

An Autoethnography of an Entrepreneurial University: Federal University of ABC Region (UFABC), Brazil

Uma Autoetnografia de Uma Universidade Empreendedora: Universidade Federal do ABC (UFABC), Brasil

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Abstract

In the context of the role of an entrepreneurial university, in this paper the focus of our discussion is framed around the following research question: What are the main initiatives that make Federal University of ABC Region (UFABC) an entrepreneurial university? The chosen methodology is social constructionism using autoethnography as the method. Autoethnographies are highly personalized accounts that draw upon the experience of the author/researcher for the purposes of extending sociological understanding. Among several initiatives of UFABC, this article highlights the Institutional Development Plan; the CLIPS that innovates in the formation of new entrepreneurs; The Program Protagonist Entrepreneur; InovaUFABC, an innovation agency that through its incubator provides the necessary conditions to startups be created and begin to operate; and the Junior Enterprise in which students act as consultants to large companies. Conclusion: the universities of the 21st century expanded their missions initially limited to teaching and research for entrepreneurship. UFABC stands out for the high degree of innovation of its entrepreneurial initiatives, and thus becomes a benchmark for other national and international universities that want to follow the path of entrepreneurship.

Keywords: *Entrepreneurial University, Higher Education, Pedagogical Approach.*

Resumo

No contexto da função de uma universidade empreendedora, neste artigo, o foco da discussão está enquadrado na seguinte questão de pesquisa: Quais são as principais iniciativas que fazem da Universidade Federal do ABC (UFABC) uma universidade empreendedora? A metodologia escolhida é o construcionismo social, utilizando a autoetnografia como método. As autoetnografias são relatos altamente personalizados que se baseiam na experiência do autor/pesquisador com o objetivo de ampliar a compreensão sociológica. Dentre as diversas iniciativas da UFABC, este artigo destaca o Plano de Desenvolvimento Institucional; o CLIPS que inova na formação de novos empreendedores; o Programa Empreendedor Protagonista; a InovaUFABC, uma agência de inovação que por meio de sua incubadora oferece as condições necessárias para que startups sejam criadas e comecem a operar; e a Empresa Júnior na qual os alunos atuam como consultores de grandes empresas. Conclusão: as universidades do século XXI expandiram suas missões inicialmente limitadas ao ensino e à pesquisa para o empreendedorismo. A UFABC destaca-se pelo alto grau de inovação de suas iniciativas empreendedoras, tornando-se assim uma referência para outras universidades nacionais e internacionais que queiram seguir o caminho do empreendedorismo.

Palavras-Chave: Universidade Empreendedora, Ensino Superior, Abordagem Pedagógica.

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1. Introduction

The importance of entrepreneurship to the vitality of a country's economy, and the eminent need to expand the entrepreneurial abilities of young people make Higher Education Institutions (HEI) a great resource when there is a need to develop an entrepreneurial focus. The pandemic is the greatest challenge facing humanity in this century, and there is an opportunity for the HEI to develop a new business model to provide resilience in the global economy through innovation in order to mitigate this challenge. The university, which has its economic and social role, and holds the function of creating knowledge and spreading it, is able to meet this challenge (Edqvist, 2003; Hannon, 2013; Sam & Sijde, 2014). The university needs to be entrepreneurial, adapt and become more than an institution that prepares and develops skills for the labor market. Thus, the university is responsible for creating ways to prepare students with skills for this new reality (Sam & Sijde, 2014).

Entrepreneurship has become one of the main options for students when they finish their studies (Peterman & Kennedy, 2003), but this requires obtaining skills and attaining attitudes that are essential for the development of a new business. Becoming an entrepreneur offers several advantages, such as the creation of their own business, the possibility of considerable financial rewards, self-realization, independence, and other desirable results (Segal, Borgia & Schoenfeld, 2005). To facilitate this, Lindh and Thorgren (2016) state that entrepreneurship education is needed to contribute to cultural change and economic growth. This requires the adoption of the approach of the corporate world by the university, by creating environments that stimulate the search for innovation and develop creativity skills in its students.

