

Ventakaraman Virtuous Cycles for Entrepreneurship E-learning

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Abstract: - Spain is facing hard times regarding innovation, entrepreneurship and economy. An analysis of the factors that influence that situation is presented, based on Venkataraman's vicious and virtuous cycle model. As a solution, a learning model is proposed to develop entrepreneurship based on the principles of virtual cycles. As a result of this model, proposals for turning these vicious cycles into virtuous ones are introduced. We will develop e-learning processes in engineering education as the main tool to generate entrepreneurship among young engineering students.

Key-Words: - Entrepreneurship, innovation, education, e-learning

1 Introduction

The learning process can bash out new ways of thinking, so far it works with children and young people in their first social, educational and professional training. For this reason it is so important to establish learning models for guiding the acquisition of needed attributes to foster entrepreneurship among young people. As young people are the driving force of a country, the university learning process is a leading factor to foster entrepreneurship in a society which is immersed in a vicious cycle (see figure 1) [Venkataraman].

Today, education has evolved from traditional methods based mainly in group classes towards new methodologies that use a wide variety of tools developed primarily for e-learning contexts. This change brings out new opportunities for teaching entrepreneurship to students.

As far as our objective is to develop technological entrepreneurship, (and since we belong to an engineering university), the required profile for an engineering university learning process that leads students to a technological and entrepreneurial vision is envisaged in this paper.

Vicious cycles underlie in the social and professional structure of our country. From that standpoint Venkataraman's virtual cycles underlying the learning process will be applied in order to neutralize vicious cycles.

2 Analysis Using Venkataraman's Model

Vicious cycles can be found in our country in many forms.



Fig. 1. Ventakaraman's Vicious Cycle

Today, politicians and board directors are concerned about poor Spanish R&D results compared to other European Union countries. This situation diminishes our competitiveness. Public R&D policies try to cut down the problem, but the result is worthless when there's **lack of high quality firms** that are consistent with these policies and thus lead up the transition to the desired virtual cycle.

Moreover, best talent is not pushed to create new business models based in novel ideas but is driven to comfortable ones. The result is a **poor deal flow**

because economy is based in traditional businesses and in incremental innovations rather than in new economy business either disruptive technology-based innovations or market based innovations [2].

If disruptive innovative projects, which are the ones capable of transforming the environment, do not emerge then **venture capital is not available**.

As a result **entrepreneurship becomes risky** and talent people, who are capable of developing technological entrepreneurship, need to emigrate.

As a consequence, entrepreneurs are **pushed to, rather than pulled into, entrepreneurship**. There's no space for technological-based entrepreneurship as entrepreneurship is considered a way of professional survival which often results in low-quality enterprises that lead to a **low social status for entrepreneurs**.

Under these circumstances, there are no established mechanisms to generate entrepreneurship and so **no culture of entrepreneurship** is promoted.

That situation must be solved from the very foundations of society in order to effectively cut down the vicious cycle in which we are immersed.

Our proposal to cut down the vicious cycle is to transform education. Promoting entrepreneurship among university students would generate another vision on innovation and technological R&D as the seed for personal wealthy, social recognition and ambitious career development. As a result, Vicious Cycle would be transformed in a Virtual One, as pictured in figure 2.



Fig 2. Venkataraman's Virtuous Cycle

To achieve this goal we propose the design of education methods based in training the students in the intangibles described in Venkataraman's virtuous cycle, with the objective of developing a behavior in

young people that positively covers all the links in Venkataraman's chain.

An educational method based in e-learning tools is envisaged in order to achieve the necessary change of heart among young undergraduate students in our technological Universities.

3 Education Method Characteristics

Our model is based in the seven intangibles proposed by Venkataraman [1] to foster technological entrepreneurship in a region

1. Novel ideas among students

The education method should be focused to develop the right side of the brain thinking, that is, the creative mind. University is a focus for novel ideas, so it should be the proper environment to promote this kind of behavior.

2. Technological Business Plans

Besides, alumni should be fostered to develop technological business plans for submission to one of the many business ideas contests suitable for students. When one of them becomes successful other will be motivated to try it too.

