INNOVATIVE AND ENTREPRENEURIAL MANAGEMENT PROGRAMS: AN ANALYSIS OF TWO BRAZILIAN PUBLIC UNIVERSITIES

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Abstract. *The purpose of this study is to analyze if undergraduate management programs offered in Brazilian higher education institutions have initiatives to innovate and if they develop entrepreneurial management characteristics on their students. This investigation focused on the two most important undergraduate management programs of public universities located in Florianopolis (RUF, 2016), the University A and B. The study used a qualitative methodology, and, the data collection was obtained through in-depth interviews with the Coordinators of the undergraduate management programs of the above mentioned higher education institutions. The results show some initiatives that these universities adopted to stimulate innovative and entrepreneurial characteristics, like laboratories activities, partnerships with foreign universities, professor training programs. However, it is still necessary to consolidate these and pursue other entrepreneurial initiatives.*

Keywords: *Innovation, Entrepreneurship, Management, University.*

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1 INTRODUCTION

The city of Florianopolis, Capital of the State of Santa Catarina, ranked the second place as Brazil's most entrepreneurial city in 2016, according to the Entrepreneurial Cities Index (ICE). This Index was created by Endeavor, an organization that aims to support high-impact entrepreneurialism around the world. The ICE analyzes the main cities of the country, seeking to evaluate their ecosystems and to point out the municipalities that have the best conditions for the development of new enterprises (Endeavor, 2016).

Florianopolis is no longer considered just as a tourist destination but also draws the attention of investors and entrepreneurs, once it is the home to an important number of successful startups. The city also has an expressive technological movement, shown by an increasing number of new entrepreneurs with a strong, innovative behavior. According to the Associação Catarinense de Empresas de Tecnologia (ACATE)[5], in 2015, there were more than 5,3 thousand entrepreneurial partners (ACATE, 2015).

Part of the development of the entrepreneurial character is due to the formation of qualified professionals formed by higher education institutions which consubstantially have as their main goal the training of competent citizens well prepared to work in the competitive marketplace.

Schmitz et. al. (2015) emphasize that there has been a large increase in the literature related to innovation and entrepreneurialism inside universities over the last years. However, the same literature also identifies that there are weaknesses in systematic and holistic investigations, taking into account both the economic and the social aspects of entrepreneurialism and innovation (Schmitz et al., 2015).

Aranha and Garcia (2014) explain that the development of entrepreneurial universities in Brazil needs more research in greater depth. It must contemplate some entrepreneurial activities that happen in the country in large scales, but still, receives a relatively low attention in the context of Brazilian higher education.

Brazilian universities of the 21st century, therefore, have the important challenge of integrating innovation and entrepreneurialism in their tripods (teaching, research, and extension). They are asked to expand their collaborations in support of the social and economic

[5] The Associação Catarinense de Empresas de Tecnologia (ACATE) has been working since 1986 to promote the development of the technology sector in the State of Santa Catarina. Throughout its activities, ACATE has consolidated itself as one of the main interlocutors of Santa Catarina's technology companies, together with the municipal, state and federal public authorities, as well as other representative entities and institutions of the technological sector, not only in Santa Catarina but in Brazil.

development, especially in the environments in which they work. In the case of education, the challenge is to implement teaching environments and methodologies that could be innovative, aiming to develop the entrepreneurial character of the students. At the same time, it is extremely urgent to focus on the development of curriculum changes. It supposes the introduction of entrepreneurialism and innovation concepts and practices through activities that worry about the learning of its graduates, who will share their knowledge with the society and with other organizations (Schmitz et al., 2015).

In this context, some research questions on the subject of innovation and entrepreneurialism and its straight relationship with professional capacity are brought up, leading to the purpose of this study. It aims to identify if undergraduate management programs have an influence on the development of an innovative city. Moreover, the study investigates what the incentives for innovation and entrepreneurship that undergraduate management programs of public universities located in Florianópolis have in their educational activities to stimulate this behavior on the students are.