This constitutes creating an entrepreneurial architecture for the students within the university context by bringing together a range of factors (Wright, Birley & Mosey, 2004; Powers & Mc Dougall, 2005). Incorporating the necessary experience into the entrepreneurial training of students will allow them to be able to apply the knowledge that they have acquired in companies (Bercovitz, Feldman, Feller & Burton, 2001; Guenther & Wagner, 2008). In this paper we use the case study of a public university in Brazil, the UFABC (Universidade Federal do ABC), which was founded in the year of 2005 as a prototype for how universities can be entrepreneurial by design. Entrepreneurship is at the heart of UFABC vision and mission and is accomplished through the adoption of an innovative business model wherein the university offers disciplines focused on entrepreneurship and innovation to students from all colleges. It has an Innovation Agency focused on the foment of entrepreneurship; a Business Incubator; an Entrepreneurial Protagonist Program; a Junior Enterprise; and a Curiosity Leading Innovations for People and Sustainability (CLIPS) approach that aims to promote socially sustainable innovation within Science Technology Engineering Mathematics (STEM) by stimulating curiosity and creativity. These and other initiatives contribute to the creation of an innovative and entrepreneurial environment in which students are exposed to experiences that motivate them to create successful start-ups. This perspective underlies the objective of this research, which is to present the metamorphosis of UFABC into an entrepreneurial university through a discussion of the various initiatives of UFABC, which contributed to characterize the university as entrepreneurial.

Considering the main activities in UFABC such as Innovation Agency, Business Incubator, Entrepreneurial Protagonist Program, Junior Enterprise and CLIPS, the research questions in this article are:

- Do the initiatives adopted by UFABC characterize it as an Entrepreneurial University?
- What are the contributions of each initiative to establish an environment in which teachers and students are encouraged to promote entrepreneurship within and outside the campi?

In order to develop this paper, the autoethnography methodology was used, which refers to ethnographic work in which the researcher is (1) a full member in the research group or setting, (2) visible as such a member in the researcher's published texts, and (3) committed to an analytic research agenda focused on improving theoretical understandings of broader social phenomena (Anderson, 2006).

In order to answer these questions, the article is structured as follows. The following section is composed of a review of the current literature on the subject. The next section describes the methodology applied for the development of the research (autoethnography) It's followed by an analysis of UFABC, which presents the current initiatives aligned with the university's entrepreneurial character. The discussion and the conclusion sections discuss the implications and contributions to the area of knowledge, limitations of the present research and suggestions for future research.

2. Theoretical Framework

2.1. Bringing an Entrepreneurial Focus Into Higher Education

HEI's face unprecedented challenges in defining their goal, role, organization, and scope in society and in the economy. A significant response is seen in the development, conceptualization, and practice of the "Entrepreneurial University", synthesized by innovation throughout research, knowledge exchange, teaching and learning, governance, and external relations (OECD, 2012). Despite the entrepreneurial potential of universities, Brazil has had a limited presence in the indexes and rankings of entrepreneurial universities worldwide, due to a lack of public and private sector incentives and interests (DCI, 2019). According to the Global Entrepreneurship and Development Institute, Brazil ranks in the ninety-eighth position (GEDI, 2018). In contrast, one in four university students in Brazil have or want to have a business and 60% of them have already been involved in entrepreneurship-related activities (SEBRAE ENDEAVOR, 2016). UFABC plays a key role in the Brazilian universities ecosystem once it entails initiatives that really contribute to the society and economy development. These initiatives emerged from different areas of the institution and are in their own way contributing to the universities mission. In this section, our goal is to conceptualize the understanding of universities as knowledge providers for entrepreneurship, as well as identifying in the literature some characteristics that outline the framework of the entrepreneurial university.

2.2. The Missions of Universities: From Knowledge to Entrepreneurship

Before focusing on the main theme, Entrepreneurial Universities, it is relevant to address the concept of the university as well as its three missions. According to Mawson (2007, p. 266), "universities, within the role of providers, are of paramount importance for the



connection between the research community and the universe of practice, and can be considered as one of the most relevant drivers in the knowledge economy, through several factors: education, innovation, training, technology, and commercial developments.” For Edqvist (2003), universities have over time become economically / socially responsible and relevant institutions. The University's primary mission is education and since the origin of universities their purpose has been the preservation and dissemination of knowledge for teaching (Etzkowitz, 2004). The second mission of a university is related to research, which means not only the dissemination through publications, but also to be the source of innovations in the economy and in society (Schulte, 2004). As per Etzkowitz (2003), the university not only has the duty to preserve and transmit knowledge but is also necessary to create knowledge and apply it. This leads to the third mission of the university related to promoting entrepreneurship which is linked to local development issues (Laredo, 2007), and the involvement of universities for socioeconomic development (Sam and Sijde, 2014). By putting the third mission into practice, the institution effectively engages in a variety of activities some of which include licensing and patenting, but the main focus of the university is to promote an entrepreneurship focus and objectives throughout its area of influence. Doing so will require the university to take on an entrepreneurial personality and to engage with this, it becomes relevant to discuss the topic of entrepreneurship.

