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# International Journal of Human Sciences Research

## INSTITUTIONAL FACTORS AND BUSINESS EDUCATION IN HIGHER EDUCATION INSTITUTIONS

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**Abstract:** University business education allows graduates to have the knowledge to venture into entrepreneurship. The objective of the study is to analyze the institutional factors of the Higher Education Institution (IES) as determinants of entrepreneurial education in the Victoria City of Durango, Dgo. The analysis of institutional factors was based on North's Institutional Theory. The hypothesis: institutional factors influence the entrepreneurial training of an HEI in Victoria de Durango. The hypothetical model presented was confirmed by the Structural Equation Model (SEM) technique. The results confirmed the hypothesis of the study.

**Keywords:** Entrepreneurship, Entrepreneur, Entrepreneurial Education, Institutional Factors.

## INTRODUCTION

Given the economic challenges that are experienced globally, achievements in entrepreneurship are required. Entrepreneurship is assumed as the way in which the creativity of individuals can be channeled towards the gestation or acceleration of innovations that materialize in the markets and, this is a way to increase competitiveness and derive positive effects on local development.

The outlook for entrepreneurship in our country is not very encouraging despite the data of the favorable increase of private investors. Entrepreneurship represents a mechanism that generates employment, reduces poverty, and participates in development and economic growth.

The word entrepreneurship is derived from the French term *entrepreneur*, which means to be ready to make decisions or start something. Entrepreneurship has historically been associated with activity, creativity, risk, conquest, heroism, calculation, and adventure (Pineda, 2014).

Currently entrepreneurship represents a scientific discipline dedicated to the methodological study of entrepreneurs, the business function, and the creation of companies. The growth of this type of studies in recent years is due to the importance of the creation of companies for the technological and economic development of a territory (Vallmitjana, 2016).

Entrepreneurship is a term widely used throughout the world, although it has always been present throughout the history of humanity, as it is inherent to it. For Brandt (2014) entrepreneurship is the ability to recognize productive resources destined to an idea or innovation to realize a company.

In turn, entrepreneurship is seen as the transcendence of generating actions that have and add value to society. Therefore, the concept of entrepreneurship is one of the values that is most wanted to be taught and instilled in the student community (Dorantes, 2017).

Thus, entrepreneurship becomes a multidimensional phenomenon not only in the creation of companies or as a source of self-employment, but also in the acquisition of values related to responsibility, the management of personal projects and the construction of one's own criteria that facilitate the moral formation of the individual.

On the other hand, universities have a very important role in providing students with a basic and adequate training that prepares them to achieve the personal and professional objectives set. Entrepreneurs are people who generate ideas, concerned about developing and preparing to be better citizens.

Education is a basic pillar in the promotion of entrepreneurship. In recent years, awareness-raising elements, and training programs for the development of entrepreneurship as a basic competence have been introduced in the different stages of the educational system.

In this sense, the government has developed modifications to education programs at different levels as a strategy to promote and strengthen this competence.

The purpose of this strategy is mainly to promote the skills that relate entrepreneurial activity and the entrepreneur. Every student has the potential, but generally do not have the knowledge, attitudes, skills, and abilities that define entrepreneurial competence, in this way, the HEIs are promoting competencies that promote entrepreneurship, establishing a relationship between theoretical concepts and the application of these in practical projects related to the development of the entrepreneurial attitude (Pérez, Sánchez, Schmitt and Salazar, 2019). Likewise, promoting the development and linkage of basic science and technological innovation, associated with the updating and improvement of the quality of education and expansion of the frontiers of knowledge, allows the graduate to have more preparation and advantages in the creation of entrepreneurial initiatives (Herrera and Álvarez, 2015).

At the higher level, the main objective of entrepreneurial education is to ensure that students learn how to create and manage their business initiatives to present them in public and to sell the products or articles elaborated. In general terms, it is about making an approach between the company and the entrepreneur in the classroom, making use of theory and practice, thus enhancing entrepreneurial competence.

The importance of introducing systematic entrepreneurship training into the Higher Education System is linked to the need to promote in students the concern to create companies (Hernández and Sánchez, 2017). For example, in the business environment, entrepreneurship is related to the ability to create self-employment. In the educational environment, on the other

hand, entrepreneurial initiative refers to developing personal characteristics such as self-confidence, leadership, resistance to failure, ability to achieve, among others. These qualities are accurate in any professional context and for all entrepreneurs.

The concept of entrepreneurial education is directed towards an education on human formation, where students are educated about initiative, autonomy, confidence, responsibility, resilience, leadership, commitment, planning, setting goals among others, which leads them to strengthen their personal maturity, so that they can value, think, invent, create, imagine and innovate new products, articles and personal projects to face the new and difficult challenges that arise, including those in the labor field. This shows the need to strengthen some aspects such as the link between universities and the context to meet the requirements of society (Sánchez, Hernández and Jiménez, 2016).

In this same context, entrepreneurship is a social economic phenomenon that occurs at different levels: individual, institutional, and social. At the individual level the entrepreneur must learn in his environment how to create and develop his ideas, the institutional level includes the factors of the HEI that influence the development and strengthening of the entrepreneurial spirit and the social level, which reflects the performance of the entrepreneurial activity depending on the environment where it develops and the commitment to it (Fayolle and Toutain, 2013), must understand the relationship that is created between the entrepreneur, the entrepreneurial initiative and the environment in which the venture is developed.

Likewise, the education of the entrepreneur is linked to the creation of entrepreneurial initiatives and their performance; Entrepreneurs with greater academic preparation promote a proactive relationship

of their knowledge with innovations and take advantage of opportunities.