As an object of study, this investigation focused on the two most important undergraduate management programs, according to the evaluation established by the University Ranking of Folha de São Paulo[6] (RUF, 2016). The investigated Universities offer undergraduate management programs at their main campuses located in Florianopolis, i.e. university A and B.

2 LITERATURE REVIEW

Although the literature about innovation, entrepreneurialism, and universities seems to be recent, the topic by itself is not. Some institutions like the Organization for Economic Cooperation and Development (OECD), an international organization composed of 34 countries that aim at the economic development and the well-being of the people, have been researching and working on this subject.

As well as the Financier of Studies and Projects (FINEP) a Brazilian public company that provides support for science, technology, and innovation. FINEP recognizes innovation as a powerful allied in the effort to raise the competitiveness of Brazilian companies (OECD, 2005). Both Institutions, OECD, and FINEP worked together for the development and the translation of the Oslo Manual and its dissemination in Brazil.

[6] The Ranking of Folha de São Paulo (RUF) is an annual evaluation of Brazilian higher education coordinated by Folha de São Paulo newspaper since 2012. The RUF evaluates the universities based in five indicators: scientific research, quality of teaching, internationalization, job market and innovation.

The Oslo Manual is the most important international source for guidelines for the collection and use of data on innovation activities in industry. “It can determine the scale of innovation activities, the characteristics of innovation companies and the internal and systemic factors that can influence innovation, it is also a prerequisite for the search and analysis of policies designed to foster innovation” (COMPETE, 2020).

The Manual brings the concept of innovation as "the implementation of a new or significantly improved product, or a process, or a new marketing method, or a new organizational method in business practices, the workplace organization or external relations"(OECD, 1997, p. 55).

Tidd et al. (2001) consider innovation as a process that transforms a particular opportunity into new ideas and applies them so that they are widely used. Myers and Marquis affirm that "innovation is not a single action, but a total process of interrelated sub-processes. It is not only the design of a new idea, the invention of a new device or the development of a new market. The process consists in all these things acting in an integrated way "(as cited in Trott, 2012, p.15).

About the concept of entrepreneurialism, Audy and Morosini (2006) states that:

> “In this sense, entrepreneurship is related to the resolution of day-to-day problems, in agile and innovative way, and to the development of new opportunities for professional and social growth (creating new companies, creating jobs and income, developing and applying new technologies, constant search for greater productivity and competitivity, better quality of life, more culture and knowledge)” (Audy & Morosini, 2006, p.47).

Zhao (2005) argues that innovation and entrepreneurship are present in organizations as continuous processes and together they complement each other in improving the organization's performance.

Joseph Schumpeter, the economist of the twentieth century, was one of the first scholars to consider technological innovations and entrepreneurship as drivers of the capitalist development (Freeman, 2003). According to Freeman (2003), Schumpeter considers innovation as the key to the growth of society and its economy, which would occur through effective competition. Schumpeter also shows that each company has its characteristics and thus how it is administered influence how innovative it is (Freeman, 2003).

Audy and Morosini (2006) also explain that "while society becomes more knowledge-based, some companies are changing their characteristics, and the labor market becomes more

knowledge-intensive. It creates new demands for new professionals" (p.57). Against this backdrop, there is the idea of an entrepreneurial university, which seeks, through academic training, contributing to solving society's problems, which have become more complex (Audy & Morosini, 2006).

Considering that universities are institutions of generation, dissemination and with the wide potential of knowledge application, they began to develop an even more important role in the knowledge society regarding the development of their regions, states and countries (Schmitz et al., 2015).

Different authors have distinct positions about the issues considering innovation, entrepreneurship, and university. Clark (1998) brings considerations on the matter stating that "without a doubt, significant innovations in a university means that some fundamental tasks and some deep-seated structures will suffer some changes to the point where the direction of the institution, in the long run, will change" (p.3).

