Towards the Adoption of A Novel More Integral Model for Teaching Entrepreneurship in Higher Education Institutions

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Abstracts

The "Radiography of the Teaching of University Entrepreneurship in Mexico" is situated within the context of the necessity to comprehend and enhance the pedagogical practices associated with entrepreneurship in Mexican universities. This context encompasses a global examination of entrepreneurship and its prevailing trends, as well as a detailed analysis of the entrepreneurial landscape in Mexico. The principal objective of this study is to conduct a comprehensive examination of the pedagogical approaches employed in higher education institutions (HEIs) in Mexico with regard to the teaching of entrepreneurship. The objective is to establish a unified approach to entrepreneurship teaching, identify the most effective pedagogical tools for fostering an entrepreneurial mindset, and disseminate the requisite technical knowledge among educators to facilitate their integration into the classroom. The methodology employed begins with a review of secondary sources to provide a detailed overview of the global and Mexican entrepreneurship landscapes, as well as the current state of entrepreneurship education in higher education institutions (HEIs). In conclusion, the Delphi technique is employed to conduct interviews with experts directly involved in the teaching of entrepreneurship in various HEIs, with the objective of collecting and synthesizing their opinions on the subject matter. The research yielded a "Teaching Model of Entrepreneurship in the University," which is based on the identified approaches, models, and methodologies. The teacher plays a pivotal role in the teaching of entrepreneurship in higher education institutions (HEIs). The findings indicate that in Mexico, the probability of success or opportunity for entrepreneurs is significantly influenced by the material conditions of the individual, which are shaped by their social stratum and geographical location. Furthermore, data indicates that all HEIs endeavor to impart instruction on entrepreneurship. However, due to significant disparities between private and public institutions, smaller or more remote ones may lack the capacity and resources to do so effectively. Therefore, this results in heterogeneity in the teaching of entrepreneurship, which could condition the chances of success for those wishing to become entrepreneurs. Consequently, the necessity was identified for all entrepreneurship teachers in HEIs in Mexico to be able to achieve a robust and comprehensive process of teaching entrepreneurship, whereby students can develop their entrepreneurial skills at an early stage, as well as the creation of

companies at a later stage.

Keywords: Entrepreneurship, Teaching, Training, Higher education institutions, Teaching models, Entrepreneurial attitude, Entrepreneurship educator, Entrepreneurial skills, Business creation.

Introduction

In recent decades, the world has experienced exponential acceleration, resulting in unprecedented economic growth. Consequently, novel and sophisticated technologies have begun to exert a dominant influence within the market. It seems reasonable to posit that emerging markets will control the world's top 10 economies, while major powers will lose ground to China and India. Consequently, the current social and environmental crisis will persist until nations are prepared to implement changes.

The United Nations Population Division (2012) projects that the world population will reach 9 billion by 2050, with the global economy expanding nearly fourfold. This growth will place significant pressure on energy and natural resource availability. In light of the aforementioned factors, it becomes evident that the population will face significant challenges in the future. The potential scarcity of resources will undoubtedly impact the quality of life for individuals worldwide. As demand for these services increases, access will become more limited. Furthermore, the challenges will be exacerbated by growing environmental deficiencies.

Discussing the future is a formidable task, which is why we will address the global panorama in its various dimensions: economic, social, environmental, and technological. Our focus will be on the near future, specifically the period between 2030 and 2050.

Outlook for a Sustainable Environment

The concept of human well-being is inherently complex and abstract. The INEE (Comprehensive Network for Education in Emergencies) defines well-being as “a holistic health condition and the process of achieving this condition” (INEE, 2018). The attainment of well-being is contingent upon the presence of optimal physical, emotional, social, and cognitive health. Consequently, it is a reflection of a superior quality of life, complete happiness, and the assurance of safety.

It is therefore evident that the future of human well-being is contingent upon the health of the planet. In order to ensure the continued well-being of humanity, action must be taken to prevent further climate change and the pollution of the air and water. In response to these challenges, the United Nations (UN), in collaboration with non-governmental organizations (NGOs) and citizens worldwide, has developed an initiative to protect the planet, enhance the quality of life, and eradicate poverty. This initiative, known as the Sustainable Development Goals (SDGs), outlines 17 critical areas for improvement, with a deadline of 2030. However, progress in achieving these goals has been slower than anticipated.

These findings are reflected in the population's apprehension about the future and the potential consequences of failing to implement timely changes. For example, UNESCO and the

International Institute for Higher Education in Latin America and the Caribbean conducted a public consultation, entitled "Pathways to 2050 and Beyond," in 2021. This consultation revealed the primary concerns and apprehensions of over 100 respondents from nearly 100 countries.

Technology Overview

Technological advancement has been a constant throughout human history. Technological changes and advances have been instrumental in shaping the world as we know it today.

The twenty-first century has brought about significant changes to our way of life, and it is evident that this trend will continue unabated in the years to come. We are at the precipice of a new technological revolution, the Fourth Industrial Revolution, which will be shaped by a plethora of "technological advances such as artificial intelligence (AI), robotics, the Internet of Things (IoT), autonomous vehicles, 3D printing, nanotechnology, biotechnology, materials science, energy storage and quantum computing, among others" (Schwab, 2016, p. 4).

Despite the advantages offered by technological advancement, there is mounting apprehension regarding the prospective impact of artificial intelligence (AI), which is projected to exert a profound influence on society between 2040 and 2050, particularly in the realms of employment and economic activity. Those with a pessimistic outlook argue that technology will displace more jobs than it creates. Conversely, others posit that new technologies could bring about new job opportunities or a scenario in which humanity no longer depends on work as a means of survival.

Economic and Social Panorama

Economic forecasts have become a significant indicator of prospective developments. However, they are inherently more complex due to their inherent reliance on factors that are not currently present, such as population forecasts or advancements in climate change. Nevertheless, the collective endeavor has yielded a multitude of projections, which offer insights into the potential trajectory of the global landscape in 2050. The renowned consulting firm PwC, one of the Big Four, has made available to the public a report entitled "A Look at the Future." In his 2017 report, "How Will the Global Economic Order Change by 2050?" he addresses the main unknowns and provides a clearer vision regarding the economic order over the next few years.

Entrepreneurship in the world

LATAM (Colombia, Chile, Brazil, Peru and Argentina)

LATAM has distinguished itself by the number of entrepreneurs it has, with one of the highest percentages compared to other countries and regions. The majority of start-ups have a smaller workforce than their developed counterparts, which presents a challenge in terms of growth and employment. Moreover, larger companies in this region create fewer jobs than their counterparts in other regions. Costa Rica presents a larger frame of reference, with 16 new companies created for every 1,000 individuals upon reaching the age of majority. This figure quadruples the international reference level, while Argentina and Mexico have lower rates than expected.

The Global Entrepreneurship Monitor (GEM, 2021), a project that measures entrepreneurial activity on a global scale, offers a valuable opportunity to observe entrepreneurial activity in

Latin America and the Caribbean. A total of eight countries participated in the study, as detailed in Table 1.

GEM 2021	Income Level		
Region	Low	Middle	High
Latin America and the Caribbean		Brazil Colombia Guatemala Mexico	Chile Panama Puerto Rico Uruguay

Table 1. GEM 2021, Income Level Ranking by Country in Latin America.

Source: Own elaboration with data from the GEM, 2022.

In Latin America (LATAM), the aspiration to become an entrepreneur is not a planned career choice, unlike in other regions or countries. However, the success or failure of new business ventures is largely determined by the level of proactivity demonstrated by the individuals involved. The relationship between entrepreneurship and employment is evidenced by the findings of the Global Entrepreneurship and Development (GEM) report (2022), which indicates that high-income countries exhibit lower rates of entrepreneurial activity. This can be attributed to the availability and appeal of job opportunities in these countries. A position in a nation with a high level of economic development is often perceived as a more attractive option, a phenomenon that is less prevalent in countries with medium-to-low development levels. Consequently, the pursuit of entrepreneurship as a career alternative is a significant motivating factor for individuals in these regions.

According to a report by StartupBlink (2022), four countries in the Latin America region have been identified as being among the top 50 in terms of their level of entrepreneurship. This represents a significant increase in the growth of the entrepreneurial ecosystem. Brazil ranks 26th on the list, Chile follows in 34th place, and Mexico is positioned in 35th place, just behind Chile and Argentina in 37th. Other countries, such as Argentina, were positioned below, occupying 44th place. However, these results demonstrate an increase in entrepreneurial activity in the Latin American region.