In turn, the entrepreneur must have the skills to know, reflect, from their own experiences, adapting to the changes arising in the economic, political, social, cultural environment; must be viable and feasible, there must be constant preparation and professional updating in such a way that it is applied taking into account the changing and competitive environment (Fayolle and Toutain, 2013), elements that become knowledge and participate in the decision making of the entrepreneur. In this way, entrepreneurial knowledge includes knowing the functions that the university entrepreneur must develop, as well as everything related to the environment where the venture will be developed; All this is born from the life experiences of the graduate university entrepreneur, from the education received and that part of his entrepreneurial training.

Therefore, entrepreneurial education involves preparing college graduates to thrive in their careers when they start a new business (Blenker, Korsgaard, Neergaard, and Thrane, 2014). For educational institutions, assuming this commitment leads to promotion in a congruent way, with actions in the pedagogical and didactic areas that help and are reflected in the teaching work. From the above, it is important for teachers to participate in the different updating and training programs that contribute to the formation of competencies similar to those sought to be developed in students.

Thus, a quality education allows people multiple possibilities to expand their capabilities, acquire the cultural heritage of their society and develop the skills and abilities necessary to perform adequately in today's world (Beyer, 1998). Therefore, the quality of education must have relevance in the training provided to future graduates.

## **ENTREPRENEURIAL EDUCATION AND ENTREPRENEURSHIP**

Currently, most universities offer entrepreneurial education programs with the expectation that they will provide university professionals with the necessary competence to become entrepreneurs, which means being job creators rather than job seekers (Zamberi, 2013).

Entrepreneurial education, defined as the formation of skills for the creation and support of companies, and with it the creation of services and products, which represents an alternative of employment and / or self-employment, in response to factors such as imbalance and economic insecurity, the lack of quality and well-paid labor supply (Godínez and Canales, 2019).

Azqueta (2017) states that entrepreneurial education is not just about teaching someone how to run a business. Through entrepreneurial education, students learn how to create businesses, and much more. The basic knowledge created through entrepreneurial education includes the ability to recognize opportunities in life, the ability to pursue opportunities by generating new ideas and finding the necessary resources, the ability to create and operate a new venture, and the ability to think creatively and critically.

It should be added that, in addition to knowledge and skills in business, entrepreneurial education is mainly based on the development of certain beliefs, values and attitudes, with the aim of making students really consider entrepreneurship as an attractive and valid alternative to paid employment or unemployment (Stamboulis, 2014).

The literature reviewed indicates that universities have been concerned with including in their institutional programs the training of entrepreneurial professionals, where, within this training, the need to



develop skills different from the traditional ones that strengthen entrepreneurial training for future professionals is considered.

On the other hand, education to undertake has taken on special relevance in recent years. One of the main causes is that it is accepted that entrepreneurship favors the creation of sources of work, which gives rise to a greater amount of job opportunity for the workforce and with it a better level of economic well-being in the population (Soria, Zúñiga and Ruiz, 2016).

In this regard, obtaining adequate employment opportunities for university graduates has become a national challenge especially in developing countries. Sometimes, universities offer some traditional professions that have little demand in the market and employment opportunities for graduates. Some universities produce professionals with varying skill levels who can be integrated into public and private enterprises in the economy. However, existing private and public organizations are not able to absorb all graduates leaving universities.

Consequently, university professionals marginalized from the labor market lose hope and are frustrated by the lack of opportunities where they can use the skills acquired from different university professions, this generates a social and economic imbalance in the country. In this situation, an alternative is entrepreneurship or self-employment.

At the same time, entrepreneurial education at the university level offers students the opportunity to see the latest developments, allowing them to have a clearer idea of how to implement these developments in the future creation of enterprises and in their management.

## **INSTITUTIONAL FACTORS AND ENTREPRENEURIAL EDUCATION**

A reliable and efficient institutional environment provides the right conditions for entrepreneurial education and access to the resources needed to carry it out. In this way, institutional space is a key factor for entrepreneurial education.

For the analysis of institutional factors, it was based on institutional theory (North, 1990). Based on institutional theory, the formalization of the creation of entrepreneurial initiatives can be studied and analyzed from the perspective formed by educational institutions and support programs, as well as from the perspective of new and future entrepreneurs.

This theory is based on the fact that institutions establish the conditions of play in society, as coercive elements generated by man that shape human action. In addition to this, the knowledge, culture, and beliefs developed throughout history and transmitted between generations give rise to an integral and unique behavior of these. Institutional factors were chosen from the reference framework for entrepreneurial universities, which was developed by the Directorate-General for Education and Culture of the European Commission, in collaboration with the LEED forum (Programme for Economic Development and Employment at Local Level) of the OECD (2016). The factors to be studied for this research and are described in Table 1.

Thus, the institutional framework is a relevant element to promote entrepreneurial education. The institutional formation of HEIs affects the dynamics of entrepreneurial education. This context is characterized by the interaction and development of activities that involve, among other elements, entrepreneurial training, leadership and governance, organizational capacity, people

Factor	Concept
<b>Entrepreneurial training</b>	This factor indicates that HEIs should promote entrepreneurship, making use of common values, missions and not just be a detailed control system, that is, there must be an institutional strategic plan (EC-OECD, 2016).
<b>Leadership and governance</b>	They are the different actions that must be generated for an institution to promote entrepreneurship; therefore, the leadership and direction of the institution is key in this activity (GEM, 2016).
<b>Organizational capacity, people, and incentives</b>	Universities can be constrained by their own organizational structure, and prevent them from carrying out their business agenda. This includes financial strategy, attracting and retaining the right people, and incentivizing entrepreneurial behavior in individuals (GEM, 2016).
<b>Teacher Development</b>	There are several areas in which business development can be carried out, reflecting the need for the organizational structure to support business development, as well as the provision of appropriate tools to provide education and training opportunities both internally and externally (GEM, 2016).
<b>Entrepreneurial trajectory</b>	The university's decision to commit to entrepreneurship is not a single act but a process. For universities to be entrepreneurial, they must support the paths that aspiring entrepreneurs, staff, and students follow from ideas to market growth or employment. This is not just an internal university process, but one in which a pluralistic approach is required to provide access to internal and external opportunities and knowledge (GEM, 2016).
<b>Knowledge sharing</b>	The active participation of most stakeholders is an element that contributes to the achievement of the strategic objectives set by the university in its business agenda. Building and maintaining relationships with key partners and collaborators is essential to achieving the full potential of a university, in business activity in research, teaching and other activities considered in its institutional mission. On the other hand, the external environment has several components, including relations with the public sector, regions, companies, alumni, professional bodies, among others. The motivation for this commitment is to create value for the university and society (GEM, 2016).
<b>Internationalization</b>	A university that is entrepreneurial is recommended to be international as well. As internationalization becomes increasingly integrated into strategic processes, it is essential that universities can make informed decisions about institutional direction, as well as evaluate and improve performance according to different objectives in a wide range of international activities (GEM, 2016).
<b>Impact</b>	By encouraging entrepreneurial activity in its students, the university will be impacting not only locally, but also in the different areas with which it has a direct or indirect relationship (GEM, 2016).

