

The extension as an opportunity for the construction of an innovative university

Key words: Entrepreneurship. Innovative university. Innovation. Teaching-research-extension.

General Track: Management and Strategy

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Abstract

This research has the objective of analyzing, from the literature perspective, UFSC institutional repository, university extension programs to be offered to the market. Method: qualitative study, with a bibliographical approach and use of Systematic Search Flow systematic review method. Results: the main contributions of the literature are presented, as well as the systematization of the research construction process. Conclusion: the emergence of the innovative university is essential within this constantly changing environment, since research, teaching and extension triad represents the fundamental pillars for the explanation and scope of the university's role in the market.

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1. Introduction

The context of this study translates into a scenario in which innovation and entrepreneurship, increasingly, become necessary in organizational contexts, including in the university. In this scenario, this study seeks to analyze the possibilities for the university to approach the market, in order to understand the main possibilities of this partnership.

In the sections that follow, the theoretical considerations, the method, the results and the final considerations of the research will be presented.

2. Historical considerations about extension programs and university

The contributions of Mazzilli (2011) discuss the idea of university in Brazil, bringing some historical notes. The Brazilian educational system, as well as its implantation, has a strong influence of the European model of university, anchored to the classic university functions, based on the conservation and transmission of culture, instruction of professions and the addition and construction of new knowledge. These models, in turn, are associated with movements that occurred in the eighteenth century, which influenced the universities in their social role and functions, in view of the rearrangement of forms of production, social organization and power structure. In this period, the industrial revolution, the rise of capitalism and the propagation of liberal ideas were established.

The concept of the European university model is based on the English and German models, and the English model was based on the conservation and transmission of knowledge, with its principles anchored in the neutrality of science and in the dissociation between teaching and research. The German model, on the other hand, has brought to light the explanation of a new paradigm, with the consolidation of scientific research as a function of the university, being the first experience of integration of these two bases. In this context, the French

model, which later became explicit in the Portuguese and Latin models, was characterized by different aspects of the German and British standards, being fundamentally associated with the formation of public servants for the state (Mazzilli, 2011).

For Gurgel (1986) the origin of the Brazilian university extension connects with two aspects: the model of European popular universities, which sought to offer courses of shorter duration and for the population in general, and the North American model of extension, which aimed at providing services, under the influence of two proposals: cooperative or rural extension and university or general extension. According to Diniz (2012), these two fronts were present at the origin of the Brazilian university extension, as well as in its later developments, having a strong influence (to a lesser or greater degree) in the construction of extension practices and policies.

According to Mazzilli (2011) the French model was perpetuated in Latin America for a certain period, and was interrupted by the university movement of Córdoba-Argentina in 1918, being considered an important milestone for the extension activities, since it represents the manifestation in the search reform of university bases. The author also emphasizes that within this process, the incorporation of university extension, "as a means that makes it possible to concretize the university's commitment to the people and make it a center par excellence for the study of the great national problems" (Mazzilli, 2011, p. 4). It should also be added that, as a result of the movement, and as one of the major lawsuits, the extension programs between the years 1920 and 1930, consolidated in the world scenario, being explicit in the legislation of the great majority of countries. For Gurgel (1986) the proposal of Cordoba shows its importance, from the moment it builds spaces for the formation of a more critical university.

According to Diniz (2012 apud Nogueira, 2005), the first legal registration regarding university extension is found in Decree No. 19,851 of April 11, 1931, which refers to the Statute of Brazilian Universities. According to the decree, "The university extension will be carried out by means of courses and conferences of an educational or utilitarian nature ..., by the various institutes of the university, with previous authorization of the university council." Regarding the purposes, the article still states in paragraph 1: "The courses and conferences referred to in this article are intended primarily for the dissemination of useful knowledge to the individual or collective life, to solve social problems or the propagation of ideas and principles that safeguard the high national interests ". According to Diniz (2012), this first step towards the extension of legal scope shared a close relation with the nationalist principles present at that time. However, in the view of the author, the extension still had to go a long way until obtaining some highlight, being verified, still as an isolated activity.