Teaching entrepreneurship at leading universities

The teaching of entrepreneurship in universities is of great consequence, as it will establish the foundations of the knowledge and tools that people need to become entrepreneurs. It is incumbent upon universities to foster an entrepreneurial spirit among their students.

Although the United Arab Emirates, Saudi Arabia, Taiwan, India, and the Netherlands are the countries with the highest rates of entrepreneurship, according to the Global Entrepreneurship Monitor, these countries do not have the most highly-ranked universities in the world in entrepreneurship. Therefore, it is of great importance to understand what the world's leading educational institutions are doing in this regard.

The Times Higher Education (THE) ranking is currently one of the most reliable in the world. It is based on an extensive analysis of 1,799 universities in 104 countries, making it the largest and

most diverse ranking currently in existence. As indicated by the data provided by THE, the five universities with the highest academic standing are:

1. University of Oxford, United Kingdom.

2. Harvard University, United States.

3. University of Cambridge, United Kingdom.

4. Stanford University, United States.

5. Massachusetts Institute of Technology (MIT), United States.

As can be observed, the five institutions in question are situated in the United Kingdom and the United States. Although neither country features in the top five of the Global Entrepreneurship Monitor's ranking of the most conducive nations for entrepreneurship, they are included in the list due to their status as highly developed countries.

With regard to entrepreneurship, the Times Higher Education ranking pertains exclusively to the most academically accomplished universities, though not in the context of entrepreneurship. It is first necessary to review the list of the most esteemed universities globally to ascertain whether any of them are distinguished for their entrepreneurial leadership. The initial positions in this ranking are occupied by universities that have also achieved a high ranking in various other entrepreneurship rankings. These include Harvard, Stanford, and MIT.

In the case of Harvard, the institution's focus on entrepreneurship is centered within the Harvard Business School (HBS), which plays a pivotal role in fostering an entrepreneurial spirit among its student body. The HBS comprises a comprehensive array of resources that cater to the needs of innovators, both within and beyond the institution. The Rock Center for Entrepreneurship offers students a variety of programs designed to foster their entrepreneurial aspirations. Additionally, an annual competition is held, which provides students with the opportunity to connect with potential investors, mentors, and advisors.

Notable entrepreneurs who have attended Harvard include Mark Zuckerberg, the founder of Facebook, a social network he launched while a student at the university in 2004, which subsequently became the largest and most significant social network in the world; Bill Gates, who left Harvard but is a co-founder of Microsoft; and Nathan Blecharczyk, a co-founder of Airbnb.

Stanford University is situated in the heart of California's Silicon Valley, which is one of the largest centers of entrepreneurship and technological development in the world. As a result, it is widely regarded as one of the most prominent universities in entrepreneurship.

The Center for Entrepreneurial Studies at the Stanford School of Business is dedicated to the effective preparation of entrepreneurial leaders and the advancement of knowledge about entrepreneurship and innovation through the delivery of over 50 courses. His primary areas of instruction are the formation of new companies and the management and growth of existing companies. Additionally, Stanford University offers an online program, the Innovation and Entrepreneurship Program, which represents the institution's primary offering in this domain.

The course is priced at $1,095 per course and $8,750 all-inclusive. It teaches leading innovation skills and strategies in organizations, as well as providing an introduction to the subject for beginners.

Overview of entrepreneurship in Mexico

The current context in Mexico presents a duality of challenges and opportunities concerning entrepreneurship. Nevertheless, the country has a history of fostering economic growth and job creation through entrepreneurship and small and medium-sized enterprises (SMEs). The global pandemic had a detrimental impact on the social and economic environment of Mexico, leading to increased unemployment and inequality. This, in turn, created an opportunity for Mexicans to pursue entrepreneurship as a means of achieving economic stability.

Mexico has a population of 126 million, of whom 32 million are employed in the informal sector. Additionally, the 4.9 million micro, small, and medium-sized enterprises (MSMEs) have employed 27 million individuals.

This proportion has increased over the years; however, various factors continue to impede citizens from pursuing entrepreneurial endeavors. These factors include corruption, insecurity, and drug trafficking, as well as social issues such as gender, socioeconomic status, and even skin tone and ideologies.

These factors have undergone significant transformation over time, largely as a consequence of the various initiatives introduced by different governments. Consequently, the subsequent section will provide a comprehensive examination of Mexico, encompassing political, social, and current trends.

Overview of entrepreneurship from higher education in Mexico

The Organisation for Economic Co-operation and Development (OECD, 2004) asserts that entrepreneurship and business creation are job creators, contribute to growth and productivity, and are beneficial to society. Entrepreneurship facilitates economic growth and market evolution by generating new opportunities for competition and innovation, which in turn drives research for economic and social development.

In order to foster an entrepreneurial culture, governments invest in higher education and research and development (R&D) and implement measures to streamline the regulatory and procedural requirements associated with business establishment. Additionally, they facilitate the availability of business and financial assistance programs. The private sector, through its associations and chambers, endeavors to equip entrepreneurs with the necessary skills and resources to launch businesses, while higher education institutions (HEIs) introduce curricular and extracurricular courses and activities centered on entrepreneurial training, aiming to enhance employability and foster creative and innovative abilities (Ramírez Urquidy et al., 2021).

Higher education institutions (HEIs) play a pivotal role in promoting entrepreneurship. They offer robust academic training and provide the necessary tools for students to transform their ideas into tangible outcomes. Consequently, an increasing number of universities and higher education institutions are seeking and developing novel approaches, techniques, and strategies

to foster an entrepreneurial culture within their institutions and enhance entrepreneurial intentions among students.

General objective

To analyze the current situation of the teaching of university entrepreneurship in Mexico.

Methodology

In this study, the Delphi technique was employed as a methodological approach to explore and obtain consensus on the teaching of university entrepreneurship in Mexico. The Delphi technique was selected for its capacity to collect and synthesize the opinions of experts in the field, thereby enabling the identification of trends and the formulation of decisions based on collective knowledge. Subsequently, the methodology utilized for the collection of information will be delineated.

3.1 Research design

The research design is based on a qualitative and exploratory approach, which will facilitate the generation of new insights and understanding. A series of consultations will be conducted with a panel of experts in the field of entrepreneurship, selected on the basis of their expertise and experience. These rounds will facilitate an iterative discourse on optimal practices, culminating in a convergence of perspectives toward a set of consensus recommendations.

3.2 Selection of participants

The participants will be selected using a convenience sampling approach. Experts in entrepreneurship with experience in entrepreneurship training in higher education institutions, both public and private, in Mexico were contacted for participation in the study. The objective is to obtain a diverse range of perspectives, and to this end, three profiles have been selected:

- Managers of Entrepreneurship Centers and/or business incubators.
- Academic coordinators of Bachelor's Degrees that have entrepreneurship subjects in their curriculum.
- Educators who teach subjects related to entrepreneurship topics.

A total of 255 individuals were invited via email to participate as experts, of whom 27 accepted the invitation. The invited experts could be classified into three profiles.

3.3 Analysis of the three profiles

A series of interviews was conducted via video conference with each expert, with the specific questions varying according to the individual's profile. The interviews were structured into four sections and were based on an open-ended questionnaire:

- The role that entrepreneurship teaching plays in your institution.

- The entrepreneurship training process from your institution for students, professors, and instructors.
- Profile and competencies of the university entrepreneur, as well as the professor or instructor in entrepreneurship.
- Challenges and opportunities of teaching entrepreneurship at university.

The experts provided responses and justifications, which were then subjected to analysis and grouping according to semantic fields. This approach enabled the identification of the frequency of occurrence of the responses provided by the participants.

3.4 Data Collection and Analysis

The responses of the experts in each round were recorded and subjected to qualitative and quantitative analysis. A content analysis approach will be employed to identify emerging themes and patterns in the responses. The responses were then coded and categorized in order to facilitate the extraction of recommendations and best practices.

3.5 Research Ethics

The confidentiality of the experts' responses will be guaranteed, and informed consent was obtained from all participants.

3.6 Synthesis of Results

The synthesis of the results will be conducted through a participatory workshop, during which the research group will define and determine the challenges associated with university entrepreneurship. These challenges will then be taken into account in the design of the training model for educators in entrepreneurship.

3.7 Limitations of the Methodology

It is crucial to acknowledge the potential for expert selection biases to influence the Delphi technique and for results to reflect the opinions of the experts involved. Furthermore, it is possible that convergence may not be complete in all areas, which could potentially limit the generalizability of recommendations.