Table 1. Institutionals Factors

Source: own elaboration based on the revised literature (2023)

Dimension	Factor	Average	Validity
University Entrepreneurial Education	Innovation	3.00	Strong
	Creatividad	3.00	Strong
Institutional Factors	Leadership and governance	2.83	Strong
	Organizational capacity, people, and incentives	2.70	Strong
	Teacher Development	2.90	Strong
	Trajectory of employers	2.83	Strong
	Knowledge sharing	2.83	Strong
	Internationalization	3.00	Strong
	Impact	2.83	Strong
	<b>Average</b>	<b>2.88</b>	<b>Strong</b>

Table 2. Results of validity by expert judgement

Source: own elaboration based on the results of the review of expert judgement (2023)



and incentives, people and incentives, people and incentives, people and incentives, people and incentives, teachers' development, entrepreneurial trajectory, knowledge exchange, internationalization among other elements (OECD, 2016).

Various literature has pointed out the existence of institutional factors capable of conditioning the reaction of entrepreneurs and individuals to start new businesses (North, 1993). It has been proven how the institutional environment conditions entrepreneurial education. Some institutional and neo-institutional theories, initiated by Schumpeter and Douglass C. North, consider this area as the main determinant to explain the degree of development of countries (Osorio, Saavedra and Martínez, 2019). These studies have multiplied in recent years, where institutional factors, as a variable of analysis, have had a constant presence in research on education for entrepreneurship, little by little with greater relevance and impact, it has been considered as an indispensable factor the promotion of education for entrepreneurship.

By virtue of the above approaches, the objective of this study is to analyze the institutional factors of the IES as a determining factor of entrepreneurial education in the City of Victoria de Durango, Dgo. The hypothesis of this work is presented below:

Institutional factors influence the entrepreneurial education of university entrepreneurs graduated from an HEI in Victoria de Durango.

## METHODS

The objective of this study is to analyze the institutional factors of the HEI of graduation of university entrepreneurs as a determining factor of entrepreneurial education in the City of Victoria de Durango, Dgo.

Eight institutional indicators were used for this study. These identified indicators

allowed to determine their influence on entrepreneurial education.

This research began with a literature review on entrepreneurship, entrepreneurship education, approaches around the entrepreneur and institutional factors as determinants of entrepreneurial education, which was theoretically supported.

A mixed approach was used for the research; in a first stage the qualitative method was used, while in the second stage the quantitative method was used (Vara, 2015).

The qualitative method was used to respond to the problem statement. It allowed the researcher to explore, describe and know with breadth and depth perceptions, emotions, feelings, experiences, approach, and points of view of people, from the perspective of the participants themselves or subjects investigated, in their natural environment and in a more open way (Hernández, Méndez, Mendoza and Cuevas, 2017). The face-to-face interview was used as an instrument for gathering information. The interview was designed with open and closed questions, considering the institutional factors of HEIs considered in entrepreneurial education. This allowed contextualizing the phenomenon of study.

In a second phase, the quantitative method was used, which, according to Hernández et al., (2017) meet the characteristics for this type of study within which can be mentioned: need to pose a research problem, review the literature and at the same time build the theoretical framework providing the elements to elaborate the hypotheses. Considering the above and the characteristics of the problem, it is necessary to develop a research design, determine the sample and proceed to collect the data from the field. Finally, the results obtained are analyzed and the conclusions of the study were elaborated.

## SAMPLE

The analysis unit was composed of companies founded by entrepreneurs graduated from a public HEI, located in Victoria de Durango., Dgo. For Hernández et al., (2017) the population or universe is composed of the total number of cases events that meet certain features; The population considered was made up of the companies created by university graduates of the different specialties of the HEI in the period 2000-2016.

The determination of the sample was made using the formula for a finite population (the total number of observation units that make it up is known):

$$n = \frac{z_{1-\frac{\alpha}{2}}^2 \cdot p(1-p)}{d^2(N-1) + z_{1-\frac{\alpha}{2}}^2 \cdot p(1-p)}$$

Where:

$n$  = sample size  $N$  = population size

$Z$  = critical  $Z$  value, calculated in the tables of the area of the normal curve.

Also called confidence level.

$S^2$  = variance of the study population (which is the square of the standard deviation and can be obtained from similar studies or pilot tests)

$d$  = absolute accuracy level. Referred to the amplitude of the desired confidence interval in the determination of the average value of the variable under study.

As a result of this formula, for a confidence level of 95%, 152 companies out of a population of 250 registered entrepreneurs' graduates were surveyed in the graduate tracking database.

## TYPE OF RESEARCH

The methodological design of the research is correlational to the extent that it determines the relationships between entrepreneurial education and the institutional factors of the graduate university entrepreneur (Vara, 2015).

It is descriptive when seeking to specify properties, characteristics and important features of the phenomenon, event, community, context, or situation that is analyzed in this case (Hernández et al., 2017).