According to Rocha (1984, p.54-55), with regard to the emergence and evolution of university extension in the country, it is possible to perceive three well-defined moments: "the period of pioneering experiences; the period of isolated experiences and the dissemination of ideas and the development of actions from the social movements; and the period of greater institutionalization of university extension".

The first moment happened between the years of 1912 and 1930 and is characterized fundamentally by the foundation of the Popular University and Superior School of Agriculture and Veterinary of Viçosa, having as strong influence the American college Land Grant Colleges, which contributed to the foment of ideas for the construction of extension courses and the provision of services on the basis of university extension.

The second moment happened between the years of 1930 and 1968, being characterized by the student movements in favor of the university reform, with emphasis the national commotion, that aimed at the institutionalization of the extension, via statute of the universities in 1931. The following years are marked by the consolidation of some important fronts related to extension, such as the University of Brasília, the cultural extension service of the University of Pernambuco and the Rondon Project.

The third moment, of the national institutionalization of the extension, happened between the years of 1968 and 1976, being its fundamental foundations the "advent of the Law nº 5.540; the dissemination of extensionist ideas by the Council of Rectors; the emergence of the Advanced Campuses - as strategic extension proposals; and the emergence of the National Coordination of CRUTACs - CINCRUTAL", being this moment characterized by the structuring character, with the emergence of the Ministry of Education and Culture (MEC) and Coordination of Extension Activities (CODAE), as well as an administrative set for planning.

Finally, Gurgel (1986, p.176) considers that: "extension should be seen as an enabling space for establishing a connection with the working class, allowing an exchange of knowledge, in which the university learns from popular knowledge and advise the populations in the sense of their critical emancipation." In the following section, some considerations about extension curricula will be presented.

2.1 Curriculum extension

The origin of the curricularisation of extension comes from the consolidation of Law 13.005 of 2014, which refers to the National Education Plan (PNE). Regarding the strategies provided by the Law, Goal 12 aims to: "raise the gross enrollment rate in higher education to 50% (fifty percent) and the net rate to thirty-three percent (33%) of the population of 18 (twenty-five) to 24 (twenty-four) years, ensuring the quality of the offer and expansion to at least 40% (forty percent) of new registrations in the public segment." Paragraph 12.7

provides: "to ensure, at least, ten percent (10%) of the total credits required for graduation in university extension programs and projects, directing their action, primarily, to areas of great social relevance".

For Imperatore, Pedde and Imperatore (2015) the advent of the curricularisation of extension gives the universities the challenge of reflecting on the concepts and practices of extension, the curriculum and the institution itself. In Santos and Tomaz's view (2017), the construction of the new National Education Plan, foreseen for the 2014-2024 decade, arises from the need to update institutional, academic and curricular structures, which also reflect the perspectives of the postdoctoral period, influenced by neoliberalist ideas and which are reflected in the current scenario of Brazilian higher education, in the sense of expanding access to higher education and technical schools, as well as in the quality of teaching, of teachers, of their appreciation, and the access by young people to high school and higher education, among others.

2.2 The challenges of today's university

The emergence of an entrepreneurial university The construction of this section starts, reflectively, from the propositions presented by Otani (2008), whose main theme of his thesis focuses on the emergence of the entrepreneurial university. For the author, under the backdrop of the university in contemporary times, the academic transformations that have so much guided the university ecosystem along its time line, open space for other transformations, those of a social nature, imputing in the university, the sum of a series of aspects far beyond the limits imposed by the academic environment.

According to Otani (2008: 68), "the university's relations with economic and social development; production and knowledge management; the differentiation between the system of public and private education, university autonomy and the evolution of information technology, among others. "For Clark (2001) the diversity of demands and challenges will influence the path of universities, the central point of the question is precisely how institutions respond and use their forces to meet these demands and challenges - according to the author, proactive universities shape their environments as much as they are shaped by them.

