Supporting new firm's through Entrepreneurship education: A case of a successful course

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Abstract: Entrepreneurship is a dominant force in contemporary economy. Entrepreneurship is a dynamic process of vision, change and creation. Entrepreneurship is a process of fundamental transformation, from an innovative idea, to the value proposal to the creation a new venture. It requires an application of energy and passion towards the creation and implementation of new ideas and creative solutions. The essential ingredients include: the willingness to assume risks, the ability to join a venture team, the creative skill to get necessary resources, ability to develop a solid business plan and the vision to recognize an opportunity. As entrepreneurship is about devising and implementing new ideas and practices, a strong educational foundation helps ensure that new ideas will be effective and substantive.

This paper starting from the theoretical framework of entrepreneurship based on different lines of thought and with different approaches, will try to describe the dimensions of the Entrepreneurial education process and how this process promotes students’ attitudes and intentions favorable to create business start-ups. In a practical way, will be presented the successful case of an course of entrepreneurship of technological base, that has been going on for some years in a partnership between several universities. Examples of successful startups, resulting from the course will be mentioned.

Keywords: Entrepreneurship, Universities, Entrepreneurship Education, New Technologic Based Firm’s

“Entrepreneurs are the heroes — they make the world livable for everyone else”
(Kuratko and Morris, 2018:20)

1.Introduction

Entrepreneurship is one of the most important activities of modern economic life. The creation and growth of new companies, as well as the closure and shrinkage of existing companies, are at the heart of “economic dynamism.” Entrepreneurship is a dynamic process of vision, change and creation. It requires an application of energy and passion towards the creation and implementation of new ideas and creative solutions. The essential ingredients include: the willingness to assume risks, the ability to join a venture team, the creative skill to get necessary resources, ability to develop a solid business plan and the vision to recognize an opportunity. In this light entrepreneurship is more than the mere creation of a business.

It is in general, recognized that entrepreneurial activity is the driving force behind the development of countries' GEM (2008), economic growth (Verheul et al, 2001; Carree and Thurik, 2005), employment (Birch, 1979, 1987; Lundström and Stevenson, 2005), and innovation (Schumpeter, 1934; Acs and Audretsch, 2005). For this reason entrepreneurship has become a preferred theme on the agenda of most governments.

Entrepreneurship as a dominant force in the actual economy, generates ongoing innovation and improvement of our goods, services, and institutions. It makes them more efficient, affordable, and, thus, effective. Entrepreneurship enhances the quality of our collective and individual lives. It changes the way we work, the way we communicate, the way we live. Innovation and improvement depend on intelligibility. If intelligibility is a fundamental goal of learning, than the higher education institutions should be dynamic, generate new knowledge, adaptable and have capacity to address the urgent questions of our society.
To Kuratko (2005) an entrepreneurial perspective can be developed in individuals. Peter Drucker, recognized as one of the leading management thinkers, has said, “The entrepreneurial mystique? It is not magic, it’s not mysterious, and it has nothing to do with the genes, it’s a discipline. And like a discipline, it can be learned” Drucker (1985:18).

An additional support to this view, comes from Gorman, Hanlon, and King, (1997:63) “most empirical studies surveyed indicated that entrepreneurship can be taught, or at least encouraged by entrepreneurship education”.

Universities and other higher education institutions started to get aware of the relevance of teaching and learning entrepreneurship as it became evident that the Entrepreneurship Education (EE) could influence the predisposition to start-up, or at least could influence individuals to become more proactive and entrepreneurial in their lives and their jobs. Entrepreneurship and university education are closely linked one with another. So is possible to say higher education institutions have a relevant role in promote technological entrepreneurship through Entrepreneurial education and learning.

This paper starting from the theoretical framework of entrepreneurship based on different lines of thought and with different approaches, will try to describe the dimensions of the Entrepreneurial Education (EE) process and how this process promotes students attitudes and intentions in the face of entrepreneurship and business start-ups. In a practical way, will be presented the curricular contents and the way of functioning, of a course of entrepreneurship of technological base, that has been going on for some years in a partnership between several universities. Examples of successful start ups, resulting from the course will be mentioned.

