

EL JUEGO DE EMPRENDER.ACTIVIDADES DE GAMIFICACIÓN PARA EL FOMENTO DEL EMPRENDIMIENTO UNIVERSITARIO

C. Avilés-Palacios¹, M. López-Quero ¹, J. García-Alfonso ¹, A. Rodríguez-Olalla ¹,
F. García Robredo ¹

1: GIE Competencias 2.0

Escuela Técnica Superior de Ingeniería de Montes, Forestal y Medio Natural
Universidad Politécnica de Madrid

web: http://innovacioneducativa.upm.es/informacion_grupo?grupo=286

e-mail: carmen.aviles@upm.es ; e-mail: manuel.lquero@upm.es; email:
joaquin.garcia.alfonso@upm.es; email: ana.rolalla@gmail.com, email:
ignacio.mtzpedrero@outlook.com

Abstract: *There has been an increase of entrepreneurial initiatives in Spain due to the economic crisis. The main problem entrepreneurs have encountered has to do with the implementation of their initiatives. The reason for this is that there is little or no training at universities. Although in recent years Spanish universities have created programs to facilitate the development of business plans, start-ups, and the acceleration of existing enterprises, they have not incorporated this knowledge to formal training plans. Thus, the Department of Business Management of the Escuela Técnica Superior de Ingeniería de Montes, Forestal y del Medio Natural (ETSIMFMN) (Forestry Engineering School) of the Universidad Politécnica of Madrid has launched a procedure that is based on experiential learning and gamification. It that has been developed in four phases: 1) generalization and transference, 2) experience and gamification, 3) reflection and 4) application. Through this process, students acquire skills that will enable them to launch a business venture because they can learn how to create real entrepreneurial projects in the environmental sector, specifically within the field of forestry and ecosystem services.*

Keywords: university; entrepreneurship, innovation

1. General Description

We promote to university entrepreneurship related with forestry tech engineering. The focus of this kind of studies is nature and the intangible capital involved in the process of an economic valuation of nature and ecosystem services. Thus, the Department of Business Management of the Escuela Técnica Superior de Ingeniería de Montes, Forestal y del Medio Natural (Forestry Engineering School) of the Universidad Politécnica of Madrid has launched a procedure that is based on experiential learning and gamification. It that has been developed in four phases: 1) generalization and transference, 2) experience, 3) reflection through the game of the goose and 4) application. Through this process, students acquire skills that will enable them to launch a business venture because they can learn how to create real entrepreneurial projects in the environmental sector, specifically within the field of forestry and ecosystem services.

2. Objectives

We promote to university entrepreneurship with both experiential learning and gamification techniques. We intent to achieve the following objectives 1) To improve the

motivation a of students through experiential learning and 2) To promote the innovation through technological resources.

3. Interest of the subject

The core functions of universities are to train successful graduates and to conduct research. Recent studies show the need to develop a third function: to encourage entrepreneurship through a program called "Entrepreneurial University". The main goal of this program is to promote technological entrepreneurship, which is a key element in the technology transfer to newly incubated companies within university's premises. In addition, faculty appraisal systems should reconcile the innovation and development of business opportunities within these fields of education. According to Penrose [1], the ability of companies to use their resources in entrepreneurial ways facilitates the creation of protective mechanisms from competitors and, therefore, the creation of income in the long run.

On the other hand, concepts such as sustainability or nature capital are popular among business and academics sectors. These are related to the creation of value in the organisations through use of intangible assets. Thus, it is need to include entrepreneurship program in the forestry engineering studies. The focus of this kind of studies is nature and the intangible capital involved in the process of an economic valuation of nature and ecosystem services. As Massiero et al. [2] set most of innovative businesses base their success on creating value through better use of intangible assets. Ecosystem services are one of the most valuable intangible asssets. Teaching about entrepreneurship in a Forest engineering must be focused on Ecosystems services.

4. Methods

The process of university entrepreneurship is based on the experiential learning model of four phases defined by Kolb [3]. The target audiences are engineering students, whose basic training is not linked to the knowledge needed to develop an entrepreneurial idea. Therefore, we have adapted it to the situations and the types of students and developed the following model (figure 1):

- Phase 1 - Diagnosis and levelling. It seeks to know the training level of the participating students and to level their knowledge when necessary.
- Phase 2 - Project. It aims to provide students an intensive training on how to create a real business plan. This training is enforced with gamification. We have prepared a board game similar to the game of the goose, adapted to the sustainable entrepreneurship. The election of this game is based on its simplicity, universal rules and competitive. The difference lies in the content of the boxes of the game. Each team should answer a question related to the box the chip is fallen in, regarding issues of a general business plan, or more specific about sustainability, ecosystem services, carbon or water footprints. A Master of the Game should encourage the players to answer correctly and promote the debate among them. The main objective of the game is learning but not evaluate the knowledge of the students. For this last objective, a new game is being design but it is not the core of this paper.
- Phase 3 - Entrepreneurship tutorial. A mandatory will resolve doubts raised by students through the process of reflection on the experience to develop a real business plan.
- Phase 4 - Evaluation. To defend their business plan before a court consisting of real investors. This way the student will know the skills and competences acquired through experimenting with an entrepreneurship plan.