Otani (2008 apud Clark, 2003) raises five challenges related to the process of change in university institutions: (1) a coherent dialogue in relation to new and traditional institutional values; (2) the incentive for the construction of new structures and / or innovation environments; (3) fostering diversification of funding sources - in the face of sustainability; (4) the encouragement of the student body for the process of change; (5) and the construction of an entrepreneurial culture. Within this scope, it is noteworthy to highlight the legislative importance for innovation, in which more recently the formalization of Law no. 13.243, January 2016 -

Innovation Law, which provides incentives for scientific development, research, scientific and technological capacity building and innovation. It amends Law 10.973 of December 2, 2004, Law No. 6.815, of August 19, 1980, Law No. 8.666 of June 21, 1993, Law No. 12.462 of August 4, 2011, Law No. 8.745, dated December 9, 1993, Law No. 8.958 of December 20, 1994, Law No. 8.010 of March 29, 1990, Law No. 8.032 of April 12, 1990, and Law No. 12.772 of December 28, 2012, pursuant to Constitutional Amendment No. 85, of February 26, 2015.

Among the main changes, it is worth mentioning Mancebo and Silva Junior (2016), the changes regarding the participation of teachers, under a regime of exclusive dedication in research projects, besides facilitating the use and transition of these actors between laboratories and companies, which provides these actors with a more secure legal framework and consequently contributes to the fostering of university-company interactions and partnerships for the development of technological innovations.

According to Clark (2001), the entrepreneurial university, increasingly, will adapt to the new challenges established in the contemporary world, having as a background the emergence of new forms of knowledge, types of students, new connections of the workforce and new problem-solving skills for government and economy.

3 Method

This is an exploratory research, because it is sought to be more familiar with the problem, making it explicit. With regard to technical procedures, it is characterized as a bibliographical research, and its base is constructed from already developed materials - explicit in books and scientific articles (Gil, 2010). The present research has a qualitative approach, focusing on the systematic review of the literature. This research was based on the SSF - Systematic Search Flow method, developed with the objective of guaranteeing the repeatability in the search process for scientific databases, being common in both the systematic review and the integrative review (Ferenhof and Fernandes, 2016).

The method is divided into 4 stages - with 8 activities, the first stage being responsible for the definition of the research protocol, the second stage dedicated to analysis, the third stage for synthesis and the fourth and final step for writing - information explicitation. It is worth highlighting again the character of repeatability, which preserves those who wish to use the same descriptors, scientific bases used in this article and search period, the guarantee of reaching the same search results.

4 Results and Discussion

In the following sections we will present the main results about the objectives established by this study.

4.1 Characterization of the researched scientific works

The objective of this section is to detail the main aspects related to the scientific works researched and to analyze them, in order to understand and explain to the reader, the main criteria used to select the works.

It was decided to search the Institutional Repository of UFSC - Federal University of Santa Catarina, because as the authors are researchers of this institution, they need to know the extension actions developed in this organization for future studies, to seek greater understanding, with research in other Brazilian universities. The following descriptors were used:

- Innovation and university extension;
- · University extension AND innovative university.

Regarding the criteria for the use of scientific papers, the following inclusion criteria were used:

- Both terms present in the title OR summary;
- Scientific articles, theses and dissertations;
- Studies that address the object of interest of the research.

From the use of the key terms, 49 records were obtained. After applying the first inclusion criterion, 15 records remained. In the final filtering, after the application of the third criterion, the research reached the final scope of 14 works.

4.2 Aspects analyzed

Among the results, we have the number of publications per year, considering the articles of the portfolio, according to Figure 1.

