Serious Game to Enhance and Promote Youth Entrepreneurship

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Abstract Entrepreneurship constitutes a key driver providing jobs and wealth creation. Besides, promoting entrepreneurship can play significant role to ensure the prosperity of a society. In this respect our article aims to foster entrepreneurship education, through focusing on the effectiveness of serious games as educational tools, whose goal supporting young people to actively being entrepreneurs. In this paper, we unveil the entrepreneurial context notably at the national level, where we highlight the important role of entrepreneurship potential by presenting some initiatives. Moreover, we introduce the concept of serious games, as well as we outline some of their applications, but also their relation to entrepreneurship through an analysis of the existing. We conclude with a brief overview of our approach.

Keywords Entrepreneurial learning · Learning process · Serious games · Entrepreneurship education

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1 Introduction

Entrepreneurship, constitutes a main lever of local development, economic growth and social stability for a country, allows to enlarge and increase new employment opportunities which provide great business potential. Therefore, the majority of countries gave it great importance. Morocco, one of them, aligned in the same direction, owed on one hand to the constraints of the employment market (public and private) who is unable to satisfy all the needs of recruitment, whose number is in constant increase, but also, due to the desire for reducing the unemployment rate [1].

To remedy this, we are interested in studying one of several solutions, could promote entrepreneurship. A solution, date since a long time, but, constitutes until instant, one of the most active research domains in EIAH. It's the use of games, where the integration of a so-called intention "serious", in order to train, to lead, recruit, to simulate … [2–5]. Serious games, provokes an importance and immense result [5, 6], with purpose, creating a context of entertainment and lucidity, then, the user could benefit from an air entertaining, however, purpose doesn't stop any more in this point, but also includes and inserts the capacity to advance, to take up challenges, to augment its personal strategically level, … [7, 8].

"Serious games" is part of a broad framework, we focus our study to their uses in a learning context, which we benefit from the acquisition of new knowledge's, a learning encourage and deep enough, and therefore succeed to improve short-comings and surpass problems of demotivation [9, 10].

The present contribution focuses on the use, the exploitation of "serious games", their proven interest, in particularly the entrepreneurship field. First of all, we present, the concept of "serious games", their efficiencies, and their areas of applications. On the other hand, we present a theoretical framework, where we highlight, the context of the entrepreneurship generally, the importance of spiritual development to undertake, precisely at national level, etc. By the suite, we specify across a study of the existent, the contribution of the "serious games" in entrepreneurship. At the end, we describe our approach.

2 Serious Games, Playfulness with Serious Purpose

Attainment of the objectives, requires a good method to use and follow, and through it, the motivation and envy increases, therefore we could succeed in what we wanted to.

In our article, we're talking about using games, particularly "serious games". Thus, if we only take the game concept solely, it proves a great importance for the development of our personality, in addition, it's clear that if we prevents a child from playing, we strongly risk to come out with an incomplete personality, given the great importance of play in the development of reflection expression,

cooperation, trade and imagination … [11, 12]. Otherwise, the game is a natural way to learn. Starting, therefore, from this point, researchers began for a vision to change and improve learning and make it easier and fun, further, the use of gaming dynamics applied to corporate learning.

Serious games, a category combining the fun aspect, entertainment and serious intent. It combines the strength of the game themselves, the environment involving this game and professional settings, to achieve desired goals. Furthermore, it's constitute a blended of applications developed using advanced gaming technologies, having common, design approaches and expertise as the classical game (real-time 3D; simulation of objects, people, environments …).

Their first applications returned to military purposes where the training of militants to further develop their capacities, as confirmed by the great success of America's Army, multiplayer shooter developed by the US Army [13, 14], but afterwards, they were across various fields. For example, at the medical area, multitude of serious games have been designed, among them, Pulse!, serious game, allowing nurses and doctors training [15]. SIMUrgences, a real-time 3D module, enable doctors' training to care of patients in cardiac emergencies [16]. Moreover, many others serious games developed concerning pedagogical purposes, notably Mathematical sciences, Chemistry, Music education, … [4, 17–19].

Serious games, constitute also, a significant tool to enhance youth awareness, the example of 2025 ex machina, which aims to provide a critical view for the use of fixed and mobile Internet among adolescents [20].

In contrast to serious games, Business games take the form of games set play situations to discover the different facets of Business activity, thus, Oreal Business game, ranks among the best known examples [21].

A state of the art has been already presented, where we recall gamification as well, we reveal serious game concept, their potential and applications, and we highlight our proposed idea [22].

It's true that the use of serious games differs from user to another, but through a well-designed SG, the user doesn't waste time just for the game pleasure but with establishing desired goals.