Hisrich and Peters (2004) define the term entrepreneurship as "the process of creating something different and with value, dedicating the necessary time and effort, taking the corresponding financial, psychological and social risks and receiving the consequent rewards of economic and personal satisfaction." For Rae (2010), entrepreneurship is defined as a cultural movement, created, and reproduced as a cultural ideology through channels such as mass media, political rhetoric and government policies and education. According to Laukkanen (2000), entrepreneurship can be conceptualized as the emergence and the growth of new businesses and enterprises, promoting structural revolutions and regional development, as well as generating jobs in market economies and in transition. Also, entrepreneurship is known to be the main driver of a country's economic growth, which will determine its competitive strength by its entrepreneurial spirit and innovation (Mat, Maat & Mohd, 2015). Moreover, in the 21st century, the entrepreneurial mission appears because of the collapse produced by the inevitable production of research results with practical implications and the external demand for greater utility from public discoveries (Etzkowitz, 2004).

2.3. Entrepreneurial Universities

There are several definitions of Entrepreneurial Universities, but the literature does not present a consensus on the topic. However, some similarities can be observed that reveal the importance of the university at the core of social and economic development at a region or even a nation level. There is also a need for better university-industry interaction. Hannon (2013) defends the idea that an entrepreneurial university arises in the face of changes and challenges over the years such as globalization, social mobility, technological development, public investments, among others. Hannon (2013) believes that entrepreneurial responses emerge when confronted with dynamic and uncertain environments. Sam and Sijde (2014) point out that thanks to the diverse market demands that rapidly change the economy, it turns out that



universities cannot only be institutions that develop work skills, they also need to prepare students for future careers in the global economy. Oftentimes, this requires the creation of new business entities that can provide these jobs and hence universities also need to develop people with the skills to be business creators. One way to achieve this goal is to develop entrepreneurial attitudes, knowledge, and skills, which should be encouraged at any time in the academic life of the individual (Costa et al., 2017).

The emergence of entrepreneurial universities aims to provide students with entrepreneurial skills to apply upon their graduation, enabling them the access to new markets, use of new technologies, opportunity to develop new products, and ultimately become a complete and well-prepared entrepreneur in the future. Thus, entrepreneurship education gains urgency and business creation as a career option emerges as an increasingly important opportunity (Costa et al., 2017). For Etzkowitz (2004), universities, over time, are direct generators of future economic growth and development. In addition, Etzkowitz (2004) affirms that entrepreneurship within universities should be effective in internalizing technology transfer capacities (activity frequently performed by industry), thus building the capitalization of knowledge, which is the university's new mission. Guenther and Wagner (2008) state the entrepreneurial university as a varied institution, constituted of sufficient direct mechanisms to sustain the transfer of technology from academia to industry, as well as indirect mechanisms to support new business activities, through entrepreneurship-oriented education. In addition, Guenther and Wagner (2008) recognize that the direct and indirect mechanisms must be mutually complementary and interrelated, in order to fully achieve entrepreneurship within the organization. Similarly, Hannon (2013) argues that an entrepreneurial institution is one that establishes and fosters an environment in which the development of entrepreneurial thoughts, capacities and behaviors are encouraged, supported, incorporated, and rewarded.

Röpke (1998) details the actors and elements of universities in the entrepreneurial universe. Röpke (1998) assigns three meanings to the entrepreneurial university: (i) the university itself, as an organization, becomes entrepreneurial; (ii) the actors (faculty, students and staff), in some way, become entrepreneurs, and (iii) the institution's interaction with the environment, the structural connection between university and region, apparently follow the entrepreneurial pattern. To reach the second, the first must be executed. And to reach the third, the second is indispensable. Only the three together provide the necessary conditions to transform a university into an entrepreneur (Röpke, 1998). Subotzky (1999) identifies the entrepreneurial university as an organization that provides closer partnerships between universities and industry, based on greater responsibility on the part of the faculty, facilitating access to external sources of funding through a management mindset in governance, leadership and institutional planning. Consequently, there is a disruption of the traditional functions and characteristics of higher education. There is a danger that to become entrepreneurial, a managerial mindset that is a prerequisite also imposes a focus on financial performance to the detriment of the universities core societal mission of providing accessible education.

In the Brazilian context, traditional universities are regulated by the state and have mostly not endeavoured to develop meaningful relationships with other spheres of society (Mainardes, Alves & Raposo, 2011). However, this does not mean that Brazilian public universities cannot build relationships with entities within society. In fact they are free to



develop networks with the ecosystem consisting of business organizations, civil society organizations and foundations to promote their goals. This is especially true in the case of entrepreneurial universities which seek to be as free as possible from state control and in doing so engage with the market in order to acquire resources and meet the needs of society in terms of knowledge creation and dissemination, collaborating for social development at different scales of coverage (Mainardes, Alves & Raposo, 2011). In short, the duty of the entrepreneurial university is related as an important tool to achieve new ways of competing and succeeding in uncertain and unpredictable environments, in addition to finding innovative solutions to the various challenges that need to be faced, whether for the local, regional or global public good (Hannon, 2013).