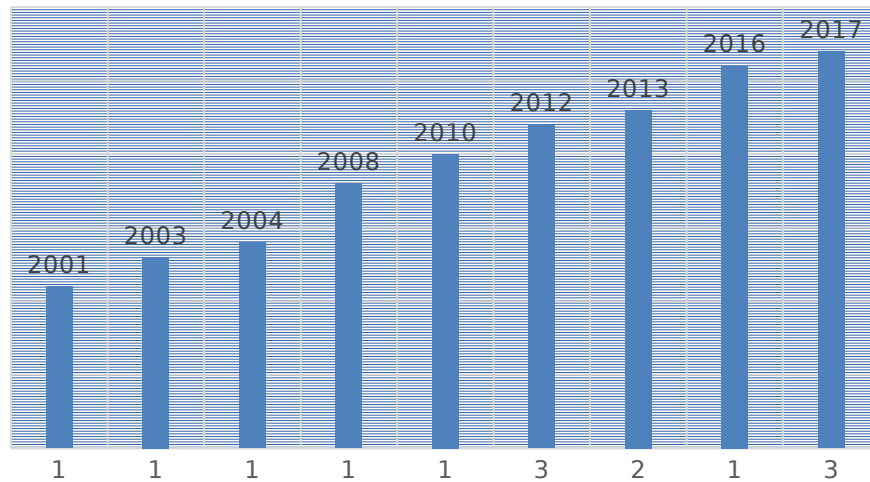


Figure 1 - Number of publications per year.
Source: prepared by the authors.

In Figure 2, it was possible to identify the keywords that were most repeated, in which Innovation and University Management were evidenced with three occurrences. The relationship between University-company stood out with three occurrences, but in different formats. All other exposed keywords have been verified at least twice.



Figure 2 – Keywords that were most repeated.
Source: prepared by the author.

It should be noted the number of studies related to the Theses or Dissertations: the first one representing a total of 04 papers and the second a total of 10 papers.

Section 4.3 will present the main results about the analysis performed in the empirical literature for the construction of an innovative university.

4.3 The considerations of the empirical literature for the construction of an innovative university

The contributions presented by Otani (2008) discuss issues related to the construction of an entrepreneurial university, where it was possible to verify that the university context is still under the influence of an Industrial Age culture, with a focus on employee training, which contrasts with the current promotion of entrepreneurial training.

From the contributions presented by Otani (2008), it is possible to conclude that in the emergency for the construction of an entrepreneurial university and in the face of the explicitation of constantly changing environments, this transition fundamentally involves maintaining the university's "main mission" from of the indissociability between Teaching, Research and Extension. The author adds: "The vision of an entrepreneurial university focuses on one more aspect, or challenge, to bring universities closer to social demands, positioning themselves as vectors of economic and social development and transforming the knowledge created into added value."

The perspectives enumerated by Schmitz (2017) corroborate with Otani (2008), when discussing innovation and entrepreneurship in the university environment. It is perceived that, in the university context, innovation and entrepreneurship are understood as an effort committed by the universities in order to maintain sustainability in an environment that is constantly changing, having in the teaching-research-extension pillars for the generation, dissemination, economic and social development in the environment in which it is inserted, being fundamental pillars present in the innovative and entrepreneurial university.

In terms of the extension function, and the contributions to regional socioeconomic development, the activities that stood out most concerned the creation of new businesses - with an emphasis on solving social problems, generating jobs and transferring knowledge ; and the provision of scientific and technological services. As for the contributions to the institutional sustainability, it is possible to emphasize: generation of financial resources with the explicit provision of services; renting subsidized by companies that use the services of technology parks; transfer of technology (licenses / royalties); and participation in established enterprises and extension courses.

Tecchio (2010) analyzes issues related to university-company cooperation, in order to complement Otani (2008), by punctuating the paradigmatic change in which factors of production give place to knowledge as a factor for the generation of wealth and development - "simplistic" scope that this statement applies only to the business sector, but also to society in general, where a scenario of constant and rapid transformations is firmly

established. In this context, the author still points out the correlation between the countries with the highest knowledge dominance in order to build better levels of productivity and income; and consequently to achieve better living conditions for the population; and in this sense it is necessary to construct innovative environments that are capable of providing the necessary conditions for the dissemination of innovation.

For Tecchio (2010), the interaction of three fundamental agents: government-university-business segment - anchored in a National Innovation System - being the university considered a repository of knowledge and a fundamental basis for innovation. Despite emphasizing the importance of this relationship (university-business), the author emphasizes the inexistence of guidelines that give account of the mechanisms for the accomplishment of this interaction, which assigns it fragmentation and incipience due to the lack of specific legislation under the institutional and federal.

