Chapter 6
Serious Games as Positive Technologies

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ABSTRACT

Serious games are growing rapidly both as an industry and a field of academic research. They have been able to shape new opportunities for individual and collective learning and training, showing a discrete effectiveness. Further, serious games have been capable of supporting health and well-being. That is why they can be considered as positive technologies. Positive Technology is an emergent field whose goal is to investigate how Information and Communication Technologies (ICTs) can be used to empower the quality of personal experience The aim of the present chapter is to discuss the role of serious games as positive technology, analyzing how they can influence both individual and interpersonal experiences by fostering positive emotions, promoting engagement, as well as enhancing social integration and connectedness.

INTRODUCTION

Serious games are digital games used for purposes other than mere entertainment. Since their infancy in the late 1990s, they have found important applications in different areas, such as education, industry, architecture, engineering, military and medicine, acquiring a prominent role in the actual knowledge society (Bergeron, 2006; Ritterfeld, Cody, & Vorderer, 2009). By fostering continuous learning experiences blended with ludic and engaging affordances, serious games have in fact been able to shape new opportunities for individual and collective learning and training, showing a discrete effectiveness (Connolly, Boyle, MacArthur, Hainey, & Boyle, 2012; Girard, Ecalle, & Magnan, 2013; Wouters, van Nimwegen, van Oostendorp, & van der Spek, 2013).

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In particular, serious games have provided successful answers to two specific challenges of education and training in the 21st century (Bekebrede, Warmelink, & Mayer, 2011; Prensky, 2003): (a) the presence of a new generation of learners and trainees grown up in a fully digitalized society and (b) the need for a more engaging and motivating way of imparting skills, knowledge, or attitude that can be used in the real world (Bergeron, 2006).

Further, serious games have been capable of supporting wellness and promoting positive emotions. That is why they can be considered as "positive technologies" (Argenton, Triberti, Serino, Muzio, & Riva, 2014). Positive Technology is an emergent field based on both theoretical and applied research, whose goal is to investigate how Information and Communication Technologies (ICTs) can be used to empower the quality of personal experience (Botella et al., 2012; Riva, Baños, Botella, Wiederhold, & Gaggioli, 2012; Wiederhold & Riva, 2012). Based on Positive Psychology theoretical framework (Seligman & Csikszentmihalyi, 2000), Positive Technology approach claims that technology can increase emotional, psychological and social well-being. This assumption opens a totally new perspective in the traditional digital gaming literature that has deeply investigated the negative impact of gaming, with respect to violence (Anderson et al., 2003; Gentile & Anderson, 2003; Wouters et al., 2013), addiction (Van Rooij, Meerkerk, Schoenmakers, Griffiths, & van de Mheen, 2010; Van Rooij, Schoenmakers, Vermulst, Van Den Eijnden, & Van De Mheen, 2011) or social isolation (Colwell & Payne, 2000; Pezzeca, 2009).

The aim of the present chapter is to discuss the role of serious games as positive technology, analysing how they can influence both individual and interpersonal experiences by fostering positive emotions, promoting engagement, as well as enhancing social integration and connectedness. These aspects will be discussed with particular regard to the field of Engineering and Architecture Education.

Background

Positive Technology is the scientific and applied approach to the use of technology for improving well-being and the quality of personal experience (Botella et al., 2012). This approach is strongly based on Positive Psychology framework that emerged as the scientific study of positive personal experience, positive individual traits, and positive institutions (Seligman & Csikszentmihalyi, 2000; Seligman, 2003). By focusing on human strengths, healthy processes, and fulfillment, Positive Psychology aims to improve the quality of life, as well as to increase wellness, and resilience in individuals, organizations, and societies (Delle Fave, Massimini, & Bassi, 2011; Seligman, Steen, Park, & Peterson, 2005). Rather than representing a new formal sector or a new paradigm, Positive Psychology is a novel perspective to studying human behavior where the link with accurate and scientific methodological practices (Seligman et al., 2005) has become the engine of interventions to study and promote the optimal expression of thought, emotions and behaviors. In particular, Keyes and Lopez (2002) argued that positive functioning is a combination of three types of well-being: (i) hedonic or emotional well-being, (ii) eudaimonic or psychological well-being, and (iii) social well-being. This means that Positive Psychology is mainly focused on three characteristics of personal experience: affective quality, engagement/actualization, and connectedness.

Based on Positive Psychology assumptions, Positive Technologies can be used to manipulate the quality of human experience through its structuring, augmentation and/or replacement in order to generate well-being at these three key levels (Botella et al., 2012; Wiederhold & Riva, 2012). As a consequence, Positive Technologies can be classified as follow:

- **Hedonic Technologies:** Mood-altering devices, which use ICTs to induce positive and pleasant experiences;