2. Entrepreneurship as a field of study

Entrepreneurship is recognized as being fundamentally important for societies and economies (Gans and Stern, 2003). Although a relatively young field of studies, researchers have explored various streams about the phenomenon. Cantillon (1755), one of the pioneers of the theories of entrepreneurship, presents entrepreneurs as economic agents, who produces new products and connect producers and customers. Say (1840) proposes that one of entrepreneurs’ major roles is to create teams in order to achieve productivity. Introducing the Risk Bearing Theory, Knight (1921) claims that risk taking is a key aspect of any entrepreneurial activity. His perspective views risk takings as a factor of production in that the key role of an entrepreneur was to act in expectation of particular future occurrences. Thus taking risks would result in entrepreneurial performance and success. The theory supports that for entrepreneurship occur, an individual must have the capacity to take risks, or an individual would not be able to engage in business activities that would risk his investment.

Schumpeter (1934, 1947) views the entrepreneurship through the lens of his Innovation Theory. He believes that certain characteristics are essential for an individual to be considered an entrepreneur: being innovative, having foresight and being creative. McDaniel (2005), argues that according this theory, entrepreneurship happens when an individual introduces a new product, finds an alternative raw material and discovers a new market or a new way of doing things.

In the vision of McClelland’s (1961), the entrepreneur is an individual with the ability to perform certain tasks and make good decisions when face with uncertainties. Thus an individual’s vision of success becomes much more important than any monetary or other external risks that are involved (Kuratko and Audreych, 2009).

Davidsson (1995) highlights the scene experienced in 1970’s, where large companies could not employ much more people, turning the focus to small businesses as mean to achieve economic growth and job creation. It is in this way that entrepreneurship diffuses, reaching academic legitimacy and interest in the psychological characteristics of business creators, developing explanatory models that consider the characteristics of entrepreneurs, but also personal antecedents and situational variables. (Davidsson,1995; Kuratko and Morris, 2018).

The most of studies focus on the theoretical models and personality factors of the individuals and how they can influence the EI (Entrepreneurial Intention), where we highlight Boyd and Vozikis (1994) and Krueger and Brazeal (1994), as well as Behavior Theory Planned (TPB) of Azjen (1991), designed to predict and explain the human behavior in particular contexts. Frese (2009) added, related that the psychological approach is required to understand the entrepreneurship, and recently Fayolle and Liñan (2014) argue that EI literature evolve positively with theories of the field of social psychology and cognitive.

In his theory, Ajzen (1991) shows that all behaviors requires a certain planning, being a rational and planned action, making use of available information. The intentions are indicators of the level of effort that the individuals are willing
to put into practice in order to carry out a particular behavior. This theory also presupposes that both internal and external factors can influence human action.

These and other works try to explain the concept of entrepreneurship. However, many other external factors could play a significant role in stimulate the entrepreneurial activity as well. Factors as technology, market, environment, type of customers, industry structure, strategy, support institutions and entrepreneurship education, all play important roles in the start event of new firm creation, survival and success. Considering those various factors our paper just focus on the role played by entrepreneurship education.

3. Entrepreneurship Education

Education seems important for stimulating entrepreneurship because several reasons (Reynolds, Hay, & Camp, 1999; Sánchez, 2011). First, education provides individuals with a sense of autonomy independence and self-confidence. Second, education makes people aware of alternative career choices. Third, education broader the horizons of individuals, thereby making people better equipped to perceive opportunities, and finally, education provides knowledge that can be used by individuals to develop new entrepreneurial opportunities.

However, the idea that the entrepreneur is a result of hereditarily or that entrepreneurship is an innate characteristic of some individuals, no longer seems to have many followers in the scientific literature. Li (2006) argues that the theory of planned behavior is very useful and it provides a sound theoretical framework toward understanding the antecedents of entrepreneurial intentions. Instead, it seems to win strength, the stream that defends that it is possible to learn to be an entrepreneur, through the use of differentiated policies in education.