In the context of this discussion of the role of an entrepreneurial university and the challenges that it faces, in this paper the focus of our discussion is framed around the following research question: What are the main initiatives that make UFABC an entrepreneurial university?

3. Methodology

The chosen methodology is social constructionism (Burr, 2006) using autoethnography (Ellis, Adams, & Bochner, 2011; Wall, 2006) as the method. Autoethnographies “are highly personalized accounts that draw upon the experience of the author/researcher for the purposes of extending sociological understanding” (Sparkes, 2000, p. 21).

Anderson (2006) proposed five key features of autoethnography: (1) complete member researcher (CMR) status, (2) analytic reflexivity, (3) narrative visibility of the researcher’s self, (4) dialogue with informants beyond the self, and (5) commitment to theoretical analysis. Jones (2016) states that where autoethnography brings the personal, the concrete, and an emphasis on storytelling to our scholarship, it often leaves us wanting for clear and powerful theoretical frameworks for understanding how such stories help us write into or become the change we seek in the world.

Autoethnography (AE) is an approach to qualitative inquiry in which a researcher recounts a story of his or her own personal experience, coupled with an ethnographic analysis (Lapadat, 2017). Nevertheless, in all autoethnographic work, in some way or other, ‘the self and the field become one’ (Coffey, 2002).

Following the aforementioned scholars, the personal and professional experience of the present researchers was based on daily activities and projects conducted within the academic and institutional contexts of UFABC. This experience built the empirical framework upon which the present research was developed. Among the activities and initiatives in which the researchers actively participated, the following stand out: the development of the PDI – Institutional Development Plan, executive roles at InovaUFABC – UFABC Innovation Agency, the creation and implementation of CLIPS – Curiosity Leading Innovations for People and Sustainability, and the leadership of the Protagonist Entrepreneur Program, in which they supervised around 300 students on guided visits to innovation ecosystem actors in the ABC Region.

The experience also addressed the history of initiatives and organizations, their strategic vision, and their contribution to entrepreneurship at UFABC. Additionally, bibliographic

reviews were conducted on historical data and documents made available both by the University and based on the knowledge of these authors and the areas investigated on internet sites. The resulting analyses and conclusions are expressed in this document and reflect the perspective of the authors supported by bibliographic reviews.

4. Analysis of UFABC

4.1. Social and Economic Brazilian Environment that Allowed the Creation of UFABC

In 2004, Brazil began the discussion of its university reform from a perverse reality where two major problems stand out: a) The higher education system is unable to offer quality education to the rapidly increasing number of young people who request it. b) The bachelor's degree courses are generally long, lasting 4 to 6 years, and highly verticalized, requiring the student to have their career option decided upon entering the university (Academia Brasileira de Ciências, 2004, p. 9).

Based on the guidelines of this document, and at the request of the Ministry of Education, the Brazilian Academy of Sciences (ABC) brought together a group of experts to debate and gather proposals to reformulate higher education. From this work group was written the manifesto entitled: "Subsidies for the Reform of Higher Education", elaborated in 2004 and which served as a conceptual model for the creation of UFABC. That same year the Ministry of Education forwarded to the National Congress the Bill 3962/2004 that provided for the creation of the Federal University of ABC. It is in this context that UFABC was created. The UFABC Academic Project seeks to consider the changes in the field of science, proposing an interdisciplinary matrix, characterized by the intercession of several areas of scientific and technological knowledge. The University Project emphasizes the importance of an integral formation, which includes the historical vision of our civilization and privileges the capacity for social insertion in the broad sense. In addition, the project aims to create an academic environment conducive to social development, contributing to the search for solutions to regional and national problems, based on cooperation with other educational and research institutions and instances of the industrial sector and the executive, legislative and judicial branch. Currently, UFABC has two campuses, one in the city of Santo André, SP, and another in the city of São Bernardo do Campo, SP (UFABC in Numbers, 2018). It has three interdisciplinary teaching centers: Center for Natural and Human Sciences (CCNH), Center for Mathematics, Computing and Cognition (CMCC), and Center for Engineering, Modeling and Applied Social Sciences (CECS). In 2018, it had 794 professors, all with doctoral degrees as a minimum.