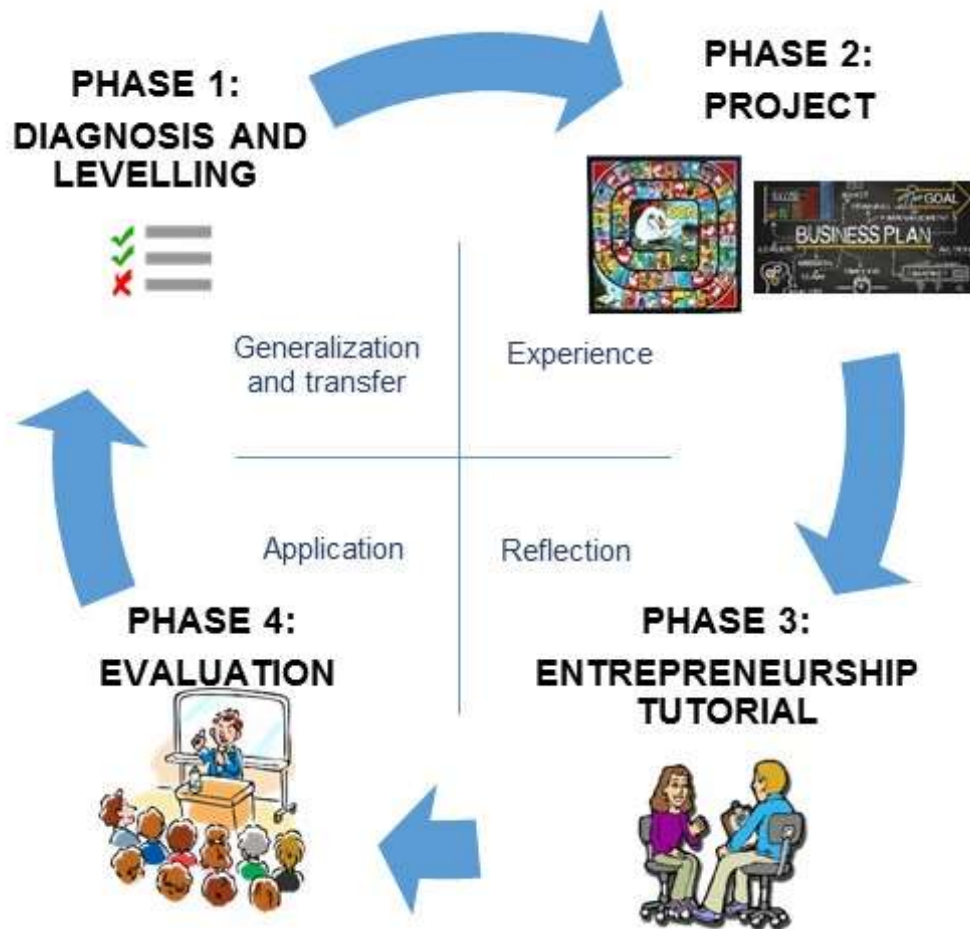


Figure 1: Process of university entrepreneurship based on experiential learning.
Source: own elaboration based on Kolb [3]

5. Results

This gamification and experiential learning approach improves the quality of education because it meets the following objectives: 1) To acquire and improve entrepreneurial skills throughout playing; 2) To place value on the instrumental and strategic knowledge, skills and abilities acquired throughout their University years and, 3) To develop communication and leadership skills, the ability to work in a team as well as leadership and other useful skills.

In addition, we have achieved the following outputs:

- A Game of the Goose adapted to the Game to the sustainable entrepreneurship.
- A guide for the Master of the Game and a guide for the Gamer.
- An Entrepreneurs Guide.
- An evaluation of the learning process, through different assessment questionnaires.
- The possibility to apply to EcostarHub Natural Talents, an European project to promote entrepreneurship and skills in the field of Marketing and Economics of Ecosystems and Biodiversity.

6. Contribution

The main conclusion from applying both gamification and experiential learning processes is quality improvement. This is achieved not only through the experimentation of students developing a business plan for real entrepreneurship, but also when they present their plan to a selected board of experts and investors that enables participants to know the acquisition level of their competences. It empowers forestry engineer students on their entrepreneurial skills based on the ecosystem services and forest sector.

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