Cross-sectional because the information collection was done in a single period so that its purpose is to describe the variables and analyze their incidence and relationship at a given time, where the behavior of the variables was observed (Hernández et al., 2017). Data were collected from September to November 2022.

## RESEARCH DESIGN

The methodological design are the steps to follow to generate and obtain the information required to solve the problem posed and achieve its objectives (Hernández et al., 2017). The methodological design proposed in this research is shown in Figure 1.

## SURVEY DESIGN

From the institutional theory, it is possible to study and analyze the formalization of the creation of entrepreneurial initiatives from the perspective of the offer formed by educational institutions and support programs, as well as from the perspective of demand, in this case new entrepreneurs.

This theory is based on the fact that institutions establish the conditions of play in society, as coercive elements generated by man that shape human action. In addition to this, the knowledge, culture, and beliefs developed throughout history and transmitted between generations give rise to an integral and unique behavior of these. The factors were chosen from the framework for entrepreneurial universities, it was developed by the Directorate-General for Education and Culture of the European Commission, in collaboration with the OECD LEED forum (2016). The variables and factors chosen are

shown in Table 2.

Variables		Factors
Dependent	University	Innovation Creativity
	Entrepreneurial Education	
Independent	Contextual factors	Entrepreneurial training
		Leadership and governance
		Organizational capacity, people, and incentives.
		Teacher Development
		Entrepreneurial trajectory
		Knowledge exchange.
		Internationalization
		Impact.

Table 2. Study variables and factors

Source: Own elaboration based on the revised literature (2023)

SELECTION OF QUESTIONS AND PREPARATION OF THE SURVEY

The instrument was designed considering the variables that make up the general objective of the research. A selection of 50 questions was made to be evaluated on a Likert-type scale, related only to institutional factors and entrepreneurial education of the graduating university student.

QUESTIONNAIRE

The material presented is a compilation of items from different questionnaires and items of the researcher, under the reference of institutional theory and the reference framework for entrepreneurial universities, developed by the Directorate-General for Education and Culture of the European Commission, in collaboration with the LEED forum of the OECD (2016).

VALIDITY OF THE INSTRUMENT

The questionnaire was subject to construct validation through expert judgment (Tarapuez, García and Castellano, 2018), where they assessed the quality, relevance, understanding and dimension to which each item should be associated.

Procedure for consulting experts (Barraza, 2012), recommends between 5-6 and a maximum of 10.

The instrument was developed with the indications and the corresponding scale for its evaluation. Where the objective of the instrument is indicated and their collaboration is requested to establish the validity of the content, giving the corresponding instructions within the body of the instrument and the corresponding scale.

Considering the procedure proposed by Barraza (2012, the instrument was applied to the experts considered and the final results shown in Table 3 were obtained.

The qualitative analysis of the first expert trial revealed some aspects to highlight, the most consistent being the type of wording used, denoting aspects of ambiguity and clarity. The analysis carried out at first revealed that all the items presented values in the range of 2.3 to 2.5 denoting an acceptable validity which would denote their content validity.

The qualitative analysis of the second expert trial showed a satisfactory opinion on the part of the judges. The quantitative analysis denoted the above since all items presented values higher than 2.6. denoting a strong validity.

RELIABILITY ANALYSIS

To verify the reliability or internal consistency of an instrument, that is, to recognize that the items used measure the characteristic that is intended to be analyzed with a high level of correlation, Cronbach's Alpha will give the degree of reliability. The results of this analysis are shown in Table 4.

A reliability of .962 was obtained, which is considered a strong reliability, these results are shown in Table 5.

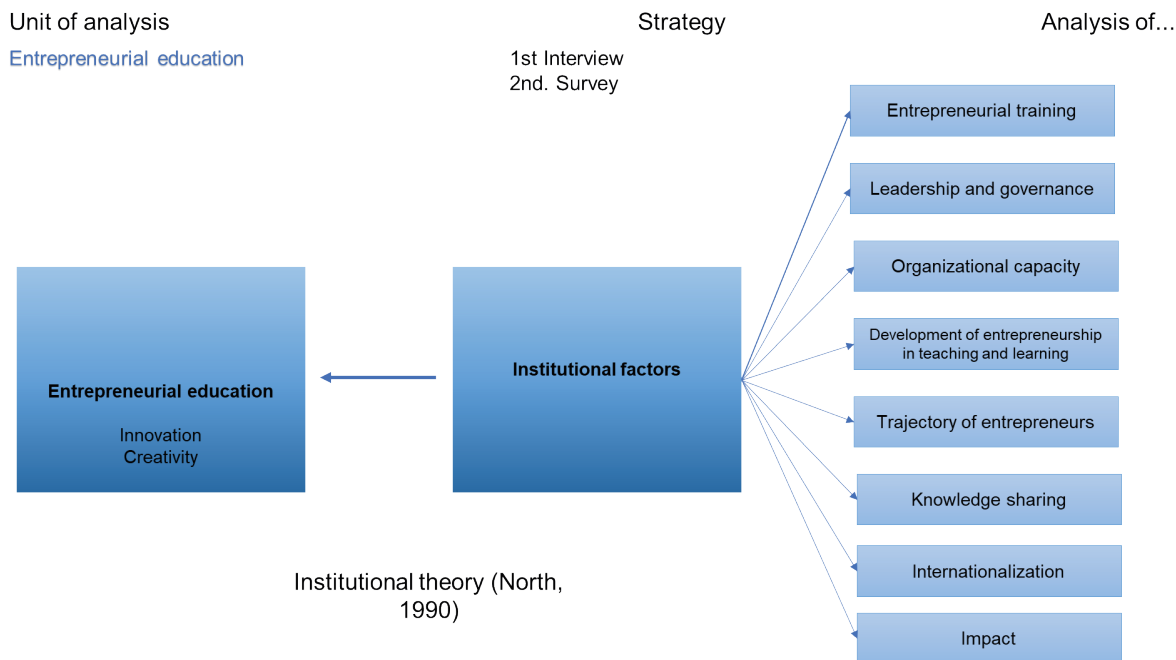


Figure 1. Research design

Source: own elaboration based on the revised literature (2023)