Results

Entrepreneurship Centers and/or University Business Incubators

The initial experts consulted were those responsible for Entrepreneurship Centers and Business Incubators, which are units within higher education institutions that aim to promote and support entrepreneurs and offer support services for the creation of businesses to their university community or the general public in their locality.

It is crucial to consult with this profile because it provides a comprehensive understanding of entrepreneurship training, coupled with experience and expertise in managing entrepreneurship

support programs and services, business incubation, and fostering close relationships with the entrepreneurial ecosystem. This profile is well-positioned to identify and respond to recent changes and trends, facilitating linkages between their institutions and their environment. The participating institutions included the Instituto Tecnológico y de Estudios Superiores de Monterrey (ITESM), Universidad Anáhuac, Universidad Tecnológica de México (UNITEC), and Universidad Panamericana. The Faculty of Architecture at the National Autonomous University of Mexico, the Instituto Tecnológico y de Estudios Superiores de Occidente (ITESO), the Universidad La Salle, and the Universidad Iberoamericana (IBERO) Puebla.

The principal findings pertaining to each of the aforementioned sections will be presented in the following paragraphs:

1. The role that entrepreneurship teaching plays in the institution.

2. The entrepreneurship training process from the institution for students, professors, and instructors.

3. Profile and competencies of the university entrepreneur, as well as the professor or instructor in entrepreneurship.

4. Challenges and opportunities of teaching entrepreneurship at university.

1. The role that entrepreneurship teaching plays in the institution

The objective of this section was to gather information on the primary milestones that have led to the establishment of these entrepreneurship centers, the rationale behind their creation, and the operational structure of these institutions.

The data collected on the background of entrepreneurship centers and university business incubators revealed several factors that give rise to these institutions. Additionally, it became evident that there were common triggers that prompted higher education institutions to establish these entrepreneurship centers and business incubators. These findings are presented in Table 3.

No	Name	Description
1	Fostering an Entrepreneurial Culture	Many of these institutions emerged to foster an entrepreneurial culture among students and the university community. The aim was to instill an entrepreneurial mentality and promote the creation of new projects and companies.
2	Support for Innovation and Technology	Several centers/incubators were born with the focus of supporting technological and innovative ventures. The need to provide resources and guidance to projects seeking to develop new and disruptive technologies was a central motivation.
3	Development of a Social Approach	The concern to address social and environmental problems was also an important reason for the creation of these institutions. Some incubators specialize in supporting ventures with a social focus, seeking to create a positive impact on society.
4	Integration and Innovation in Higher Education	The connection between education and entrepreneurship was another fundamental factor. Some institutions sought to innovate in their educational offerings and become leaders in promoting entrepreneurship, attracting students interested in developing entrepreneurial skills or incorporating business creation as part of academic programs, providing students with practical opportunities to apply their knowledge.

5	Need for Advice	The lack of adequate support and guidance for early-stage entrepreneurs was a reason for establishing these institutions. The need to provide expert advice, resources and co-working spaces to drive nascent projects was recognized.
6	Collaboration with the Entrepreneurial Ecosystem	Collaboration with external actors, such as governments, national entrepreneurship institutions, and civil associations, also motivated the creation of these institutions. The idea was to join a broader ecosystem to promote and support entrepreneurship.
7	Recognition of the Economic Importance of Entrepreneurship	Business creation and entrepreneurship were recognized as key drivers for economic growth. Establishing centers/incubators could boost job creation and generate a positive economic impact.

Table 2. Main reasons that can give rise to Entrepreneurship Centers and University Business Incubators.

Source: Own elaboration.

In consultation with experts in the field, it was determined that the three primary factors that led to the establishment of their entrepreneurship centers and/or incubators are as follows: The majority of respondents (90%) indicated that their primary objective was to promote an entrepreneurial culture within their respective higher education institutions (HEIs). Additionally, 70% of respondents cited collaboration with the broader entrepreneurial ecosystem as a key motivation, while 60% highlighted the integration and innovation of entrepreneurial principles within higher education, as illustrated in Figure 1. It is important to note that each entrepreneurship center and business incubator may have multiple factors contributing to its establishment.

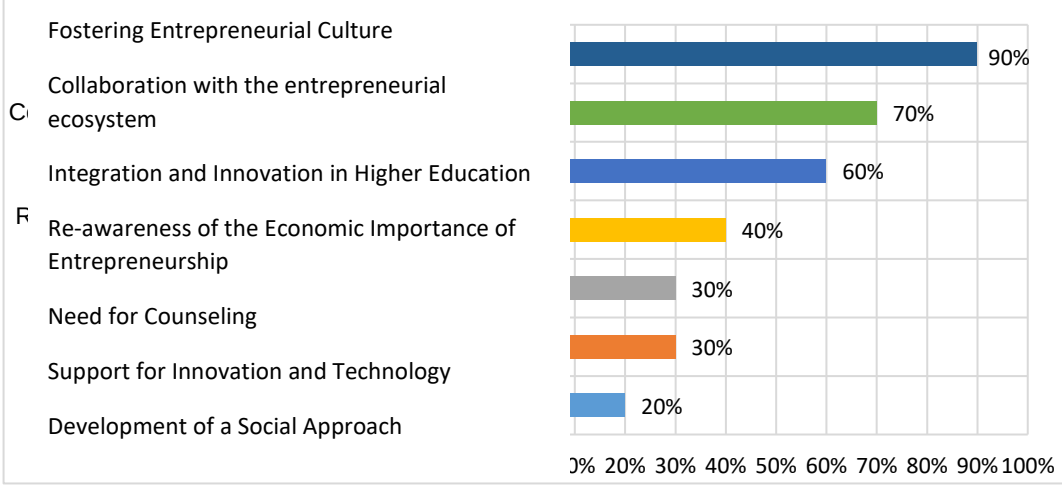

Figure 1. Frequency of the reasons that gave rise to the Entrepreneurship Centers and University Business Incubators.

Source: Own elaboration.

Table 3 shows the main services offered by the University Entrepreneurship Centers and Business Incubators.

No	Name	Description
1	Pre-Incubation, Incubation and Acceleration Programs	They offer a continuous process of support from the initial stages to the rapid growth of the ventures. It includes assessment, validation, business model development, mentoring, consulting, investor connection, and business training.
2	Advice, Mentoring, Coaching and Specialized Consulting	They provide personalized guidance in key areas of entrepreneurship, such as business planning, strategy, marketing, legality, and finance, as well as guidance and support, promoting personal and business development.
3	Events	It organizes events such as conferences, demo days or competitions that bring together entrepreneurs, experts and leaders in different fields to share knowledge, experiences and perspectives, they are aimed at both the university community and external participants.
4	Graduates	More extensive and comprehensive educational programs that offer a set of courses focused on specific aspects of entrepreneurship and business management.
5	Courses and Workshops	They offer shorter and more specific training sessions on specific topics of entrepreneurship, providing practical skills and knowledge.
6	Collaborative Workspaces	Shared physical areas where entrepreneurs can work, interact and collaborate on projects, encouraging creativity and the exchange of ideas.
7	Preparation and Participation in Calls	They help entrepreneurs prepare projects for different calls, such as competitions or financing programs, improving their chances of success.

Table 3. Main services offered by the Entrepreneurship Centers and University Business Incubators.

Source: Own elaboration.

The primary service provided by these centers and incubators is the administration of pre-incubation, incubation, and acceleration programs, which are offered with 100% frequency. However, some centers designate the latter as a post-incubation or growth program. The remaining three principal services offered by entrepreneurship centers and incubators are enumerated as follows: The majority of these centers and incubators (90%) offer advice, mentoring, coaching, and specialized consulting services. Additionally, 80% provide courses and workshops, while 50% assist with preparation and participation in calls. These findings are illustrated in Figure 2.