The lack of a clearer and more consolidated legal framework imposes and generates a series of discussions during the process, generating different visions and interpretations. In sum, according to Tecchio (2010, page 132), the main difficulties are:

different views on University-Business cooperation, lack of clear legislation to guide the process, non-institutionalization of University-Business cooperation, lack of a culture focused on innovation and dichotomous visions between academia and the business segment.

The perspectives presented by Marcheze (2004) discuss the expansion of Brazilian higher education and its impact on educational institutions, which increasingly need to approach innovation, entrepreneurship and the elaboration of competitive strategies as a way to maintain their competitiveness - in the public and private spheres. As for the non-fulfillment of the large number of vacancies in universities, due to the large percentage of individuals enrolled, both in public and private education, there is an inadequacy of management in these institutions, which can not find solutions to the present problem. In this sense, the author proposes the appropriation and operationalization by the IES of management tools, especially benchmarking, as a way of tracking a success trajectory based on comparative analysis and the appropriation of better management practices.

For Souza (2016), the aspects related to university social responsibility, increasingly, are evident and assume a role of great importance for the institutions, much due to the ethical and legal aspects inherent in these processes, amid the returns to be committed education institutions to society. For the author, this responsibility is based on four fundamental pillars: management, research, teaching and extension, being possible to verify a great influence committed by these projects in a great chain of actors internal and external to the organization. Social issues are addressed within the university environment in a more generalized and voluntary way,

requiring a more specific action by the management of the extension in the institutions as well as the promotion of debates and the emergence of environments that work the theme, so to build a more favorable culture for the dissemination of social projects. It is important to emphasize the importance of promoting the inseparability between teaching-research-extension, in order to open the way for the strengthening of the theme and its dissemination among the actors involved.

The contributions presented by Muller (2001) collaborate with the contributions made by Souza (2016) in emphasizing the important role of non-profit institutions, in face of the challenges required by society, which require rapid and efficient responses. For the author, the recognition of university institutions by the tripod society-business-government is fundamental for its sustainable perpetuation over time, constituting a growing spiral of recognition from the managerial (strategic and operational) efficiency, which will be explained in obtaining (loans), clients, projects, political support, partnerships, financing for projects and conducting joint actions (university-company), which contributes to the strengthening of teaching, research and extension activities. In this context, the management of the financial variable is fundamental within the university context, in order to enable the conduction of its projects; From this point of view, the author emphasizes the emergence of the Balanced Scorecard as an important instrument for making available constructs for the general visualization of the institution.

The contributions presented by Barros (2017) collaborate with the perspectives of Tecchio (2010), addressing issues related to the important role played by universities in the business context, with the aim of strengthening innovation within organizations through partnerships established between university -enterprise, the light of the triple-helix theory. Against this background, it was possible to identify, as limitations for the strengthening of cooperation between the two actors, the necessary bureaucracy to establish partnerships, structure and teaching time and communication problems.

For Pacheco (2017) the establishment of knowledge management practices in the university environment is fundamental for the management of teaching, research and extension activities, in order to intensify and make possible the consolidation of the principle of indissociability of this triad as well as in the establishment of constant institutionalization of knowledge by the organization. For the author, the institutionalization of knowledge makes possible its use as a stimulus for the consolidation of innovation in teaching, research and extension activities, under the background of the absolute vision of the environment, creative routines and dialogue, considered by the author , key elements in this process.

Borges (2013) discusses the importance of university management of extension projects for the promotion of results, under the background of social management. The integration of research, teaching and extension activities as well as the strengthening of partnerships between university and organized civil society are important activities and make possible the dissemination of social entrepreneurship and its contribution to building a society with sustainable development.

Under the background of the Innovation Law enacted in 2004 (No. 10,973), which, among other things, established measures for structuring an internal body in universities and federal institutes, called the Nucleus of Technological Innovation (NIT). It is possible to verify that, according to Souza (2013), the performance of NITs through any innovation process is important for establishing the ideal structure in the university environment, as already pointed out by Barros (2017), in order to construct a good dialogue with all actors in this process and create a cleaner and easier way of communication, attributing to NITs the role of interlocutor in this process.