Variables		Factors	Cronbach's alpha	Cronbach's alpha based on standardized elements
Entrepreneurial education	Innovation		.758	.759
	Creativity		.724	.741
Institutional factors	Training of entrepreneurs		.786	.785
	Leadership and governance		.888	.889
	Organizational capacity, people, and incentives		.954	.953
	Teacher Development		.939	.939
	Entrepreneurial trajectory		.828	.828
	Knowledge sharing		.943	.943
	Internationalization		.965	.965
	Impact		.964	.964

Table 3 Reliability analysis by factors

Source: Authors (2023).

Cronbach's alpha	Cronbach's alpha based on standardized elements	N of elements	Cases	N	%	Barred <sup>a</sup>
.962	.962	40	152	Valid	100.0	0

Table 4. Instrument reliability statistics

a. Delete by list is based on all variables in the procedure.

Source: Authors.

Statistical	Abbreviation	Criterion	Value obtained	
Absolute adjustment Chi-square Chi-square ratio / degrees of freedom	X 2 $\chi^2 / gl$	Significance > 0.05 Less than 3	29.3/18	Acceptable
Comparative fit Comparative goodness of fit index	Cfi	$\geq 0.95$	.991	Acceptable
Tucker-Lewis's index	Tli	$\geq 0.95$	.977	Acceptable
Normalized adjustment rate	NFI	$\geq 0.95$	.938	Acceptable
Parsimonious adjustment Corrected for parsimony	NFI NFP	Next to 1	.923	Acceptable

Table 6. Adjustment statistics

Source: own elaboration based on survey data (2023)

## DATA COLLECTION

For the collection of the data, a formal request was made to the university entrepreneurs and in a first phase an interview was carried out with a small group of university entrepreneurs (30) for a first approach and in a second phase to apply the survey to the selected sample, 152 companies created by university entrepreneurs graduated using a questionnaire. Answering the total of the sample.

## TECHNIQUES FOR INFORMATION PROCESSING, ANALYSIS AND OBTAINING RESULTS

For the data obtained, various statistical procedures were applied to obtain results that allowed to fulfill the objectives planned in the research.

The data were analyzed with the SPSS v25 program, considering a probability value less than 0.05 that is statistically significant. And for confirmation of the proposed hypothetical model AMOS v25.

## RESULTS

The purpose of this section is to analyze university entrepreneurial education through the institutional factors of the HEI of the entrepreneur graduated in the City of Victoria de Durango, Dgo.

The results obtained are evidence of the importance of forming an institutional scheme that strengthens entrepreneurial education and therefore the creation of university companies, guaranteeing their permanence development and consolidation in a widely competitive environment.

## CHARACTERISTICS OF THE UNIVERSITY ENTREPRENEURS SURVEYED

The age of university entrepreneurs is between 21 and 43 years with an average of  $33.7 \pm 5.5$  years. With a similar number of women 72 (48%) than men 80 (52%) entrepreneurs. A total of 63% of informants responded that they were within the marital status of married and 33% are single. 11.2% completed postgraduate studies.

The entrepreneurial professionals surveyed are in a variable service seniority, 18% have 1 to 5 years of service, 6 to 10 years 20%; 29%

of the entrepreneurs surveyed are between 11 and 15 years old and 33% have 16 to 20 years of service, the latter being the highest value corresponding to this indicator.

The training of the entrepreneurs surveyed has a bachelor's degree in the different specialties of the HEI. The distribution of graduates by specialty indicates that 11.1% (17) of the entrepreneurs surveyed belong to the specialty of Computer Systems Engineering, 9.2% (14) to Business Management Engineering, 9.2% (14) to Biochemical Engineering, 8.5% (13) to the Bachelor's Degree in Administration, 7.2% (11) to Industrial Engineering, 6.6% (10) to Mechanical Engineering, 6.6% (10) to Computer Engineering, 6.6% (10) to Information and Communication Technology Engineering, 6.6% (10) to Electronic Engineering, 6.6% (10) to Electrical Engineering, 5.9% (9) to Chemical Engineering, 5.3% (8) to Architecture, 5.3% (8) to Mechatronics Engineering and 5.3% (8) to Civil Engineering. As for continuing education, 1 1.2% of the sample have a postgraduate degree in areas related to the corresponding specialty.

92.1% of the entrepreneurs surveyed belong to a medium socioeconomic level. 78.2% have provided their services to another company.

### **CHARACTERISTICS OF THE COMPANIES SURVEYED**

The companies surveyed 95.4% (145) are micro, that is, they have between 1 and 10 employees, the companies are young or newly created and others consolidated. The general sectoral analysis shows a concentration of activities in the services (60.5%) and consumption (29.6%) sectors.

The surveyed entrepreneurs spend less than 8 hours 28.3% (43) and 8 hours or more 71.7% (109) to entrepreneurship.

In 39.5% of cases, the line of business is related to the specialty of the university

entrepreneur. 74.3% (113) are dedicated full-time to their company. 58.5% (89) of the companies surveyed are in the consolidation stage. The entrepreneurial companies analyzed have generated an average of 5 employees.

The entrepreneurs surveyed, 90% started their business with their own resources (own savings) and 10% with resources from government support programs.

The entrepreneurial initiatives surveyed perceive growth prospects in the coming months.

In this context, 100% of the entrepreneurs surveyed consider that their product or service is completely innovative.