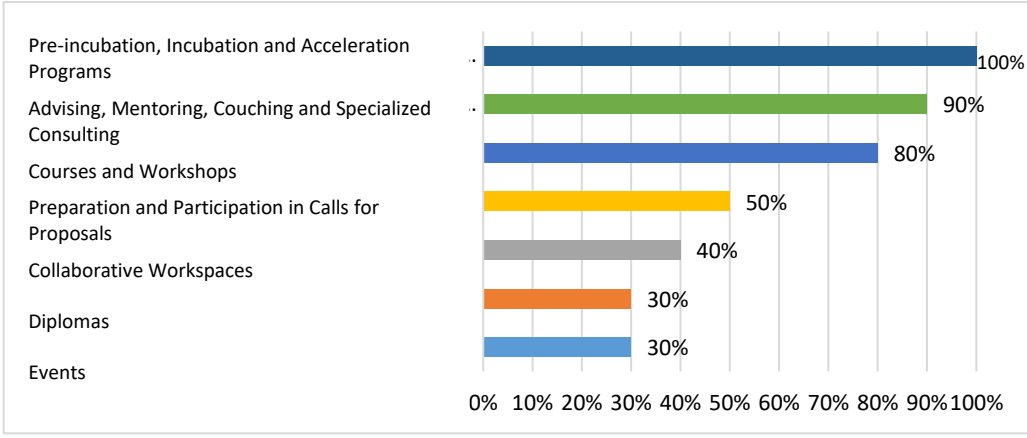

Figure 2. Frequency of services offered by Entrepreneurship Centers and University Business Incubators.

Source: Own elaboration.

The majority of entrepreneurship centers and university business incubators have specific key performance indicators (KPIs) in place to assess their performance. However, there is considerable variation in the way these KPIs are defined and measured. Some are evaluated based on the impact they generate, while others do not have established KPIs. Table 4 illustrates the principal key performance indicators (KPIs) applicable to entrepreneurship centers and university business incubators.

No	Name	Description
1	Number of Projects	Number of projects, whether active, new, or re-entry, that the center carries out during a semester or year, can be pre-incubation, incubation, or acceleration projects.
2	Number of Companies Created	Number of companies that have been established and registered by the incubator's efforts. It measures success in generating new businesses.
3	Number of Casualties	The number of projects or companies that have exited the incubator due to various reasons, such as successful completion or interruption of the project.
4	Level of Impact of Projects	Qualitative or quantitative assessment of the impact generated by the incubated projects in terms of innovation, economic growth, problem-solving, or social contribution.
5	Number of Diploma Holders. Courses and/or Workshops taught	Number of educational programs, such as diplomas, courses, and workshops, taught by the institution. Measure the scope of the training provided.
6	Number of Events Held	Number of organized events that take place in the semester or the year, they can be from conferences, Demo Day, or contests.
7	Measuring the Impact Generated by the Center	Qualitative assessment of the overall impact of the incubation or entrepreneurship center in terms of personal transformation, skills development, and contribution to the entrepreneurial ecosystem.

Table 4. Main KPIs that Entrepreneurship Centers and University Business Incubators can have.

Source: Own elaboration.

In consultation with experts in the field, it was determined that the number of companies established and the number of projects initiated are the primary metrics for evaluating performance. Each of these variables accounts for 60% of the total assessment, while the impact of the center or incubator represents 50%, and the level of impact of the projects facilitated by the center or incubator accounts for the remaining 40%. This information is illustrated in Figure 3.

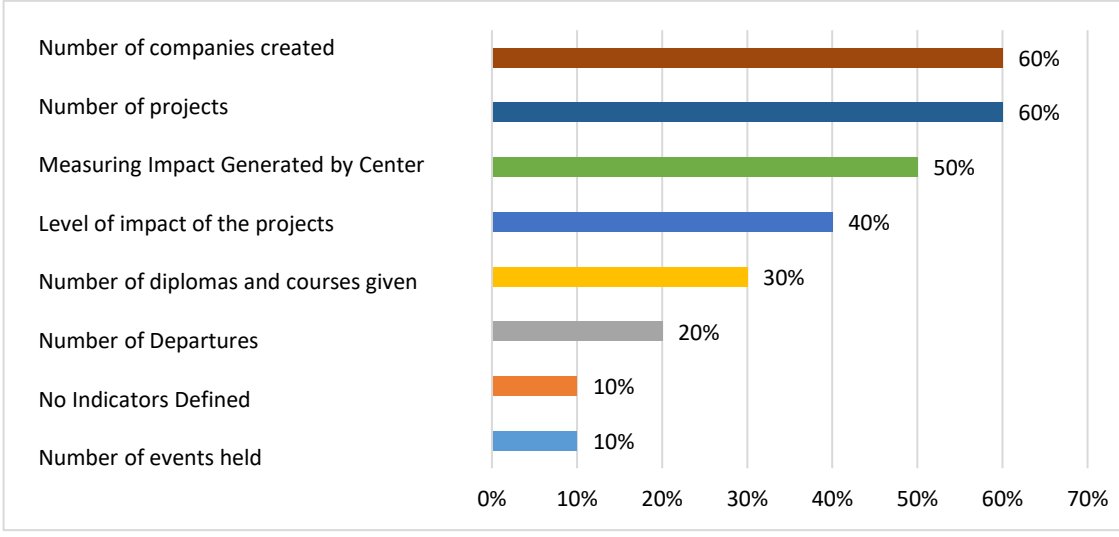

Figure 3. Percentage of KPIs available to Entrepreneurship Centers and University Business Incubators.

Source: Own elaboration.

2. The entrepreneurship training process from your institution for students, professors, and instructors.

The objective of this section is to identify the processes carried out by these institutions in the training of entrepreneurs, as well as the accompaniment they offer. Additionally, it aims to ascertain whether they train their instructors, the methods they employ, and the frequency with which they do so.

Table 5 presents a summary of the primary activities conducted by entrepreneurship centers and university business incubators.

No	Name	Description
1	Compulsory and Optional Education	Some institutions offer mandatory entrepreneurship courses for all university careers. These courses can include activities such as innovation challenges and specific projects. More in-depth training options are also provided through optional innovative entrepreneurship programs.

2	Personalized support through mentoring	Entrepreneurs receive personalized support in their training process.
3	Personalized advice and consulting	Advice and consulting are provided depending on the specific needs of the projects and entrepreneurs. It adapts to the stages of development of each venture. This can include guidance in legal areas, marketing, and sales.
4	Stage Training	It begins with the training of general skills and soft skills. As entrepreneurs progress through the process, they receive training and advice specific to the entrepreneurial mindset, pre-incubation, incubation, and maturation stages.
5	Courses and Workshops	Courses or workshops are used to provide entrepreneurs with hands-on training and exposure to relevant methodologies. These can be critical to developing specific skills or topics that need to be reinforced.
6	Chairs and Specific Programs	Specific entrepreneurship chairs and programs are established. These programs offer specialized, more in-depth, and comprehensive training in entrepreneurship, and are often aimed at students in the final semesters of their undergraduate or graduate studies.
7	Incorporation into Teaching	Entrepreneurship topics are integrated directly into the classes, allowing students to learn business concepts while studying their main discipline.

Table 5. Main activities carried out by the Entrepreneurship Centers and University Business Incubators in the teaching of entrepreneurship.

Source: Own elaboration.

As illustrated in Figure 4, 40% of the experts surveyed indicated that they did not provide training to their instructors. This was attributed to two primary reasons: firstly, they assumed their instructors were already sufficiently up to date, and thus it was their responsibility to maintain that level of expertise; secondly, they possessed the requisite experience and knowledge to deliver the services for which they were hired. Of the centers and incubators that, if they provide training for their advisors, consultants, and instructors, 60% indicated that they offer annual refresher programs with at least two events per year. These events address trends, tools, and methodologies, or align with topics relevant to the center or incubator.

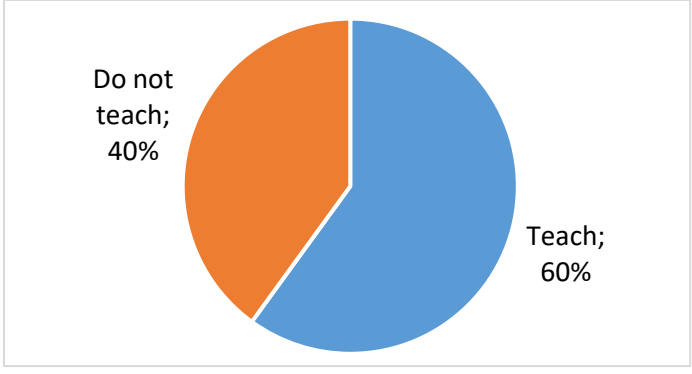

Figure 4. Percentage of Entrepreneurship Centers and University Business Incubators that train their instructors.

Source: Own elaboration.

Table 6 outlines the principal training modalities employed by entrepreneurship centers and business incubators for their instructors, advisors, and consultants.