3   Entrepreneurship

Entrepreneurship since its origins, were observed and analyzed by sociologists, historians, psychologists, economists … including Joseph Schumpeter, an Austrian economist, that through these works, was able to develop and to create an impressive richness, but also with other researchers, which situated it, as a factor in economic prosperity [23].

A question so simple, yet so difficult at the same, it's to propose a precise definition of entrepreneurship, seen that it includes sectors and different realities [24]. Therefore, literature has a large number and great wealth. By simplifying its meaning, we could say that's constitute the process to lead a project in all its

dimensions, teamwork, cooperation, face challenges, solve problems, make profits and ensure survival in the long term. ….

Thus, the most developed countries in the world, is those promoting entrepreneurship among its population even more, through a set of values building entrepreneurship spirit. As example, the sense of initiative, of responsibility …

Also, education play a key role in the enhancement of entrepreneurial culture, and for this purpose, we mention some projects have substantially interested in this regard including, at primary level [25], in high school [26, 27], at University [28] as well as, an entrepreneurship doctoral education [29] …

The growth rate in Morocco remains insufficient to be in charge of the large numbers of job seekers who arrive every year, in fact, the official unemployment rate now stands at 10.1 % at end-September 2015, against a 9.6 % year earlier, based on the report issued by the High commission for Planning [30].

By this reason, entrepreneurship remains a major lever for the employability of young people in Morocco. In this respect, the role of some public and private initiatives launched reached, through reform a broad strategy in order to stimulate entrepreneurship. Maroc Entrepreneurs, a nonprofit organization that aims to contribute to Morocco's economic development through the main levers: make discover the world of entrepreneurship and socio-economic issues of Morocco, also set a synergy between companies based in Morocco and the Moroccan expertise abroad [31]. Beyond this association, other events were based on the entrepreneurship ecosystem in Morocco, giving as an example the conference organized by Attijari-wafa Bank Foundation [32].

INJAZ Al-Maghrib, a recognized association of public utility, contributing to the emergence of a new generation of entrepreneurs. INJAZ Al-Maghrib adapts in Moroccan context, programs bringing learners to create a junior company, in order to prepare for the challenges of working life [33].

Cadi Ayyad University, in collaboration with the University of Portland (USA) organized two events in recent years, where the last was in March 2016, entitled the 2nd edition of the Marrakech International Entrepreneurship Event, an event on entrepreneurship in academia [34].

By way of information, these examples are cited in order to favor and perceive the situation of entrepreneurship in Morocco, having regard, it's has a remarkable importance, and thus implicitly indicate why we have chosen to continue at that sense.

4   Related Work

During this section, we mention some projects promoting entrepreneurial learning:

[35] Proposes to develop a comprehensive overview of relevant SGs available on the market, and identify through expert analysis, key benefits and issues related to their teaching adoption of entrepreneurship, particularly for scientific university learners.

[36] Describes a serious game, aimed at fostering an entrepreneurial spirit among youth. It's dedicated for a business tourism management in a complex market, then players have to compete with other companies. Regarding the technical tools upon they were based on, a Bayesian network, which provide a probabilistic explanation of the markets, starting from the strategic choices and structure of different groups. In addition, a data warehouse was created to analyze the simulation data, it can be accessed using Saiku, an open source tool.

[37] Emphasizes on those issues: market segmentation and market dynamics; financial and organizational management… The game titled PNP Village, divided into seven levels and in each level learners will acquire new business concepts.

Explorer "Serious Game for Immersive Entrepreneurs" an online serious game, which provides to learners, the opportunity to develop entrepreneurial skills, in order to manage their own companies in the future [38]. Similarly, SimVenture, serious game of corporate business, which allows learners to create and run a virtual company and therefore, develop an entrepreneurial spirit [39].

Practice plays a very interesting role for the development of learner's personality and creativity, however we note that practice without theory is blind and theory without practice is powerless, likewise, serious games remains as a solution among others, to practice, promote and improve entrepreneurial skills.

5 Proposed Approach

5.1 Overview

Our primary goal is to achieve a serious game, promoting an entrepreneurial spirit among youth. It constitute an environment which facilitates the acquisition of skills through play. In fact, a game that allows learners to leave the academic context and adopt realist practices.

Before we talking about neither a management, nor prescribed tasks, learners must first define innovative ideas, aimed to choose one to continue with.

What we mean by defining the project, reside in the choice of name, a meaningful slogan, staff recruitment, … and therefore, learner's must necessary taking into account, precautions in choices. Thus, starting from this point that the role of the teacher, the notes generated in parallel taking importance. In addition, the game will mention concepts clarifications, as like how to choose a good slogan, recruitment principles (that's important to clarify the enterprise needs, the overall operation of each position, conditions related each post …). Once the learners define the general context and understand the role of each position and function, the next phase, is to distribute the duties and tasks between them.