### **DESCRIPTIVE ANALYSIS OF THE INSTITUTIONAL CONTEXT OF THE GRADUATE UNIVERSITY ENTREPRENEUR**

To develop an entrepreneurial culture in an institution, strong leadership and good governance are crucial. Many universities include the words company and entrepreneurship in their mission statements, but this should be more than a reference. This section highlights some of the important factors a university can consider strengthening its business agenda.

Analyzing the institutional factors of the HEI training the university graduates surveyed, they consider entrepreneurial education as a fundamental element in the training of entrepreneurs. The results are shown in Table 6.

### **AVERAGE OF THE INSTITUTIONAL DIMENSION**

Once the analysis of this dimension has been carried out, the indicators that make it up for this study, a factor that obtained the highest average is Entrepreneurial training, Leadership and governance, and Trajectory of entrepreneurs with  $3.6 \pm 1$ . The



Internationalization factor obtained the lowest average is  $3.3\pm1.2$ .

Indicador	Average and $\sigma$
Entrepreneurial training	$3.6\pm1.0$
Leadership and management	$3.6\pm1.0$
Organizational capacity, people, and people	$3.4\pm1.1$
Teacher Development	$3.5\pm1.1$
Trajectory entrepreneurial	$3.6\pm1.5$
Knowledge exchange	$3.5\pm1.1$
Internationalization	$3.3\pm1.2$
Impact	$3.4\pm1.1$

Table 5. Means of the institutional sub-dimension

Source: own elaboration with survey data (2023)

Of the elements analyzed, for this variable, the most important factors are Entrepreneurial training and Leadership and governance, averaging  $(3.6\pm1)$ , for the entrepreneurs surveyed, Entrepreneurial training, is a factor that gives them the academic elements and the timely link to undertake; Strong leadership and governance of the HEI are very important to strengthen the ecosystem of University Entrepreneurship.

From the above, it follows that universities must have the vision of themselves as organizations and business environments united by common values / missions and not by detailed control systems, so it is important to have strategies that allow them to perform this function. Therefore, HEIs must have a mission with an entrepreneurial vision of the future of the institution (Mingfeng, Xiaogang, Qiaohua and Yong, 2014).

On the other hand, there must be a commitment to the implementation of each of the institutional strategies. This commitment must be shared by each of its members that make up the HEI, the coordination and interrelation of each of the departments that make it up is transcendental, to avoid duplication of work within HEI, likewise, it

is significant, overcome bureaucratic barriers, that is, an institution with fewer barriers facilitates entrepreneurship, accelerates idea creation and decision-making. Therefore, HEIs should have an entrepreneurship structure that coordinates activities within the institution and with the other parts of the EU ecosystem. These results are consistent with the findings of other institutions (GEM, 2017).

The Entrepreneurial Trajectory ( $3.6\pm1.5$ ) is another of the elements that in this study were transcendent for entrepreneurial education, in fact, entrepreneurial HEIs must support the paths of entrepreneurial students, from the idea to the growth and consolidation of entrepreneurship.

However, this process is not only of the HEI, but of each one of the elements that make up the entrepreneurship, that is, it is not only to provide them with access and knowledge to opportunities and sometimes infrastructure, instead of motivating and inspiring them to undertake. Therefore, it is convenient that the HEIs incorporate awareness in all their departments, specialties, and areas of the institution.

For the HEI, it is essential to integrate educational activities with business-related activities to ensure that future entrepreneurs are adequately prepared to create new businesses through education and that they have the support to put what they have learned into practice.

It is recommended to improve this aspect, that the HEI, provide mentoring and tutoring to entrepreneurial students and future business professionals, which will strengthen their entrepreneurial training and increase the chances of business success. In the same way, the institution must guide students to find financing opportunities that allow them to make decisions to create an entrepreneurial initiative. An example of the above is the

Factor	Ítem	Media y $\sigma$
<b>Entrepreneurial organization</b>	I have carried out and/or attended activities that promote entrepreneurial culture.	4.0±1.2
	University education provided me with the tools to develop my business activity.	3.8±1.3
	The training I received at the university is oriented to the constitution of my own company.	3.2±1.3
	I attended some activity that promotes entrepreneurship organized by the HEI.	3.1±1.5
	I have received some type of training course to complete or expand your business experience or knowledge.	3.9±1.2
<b>Leadership and governance</b>	Entrepreneurship is an important part of HEI's strategy.	3.7±1.3
	There is an institutional commitment to implement entrepreneurship strategies in the HEI.	3.4±1.3
	The university has a model for coordinating and integrating business activities at all levels.	3.5±1.3
	The academic departments of the HEI promote forums, fairs and events that promote entrepreneurship.	3.6±1.2
	The HEI is important for the development of entrepreneurship at the regional, social and community level.	4.0±1.1
<b>Organizational capacity, people, and incentives</b>	In the HEI there are mechanisms to break down traditional boundaries and foster new relationships: bringing together internal stakeholders (staff and students) and building synergies between them.	3.4±1.2
	HEI is open to recruiting and engaging with individuals who have entrepreneurial spirit, attitudes, behaviors, and experience.	3.6±1.2
	The HEI invests in staff development to support university entrepreneurship.	3.4±1.2
	There are clear incentives and rewards for staff who actively support HEI's entrepreneurial activity.	3.2±1.2
	The HEI recognizes other interested parties that contribute to the entrepreneurial activity of this institution, for example, the Business Coordinating Council, Ministry of Economy among others.	3.5±1.2
<b>Teacher Development</b>	The teaching and administrative staff of the different academic departments of the HEI adopts an entrepreneurial approach to teach and promote innovation and entrepreneurship in teaching and learning.	3.3±1.3
	Entrepreneurial behavior is supported throughout the university experience; from raising awareness and stimulating ideas to development and implementation.	3.5±1.3
	The HEI validates entrepreneurial learning outcomes.	3.3±1.2
	Collaborating and engaging with external stakeholders is a key component of teaching and learning development in an entrepreneurial HEI.	3.8±1.2
	The results of the research in schools and faculties of the HEI are integrated into education and training in entrepreneurial activity.	3.5±1.2
<b>Trajectory of entrepreneurs</b>	HEI raises awareness about the value/importance of developing entrepreneurial skills among staff and students.	3.4±1.3
	The HEI actively motivates people to be entrepreneurs.	3.4±1.2
	HEI offers opportunities to experience entrepreneurship.	3.4±1.2
	The HEI provides individual and group support to move from the entrepreneurial idea to its realization.	4.3±1.4
	HEI provides access to business incubation facilities.	3.3±1.3
<b>Knowledge sharing</b>	The HEI is committed to collaboration and knowledge sharing with industry, society, and the public sector.	3.5±1.2
	HEI demonstrates active involvement in partnerships and relationships with a wide range of stakeholders.	3.4±1.1
	The HEI provides opportunities for staff and students to engage in entrepreneurial activities with the business/external environment.	3.5±1.2
	HEI specifically supports staff and student mobility between academia and the external environment.	3.4±1.1
	The HEI links research, education, and industry activities together to affect the knowledge ecosystem of entrepreneurship.	3.7±1.2