No	Name	Description
1	Continuous Training	It is considered continuous because during the instructor's or advisor's stay, updating activities are carried out to improve or acquire skills, knowledge, and competencies relevant to the improvement of the performance of their entrepreneurship teaching. It can include courses, workshops, or seminars.
2	Induction Training	These are preparation sessions for new advisors, mentors, or instructors where methodologies, tools, dimensions, and work approaches of the center or incubator are provided to the new instructors so that they are aligned with the objectives and philosophy of these organizations in order to meet the expected goals.
3	On-demand training	This type of training is carried out when a new service is generated or to be able to cover the specific needs of students and entrepreneurs. Instructors are updated or obtain new methodologies, tools, use of new technologies, etc.
4	Self-Empowerment Approach	In some cases, instructors are encouraged or requested to independently seek updating, and/or training in entrepreneurship issues, in addition to that offered by the center or incubator.

Table 6. Types of training carried out by the Entrepreneurship Centers and University Business Incubators.

Source: Own elaboration.

Centers and incubators are responsible for the creation of training programs, as well as the outsourcing of the training of instructors. They are supported by a variety of courses, workshops, and diplomas from other institutions, or the government of the universities associated with the centers or incubators.

3. Profile and competencies of the university entrepreneur, as well as the entrepreneurship professor or instructor.

The objective of this section is to ascertain the competencies that managers of entrepreneurship centers and university business incubators deem indispensable for a university entrepreneurship student.

Furthermore, the respondents were asked to identify the competencies and knowledge that they consider fundamental for an entrepreneurship teacher or instructor. Additionally, they were asked to describe the practices and strategies used to train and keep them updated on entrepreneurship issues, as well as their evaluation criteria for teaching entrepreneurship.

Profile of the university entrepreneur

The experts were queried as to the competencies that a university student should possess or develop in order to become an entrepreneur. A list of these competitions was subsequently compiled based on the aforementioned responses, which were then classified into three categories:

- Personal and Emotional Competencies: These competencies focus on the students' ability to manage their emotions and attitudes.

- Interpersonal Competencies: These competencies are related to the way in which students relate to others.
- Management and Analysis Skills: These skills are related to the ability to effectively manage the project and carry it out.

Table 7 below presents the list of entrepreneurial competencies of university students, as well as a definition and the category to which they belong.

No	Competence	Category	Description
1	Ability to Learn Quickly	Personal and Emotional Competencies	The ability to acquire new skills and knowledge in an agile way. Adaptability and continuous learning.
2	Self-sufficiency	Personal and Emotional Competencies	Ability to function independently and autonomously.
3	Optimism	Personal and Emotional Competencies	Maintain an optimistic attitude, even in challenging situations.
4	Persistence	Personal and Emotional Competencies	The ability to stay focused on goals despite obstacles and challenges.
5	Risk Propensity	Personal and Emotional Competencies	Willingness to take calculated risks in the search for opportunities.
6	Autonomy	Personal and Emotional Competencies	Ability to make decisions and act independently.
7	Flexibility / Adaptation	Personal and Emotional Competencies	Ability to adapt to changing situations and be flexible in approaches and solutions.
8	Stress Management	Personal and Emotional Competencies	Ability to manage and manage stress effectively.
9	Resilience	Personal and Emotional Competencies	The ability to bounce back from adversity and challenges.
10	Frustration Tolerance	Personal and Emotional Competencies	Ability to handle frustrating situations and move on.
11	Confidence	Personal and Emotional Competencies	Security or vigor to act in decision-making and the execution of projects.
12	Proactivity	Personal and Emotional Competencies	Act in advance and take action to achieve goals.
13	Intention to Undertake	Personal and Emotional Competencies	The desire, willingness, and appetite to develop a project.
14	Be a Visionary	Personal and Emotional Competencies	Have a clear and aspirational vision of the future. Focus on long-term goals.
15	Selling Skills	Interpersonal Competencies	Ability to persuade and effectively communicate the value of a product or service to others.
16	Strategic Relationships	Interpersonal Competencies	The ability to establish and maintain effective relationships with partners, customers, and other key stakeholders.
17	Teamwork	Interpersonal Competencies	Ability to collaborate and work effectively in multidisciplinary teams.
18	Negotiation	Interpersonal Competencies	Ability to negotiate agreements and resolve conflicts favorably.
19	Effective Communication	Interpersonal Competencies	Ability to convey ideas and messages clearly and persuasively.
20	Information Seeking and Discernment Skills	Management and Analysis Competencies	Ability to effectively search, select, and evaluate information.

21	Creativity	Management and Analysis Competencies	Ability to generate original ideas and innovative solutions.
22	Logical Thinking	Management and Analysis Competencies	Ability to reason and make decisions based on logic and evidence.
23	Affinity for Numbers	Management and Analysis Competencies	Ability to understand and work with numerical and financial data.
24	Systemic View	Management and Analysis Competencies	The ability to understand and consider how different elements interact in a complete system.
25	Strategic Planning	Management and Analysis Competencies	The ability to develop long-term plans and define strategic objectives.
26	Decision Making	Management and Analysis Competencies	The ability to evaluate information and make effective decisions.
27	Opportunity Identification	Management and Analysis Competencies	The ability to recognize business opportunities in the environment.
28	Achievement Orientation	Management and Analysis Competencies	Focus on achieving specific goals and outcomes.
29	Results Orientation	Management and Analysis Competencies	Focus on achieving measurable and tangible results.
30	Planning and Evaluation	Management and Analysis Competencies	The ability to strategically plan and evaluate progress and performance.
31	Efficiency	Management and Analysis Competencies	Ability to use resources efficiently and optimize processes.
32	Efficiency	Management and Analysis Competencies	The ability to achieve desirable results and meet established objectives.

Table 7. Competencies of the University Entrepreneur.

Source: Own elaboration.

This list of competencies, as identified by Heads of Entrepreneurship Centers and University Business Incubators, represents the characteristics that define a university entrepreneur. While not all of these competencies are necessary for entrepreneurship, it is recommended that they be developed in order to facilitate the growth and success of a project.

- Profile of the Entrepreneurship Educator or Instructor

As indicated by the experts, Table 8 delineates the attributes of the advisors, consultants, and instructors affiliated with the Entrepreneurship Centers and Business Incubators. Furthermore, these characteristics have been organized according to the four dimensions of the Entrepreneurship Teaching Model at the University, as proposed in this research.

No	Dimension	Name	Description
1	Practice	Business Experience	Instructors must have experience related to entrepreneurship, either being entrepreneurs or with direct experience in the business world, being consultants. This experience allows them to bring practical knowledge and real cases to teaching.
2	Theory	Specialized Knowledge	They must have a deep knowledge of the concepts, strategies and challenges of the entrepreneurial world, but it is advisable that they are specialists in a topic, branch, or area that makes up entrepreneurship, for example, legal issues, marketing, finance, etc.

3	Attitude and Competencies	Knowledge Transfer Capacity	They must have the ability to effectively transmit their theoretical and technical knowledge to students. They must be able to explain complex concepts understandably.
4	Attitude and Competencies	Communication Skills	Communication skills are essential for interacting with students and conveying information clearly and effectively. They must be able to encourage participation and dialogue in the classroom.
5	Attitude and Competencies	Orientation Skills	For programs that include project tracking, instructors must have guidance and coaching skills to provide technical support and direction to entrepreneurs in their projects.
6	Pedagogy	Pragmatism	For instructors working on programs that involve real projects, they must be able to guide and evaluate the progress of projects effectively.
7	Pedagogy	Ability to Develop Entrepreneurial Culture	Some instructors may also have the role of mentors and coaches, guiding students toward developing an entrepreneurial mindset and culture.

Table 8. Characteristics of the Profiles of Advisors, Consultants, and Instructors of Entrepreneurship Centers and University Business Incubators.

Source: Own elaboration.

Consequently, those engaged in the training of entrepreneurs must possess not only a robust background in business but also the capacity to educate and counsel, in order to effectively disseminate knowledge and provide guidance to aspiring entrepreneurs. The capacity to establish a supportive learning atmosphere and furnish tangible assistance is pivotal to the efficacy of entrepreneurship training programs.

- Instructor Evaluation

Most experts consulted indicated that they lacked a clearly defined evaluation instrument. Table 9 has compiled the key points used to evaluate advisors and consultants.

