

## Chapter 9

# An Overview on the Use of Serious Games in the Military Industry and Health

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### ABSTRACT

*For bringing together the capacity to inform, educate, and train their users through the interaction with the player and simulation environments very close to reality (in which the acquisition of new skills is the primary goal and fun to play secondary), serious games became the ideal tool for health applications and training military personnel as well as for improving their techniques. In this chapter, a general point of view is presented regarding the use of serious games in the military industry and health. Moreover, it also discusses what serious games are and in which areas they can be applied, which steps a serious game development involves, as well as which platforms and technologies can be used in its development. A description on successful military serious games is also provided, as well as the results of an interview with the psychologists of the Association “ENCONTRA-SE” (Oporto, Portugal) about the use of health serious games as a therapy for patients with mental illnesses.*

### INTRODUCTION TO SERIOUS GAMES

Serious games combine entertainment and the duty to inform players and educate through the game itself. This kind of games goes beyond the main idea of entertainment, and tries to input a need or a social message.

Serious game have been growing and developing by the need to create interactive and attractive scenarios, with low cost, using technologies from the entertainment industry. In this industry it is possible to find virtual reality being applied to serious games and creating new layers of learning. This association brings a huge potential to students, expanding their imagination and gather-

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ing information from them as players making the experience as an interactive thought.

This amusement and funny way to interact afford an opportunity to learn in such way that information will be easily retained. According to the American eLearning Guild, 50% of banks and financial companies and 35% of insurance companies use serious games to train and keep updated their employees. Other searches, according Fernando Chamis, Webcore Games's CEO, show that people only can remember 10% of what they read, 50% of what they see or heard, but they can remember 90% of what they have interacted (Fernando Chamis,2005).

In the last 30 years serious games have being making presence in our contemporaneous society and this industry has grown more than the cinema industry. In 2007, games industry was already a 41 billion dollars industry also because of the new mobile segment opened by mobile phones and small devices with the capability to connect to internet and use low resource operating systems. Portable and Wi-Fi connected devices are the most growing market in the last 5 years. According to the world game market statistic, this happens because hardware are able to deliver more and more powerful resources allowing the software to be more close to the reality (Zagalo et al., 2008). Large broad band internet access has also being wide granted allowing better and cheaper access. Other positive issue is the way this devices and games can be known, shared, downloaded or transported, commented and rated. It is currently possible in a easy way to convert games from different platforms, expanding their own market. Access to information in a game way is now an old barrier because it is possible to play truly everywhere.

## **EVOLUTION OF SERIOUS GAMES**

During the 80's Professor Seymour Papert from MIT gave a strong boost to serious games devel-

oping Logo languages and express on his book "Mind storms: Children, Computers and Powerful Ideas" that computers with strong calculation processors could help to expand students learning without physical limitations from the class room. Seymour also predicts that capability of large mathematical equations would grow in an extreme way, as it did (Seymour Papert,1980).

One of the major promoters was the US Army who since early invested in the creation and development of serious games, spending around 4 billion dollars a year in simulation equipment and war games (Alvarez et al., 2008). According to the Global Firepower website, the USA's army budget is at least equal to the sum of all the rest of world's armies. In 2010, the USA President Obama approved a 660 billion dollars budget for the army. This grows happened in the last year because military industries have become more stable and hardware performance became better especially in graphics where images are with a very good level of realism. Initially this kind of knowledge was confined to the military industry. Although, like most of technology that is developed by armies, later has been brought to civil society. So, opening and sharing military serious games with a commercial side has naturally gave another boost to them, has the commercial market responded very well obtaining a huge success around the world on games like Quake, Unreal and Half-life.

According to an IDATE study, a consulting and research company, this market should be with a 20% of grow in USA and worth a number between 7 and 9 thousands of million dollars. IDATE also believe that 600 million people are the current number of potential players of serious games and 40% of these players have an age over 24 (Alvarez et al., 2008).

During our research it was verified that nowadays serious games are present in a wide variety of society sectors (Figure 1) being the military defense, one of the major investors and developer.

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