Subsequently, from the process of reflection and acquisitions developed throughout gaming, learners while collaborating together, have to achieve a Business Model.

Table 1 Key features of our approach

Target users	Covered areas	Synthesis
Youth wanting to promote the spirit of entrepreneurship	Entrepreneurship concepts (market study, business plan …). A context to develop good Communication skills, risk-taking, leadership, time management …	Game support learners, to develop capacities to confidently manage their business

Market research, an indispensable step for any business creation, it's serve as the foundation for all marketing decisions. Thereof, it's resides in several inseparable phases, first determine the nature of the market (geographical size, growth rate …), identify customers (determine their needs, their desires …), competition analysis (identify differentiation factors, their financial statistics …). However, learners will pass through all these steps, to ensure that the project can be commercially feasible.

Following the market research, learners should be able to write a Business Plan, includes costed and operational description of the business model, and describing the business vision, strategy and the expected profitability.

Any business must have capital to grow and develop, and therefore, during this stage learners understand, what role the investment is.

At this level, the game effectively begins, where learners exploit business. They are interested in creating products and their delivery to customers.

By the way, after each phase, the learner should prove what he learned, through an evaluation (QCM as example).

We present a table summarizes the main features (Table 1):

5.2   Serious Game Model

Above, we propose our serious game model, composed of several levels: *Educational goals*, a model of educational goals that the learner must be able to demonstrate during the game, moreover, it represents the capabilities which must possess all after the educational activities.

Learners manage their business, then each of them will take decisions, while keeping alive the cooperative spirit. Accordingly, we will attempt to enrich the *learner model* (Monitoring learner progress …).

Taking into account the learner model, and according to the educational goals (Educational goals), a *generation model*, whose function, generating scenarios (suites of activities) tailored to the needs of learners.

An *adaptive model*, consist of a set of rules leading to dynamically change the game behavior, this last, regarded in some points: the display (presentation), content (changing the game difficulty) …
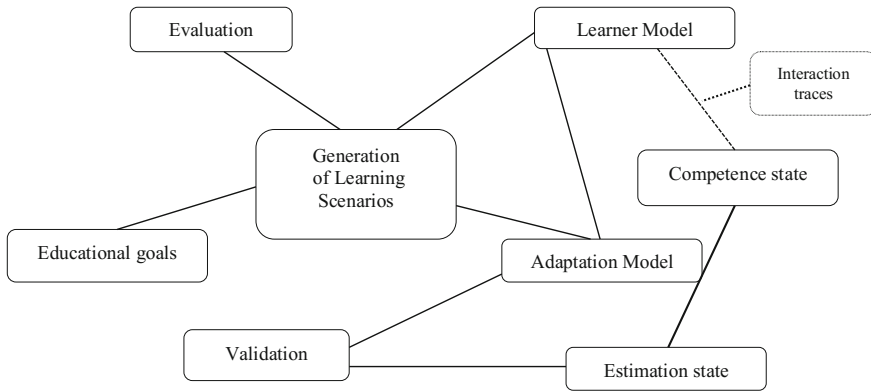
Fig. 1 Serious game model definition, illustrating our approach

During gameplay, we will try each time to assess the level of learning, starting from several types of questions and interactive exercises, could ensure the achievement of objectives.

In terms of (*model validation*), we will lead to interpret the results, in order to, generate an estimate of success chance or failure (*state estimation*) (Fig. 1).

6   Conclusion

In order to realize Morocco's entrepreneurial potential, we must ensure on the support and encouragement of young people to discover their creative talent, to develop their spirit of innovation and to inspire them to undertake. Initiatives, began in this sense, whose purpose, the identification, promotion, encouragement of competences, as well as the dissemination of entrepreneurial values among youth. Therefore, we decided to orientate our researches in that vein, by studying what impact can have the introduction of serious games on entrepreneurship. Thus, this article constitute the first step in our approach, where on the one hand, we have shown and clarified the interest of serious games generally, their contributions in various areas, notably regarding learning context. On the other hand, we tried to introduce the concept of entrepreneurship generally, highlight how important is, especially in Morocco. The study of the existing, a crucial step where we examine the impact of serious games to youth practical situations, including a purpose, having aware best practices of entrepreneurship, starting from the analyses of some projects. Lastly, we proposed and described our approach. As a perspective, we plan subsequently to implement it, then propose it as a tool, helping to grow tomorrow's entrepreneurs.

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