Gibb (2002) defends the practice of entrepreneurial education, which aims to develop entrepreneurial skills. Etzkowitz (2003) considers the university as a favorable environment for innovation due to its high concentration of intellectual capital and knowledge, where future entrepreneurs can arise among the students.

For this practice to take place effectively, it is necessary to institutionalize a new vision of the university, as well as to put in practice the implementation of mechanisms that would make it possible, reveal Audy and Morosini (2006). The authors state that the "balance between tradition (represented by academic values) and renewal (represented by new demands of society) is the difference that the best universities of the future are building today" (Audy & Morosini, 2006, p.68).

The interest in modifying some university practices, to become the most innovative and boosters of entrepreneurship, brought the need to develop areas of interdisciplinary studies as explained by Audretsch (2014). This new reality also creates new pathways of research aimed at developing solutions to specific challenges and problems of the society, as well as identifies institutions and mechanisms that have as an objective the sharing of knowledge between universities and governmental or nongovernmental organizations.

Some important steps are relevant to Audy and Morosini (2006) when they discuss the process of innovation developed inside the universities: the transfer of the results obtained in the institution through companies and policies to the society and the protection of university's intellectual property, derived from their academics.

The authors, Audy and Morosini (2006), also explore research with a social and interdisciplinary approach and, the strengthening of partnership with government and industry, which is called the triple helix (University-Company-Government). For them, this form of cooperation is very important to the development of an entrepreneurial university.

In the sphere of higher education, some of the challenges are emphasized by Schmitz et al (2015), such as the need to implement learning environments and innovative methodologies, aiming the development of the entrepreneurial spirit of the students. A curriculum reform and the introduction of entrepreneurship and innovation through activities concerned about learning and training to graduate students are also relevant, especially because they will share their knowledge to society and organizations.

3 METHODS

A systematic literature review, using previously defined keywords inserted in a scientific database (EBSCO) was developed to support this investigation. It consisted of a scientific research strategy that follows "a rigorous method of search and selection of research," besides the "evaluation of the relevance and validity of the studies found" (Galvão, 2004, p.550).

This research used a qualitative methodology, which is defined by Creswell (2010) as "a means to explore and to understand the meaning that individuals or groups attribute to a social or human problem" (p.26). This methodology is suitable for this study once it aims to understand the incentives for innovation and entrepreneurship that the undergraduate management programs of public universities located in Florianopolis (the Federal University of Santa Catarina and the State University of Santa Catarina) offer to the students through their teaching and research activities.

The data collection is a result of in-depth interviews with the Coordinators of the undergraduate management programs of the aforementioned public universities. The objective of the interviews was to "understand the meaning attributed by the interviewees" (Martins, 2009) regarding incentives to innovation and entrepreneurialism of undergraduate management programs at A and B.

The data obtained was described and analyzed, considering the theoretical contributions on the subject. The socioeconomic and political processes that determine it and its connections with reality were also investigated.

4 DATA COLLECTION

In-depth interviews conducted with one professor of each management undergraduate program of the selected public universities located in Florianopolis: the university A and B gave the necessary elements to the final research analysis. The interviews lasted an average of 20 minutes each and were held in December 2015.

About the studied Higher Education Institutions; it is important to consider that the University A is a federal public institution. In 2015, according to the Ministry of Education (MEC), university A was ranked in the 6th place among universities with the highest score in the country (MEC, 2015).

The University B is a public institution maintained by the Government of the State. In 2013 the Ministry of Education evaluated it as the fourth best university in Brazil and the first in the State of Santa Catarina among other undergraduate programs offered in the State (MEC, 2013).