As the natural world’s resources ebb and technology advances humanity increasingly will live by its wits. The innovation and creativity is critical to create a sustainable future. So we need people who know how to implement ideas and make them accessible to society. The creation of new innovative firms is fundamental to translate that knowledge. So it is needed to understand why entrepreneurship matters, how it works and how to sustain it. That understand is the result of education. So entrepreneurship is about devising and implementing new ideas and practices or improving old ones. In a Progressively technological, scientific, and interconnected world, the quality of innovation in large measure increasingly relies on superior advanced learning. A strong educational foundation helps ensure that new ideas will be effective and substantive. Because entrepreneurship promotes, implements, and rewards innovation, it necessarily correlates with education (Kauffman Foundation, 2008).

One of the ways in which it has been intended to channel the interest for the development of new companies, has been an educational system of higher education, and some scientific literature has been studying, for some time, the relationship between the levels of training and the creation of companies. Based in the Small Business Economic Report (2006), a review of the research measuring the impact of general education on entrepreneurship and entrepreneurial performance suggests three key generalizations. First, the evidence suggesting a positive link between education and entrepreneurial performance is robust. Second, although the link between education and selection into entrepreneurship is somewhat ambiguous, evidence suggests that when “necessity entrepreneurship” and “opportunity entrepreneurship” are considered separately and when country difference is considerate, the link is less ambiguous. Finally, the relationship between education and selection into entrepreneurship is not linear in nature. The highest levels of entrepreneurship are linked to individuals with at least some college education. Also according the report the main conclusion of great majority of entrepreneurship research, reveals a positive relationship between education and business activity.

To Hindle (2007), entrepreneurship needs no justification to study on the grounds of its importance to humanity. It is a wellspring of economic growth, social renewal and personal development. Such an important subject is worthy of deep research, significant reflection and sustainable dialogue. When a subject has the depth importance which entrepreneurship possesses, it is capable of being the foundation for great education. Also Birch in Aronsson, (2004: 289), says that to encourage entrepreneurship, it should be trough some kind of apprenticeship that would be a wonderful experience.
Additionally, the education and training should center itself much more in changing personal attitudes than in knowledge, because the effects could be more significant to the process of business creation and to overcome the perceived barriers to entrepreneurship. The educational systems need to be oriented to emphasize and value entrepreneurship in order to promote an enterprise culture.

The research carried out on the influence of entrepreneurial education on entrepreneurship emphasizes that education facilitates the student a better knowledge of his possibilities to create a company, Raposo and Paço (2011). For Mogollon (2017), this demonstrates the need to understand the role played by universities in society, especially in the university environment, in training for entrepreneurship, and in motivating students to start processes to business creation.

In study of Dutta, Li and Merenda (2011) it was found that education specialized in entrepreneurship is positively related to the predisposition to create companies in the future. The education encourages entrepreneurship for several reasons, providing a sense of independence, autonomy and self-confidence. On the other way, it makes people aware of alternative careers, expand the horizons, perceives opportunities and offers knowledge to develop and explore new business opportunities (Dutta, Li and Merenda, 2011; Sánchez, 2011). A correct EE program enables individuals to acquire skills and necessary knowledge to found and develop new business (Sánchez, 2011).

A study developed by Raposo et al (2008), involving university students, had shown the important effect of education on the propensity to start-up a firm. The results point out the importance of the entrepreneurship education and the promotion of the entrepreneurial intention. That is, the entrepreneurial intention was predicted significantly by entrepreneurship education, other researches had similar conclusions (Brice 2004; Florin, Karri and Rossiter, 2007; Kennedy et al. 2003; Li, 2006).

A large number of universities offer certifications and master degrees in Entrepreneurship; others offer doctoral programs as a way to prepare a new generation of scholars. Other universities, organize their own training courses and methodologies to stimulate entrepreneurial skills and enable the transfer knowledge to the market. The rhythm of changes is accelerating, with more and more universities interested in developing their EE programs. The growth of the recognition of EE programs is another example of the evolution that is seen in entrepreneurial education (Liñán, 2004; Kuratko and Morris, 2018).

Krueger and Brazeal (1994) argue that entrepreneurship education is conducive to the initiation of new business, being the highest EI in students who attend these courses. Souitaris, Zerbinati and Al-Laham (2007) mention that EE programs lead to the development of entrepreneurial postures and intentions, demonstrating in their study that attending in entrepreneurship course increases the EI.

