (Stokes, 2005). Indeed, computer game companies nowadays see serious games as an extra activity that is commercially viable and makes use of their existing expertise. However, this linkage with games companies is conceptually too narrow, although most definitions do agree that serious games involve the use of gaming technology, albeit for purposes more than entertainment (Susi, Johannesson, & Backlund, 2007). Any definition of the term *serious game* is fogged by the overlap between areas such as e-learning, edutainment, game-based learning, and digital game-based learning.

One factor in this overlap is the technology transfer between the games industry and the simulation industry, which makes it difficult to distinguish games, simulations, and serious games (Narayanasamy, Wong, Fung, & Rai, 2006). Some researchers, like Narayanasamy et al. (2006), propose a set of design characteristics that can be used to distinguish between these

fields. Others recommend looking at the differences between games and simulation based on three distinct elements—*simulation elements*, *game elements*, and *pedagogical elements*—to avoid being tied up in a Gideon knot (Aldrich, 2005). We will focus on these three distinct elements in more detail later in the chapter. For now, we note that, generally, the term *serious game* is loosely perceived as applying to many domains such as education, training, and simulation (Zyda, 2005). For the purposes of this chapter only, we will consider the term *serious game* as referring to the use of a training simulation to replicate a real experience in a virtual environment in order to facilitate the learning of knowledge and skills. We call this virtual experience the game-play, which represents the player's experience when interacting with the game.

The power of serious games stems from the fact that they build on the power of computer games, which in turn build on the power of games. Each of these mediums has been shown to be effective at transferring learning across a wide skill range, although the benefits across different domains vary. For instance, military usage of serious games has reached a point where the military is described as a “true believer” (Prensky, 2001). Indeed, most of the serious games are found in the military and also most of the investment. Examples include training for rifle range and obstacles courses (Zyda, 2005; Harz, 2006), and leadership and tactical experience (Beal, 2004). Besides the military, healthcare has seen benefits from using serious games, with examples such as use in therapy (Re-Mission, 2006; Stapleton, 2005) and training procedural skills (Hoffman, 2006; Russell, 2005). A ‘games for health’ conference is now held annually. The education domain has also reported the benefits of using serious games in teaching physics (Jenkins, Klopfer, & Squire, 2003; Stapleton, 2005), mathematics (Elliott & Bruckman, 2002), and history (Jenkins et al., 2003).

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