To develop some Categories of Analyzes to be used in this research and applied during the interviews, some prominent authors were consulted and served as the theoretical basis for the study as shown in Table 1:

Table 1 – Categories of Analyzes

Categories of Analyses	Authors
Perception of program coordinators	Etzkowitz (2003)
Offer of innovation and entrepreneurship subjects	Audi and Morosini (2006), Clark (1998), Schmitz et al. (2015)
Students profile	Schmitz et al. (2015), Etzkowitz (2003), Clark (1998)
Professors training	Audi and Morosini (2006), Aranha and Garcia (2014)
Research groups	Audi and Morosini (2006), Clark (1998)
Laboratories	Audi and Morosini (2006), Schmitz et al. (2015)
Partnerships and knowledge transfer to business and society	Audi and Morosini (2006), Audretsch (2014), Aranha and Garcia (2014), Schmitz et al. (2015)
Innovative Methods	Audi and Morosini (2006), Etzkowitz (2003), Schmitz et al. (2015)
Partnerships with universities abroad	Audi and Morosini (2006), Etzkowitz (2003)
Intellectual property encouragement	Audi and Morosini (2006), Schmitz et al. (2015)

Source: Elaborated by the authors, 2017.

The Categories of Analyzes shown in Table 1 included: perception of management undergraduate program coordinators; offer of subjects focused on innovation and entrepreneurialism; students profile; professors training; research groups; laboratories, partnerships and knowledge transfer to business and society, innovative methods, partnership with universities abroad and, intellectual property encouragement.

5 DATA ANALYSIS

The first reviewed category was the perception of the respondents about the undergraduate management program at their Institution and its relation to the entrepreneurial and innovative behavior. In this category, university A respondent considers the Institution's undergraduate management program as entrepreneurial and innovative since it has specific subjects offered in their curriculum as Entrepreneurial Culture and Creativity; Management and Innovation Labs; Innovation and Knowledge Training; Entrepreneurship and Negotiation Models. University B respondent considers the institution's programs somehow entrepreneurial and innovative since it does not have any courses specifically focused on these themes. However, it is clear that the Institution is discussing what would be the most appropriate way to structure the curriculum, inserting subjects about entrepreneurialism and innovation or replacing these issues so that they will contemplate all subjects offered.

When asked about the profile of the students, it is clear that for University A Program Coordinator, the student should be autonomous i.e. being an entrepreneur, either within an organization or managing its own business. For B Program Coordinator, the profile of the student today would be more related to the ability to learn and process information, which requires technology focused interest and knowledge.

Regarding the category of the professor's training, both Institutions representatives say that they have incentives to provide training such as post-doctoral scholarship programs to send their professors abroad.

In the category of partnerships between universities and private sector organization, both interviews provide clear evidence about the difficulty of Higher Education Institutions in formalizing this type of partnership for academic programs in the management area. University A, for example, develops partnerships just with public institutions such as the Federation of the Industries of the State of Santa Catarina (FIESC). University B maintains some small projects that are extremely punctual. The respondent of University B makes it clear that there are mechanisms for this type of partnership in the management area. Although there exist some studies coordinated by professors of this Institution that take this kind of partnership into

account. They have obtained some relevant results. The Program Coordinator also states that while there are no incentives, there aren't prohibitions as well, but they all understand that the Institution lacks a clear orientation towards innovation initiatives.

Still within the category of partnership and knowledge transfer, regarding the society engagement, it was clear that neither university A nor B maintain a mechanism for transfer-oriented knowledge towards the society in their undergraduate management programs. What these Institutions claim is that bearing in mind knowledge is their outcome, they do not aim the development of a product or service offered to the society. Their contribution focus on building capacities and developing managerial skill on future professionals considering that soon they will be acting in the marketplace.

When questioned if teaching methods are innovative, university A Coordinator says that the Institution is changing. Recently it begins to count with a Laboratory in Management and Innovation, with a different layout of the classrooms. It uses new technology, such as interactive whiteboards. At university B it was not possible to find evidence of innovative teaching methods.

In the category concerned partnerships with universities abroad, both Institutions develop international collaboration projects with institutions located in South America, in the United States and, in Europe. Regarding intellectual property, it is clear that there is a concern of both Institutions to protect their intellectual property, but there is no adequate guidance on how to proceed about this fact.