No	Name	Description
1	Continuous Updating and Development	Instructors are regularly assessed to ensure that they are up-to-date and receive relevant training to ensure that they are up to date on current trends and practices related to entrepreneurship.
2	Quality of Services Provided	The quality of the services provided by the instructors is reviewed, ensuring that they meet the expected quality standards in the education and training of entrepreneurs, for example, those proposed by the National Council for Standardization and Certification of Labor Competencies.
3	Student Evaluations	At the end of courses, training or diplomas, students are asked to complete evaluation questionnaires about the instructor. These quizzes seek to identify areas of opportunity in instructors, advisors, and consultants, as well as gather feedback on what they liked about the course and what areas they could improve
4	Direct Observation	In some cases, Center or Incubator managers may participate in the sessions to directly observe how the instructor works. This allows for a closer understanding of their performance with the group.
5	Collaboration and Teamwork	They evaluate instructors' ability to collaborate with other members of the training team, as well as external experts and professionals who can enrich the student experience.

6	Innovation and Creativity	They assess instructors' ability to integrate innovative methods, creative approaches, and new technologies into their teaching to keep it engaging and relevant.

Table 9. Key points used by Entrepreneurship Centers and University Business Incubators to evaluate their Advisors, Instructors, or Consultants.

Source: Own elaboration.

Challenges and opportunities of teaching entrepreneurship at university.

This section aimed to identify the challenges faced by Entrepreneurship Centers and University Business Incubators in the teaching of entrepreneurship and to ascertain the areas in which improvements could be made.

As illustrated in Table 10, the experts identified seven principal challenges confronting Entrepreneurship Centers and University Business Incubators in the teaching of entrepreneurship.

No	Name	Description
1	Awareness and Participation of Students	To ensure that students understand and value the benefits of entrepreneurship, as well as to motivate them to actively participate in training programs and take advantage of available resources.
2	Teacher Training	Reduce the lack of training and experience in teaching entrepreneurship among professors, ensuring that they have the necessary skills and knowledge to teach dynamic and practical classes within the university environment.
3	Connection to the Business and Community Environment	Establish a strong connection with the local business community, allowing students to get involved in real projects, gain mentorship from professionals, and access business opportunities and linkage.
4	Difficulty in Implementing a Practical and Experiential Approach	Overcome the challenge of turning entrepreneurship teaching into a practical and relevant experience, providing opportunities for students to work on real projects and develop skills with concrete applications.
5	Obtain Financial Resources and Financing	Address the lack of financial resources to support entrepreneurial initiatives, seeking forms of internal and external financing that allow the development and implementation of innovative projects.
6	Transformation of Culture and Transversality	To overcome traditional perceptions of entrepreneurship as the only way to create businesses, and instead, to foster a broader understanding of entrepreneurship as an approach to generating impact in various areas
7	Have Adequate Infrastructure and Spaces	Have adequate facilities to contribute to obtaining practical results and a high level of learning. This encourages creativity and interest in participating in activities related to entrepreneurship within the university.

Table 10. Main challenges faced by Entrepreneurship Centers and University Business Incubators in the teaching of entrepreneurship.

Source: Own elaboration.

As indicated by the consulted experts and illustrated in Figure 5, the challenge with the highest frequency of participation (70%) is the awareness and participation of students. In second place with 50% is the training and updating of teachers, as well as the lack of adequate infrastructure.

In third place is the transformation of culture and transversality with 40%, as well as the difficulty in implementing a practical and experiential approach.

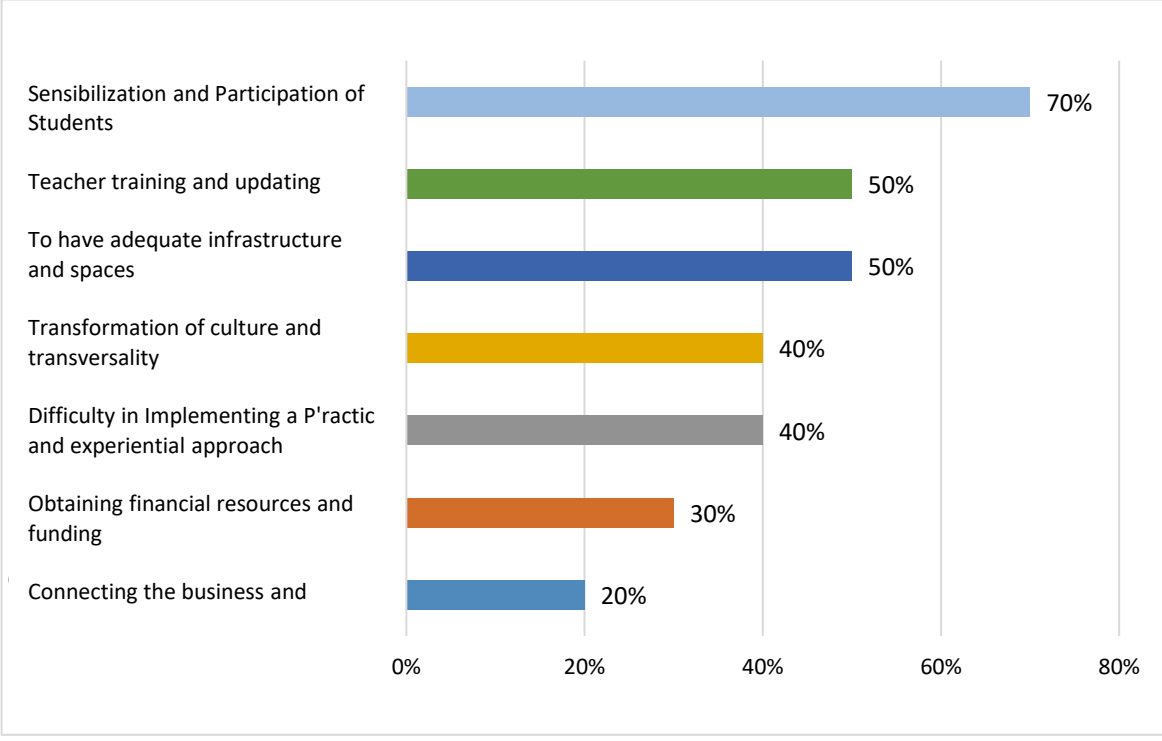

Figure 5. Percentage of challenges faced by University Entrepreneurship Centers and Business Incubators.

Source: Own elaboration.

The aforementioned result is consistent with the findings of the literature review. Authors such as Gautam & Singh (2015) and Colette (2020), have highlighted the significant challenge of raising awareness about entrepreneurship among university students. Additionally, they have emphasized the importance of conveying the advantages and opportunities that entrepreneurship can offer to these students. Another crucial concern is the updating and training of educators or instructors. This is not merely to enhance their comprehension of theoretical concepts, tools, or project design; it is also to foster the development of an entrepreneurial mindset and attitude in students. This approach demonstrates to students that entrepreneurial skills can be acquired even if they do not intend to pursue entrepreneurship as a career.

Table 11 presents a series of recommended changes and improvements to the teaching of entrepreneurship in higher education institutions, as expressed by experts in the field.

No	Name	Description
1	Awareness of the Importance of Entrepreneurship	To ensure that teachers understand and effectively communicate the importance of entrepreneurship to students, encouraging them to participate in related events and activities.
2	Institutional Commitment	Generate genuine interest among the institution's senior managers and leaders to actively promote entrepreneurship issues at all levels.
3	Academic Unification	Unify and coordinate the style and process of entrepreneurship teaching within institutions to ensure coherence and quality of content inside and outside the university.
4	Graduate Focus	Develop more content related to entrepreneurship at the graduate level, allowing undergraduate education to focus on developing entrepreneurial skills and postgraduate skills in the entrepreneurship process.
5	Practical and Realistic Teaching	Transform the focus of academic training into entrepreneurship to make it less theoretical and more practical and realistic, providing concrete experiences of entrepreneurship.
6	Promotion of Non-Traditional Models	Promote and support ventures that move away from the traditional business model, promoting the diversity of entrepreneurial initiatives, focusing on business models focused on people and the environment.
7	Comprehensive Perspective of Entrepreneurship	To change the perception of entrepreneurship, to leave behind the concept of entrepreneurship as just to create a business and to promote its understanding as a proposal for initiatives that generate an impact on people and the environment.
8	Incorporation of entrepreneurship subjects in the Curriculum	Design a subject or group of subjects dedicated to entrepreneurship as an integral part of the curriculum, ensuring that all students have access to this training.

Table 11. Key changes and improvements to improve the entrepreneurship teaching process in the universities of the Entrepreneurship Centers or University Business Incubators.