<b>Internationalization</b>	Internationalization is a key part of the entrepreneurial strategy of the HEI.	3.3±1.3
	HEI explicitly supports the international mobility of its staff and students.	3.2±1.3
	The HEI seeks and attracts international and entrepreneurial staff (including teaching, research, and PhD).	3.3±1.3
	The HEI demonstrates the importance of internationalization in the Teaching-Learning process.	3.3±1.3
	The HEI through its academic departments actively participate in international networks.	3.3±1.2
<b>Impact</b>	The HEI evaluates the impact of its entrepreneurial strategy, and the strategy is receptive to change.	3.3±1.2
	The HEI evaluates the level of participation in entrepreneurial teaching and learning across the institution.	3.4±1.2
	HEI regularly assesses the impact of business teaching and learning.	3.4±1.2
	The HEI carries out regular monitoring and evaluation of the knowledge exchange activities of the universities.	3.4±1.1
	HEI regularly monitors and evaluates the impact of start-up support.	3.4±1.2

Table 6. Distribution of averages for the institutional sub-dimension

Source: Based on survey data (2023)

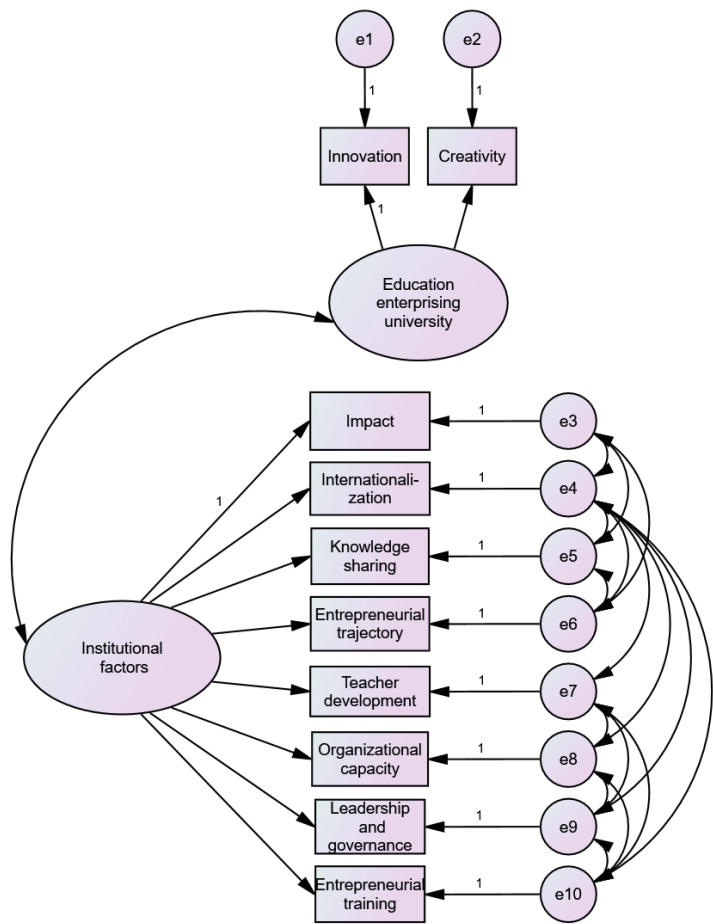


Figure 2 Sample fit model

Chi-square = 29.3

Degrees of freedom = 18

Probability level = .045

Source: own elaboration based on survey data (2023)

existence of the incubator, currently many HEIs, have one within their facilities, which is a significant factor to have access to financing (Herrera and Álvarez, 2015).

Continuing with the analysis of each of the elements considered in this research and in order of hierarchy according to the results obtained, the Knowledge Exchange is ( $3.5 \pm 1.1$ ) given from the fact that the HEI collaborates and associates with industry, the public and private sector, that is, its relations with its external environment.

The university entrepreneurs surveyed said that HEIs must have a system that allows the cross-fertilization of knowledge and ideas, making use of incubators and science and business parks, which leads to the exchange and strengthening of acquired knowledge. Thus, staff and student entrepreneurs should have the opportunity to participate and collaborate with the external environment through different business activities (Hernández and Sánchez, 2017).

A particularly important mechanism for the exchange of knowledge is the mobility of staff and students to meet this objective, the HEIs have established agreements with universities and national and international associations in the search to internationalize education

Entrepreneurial learning can be adopted in many ways; The HEIs responsible and committed to entrepreneurship, create the conditions and strategies to improve the ability to think and respond to entrepreneurial activity. In recent years it has been observed that extracurricular activities are being used that support and encourage entrepreneurial behavior throughout the teaching-learning process, an important but often underexploited resource for the entrepreneurial institution is collaboration with the external environment and its stakeholders.

