

# Serious Games in Entrepreneurship Education

**Fernando Almeida**

*Polytechnic Institute of Gaya, Portugal*

**Jorge Simões**

*ISPGaya, Portugal*

## INTRODUCTION

Computer games are currently often used in different serious applications and especially in the terms of vocational education and training. In fact, serious games (SG) are used in a wide variety of areas, in several aspects of common life, such as for health, politics, advertising, project management, and virtual reality, amongst others. The intention of serious games is based on the idea to offer a balanced possibility for an authentic and amusing learning. Currently the teaching community is progressively discovering how game based learning supports the personalized trainings and gives new instruments for teaching basic key competences.

At the same time, one of the main challenges of educational programmes is to ensure that education delivers the right skills for the labor market and the growth of entrepreneurship, while delivering support to young people to secure their economic future and enable businesses to grow and create new jobs. Actually, entrepreneurship is considered as the most common powerful economic force across the globe (Gwija et al., 2014). Entrepreneurship education has the capability to benefit students from all socioeconomic backgrounds because it guides students to think outside the box and nurtures unconventional talents and skills. Furthermore, it fosters innovation, ensures social justice, encourages confidence and stimulates the economy.

Serious games may be considered powerful tools to sustain entrepreneurship in the context of the emerging paradigm of Technology Enhanced Learning (TEL). Serious games combine simultaneously instruction and gameplay, by challenging and involving players in motivating learning contexts. They also offer students a genuine “situated” learning experience and can concretely support the “learning by doing” approach, considering that simulations offer a more pragmatic experience and provide a safe environment in which immersive entrepreneurs could test their own business.

This study aims to identify and synthesize the main key benefits, but also challenges and issues, provided by the introduction of serious games in the learning process. For that, we initially perform a revision of literature in the field of simulations and serious games initiatives applied to entrepreneurship domain. In this context we briefly present and describe five serious games initiatives in entrepreneurship education. After that, we identified and discussed the main key benefits and challenges created by the introduction of serious games. Finally, we look for current and emergent future research directions and we draw the conclusions of our work.

## BACKGROUND

According to Belloti et al. (2014), entrepreneurship is “a personal skill and motivation which

draws a person to engage his abilities and efforts in the creation of new products and services". The European Commission defines entrepreneurship as "an individual's creative capacity, independently or within an organization, to identify an opportunity and to pursue it in order to produce new value or economic success" (Carvalho et al., 2012). Entrepreneurship education is often seen as a way to foster economic growth and to deal with economic crisis (Allegra, 2013). However, entrepreneurship education is often pointed as immature, not sufficiently integrated in schools curricula and not adequately addressed by national policies, particularly in European countries (Allegra et al., 2013; Belloti et al., 2014).

Today, digital technologies are part of most people lives, from the early childhood. Educators and corporate trainers did not ignore this reality and Information and Communication Technologies (ICT) are being used in education and training for several years with different approaches, including the use of games. Games have been used for a long time (Farber, 2015; Schifter, 2013) as a support for learning activities. In the last decades, the popularity of video games and the introduction of ICT in education and training gave rise to a trend known as Game-Based Learning (GBL). This trend deals with games that have defined learning outcomes. Within GBL, simulations and serious games have gained notoriety (Allegra et al. 2013; Bastos et al. 2012).

According to Kapp et al. (2014), simulations provide a cost-effective scenario for training tasks that would be costly and time intensive to set up in a real scenario. Simulations must be realistic, they should allow to practice behaviors and experience the impact of decisions. Simulations provide a safe and realistic environment to test and get feedback of those decisions.

SGs is a term usually used to designate games with educational purposes. The term was coined by Clark Abt who published the book "Serious Games" in 1970 (Farber, 2015). Abt, cited by Ulicsak & Wright (2010), defined serious games as games that "have an explicit and care-

fully thought-out educational purpose and are not intended to be played primarily for amusement. This does not mean that serious games are not, or should not be, entertaining". Other definitions can be found as the one proposed by Laamarti et al. (2014) which state that "serious game has the potential to enhance the user's experience through multimodal interaction. This can be in different contexts such as education, training, health, or interpersonal communication". In this definition a SG can be seen as an application composed by three components: experience, entertainment, and multimedia (Laamarti et al., 2014).

Simulations and serious games share common features (Kapp et al., 2014) and they often overlap. They both have story line, they can be competitive and they can keep some kind of score. But while games may not reflect reality, simulations must be realistic representations of the real world. Serious games in particular have been considered as powerful tools to support entrepreneurship education (Belloti et al., 2014; Bastos, 2012). Belloti et al. presented a comprehensive study with an overview of several serious games available and identified some key benefits regarding their adoption in entrepreneurship education. Some of the studied games were Hot Shot Business, SimVenture and Go Venture Any Business, detailed below, and used in three higher education case studies (Hauge et al., 2013).

To introduce students with the basic principles of entrepreneurship, Hot Shot Business<sup>1</sup>, a Flash game, allows students to open and run a simulated business and undertake the necessary actions to make it grow. Currently, users can choose to run a pet spa, a custom skate factory or a comic shop. Target users are teenager students but the game can also be used in higher education contexts. The game is a cartoon-like simulation, easy to use, available through a web browser with a high game speed suited for young users. Users choose the financing mode of their business, the resources they need and how to advertise the business. They get feedback through simple weekly financial reports to tune their activities and decisions. Hot

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