Also for Kuratko and Morris (2018) entrepreneurship courses prepare students for entrepreneurial life, setting up a business mindset with more emphasis on skills. It can empower them to create their own job, to design their future, to achieve wealth, to create jobs for others, to make their contribution to the world. For Fayolle and Liñán (2014) the empirical results reveal significant differences in attitudes and levels of EI among students who participate in EE courses and those who do not participate.

We can question where should positioned the entrepreneurship education inside the University. It is interesting to note that Withehead (1929:93), about the role of Universities wrote:

“The justification for a university is that it preserves the connection between knowledge and the zest for life, by uniting the young and the old in the imaginative consideration of learning. The University imparts information, but it imparts it imaginatively. At least this is the function which it should perform for society. A University which fails in this respect has no reason for existence. Their atmosphere of excitement arising from imaginative consideration to transform the knowledge”.
Having this in mind, probably there is no single and universal correct location for entrepreneurship education in University. Entrepreneurship belongs wherever we want to put it, so long is the key condition of imaginative transcendence of the immediately vocational is meet. So it can be teach wherever the right mindset prevails (Hindle, 2007).

4. The case of CEBT Ibérico - Entrepreneurship Technology Based Course

The CEBT Ibérico - Technological based entrepreneurship skills, presents itself as an advanced training program in Entrepreneurship area, inserting itself in the category typical programs of EE (Entrepreneurship Education) oriented to projects of companies of technological base.

The program was developed as part of the INESPO project – “Rede de Transferência de Conhecimento Universidade-Empresa Região Centro de Portugal” and “Castilla y León of Spain”, funded by the Cooperation Program INTERREG A Spain-Portugal (POCTEP) 2011-2020. The project is a network of nine entities coordinated by University of Beira Interior (UBI), and involves the portuguese universities of Coimbra and Aveiro, the spanish universities of Salamanca, Leon, Valladolid, Pontifica of Salamanca and finally the business confederations of CEC/CCIC-Portugal and CECALE-Castilla y León.

In addition to the training contents, the program seeks to identify emerging ideas, new technologies, new products or patents, in those universities, which will be worked on in a team, during the training sessions. The idea is to develop a value proposition and a business plan, that supports the creation of technology-based companies capable of accelerating and overcome the nascent phase and assume an important role in the economic development and social growth of the cross-border region. This new ventures are also known for its ability to generate qualified employment, for its adaptability to the market, often leading to innovations through the development of products/services ahead of its time and contributes to affirm the regions in the RIS3 strategy.

In the genesis of the CEBT there is an innovative methodology, through advice and specialized consultancy composed of three lines of action: 1) Sessions of advanced consulting in the areas of Market Research, Business Model, Strategy & Marketing and, Communication & Negotiation; 2) Coaching and Mentoring for entrepreneurs, in order to ensure a correct follow-up of projects by specialists and at last; 3) Session of dissemination and promotion of business projects, as a way of disseminating of technology and knowledge among the various invited agents (companies, investors, business angels, etc.), enhancing networking between them. The same methodology is applied in the seven universities of both countries, through the same structure, trainers, consultants and mentors.

The Table 1 present the Sessions of advanced consulting promoted in a logic of advice and specialized consultancy, aiming the monitoring and development of the projects taking into account the needs of the market and the economic and financial viability.

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<td>2. Proposal of value</td>
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<td>3. Business Plan</td>
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<td>4. Research Market</td>
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<td>5. Intellectual Property and Technology</td>
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It is a free action, open to all academic community that integrates the INESPO network, consisting essentially of teams of multidisciplinary areas, with a higher prevalence of participants from the areas of Health Sciences, as well as Engineering and business science. On innovative approach of the CEBT course, result from the fact that the teams involved in the training sessions works with a new idea, patent, new technology or product resulting of the research carried out at each university.

The program is in its 8th edition, in global counted with about 800 participants, that submitted 130 project ideas and a few dozens of business ideas that resulted in the creation of TBF’s where there appeared some new companies like Follow Inspiration and Inklusion, currently based in the interior region of Center of Portugal. As a success example, we are going to present synthetically these two startups that had their genesis in CEBT.