3. Blogs and Wikipedias

Informal Forums are important to allow students to express their own ideas around a topic. Blogs and Wikipedias are powerful tools to develop this kind of behavior. Professionals should be also invited to participate.

4. Teacher and Students in Local Mass Media

The idiosyncrasy of a region is very important to entrepreneurship. It's the labor of Educational Institutions to spread the culture of entrepreneurship in order to activate those people who are capable of generating high entrepreneurial novel ideas. Results can be amazing if this culture is based or mixed with some product or specific character of the region.

5. Character Database

Failure acceptance is a vital ingredient to develop a cultural shift regarding entrepreneurship. Safety nets should be established in order to set the stage for looking at entrepreneurship as an opportunity more than a risk. These nets will support entrepreneurs who may fail in their project in order to worthwhile their efforts and make the most of this experience.

Teachers could maintain a character database of their best entrepreneur students at disposal of enterprises and head hunters.

6. Students Exchange Programs

There's nothing to do with a well-planned idea, if you cannot sell it. Gateways to large markets for developing the idea are necessary. Connection to this kind of markets is of vital importance, especially for non-densely populated areas. Students exchange programs could help on this

7. University Business Angels Network

Executive leadership is crucial to engage new ideas with new markets. The mind-set changes will happen when there're enough executive leaders to push them. Promoting university business angels network could give students the necessary mentoring support.

4 E-learning model

Based in the above intangible principles an e-learning model could be developed in order to speed the breaking of the vicious ring and generate the new virtuous one.

An e-learning tool is being developed in our group for implementing the training that can lead to entrepreneurship. This tool should cover all aspects proposed by the seven Ventakaraman's intangibles.

Firstly, we model which kind of e-learning services may be implemented to cover the seven intangibles, in order to design the specific e-learning tool. This e-learning tool should be useful for all courses within an Engineering Education Plan:

1. Learning must prompt right side minded thinking. In order to achieve this objective, several cases should be proposed to the students to be solved by themselves throughout the academic year. E-learning methods and tools, such as forums or blogs, allow discussions around the case, at any time. This continuous feedback drive students to a kind of concentration around the main subject the case propose, or as Goleman says, fluxed state [3].
2. Although the implementation of business plans is a matter of specific subjects, it is possible to discuss some typical business plans topics when learning engineering matters, so that another e-learning service should be based in the implementation of some part of a business plan based in the technological knowledge acquired in the subject.
3. If students are pushed to develop informal forums around topics of interest in their first university years, this behavior will turn into natural. E-learning forums and blogs are an excellent service for developing these skills.
4. Teaching the importance of the environment in which the student develops his own professional

career leads to taking into account its strengths and weaknesses. Ideas around new business and technological development will take into account this.

5. Another key factor for future entrepreneurs is failure acceptance. This attitude can be easily developed through university training. Cases evaluation should promote failure acceptance. For example, solving a case using innovative ideas should be appreciated, regarding if the case is solved by proposing the optimal solution or not.
6. Another important subject to develop in technical careers is commercial and marketing management. Engineering students are prepared to solve technical problems and develop new technologies, but, they are used to look down on commercial roles. Entrepreneurship cannot be fostered in such environment. Some discussion in forums can be centered in this specific area, that is, simulate deal flowing.
7. Executive leadership is a mental attitude. Although not all students are leaders by nature, positive attitudes for leadership can be prompted through e-learning, especially through team working. Appointing a leader for each work will help to discover leadership attitudes of students.

5 E-learning Tools

Nowadays, a variety of e-learning tools are available, but there is no specific tool for e-learning in the context envisaged in this article.

We are using PHP-Nuke modules, which is a framework devoted to virtual communities, to implement a context in which our model can be tested. Next experience is to use this environment for university students in order to improve the proposed model and e-learning tools.

4 Conclusion

This is the first known study devoted to the development of an e-learning tool and educational methods, oriented to entrepreneurship fostering for technical university students.

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