Finally, both Respondents answered questions about what would be necessary for an undergraduate management program to be considered innovative and entrepreneurial. Questions were about which higher education institutions they could cite as examples that count with these characteristics. For university A's Coordinator, the key question would be flexibility in the Program, making them dense, full of content. It must consider professors 'roles as facilitators and mediators using student oriented methodologies. This way the student would be fundamental with a high level of responsibility in the learning process. The respondent also points out that it would be necessary a greater maturity of the Brazilian society and the educational system to start thinking progressively in this direction. As an example, the respondent mentions some American universities as the most innovative and entrepreneurial models. Those institutions require the student to be very active and participative while they are at the college.

The interviewee of university B defines that, for an undergraduate management program to be considered innovative and entrepreneurial, it is important to highlight innovation and entrepreneurialism characteristics and bring them to the discussion with the students since the beginning of the Program. It is as necessary as creating an entrepreneurial lab that stimulates research; or an incubator that could interact with other knowledge areas. This Professor mentioned some universities that are already working based on an innovative model which are the University of Stanford and Berkeley University.

To better understand the points of view of each Institution the chart below highlights some of the most important aspects on Table 2.

Table 2 –Results Analysis

Categories of analyses	**University A**	**University B**
Perception of Program Coordinators	The Coordinator considers the Institution's management program entrepreneurial and innovative.	The Coordinator considers the Institution's programs somehow entrepreneurial and innovative since it does not have any courses specifically focused on these themes.
Offer of innovation and entrepreneurship subjects	Entrepreneurial Culture and Creativity; Management and Innovation Labs; Innovation and Knowledge Training; Entrepreneurship and Negotiation Models are subjects regularly offered.	Entrepreneurship and innovation contemplate all the subjects offered.
Students profile	The student should be autonomous.	The student must show the ability to learn and process information, which requires technology focused knowledge.
Professors training	Incentives to provide training such as post-doctorate scholarship programs.	Incentives to provide training such as post-doctorate scholarship programs.
Research groups	The existence of some research groups was registered.	No evidence found.
Laboratories	Management and Innovation Labs are available to the students.	No evidence found.
Partnerships and knowledge transfer to business and society	They do not transfer knowledge as a new product or service but graduate professionals with the managerial skill to act in the society and the business marketplace.	They do not transfer knowledge as a new product or service but graduate professionals with the managerial skill to act in the society and the business marketplace.
Innovative Methods	Some evidence, for example, Laboratories structures.	No evidence found.
Partnerships with universities abroad	Some partners in Peru, USA, and Germany.	Evidence of some partners in the USA.
Intellectual property encouragement	Characteristic not stimulated.	Characteristic not stimulated

Source: Elaborated by the authors, 2017.

6 FINAL REMARKS

The results obtained in this investigation indicates the necessity for deeper discussions, and profound analysis focused on the restructuring of the education system of the management undergraduate programs. They also show a restlessness of the surveyed Coordinators and their wishes for changes, but it is still necessary the count with the support of the Institutions to facilitate and enable the necessary changes to develop more innovative and entrepreneurial undergraduate programs.

It is also possible to conclude that the changes proposed involves the restructuring not only of the programs but also in the organizations that regulate the education in Brazil, as well as throughout the society (researchers, professors, institutions, businesses, students).

The approach between university, industry, and society must happen, and this is a great challenge for Brazilian universities.

It is a complex movement that must involve all stakeholders and promote the development innovators and entrepreneurial characters on the students. With all the technological and behavioral changes that the society is experiencing, it will no longer be possible to work in a company without developing these skills and the University is the appropriate environment to encourage students to become “professionals of the future” that the society is demanding.

The limitation of the study is given by the fact that only two institutions have been investigated. This article suggests the possibility for further studies about how Brazilian universities can restructure their management undergraduate programs to become more innovative and entrepreneurial, considering the vision of all stakeholders, including company owners and students, once they represent a relevant part of this scenario. In addition it is pertinent a larger study involving institutions of all State and comparing public and private.

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