The results obtained in the study carried

out for the factor of Organizational capacity, people, and incentives ( $3.4 \pm 1.1$ ), show the importance that university entrepreneurs visualize, to carry out their entrepreneurial initiatives. Thus, HEIs can be limited by their own organizational structures and approaches, which hinders entrepreneurial activities to achieve the institutional objectives for the area of entrepreneurship, for example, financial strategy can be mentioned, attracting, and retaining the right people and encouraging entrepreneurial behavior in individuals.

For the HEIs, it is crucial to invest in their activities that promote and strengthen entrepreneurship, but making use of a sustainable financial strategy, but it is not good to depend on a considerable percentage of financing or support from the public sector, it is recommended that institutions create a structure where they generate their own resources by offering external service and these in turn reinvest or use them to promote and strengthen entrepreneurial activity. In this sense, all parts of the institution must work together, creating synergies and links between specialties, departments, and other structures, breaking traditional boundaries (Evers, Cunningham and Hoholm, 2016).

The staff is a key resource in the generation and application of strategies, education for entrepreneurship, support for the creation of companies and all the entrepreneurial activities that the institution wants to develop. Many areas of entrepreneurship move quickly, with the associated need to improve skills and the acquisition of knowledge.

With this, the local or global impact that an entrepreneurial HEI can have will affect students graduates, and the staff of the institution itself, as well as external interested or involved parties such as local companies, organizations, and the different communities with which it relates.

In this same sense and analyzing the factor

of Teacher Development, the average obtained ( $3.5\pm1.1$ ) so that the entrepreneurs surveyed indicate that the institution must worry about a high level of commitment to the teaching and learning of entrepreneurship internally and externally, compare and contrast the findings and ensure that the results are incorporated into the curricula, Training and development of staff and students.

Within the results obtained show that 40%, the HEI, provided him with the knowledge to be able to undertake and manage a company, 60%, affirms that the HEI, awakened his interest in creating his own company, 40% states that it helped him to better understand the importance of business creators for society and finally 60% of the sample surveyed, He believes that the institution that trained them professionally did help them develop their initiative and entrepreneurial attitude.

In addition to all the above, the Internationalization factor averaged ( $3.3\pm1.2$ ). Internationalization is another significant element, but in order of priority for those involved in this research was of considerable importance, however, it is crucial to mention that an entrepreneurial HEI must be international, but it can also be international and not be entrepreneurial. Entrepreneurial HEIs should highly support and encourage the mobility of staff and their students, making use of scholarships, exchanges, and other international mobility programs. Access to new ideas for teaching and learning increases the ability of its students to compete with the international market and the institution itself is consolidated and strengthened as an entrepreneurial HEI.

For the statistical analysis, the structural equation model was used, which showed the statistical indices; goodness of fit ( $\chi^2$ ), the mean square error of approximation (RMSEA), the comparative adjustment index (CFI) that allow to visualize the degree of

adjustment of the structural model university entrepreneurial education and the institutional factors. These results are shown in Table 8, where it is observed that the goodness-of-fit indicators of the final model are very good. With these results it is possible to determine that there is a statistically significant direct effect of each of the Institutional Factors on university Entrepreneurial Education.

The sample fit model is shown in Figure 2.

Table 9 shows the relationship between each of the existing factors, for each variable. where it is shown that the latent variable of Entrepreneurial Education is explained by the factors of Innovation .671 and Creativity with a level of significance equal to .813. While the variable of Institutional Factors, the factors that most explain it are Teacher Development, Leadership, and governance with a significance level of .99, followed by the factor Organizational capacity, people and incentives with a significance level of .97, as well as the Knowledge Exchange with a significance level of .83 and the Training factor with a significance level of .82.

Factors	Variables	Estimate
Innovation	<--- F1	.671
Creativity	<--- F1	.813
Impact	<--- F2	.675
Internationalization	<--- F2	.759
Exchange_knowledge	<--- F2	.828
Trajectory_en- trepreneurial	<--- F2	.618
Teacher_Development	<--- F2	.989
Capacity organizational of persons and incentives	<--- F2	.969
Leadership_governance	<--- F2	.995
Entrepreneurial_Training	<--- F2	.824

Table 7. Standardized regression weights of the fitted model

Source: Own elaboration based on survey data (2023)

Similarly, it is observed that there is a correlation between the variables of University Entrepreneurial Education and Institutional Factors (.55).

The results of the adjusted measurement model indicate that the institutional actors of the HEI influence the higher Education of the university graduates surveyed. Indeed, all factors are significant, although not all with the same intensity.

From the results shown in this study, the hypothesis is concluded and verified: the institutional factors analyzed by the HEI influence the entrepreneurial education of university professionals graduated from an HEI of Victoria de Durango.

The validity of Institutional Theory is strengthened as the foundation to explain the Institutional Factors that determine Entrepreneurial Education.

## CONCLUSIONS

For the management in the HEI, this research confirms that the development and maturation of the management of entrepreneurial education from the university, should be the main attention to the creation of companies. This means that one must form and have a close relationship with the different institutional actors involved in this process. In fact, the institutional actors make it possible

to consolidate a permanent and transversal programme in the country's Superior system, aimed at promoting Secondary Education; in addition, to link the HEIs to the productive, economic and social sector.

This study contributes from its results, elements that allow the HEI to generate strategies that allow its processes in Entrepreneurial Education to be timely, independent, practical, clear, explicit, transparent, and sensitive, considering that their way of conducting themselves or acting before the needs of users or clients are decisive for them to achieve and consolidate their objectives.

Universities are entrepreneurial when they are not afraid to maximize their potential, diversify funding sources, and reduce their dependence on state/public funding.

In this type of study, one of the considerable limitations is having access to information and having the necessary resources to carry them out.

Within the future lines of research, are to make comparative studies, between public and private HEIs in Mexico, then with other universities in other countries to know the behavior of institutional factors in entrepreneurial education, from different contextual perspectives.



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