4.2. UFABC as an Entrepreneurial University

Entrepreneurship is at the heart of UFABC vision and mission and is accomplished through the adoption of an innovative business model wherein the university offers disciplines focused on entrepreneurship and innovation to students from all colleges. It stands out for the numerous initiatives aimed at encouraging entrepreneurship among its teachers and students and plays a central role as a catalyst for the efforts of entrepreneurs from the ABC area. It has an Innovation Agency focused on the foment of entrepreneurship; a Business Incubator; an Entrepreneurial Protagonist Program; a Junior Enterprise; and a CLIPS approach that explores

innovation as a STEM core competence. These and other initiatives taking place at the UFABC that we have not included in this paper, but which do contribute to the creation of an innovative and entrepreneurial environment in which students are exposed to experiences that motivate them to create successful start-ups as well as work as corporate entrepreneurs in organizations. The success of these initiatives has led to UFABC occupying the 22nd overall position in the 2019 Entrepreneurial Universities Ranking, and the 6th position in the Financial Capital dimension (Ranking of Entrepreneurial Universities, 2019). This perspective underlies the objective of this research, which presents the various initiatives of UFABC, and how such initiatives contribute to characterize the university as entrepreneurial which will be discussed below.

UFABC was born with a vision of the future that shapes its academic project. It is a vision identified with the following values which relate to the needs of the 21st century: pedagogical innovation aimed at making the culture of the university to be embedded with interdisciplinarity, academic excellence achieved by bringing together critical rigor and creative vigor, while retaining the focus on social inclusion through a commitment to the mobilization of new talent. This is based on bringing into practice the values of the UFABC of building a more conscious, fair, and supportive society (Waldman, 2013). We begin with a discussion of the role of the institutional development plan which initiated the process of developing this vision.

PDI – Plano de Desenvolvimento Institucional (Institutional Development Plan)

How to implement this vision is not a closed question, it is something that needs to be discovered along the way, building, and reconstructing the road map as it goes along. This process is expressed through the PDI or Institutional Development Plan (PDI, 2013), that was conceptualized in the dialogue with the National Education Plan in its perception of how best to contribute to the growth and improvement of higher education in Brazil (Waldman, 2013). The PDI (2013) that covers the period 2013-2022 contemplates elements of an entrepreneurial university, highlighting several aspects and initiatives for the dissemination and encouragement of entrepreneurship of teachers, students and community. There are four pillars that support UFABC's entrepreneurial vision: (i) student entrepreneurial entities, (ii) catalog of disciplines, (iii) relationship with companies in the productive sector with a reduction of bureaucracy, and (iv) extracurricular activities and events.

Pillar 1: Student entrepreneurial entities

According to the PDI (2013, p. 89), UFABC should encourage initiatives, such as those of junior companies, to develop the spirit of entrepreneurship of the student body. In this approach to entrepreneurship, the Institutional Development Plan establishes the creation of mechanisms to involve students in the chosen profession. This involvement takes place through projects, which are not necessarily internships or corporate work, but scientific initiations, academic monitoring, or other research programs that awaken the student to new knowledge and entrepreneurial initiatives.

Pillar 2: Catalogue of disciplines

According to the UFABC Institutional Development Plan, entrepreneurship should be stimulated in teaching through the approach of this subject in appropriate disciplines of



Interdisciplinary Bachelor's and post-Interdisciplinary Bachelor's courses, and graduate courses (PDI, 13, p. 102). The Entrepreneurship discipline is offered to students of all undergraduate and graduate courses as an elective discipline. With a 48-hour workload, it aims to provide students with basic information about the process of setting up companies, their opportunities and risks. The content developed deals with the nature and importance of entrepreneurs; the benefits offered to society; the characteristics of behavior and personality; specific skills and their development; barriers and pitfalls that threaten businesses initiated by the entrepreneur; international entrepreneurship opportunities; creativity and business idea; legal issues for the entrepreneur; the following plans: business, marketing, financial, organizational; sources of capital: informal venture capital and formal venture capital; traditional enterprise and startup; investment for new business; issues and strategies for enterprise expansion; and capital opening.

Active Teaching Methodologies (ATM) are applied that encompass topics such as Design Thinking (DT), Project Basis Learning (PBL), and Inverted Classroom (IT). This way the discipline empowers and motivates students to be entrepreneurs both through the creation of companies (startups) and through executive activities in companies already established. The entrepreneurial mindset is strongly emphasized so that the students can succeed in their business initiatives.

Pillar 3: Relationship with companies in the productive sector and reducing bureaucracy

PDI considers necessary and priority the establishment of partnerships, collaborations and joint work with institutions representing the productive and industrial sector of the Greater ABC area (PDI, 2013, p. 100). The approach between academia and industry is strategic for the socioeconomic development of a community. UFABC encourages this approach through several initiatives that manifest themselves at different levels. The students of the last year of graduation are encouraged to elaborate their end-of-course research papers (TG - Undergraduate Work) based on real cases of the labor market. Almost all projects focus on real-life business situations in different areas of expertise such as finance, human resources, operations and business strategy. Joint projects are routinely developed between UFABC and industry, which aim at the solution of a real professional situation, such as development or improvement of a product, the optimization of production processes, cost rationalization, workforce training and others. These initiatives are facilitated by UFABC's physical proximity to industries in the heavily industrialized ABC region, and that creates specialized labor demand due to the high technological degree in its products and operations.