The training course was the starting point for two graduate students develop new ventures ideas, respectively under the name wiiGO and InKaos. After the course, these two final projects won several awards about entrepreneurship and innovation, which allows to demonstrate the technological viability of both projects, and how to convert the research done by UBI students in value propositions, allowed access at monetary prizes and the recognition of the merits of the projects at national and international level.

**4.1 1st Case: Follow Inspiration – Improving Business like never before**

wiiGO project was idealized by Luís de Matos (Msc in Computer Science in UBI), focused on the valorization of autonomous device developed to follow individual with disability or reduced mobility, wherever it moves, allowing the transport of objects autonomously, dynamically and safely, avoiding obstacles and dangers. With this robotic system, based computer vision and Artificial Intelligence, it is now possible for the individuals to carry out objects easily, comfortably and safely, through concept proof in shopping carts of Supermarkets.

This innovative technology has been winning numerous awards like “O Concurso de Ideias”, “Planos de Negócio Arrisca C” and it was second “MIT Venture Contest 2011”. Follow Inspiration it’s exactly the next step, said the young entrepreneur “that is the only way that you can continue to develop wiiGO and do with this get to the market”. Nowadays, Follow Inspiration is a TBC focused in the development of technology products in robotic field and they have got the first one business angel in 2012, “TIC Risco”, and in 2015 they entered in capital company of “Portugal Ventures”.

Currently, 6 years after the trigger event, the investment has been complemented with some monetary funds from “Portugal 2020” and the company is now a anonymous society, with 20 employees.

**4.2 2nd Case: Inklusion – You dream it, we build it**

Inkaos project aims to create a startup with a strong technological component, guided by innovation and focusing on the development of products with great quality and technological differentiation. This project aims to fill a gap in national market, such as the development of video games, or applications with interaction with three-dimensional environments and gave rise to the creation of Inklusion Entertainment.

According to the CEO of Inklusion, João Dias, the creation of the company had as initial goal to transfer to the market products that aim at a change of paradigm in the area of education, in conformity with the current highly computerized generations and accustomed from an early age to live in an era in which everything is digital.
The team intends to take advantage to introduce more interactive and appealing ways of educating young people through digital formats, either through video games or through applications that allow greater interaction with the subjects the intend to teach (e.g., the possibility of interacting with three-dimensional objects, in order to have a greater perception of its real aspect). This business idea is geared towards a market segment that has not been explored at a national level (i.e., development of video games and 3D applications) and with great profitability at an international level. The company intends to make available all its products adapted to the generations of the digital era, filled by interactive and appealing digital formats. So, for those who want to teach and have fun learning, inKlusion provides interactive experiences with the human body and sensitizes to environmental issues. Unlike on the market, it ensures entertainment, teaching and 3D technology in a format similar to commercial games.

5. Conclusion

Entrepreneurial activity is determinant to achieve good levels of economic performance in any region or country. The evidences in scientific literature of entrepreneurship maintain that an entrepreneur, has certain personal characteristics such as capacity for innovation, vision, creativity, locus of control, willingness to take risks, which can be enhanced and improved through entrepreneurial education, particularly with training courses with innovative methodology, that encourage the creation of new companies resulting from ideas, or research results that can be valued and brought to the market.

Particularly, the CEBT Ibérico, considered a entrepreneurship training program with innovative methodologies, is a reference in a network of seven universities belonging to the two borders regions of Portugal and Spain. The course throughout its various editions, stimulate new ideas and business models, with special focus in creation of technology ventures, some of them already successfully recognized. In this line of ideas and based in the evidences presented, it is possible to conclude that entrepreneurship, as stated by many authors, can be effectively taught, and effectively contributes to foster the emergence of new technology ventures, essential to reinforce the competitiveness and specialization of countries and regions, act as innovative leading agents in field of technology, as well as in the generation of qualified employment.

Acknowledgements

NECE-UBI, this paper is financed by National Funds provided by FCT - Foundation for Science and Technology through project UID/GES/04630/2013

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