Source: Own elaboration.

These changes and improvements reflect a series of areas of opportunity that could enhance entrepreneurship training in higher education institutions from the perspective of Entrepreneurship Centers and University Business Incubators. They range from student awareness to the practice of entrepreneurship. However, to achieve this, it is necessary that all relevant parties—managers, academics, students, administrators, as well as companies, the community, and the government—located in the same locality of the university work together to cultivate a solid and integral entrepreneurial culture among students and other potential entrepreneurs.

Preliminary summary

The results of interviews with managers, coordinators, and directors of Entrepreneurship Centers and Business Incubators at universities in Mexico yielded several key findings.:

- The increasing significance attributed to entrepreneurship as a vital element of higher education and the dedication to fostering entrepreneurial endeavors are underscored.

- Several common challenges were identified, including the necessity to enhance student awareness of entrepreneurship, refine teacher training in this domain, and adapt to the evolving demands of society and technology.

- The significance of inter-institutional collaboration and the establishment of communities of practice for the exchange of resources and the dissemination of best practices was also underscored.

These findings collectively highlight the necessity to adapt and fortify entrepreneurship training programs in order to effectively equip students with the requisite skills to navigate the entrepreneurial challenges they may encounter. It is also important to note that the majority of the institutions that agreed to participate were private and large-scale universities. As a result, the findings may not accurately reflect the teaching practices employed in Entrepreneurship Centers and University Business Incubators, as these universities serve a population sector with greater access to different resources. Consequently, the findings cannot be wholly aligned to all higher education institutions in Mexico, as they may reflect the specific needs and teaching approaches of different types of institutions.

Conclusions

The Radiography of the Teaching of University Entrepreneurship in Mexico is a comprehensive research study that provides a detailed overview of the current state of entrepreneurship in Mexico and its global context, as well as the relationship between entrepreneurship and teaching in higher education institutions (HEIs). The document explores the main trends and perspectives on entrepreneurship from a global and Mexican perspective, the importance of entrepreneurship education in vocational training, the process of teaching entrepreneurship in HEIs, and the critical role that teachers have in the teaching of entrepreneurship.

In the initial section of the document, the global context of entrepreneurship was examined, revealing unprecedented economic growth alongside significant challenges in environmental, technological, social, and economic domains. The significance of sustainable entrepreneurship and its expansion was underscored as a means of confronting formidable challenges, including climate change, social inequality, and unemployment. Technological advances are also anticipated to have a beneficial impact on quality of life and economic development. However, there is a rising concern regarding the potential for unemployment resulting from technological advancement. In the domain of economic and social issues, it is observed that emerging markets, including Mexico, will collectively constitute the ten most significant global economies, while the influence of the United States and Europe will diminish in comparison to that of China and India.

In terms of global perspectives, the shortcomings of glorifying entrepreneurship as the sole path to professional and personal success, as well as the pursuit of turning startups into “unicorns,” were highlighted. The necessity for technical specialization was identified as a crucial factor for business success and for differentiating oneself in a highly competitive and technological landscape. Furthermore, the reality of startups was demonstrated, despite their commendable

contributions. However, the majority of these enterprises ultimately fail within a relatively short timeframe, and their long-term economic and social impact is often limited.

Conversely, the discourse emphasized that entrepreneurship should be regarded not merely as the establishment of novel commercial entities and economic growth, but as a catalyst for creativity, innovation, and constructive transformation in social and environmental arenas. The significance of impact entrepreneurship was acknowledged, emphasizing its role in addressing global challenges and confronting environments that perpetuate the exploitation of finite resources for the production of goods and services, which is a source of economic growth. This stands in contrast to alternative production models, such as the social and solidarity economy, which prioritize the well-being of individuals and the environment as the driving forces behind the fulfillment of their needs.

Subsequently, the countries that have achieved the most advanced status concerning entrepreneurship were identified. These are the United Arab Emirates, Saudi Arabia, Taiwan, India, and the Netherlands. These countries illustrate that collaboration between higher education, government, and society is a crucial factor in fostering entrepreneurship. Consequently, entrepreneurship is regarded as a catalyst for innovation, economic transformation, and enhanced quality of life, with a particular emphasis on sustainability and the positive impact on society and the environment.

In the second part of the document, an analysis was conducted of the entrepreneurship landscape in Mexico, identifying a dynamic interplay between persistent challenges and emerging opportunities. Notwithstanding the adverse effects of the pandemic (Covid-19), small and medium-sized enterprises in Mexico remain pivotal drivers of economic expansion and job creation. The crisis has served as a catalyst for Mexicans to perceive entrepreneurship as a means of generating wealth.

Conversely, a notable expansion was evidenced in Mexico with regard to emerging companies and innovative businesses, as evidenced by the emergence of unicorns within the country, which serves to illustrate the considerable potential for the entrepreneurial ecosystem. For example, the substantial growth of the fintech industry in recent years has led to the anticipation of significant advances in the Mexican economy. Similarly, nearshoring has emerged as a significant area of opportunity for numerous Mexican ventures, offering them the potential to enter new international markets or adopt technologies. This suggests a transition towards a more technology-focused and modern entrepreneurial ecosystem. In conclusion, the necessity of demonstrating the profitability and value generation of Mexican ventures was underscored, as well as the importance of establishing realistic and achievable goals for long-term growth and success.

It was thus underscored that, despite the perception of entrepreneurship as an accessible activity in Mexico, the reality is that it is not a straightforward or straightforward path. The findings of this research demonstrate that entrepreneurship is perceived as a privilege, with those who possess a more advantageous socioeconomic position, demographic characteristics, and even the color of their skin being more likely to succeed in business. This is evidenced by greater access to capital and financing, more effective internationalization strategies, more robust business

networks and connections, superior technical specialization, greater experience and knowledge in business issues, and proximity to regions considered poles of economic development, among numerous other factors.

Furthermore, the level of education attained by the founders of an enterprise is another significant factor influencing its probability of success. This is particularly relevant in Mexico, where over 80% of the population has completed higher education. This underscores the significance of integrating entrepreneurship education into higher education institutions (HEIs) in Mexico. By imparting entrepreneurial knowledge and skills in academic settings, students can develop the abilities and tools necessary to address economic, social, and environmental challenges, while also pursuing their professional and personal objectives (Saraiva & Paiva, 2020).

In the third section of the document, an analysis was conducted on the role of higher education institutions (HEIs) in entrepreneurship education. It was determined that HEIs play a pivotal role in fostering entrepreneurship, as they offer a robust academic curriculum and provide the necessary tools for students to transform their ideas into tangible outcomes. Consequently, an increasing number of universities and higher education institutions are seeking and developing novel approaches, techniques, and strategies to foster an entrepreneurial culture within their institutions and enhance entrepreneurial intentions among students.

Consequently, the various methods, theories, processes, elements, as well as good practices that are being used in entrepreneurship education in HEIs were analyzed, resulting in the structure of entrepreneurship education being characterized by a fundamental duality: the development of entrepreneurial competencies and the creation of companies. The coexistence of these characteristics within the same process underscores the necessity of addressing both the theoretical and practical aspects of entrepreneurship in the educational domain. This entails providing students with a comprehensive training program that encompasses the full spectrum of entrepreneurial endeavors, from conceptualization to implementation.

Derived from this duality, the Entrepreneurship Teaching Model at the University, as proposed in this research (Figure 12), is structured into two parts: a) Development of competencies and b) Business creation.

a) The program is conducted within the academic institutions of HEIs. It is distinguished by its emphasis on the cultivation of both hard and soft skills, equipping students with the ability to identify challenges, discern business prospects, devise solutions, and practically implement them. Furthermore, it underscores the significance of entrepreneurship for both professional advancement and the future of the students' professional teams, as well as the importance of developing an entrepreneurial mindset.

b) The activity is primarily conducted within the entrepreneurship centers or business incubators of the HEI. The objective is to provide instruction on the design, creation, management, operation, and growth of an entrepreneurial project.

Furthermore, this pedagogical model progresses through three distinct instructional methodologies, which are: The three approaches to teaching entrepreneurship are as follows: “on entrepreneurship” (theoretical training), “for entrepreneurship” (theoretical-practical training),

and "through entrepreneurship" (experiential training). These approaches provide a variety of perspectives on the incorporation and transmission of knowledge about entrepreneurship, based on the adaptation of the content to the needs and learning styles of students, thus enabling them to progress from one training approach to another.