The companies that have a strategic direction for innovation are the ones that most seek universities with whom to form partnerships with high added value. The most notable companies are Arteb, Ford Motors, Caterpillar, Natura, Suzano, Petrobras, Embraer, and others. However, in recent years there has been an exponential growth of startups in the search for entrepreneurial partnerships with academia. The ABC Valley, a set of startups in the ABC region, with a strong performance mainly in digital solutions for all types of business, has sought students from UFABC for its staff. The attractive feature is that these students have high-level technical and scientific knowledge and a multidisciplinary base. Students are qualified to develop technical solutions with vision in business.



Despite all the positive results achieved in the partnerships, there are still some restrictions, both by academia and industry, to strengthen this approach. In academia, there is a fear that a public university financed by public money, generates value for the private sector without the due economic or social return. The private sector, on the other hand, often for lack of information, considers the public school as an outdated organ of the new technologies and strategies that the competitive business world imposes on companies.

Another aspect preventing the formation of partnerships is the excessive bureaucracy that characterizes the Brazilian public administration. On this topic, UFABC expresses its guideline in its PDI (2013, p. 125) which establishes: "it is in this sense, to avoid situations such as a waste of time due to overlapping instances and/or areas, the filling of documents that do not have certain and defined usefulness, extensive processes with unnecessary and/or repetitive activities, causing delays in decisions and their implementation, which UFABC proposes to reduce bureaucracy in its processes and administration, providing more agile services to its internal and external clients, more efficiently and effectively."

Pillar 4: Extracurricular activities and events

As a part of the PDI (2013), a work plan was created which provided themes and events to engage in discussion with the community and academic experts from other universities. Through their participation in meetings they were able to provide UFABC the experience of other university institutions, research centers and funding agencies (PDI, 2013, p. 14).

Many events are held within the UFABC and community aiming at the dissemination of the concept of entrepreneurship and the motivation of students to create startups. Among these events, stands out the lectures on entrepreneurship held during the Week of Engineering, a biannual event that aimed at disseminating knowledge on various topics of interest to students. Other events are student visits to world-class companies focusing on innovation and entrepreneurship. In these events, students have the opportunity to get to know the various initiatives of the companies and what puts them at the top of the rankings and general business results. The centerpiece of the efforts to promote innovation at UFABC is the Innovation Agency which we will discuss next.

InovaUFABC - Innovation Agency

Initially called the Technological Innovation Nucleus, the UFABC Innovation Agency - InovaUFABC was created in July 2010, and currently is directed by Arnaldo Rodrigues dos Santos Jr, PhD. The body aims to manage the institutional policy of intellectual property, technology transfer and entrepreneurship. The expected financial return of the private-institutional partnership is to make even more investments in R&D, stimulating new technological solutions and entrepreneurship, making the established relations advantageous for both sides, and leading to regional socioeconomic development.

The agency's mission is the "pursuit of sustained economic development through technological evolution and stimulus to entrepreneurial posture contributing to teaching, research and extension activities". Its vision is, "Leading applied research activities for the technological advancement of the productive park of the greater ABC area, with national and international projection". And, finally, its values are "commitment, respect, honesty, cooperation and excellence".



The agency is managed by the Scientific Technical Council (CTC), a body that seeks to develop the strategic planning of the entity, proposing actions that enable achieving the objectives of the innovation agency as well as provide advice on the activities developed. The CTC is structured into six divisions, namely: (i) Technological Entrepreneurship Division; (ii) Strategic Intelligence Division; (iii) Technology Transfer Division; (iv) Intellectual Property Division; (v) Incubators and Technology Park Division; and, (vi) Technological Extension and Continuing Education Division.

CLIPS – Curiosity Leading Innovations for People and Sustainability

The CLIPS initiative started in 2015 (Facó, Mandel, & Chinellato, 2015), as a quiet revolution in a classroom at the Federal University of ABC Region (UFABC), with the beginning of the first discipline focused on innovation. It has since developed contributing to the generation of innovative projects and the development of innovative engineers. The initiative was led by professor Julio Francisco Blumetti Faco, PhD and Dr. Persio Alberto Mandel with the focus on using innovation as a catalyst to prepare students for their lives after university. The success of this initiative has been acknowledged and in 2020, the UFABC CLIPS initiative was the Latin America Bronze Winner of the “Reimagine Education Award” granted by Wharton Business School, University of Pennsylvania.