For Franco (2003), the use of information technology is increasingly evident in the university environment, and this promotion is committed by consolidating the teaching-research-extension triad in its use in relation to structural, procedural and behavioral university aspects, being possible to verify the influence of these technologies in the organizational aspects, in the university environment.

According to Azevedo (2012), university extension plays an important role in the university environment, because it articulates and makes feasible in an inextricable way with teaching-research the relationship with society. Thus, university management emerges, with a fundamental role in this process when it comes to the use of evaluation tools for the continuous improvement of internal institutional processes, and it is possible to verify that the permanent use of these instruments is essential in order to contemplate all items proposed by the MEC, SINAES and National Extension Plan.

It was possible to verify, from the contributions presented by Pereira (2012), that universities have the conditions to contribute to the technological development of companies through the teaching-research-extension triad. From the point of view of the case studied, there is a need for a cultural change in the university environment, with the aim of breaking down barriers and aligning the discourse of the various actors involved in the innovation process, so that the scientific and technological knowledge present in the universities is transferred and disseminated to society, leveraging the framework of possibilities.

The perspectives presented by Tosta (2012) highlight the change in the traditional university axis, centered on the university as a knowledge producer, from teaching and research to a university as a catalyst for

the development of technological innovation, anchored in knowledge. According to the author, this catalytic activity is established through the promotion of five catalyzing factors: research and creation of knowledge; creation and training of human capital (research); culture of innovation (teaching); university-enterprise partnership for knowledge sharing; and investments and infrastructure (extension).

5 Final Considerations

The study context, as already mentioned, deals with issues related to the disclosure of innovation and entrepreneurship as sources of great relevance to the organizational contexts, which are constantly changing. Within this context, this work sought to analyze, from the perspective of the literature, the possibilities of extension to the reach of the university in the market, present in the UFSC institutional repository.

From the empirical literature analysis, the contributions made explicit the maximization of the transition perceived in the university environment, related to the industrial culture for the knowledge era, in which the organizational knowledge management is evidenced as a fundamental basis for the maintenance of competitive advantages organizations. The maintenance of these new bases brings with it the explanation of constantly changing environments, residing in the indissociability between Teaching, Research and Extension, pillars for the construction and consolidation of an entrepreneurial university, close to social demands and in order to act as a vector of economic development and social.

Regarding the aspects related to the inseparability between Teaching, Research and Extension, it was possible to verify that most of the authors analyzed, evidenced the important role played by the triad for the emergence of the entrepreneurial university, which leverages a framework of possibilities and approaches the university of social demands, with the generation and dissemination of knowledge in the light of economic and social development, which refers to a strong influence on the chain of internal and external actors in the organization.

In this perspective, the consolidation of practices related to knowledge management, which must act in the sense that the inseparability between Teaching, Research and Extension makes possible the constant institutionalization of knowledge by the organization as well as its transfer and dissemination to society.

It was possible to verify some considerations about the importance of the concept related to the Triple Propeller, which represents the interaction between Government, Universities and Companies. It is also possible to verify that the emergence of the Entrepreneurial University interacts with these actors, establishing themselves as an interlocutor. The university establishes itself in this environment, as a producer and holder of

knowledge, which generates the need to transfer it to the network of actors, in order to transform this knowledge into innovation and validate the institution's role in society, creating a path cleaner and easier to communicate.

Muller (2001), who emphasizes the importance attached to the recognition of university institutions by the tripod society-business-government, which contributes to its long-term sustainability through the strengthening of partnerships and the promotion of Teaching, Research and Extension projects. which influences a large chain of actors (internal and external).

It should be noted that the lack of a legal framework and institutional policies (federal, regional and local scope) reflect a scenario of instability for researchers and universities, given the large number of limitations encountered during the Research Project or Extension, which collaborates to minimize the performance of these actors, as well as the impacts to society.

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