Finally, the indispensable role of the teacher in entrepreneurship education was elucidated as a fundamental tenet, whereby educators are responsible for the transmission of knowledge, the development of competencies, and the assurance that students can effectively apply their acquired knowledge. Moreover, their roles extend beyond the mere transmission of theoretical knowledge and the cultivation of skills. They are also responsible for motivating, inspiring, and fostering an entrepreneurial mindset in students. Consequently, the characteristics or elements that define educators in entrepreneurship were identified, which allowed the formulation of three profiles of teachers: the entrepreneurial teacher, the consulting teacher, and the teacher trained in entrepreneurship issues. These profiles are detailed in this document.

These profiles may be regarded as generic archetypes of teachers in entrepreneurship. However, based on the research conducted, it can be concluded that, in contrast to professional or professionalizing careers such as engineering, law, accounting, or medicine, which are typically taught in a classroom setting and can be applied in some capacity, the teaching of entrepreneurship exhibits a distinctive dynamic that differs from these professions. In contrast to other professional disciplines, such as engineering, law, accounting, or medicine, which are typically taught in a classroom setting, entrepreneurship training often occurs in a more informal, experiential manner. This training often takes place in a variety of settings, with educators coming from diverse backgrounds and motivations. Consequently, there is considerable variation in teaching methods and approaches to entrepreneurship education.

The findings of this research indicate that there is currently a significant concentration of educators who possess knowledge of cutting-edge models and methodologies that have demonstrated enhanced efficacy in entrepreneurship education. One of the reasons identified was that teachers from private higher education institutions (HEIs) have greater resources and access to international networks that allow them to have first-hand access to new theories, methodologies, and tools, as well as training and updating programs, which are not available to teachers who belong to public HEIs. These public HEIs are often smaller in size or located at great distances from poles of economic development. Some challenges that have been identified include access to resources, the availability of materials in English, and the availability of access to teacher training programs.

Another key finding of this research was the identification of entrepreneurship educators as the primary agents responsible for the delivery of entrepreneurial training. Nevertheless, some questions and challenges remain to be addressed in the context of entrepreneurship education. These include: What should be the content of entrepreneurship education? How should it be taught? And to whom should it be taught? It is incumbent upon educators to address these pivotal challenges, which pertain to the transmission of knowledge and the cultivation of the abilities and aptitudes essential for students to become entrepreneurs or agents of change. It is therefore evident that the training and development of university entrepreneurship educators represents a

fundamental element in ensuring the successful completion of the entrepreneurship education process.

This document concludes with a presentation of the findings from interviews conducted with three distinct profiles of experts engaged in entrepreneurship education within higher education institutions (HEIs). The participants included heads of entrepreneurship centers and/or business incubators, academic coordinators of bachelor's degrees with entrepreneurship subjects in their curriculum, and professors who teach subjects related to entrepreneurship topics. As a result, it was possible to contrast the theoretical findings and secondary sources with the practice and experience of primary sources on the teaching of entrepreneurship in universities, as conveyed by the aforementioned experts.

One of the primary findings was the disarticulation between the training processes of the academy and those of the entrepreneurship centers of the HEIs. Over 25% of those in charge of entrepreneurship centers and over 60% of the professors interviewed emphasized the necessity for unification and coordination of the style and process of entrepreneurship teaching within the institutions to ensure coherence, cohesion, and quality of the contents throughout the process. Furthermore, over 60% of the interviewed professors and over 20% of the interviewed coordinators indicated that some students are able to develop sustainable business models during their academic training, either within classes or research projects. However, they lack a guide that they can follow throughout their training to ensure the continuity and coherence of their project. Accordingly, the experts interviewed have advised that the academic training process should be complemented with an experiential accompaniment process, comprising mentoring, advice, and consulting, to facilitate the realization of these projects.

Another significant challenge, as identified by the majority of experts interviewed, is the lack of awareness about the importance of entrepreneurship within the university community of their respective HEIs. Consequently, it is challenging to convey to students the advantages of entrepreneurship and to encourage their active involvement in training programs and the utilization of available resources. Consequently, over 70% of the experts surveyed, including those responsible for entrepreneurship centers and academic coordinators, attribute this phenomenon to a lack of interest on the part of the student or to ineffective communication on the part of the academic coordinators and the lack of information about the entrepreneurship services available at the university. This results in students being unaware of the existence of these services.

Furthermore, over 50% of those responsible for entrepreneurship centers and academic coordinators believe that professors exhibit resistance to updating their knowledge and recognizing the value of entrepreneurship in student training. Accordingly, experts have identified the need to raise awareness among educators about the value of remaining current, embracing new approaches and methodologies in the field of entrepreneurship, and fostering a deeper understanding and effective communication of the importance of entrepreneurship to students. This should include encouraging their participation in related events and activities.

Conversely, all the teachers interviewed demonstrated a proclivity for self-directed learning, pursuing training and updates in the programs offered by HEIs or other organizations or

institutions. Additionally, they indicated that the majority of their teacher training programs focused on pedagogy, encompassing topics such as group management, student evaluation, and other aspects related to teaching. However, with regard to matters pertaining to entrepreneurship and its pedagogy, professors have received training through programs external to their respective institutions. Additionally, they have benefited from academic literature, specialized texts, articles, and case studies of entrepreneurship. Furthermore, they have drawn upon their prior experience as entrepreneurs, advisors, or project consultants.

In conclusion, the majority of experts concur that the establishment of a transdisciplinary entrepreneurial culture within higher education institutions is imperative. The results indicate that over 50% of respondents perceive a current limitation on entrepreneurship education, which is primarily focused on economic and administrative careers. This narrow scope constrains the dissemination of entrepreneurial culture across the institution. Consequently, experts have advised that entrepreneurship education should be promoted in a cross-disciplinary manner across all academic areas. This approach would enhance the educational experience of students and foster an entrepreneurial mindset within the university community.

Another area identified by over 60% of the professors and nearly 20% of the academic coordinators as a potential opportunity for improvement is the creation of a collaborative space for educators in entrepreneurship. They posit that the establishment of a forum or community for entrepreneurship educators to share experiences, resources, and best practices in teaching entrepreneurship would provide them with the opportunity to refine their pedagogical approaches, identify effective strategies, and remain apprised of developments in the business and technological landscape.

In light of the primary findings yielded by this research, a series of actions have been identified that warrant further investigation to extend and clarify the situation. The necessity for a training process for trainers in entrepreneurship has been recognized, and the evidence obtained indicates that some authors have attempted to address this need. However, the majority of the literature focuses on student teaching rather than on teacher training.

The design of the training process for trainers in entrepreneurship must be based on the five verticals of the entrepreneurship education process. These are theory, pedagogy, practice, attitude and competencies, advice, consulting, mentoring, and accompaniment. The training process must include all of these elements to allow entrepreneurship teachers to answer all of the concerns that they have about what to teach, how to teach, and who to teach about entrepreneurship.

The training process will enable educators to transition between academia and entrepreneurship centers within higher education institutions (HEIs), teaching the fundamentals of entrepreneurship and eventually providing guidance to entrepreneurial projects.

Accordingly, the construction of a model for training trainers will contribute to the process of teaching entrepreneurship by resolving a series of unknowns, including a search and analysis of training processes in entrepreneurship education, the identification of tools and methodologies used for its teaching, and the definition of the levels of depth of knowledge to be transmitted and

the level of maturity in the training of entrepreneurship trainers for the preparation of teachers to teach entrepreneurship.

As a result, the subsequent phase of this research has identified a series of actionable items that will facilitate the advancement of this project. These items are designed to enable the development of a training model for educators in entrepreneurship, with the ultimate objective of creating a comprehensive training program for educators in university entrepreneurship. The following lines of action are recommended for further consideration:

- The objective is to design and define a system of tiers of depth or complexity of knowledge of entrepreneurship educators. This system should describe the types of knowledge possessed by each tier and the teaching mastery of the entrepreneur training process.

- The objective is to develop and define the training maturity levels for entrepreneurship educators, as well as an assessment tool. These training maturity levels will facilitate the creation of a training roadmap for entrepreneurship educators.

- The objective is to design a pedagogical model for teaching entrepreneurship and a training syllabus for each of the identified tiers of entrepreneurship educators. The model and syllabus will specify the theoretical and pedagogical aspects that educators must master.

- The objective is to design an educator training program and validate it through a preliminary pilot test for educators in entrepreneurship.

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