The CLIPS initiative is innovative because it was the first opportunity to develop innovative curiosity as a strategic competence in young “engineers” within a public university in Brazil (UFABC). As of August 2020, it remains the only such initiative with unique results in the development of innovative opportunities. It allows students to practice other strategic skills such as negotiation, planning, teamwork, divergent thinking, co-opting, collaborating, and optimizing time while also stimulating their curiosity. From the start of their immersion journey, students are encouraged to leave their comfort zone to research and experience innovative curiosity. They are encouraged to question everything, seek knowledge, share discoveries, and develop skills. This approach has been central to implementing in practice the vision of UFABC of developing in the students the characteristics of behavior and personality to be entrepreneurial. The feedback and assessment from the students themselves and the institution has shown this to a unique approach not experienced in any other discipline at UFABC in such a comprehensive manner.

Participation in the CLIPS program begins with the Immersion Days, where the students are expected to engage actively in each weekly meeting held over an academic quarter. Students take on the role of “Explorers of the World of Innovation” and the teachers are the “Guides to this process of Exploration of the World of Innovation.” Fueled by a great desire to realize this dream of transformation inspired by interdisciplinarity, CLIPS team accepted the challenge of making Innovative Curiosity a competence for STEM students (Science, Technology, Engineering and Mathematics). Each CLIPS Immersion Journey encourages junior STEM undergraduate students to engage with the disruptive potential of Innovative Creativity as a catalyst for change through five pillars: people, planet, peace, prosperity and partnership, aligned with the UN Agenda 2030. In this way, each Journey is a unique and tailor-made curiosity-experience for each STEM course.



The CLIPS program has continued its experimentation with stimulating Innovative Curiosity as a competence for young university students (Castilho, Facó & Mandel, 2016) and in 2020, the focus of initiative has been on Covid-19. Through this focus on innovation it contributed to the training of science and technology engineers and bachelors for five years until now. It has engaged with 915 students, of which 360 were immersed in the quarterly CLIPS Immersive Journeys and developed 57 innovative opportunities. Some of these opportunities were continued by the young entrepreneurs and became new startups like NOC Education and Music Jungle that both won awards for entrepreneurship and had investment rounds. In the face of a severe economic downturn and increasing unemployment that has plagued Brazil in the last few years, the CLIPS initiative has contributed to improving employability, new market competences and the opportunity to develop ideas through curiosity, creativity and innovation.

Entrepreneurial Protagonist Program (EPP)

The EPP was created in the discipline of Entrepreneurship of the Federal University of the ABC Region in 2017 by professor Luciano Bueno, PhD. Its proposal is to break with the old standard methodology model, in which the teacher is assumed to be the holder of all knowledge within the classroom. In order to change this logic, the discipline has developed a new methodology based on problem solving and opportunities, aiming to put students at the center of the development of the discipline. This has stimulated deep and proactive discussions, together with an agenda of technical visits to entrepreneurship and innovation spaces in the Metropolitan City of São Paulo. Some examples of places visited by the program are: NEU (USP Entrepreneurship Center), Shelf. Co, Locus Coworking, Ahoy! Berlin, Ace Startups, Startup Farm, Filho Sem Fila, Engage, Cubo Itaú, Sebrae, Instituto Fazer Acontecer among others. A total of 20% of the students started their own business after going through the program. More than 40 evaluators participated up to the fifth cycle, including professors, executives, investors, entrepreneurs, consultants, mentors, and alumni.

The mission is to encourage entrepreneurial minds and ideas, develop knowledge, present tools, and provide experiences with those who have expertise in the area. The contact of students with centers, spaces, co-working, accelerators and startups in the world of entrepreneurship is the main aspect of the EPP, enabling the exchange of ideas and presenting paths that can be used to be a great entrepreneur, in addition to providing access to new and agile methodologies. The project is based on the identification of problems, understanding the dynamics of the business through validations, pivots, inspirations, hypotheses, behaviors, and visits that enable business modeling. Through experimentation with the ecosystem of companies and startups, students can broaden their views on entrepreneurship, enabling their research to be enriched by experience in practice, as well as promoting networking among ecosystem actors.

Actions are carried out jointly between companies, universities, teachers, and students, which allow developing the skills necessary for the training of entrepreneurs. Learning to master tools is important, but developing personal relationship skills, risk management and self-knowledge, about their role in transforming their realities, are fundamental points for those who want to dedicate themselves to the field of entrepreneurship. In this way, universities

should work for the training of entrepreneurial students. Bureaucratic barriers hinder the progress of universities towards changes in terms of identifying partnerships and support outside the academic environment and expanding to a discussion beyond walls with the productive sector, other universities, NGOs, and public bodies.

It is important to mention that the university is supported by an educational tripod that is constituted through teaching, research, and extension. The entrepreneurial university has three axes, analogous to the educational axes, and must be present in and outside the classroom, namely: innovation, extension, and entrepreneurial culture. The role of inserting the student in this transforming praxis should be given to the professor-researcher, who should be an intermediary between the public and private productive sector and the university, a process that could be hampered if universities lack an entrepreneurial mindset.

Without such a mindset, there is a danger that companies could view the university as an obsolete institution, inaccessible and far from the reality of the practical world. It could lead to excluding many interesting initiatives that are born within the university and that are relevant to practice. A vision on both sides that understands that there is no disconnect between theory and practice, and only with initiatives within the university as the Entrepreneurial Protagonist Project, UFABC will be able to rise in the ranking of entrepreneurial universities and hold this title, not excluding companies that should also play their role of involving the university within its organizational culture.

UFABC Junior Enterprise

The Junior Company of the Federal University of ABC Region, or UFABC Jr., is a business management consulting company that was created in 2011. UFABC Jr. has been developing at an accelerated pace providing for the development of business skills among its student members while contributing to regional development. UFABC Jr.'s mission is to be a company that provides intelligent solutions to its customers, while fostering entrepreneurship among its members who become agents of transformation through projects. Motivated to foster entrepreneurship in Brazil, the students work on a voluntary and non-profit basis. All the money raised by the projects is directed to education.

UFABC Jr. is structured in five areas: Digital Marketing, Sales, Projects, Internal and Presidency. Each of these areas has a fundamental role and guides all of its activities consistent with its mission, vision, and values. The Digital Marketing area has the role of attracting customers passively with content marketing through digital media. Sales follows up by contacting the customer and identifies their challenge, understands their needs, and proposes solutions that will meet these customer needs. The Projects area ensures the quality of the project, as well as the experience of the client and the members within it. The Internal area works on developing Human, Financial and Legal Resources. Finally, the Presidency takes care of institutional relations with the faculty, and strategic partnerships with companies that help them train and deliver their projects with excellence. The company has a wide portfolio of solutions that aims to give varied answers to its customers. The range of areas of consulting provided by UFABC Jr. consist of: Market Research, Marketing Plan and Digital Marketing Plan, Process Mapping, Business Intelligence, Business Plan and Website Development.



5. Discussion

According to Schulte's analysis (2004), an entrepreneurial university has two tasks: to train future entrepreneurs and to develop the entrepreneurial spirit in students from all areas of activity. In addition, the institution must act in an entrepreneurial manner, structuring business incubators, technology parks and others, promoting greater involvement of students in organizations and, through them, assisting graduates to start new companies. Based on these findings, the initiatives performed in UFABC presented in this paper contribute to characterize the university as an entrepreneurial one.

It is highlighted 5 initiatives that corroborate the aforementioned statement: (1) the major guideline of the University expressed in its PDI - Institutional Development Plan - reinforces, through its 4 pillars, the entrepreneurial bias of the institution. It makes UFABC one of the Brazilian public universities which most stimulates the generation of young entrepreneurs and the creation of start-ups; (2) The Innovation Agency - InovaUFABC - is the core of the creation of new businesses and catalyzes the initiatives of teachers and students for the development of technological research and start-ups; (3) CLIPS - Curiosity Leading Innovations for People and Sustainability – considers entrepreneurship and curiosity as strategic skills to develop young engineers; (4) Entrepreneurial Protagonist Program (EPP) whose objective is to break with the old methodology in which the teacher is the holder of knowledge, for a model in which the student assumes the role of acquiring knowledge and applying it in practical actions; and, (5) UFABC Junior Enterprise consultancy services are offered by university's students to the market and they are responsible for the delivery of services and their P&L (Profit and Loss). Consulting services cover the areas of Digital Marketing, Sales, Projects, Internal and Presidency. Each of these areas has a fundamental role and guides all of its activities consistent with its mission, vision, and values.

The existence of these five strategic initiatives for entrepreneurship is only possible because the Federal University of ABC Region has a sustainable business model and is totally oriented to interdisciplinarity and entrepreneurship. Students are inserted into an academic environment that motivates the development of creative and innovative solutions, fully oriented to the demands of an increasingly competitive and technology driven market.

6. Conclusion and Future Research

Since its foundation, UFABC has in its DNA entrepreneurship as the central pillar of its strategies. Through various initiatives beyond its time, university forms professionals capable of, with competence, start their business and establish themselves successfully in an extremely competitive market. UFABC through its innovative business model ahead of its time, is a benchmark for other Brazilian and foreign universities to be inspired, moreover, create their own models and become entrepreneurial universities.

The greatest contribution of this research is the fact UFABC's strategic initiatives aimed at entrepreneurship can be replicated by other Brazilian public universities, as well as foreign universities, that aim to add the entrepreneurial character in their missions.

This paper was limited to the case of the Federal University of the ABC Region. Future research may incorporate cases from public and private, state and federal universities, as a vector to discuss and disseminate other initiatives that also contribute to entrepreneurship.



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