

## The Entrepreneur Construction Profile: A Bibliometric Study

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### Abstract

By better understanding the indicators that define the entrepreneurial profile of graduates of technical and technological professional education, higher education institutions and public policy makers can formulate public and educational actions aimed at the entrepreneurial profile of graduates. The article contributes to the entrepreneurial literature, exploring, through a bibliometric study, the skills that impact the entrepreneurial profile of graduates. This proposition is justified by the pressing need to seek more productive standards in relation to the results to be achieved in terms of strengthening the entrepreneurial profile. The objective of this work is to map the skills that impact the profile of entrepreneurial graduates of technical and technological professional education, by means of a survey of social, behavioral, educational and cultural indicators that constitute the business profile. The method chosen for this research was exploratory-descriptive, of a quantitative nature at the beginning, which was based on a literature review and the application of bibliometric procedures. Through a systematic review of the literature, using the SCOPUS database and a survey of reference articles in open databases, it was possible to define, in an initial version, the dimensions that characterize the entrepreneur's persona and the indicators for each one. from them.

**Keywords** - Higher Technological Education; Entrepreneurial Education; Entrepreneurial Skills; Performance Indicators; Bibliometric Study; Graduates

### Introduction

The search for the development of entrepreneurs has been a challenge in several countries due to the skills and knowledge needed to create new businesses and their talent for essential innovations that stimulate the economy and generate new jobs, especially at a time of lack of formal jobs. (Abas, et.al. 2020; Rosado-Cubero, et. al. 2021).

The term entrepreneurship is often linked to job creation, business opening, innovation and socioeconomic acceleration (Aiub, 2002; Schaefer; Minello, 2016; Huq and David, 2017; Marshall; Gigliotti, 2018; Brändle et al., 2018). The transformation of the global economy has led to changes in the demand for talent from university students (Zhang et.al. 2020).

Universities, therefore, have the role of stimulating and progressively spreading entrepreneurship and training more and more students with entrepreneurial skills as well as the intention and determination to become entrepreneurs (Longva, et al 2020).

Higher Education Institutions, which previously focused mainly on developing skills for students to be employed (Laviere, 2010), have increasingly highlighted education in entrepreneurship as a way of encouraging the development of entrepreneurial intentions of students in the classroom, although the general awareness of entrepreneurship in university students is still relatively low (Chien-Chi, et al 2020).

Numerous actions for the development and training of individuals addressed to the entrepreneurial profile and its characteristics have been developed; however, the lack of mapping of indicators composing such profile can make it difficult to formulate and evaluate public policies and educational actions to support entrepreneurship.

In the literature, the importance of academic entrepreneurship has been strongly recognized and evidenced by the increase in publications in relevant databases (Chen, 2018; Fellnhofer, 2018; Fernández-Pérez, et al. 2019; Liu et al, 2019; Tang et al. Al; 2018); however, there was a fragmentation in the field, a gap in the systematic survey of indicators that define the antecedents that impact the development of entrepreneurial intentions and the formation of the entrepreneurial profile of students.

Considering science in the search for new limits of knowledge aimed at filling open spaces and meeting the needs of society for this presented gap, the methodological research procedures began with a bibliographic review, carried out by bibliometric analysis and complementary theoretical basis through relevant articles collected in open databases.

This type of study has been widely recognized in recent years as it allows for a comprehensive assessment of the state of the art of the literature in a given field of research (Kovács et al. 201; Meyer et al. 2014; Teixeira and Mota2012). In addition, the results collected were categorized through qualitative and quantitative work in the systematization of data.

Understanding the entrepreneurial profile and the formation of the corresponding intentions is essential to promote actions that stimulate entrepreneurial behavior. On the other hand, the lack of validated and relevant entrepreneurship indicators can make it difficult to formulate and evaluate public and educational policies to support the concept of entrepreneurship (Borges Júnior et al, 2017; Jannuzzi, 2002).

The hypothesis raised is that the entrepreneur's profile is a multidimensional construct, composed of different facets that can be identified through the bibliometric study, to identify the dimensions and variables capable of measuring the entrepreneurial intentions that form the entrepreneurial profile.

In this context, the question is: how can the theoretical survey, carried out through the bibliometric study, contribute to the identification of constructs and their variables that are capable of contributing to the mapping of the entrepreneurial profile of students?

Therefore, the aim of this work was to survey the skills that impact the identification of a construct capable of mapping the entrepreneurial profile of students and that can be systematized and organized into six dimensions.

The originality of this study lies in the survey of skills for the identification of constructs and their variables that can better guide the characterization of the entrepreneurial profile of students, contributing to the knowledge of the current reality and to the formulation of actions that generate impacts more effectively to the benefit of society and organizational performance. (Dornelas, Timmons & Spinelli, 2010).

### **Theoretical foundation**

Entrepreneurship is a topic that has been extensively explored in several researches due to the role it plays in the economy and in the regional and national development of countries, since it is understood as the creation of new businesses by entrepreneurial subjects(Degen; 2009; Hisrich, Peters & Shepherd, 2009; Martes, 2010).

Furthermore, it is directly related to the reduction of poverty and the generation of employment and income, impacting, directly and indirectly, in greater well-being for the community. Considering the importance of entrepreneurship, both in developed and developing countries such as Brazil, there is an effort to develop programs and campaigns to value the entrepreneur (Klofstein et al, 2019).

This can be seen in countries such as Indonesia, Spain, China, Kazakhstan, Czech Republic, Netherlands, Tunisia, Turkey, Abu Dhabi, United States, Malaysia, United Kingdom, South Africa, Scotland, Pakistan, among others (Alaref et al. , 2020).

The issue of entrepreneurship must overflow institutional efforts, which are recognized as contributing and valid to integrate a movement of a global community demanding a global improvement of institutions.

Therefore, the effort for a development through entrepreneurship should not be contained in institutional-individual approaches, but through symbiotically structured movements capable of integrating knowledge (know why and know-how), leadership (entrepreneurship) and capital (venture capital) in order to put efforts into Global Supply Chains.

At the institutional level, it is understood through research that the innovation process is the result of disciplined and persistent action, and the importance of the educational process is based on this point. Otherwordly, entrepreneurship can be taught and learned, it is the productive integration of knowledge, in which theory and practice are consolidated into concrete results.

It can be noted that the movement for entrepreneurship translates into a cultural change, proactive towards the search for meeting human needs.

This phenomenon has generated enormous pressure on Academic Institutions to encourage an entrepreneurial mindset among stakeholders (teachers, students, technical supporters and partners).

Several studies point out that the entrepreneurial intentions of students, for instance, increase after participating in classes with a new direction aimed at teaching the skills and characteristics of entrepreneurship.

Numerous scholars such as Bandura, 2001; Ajzem, 1991; Klofsten, 2019; Pfeifer and Sarlija, 2010, among others, found empirical evidence through the research of the strong influence of entrepreneurial education and the learning environment on the formation of entrepreneurial intentions in students.

In other words, entrepreneurial education has a strong impact on the culture for entrepreneurship as well as the learning environment in which students develop entrepreneurial skills.

Thus, the academic space, as a locus of knowledge acquisition, has sought to develop the best way to teach entrepreneurship, as shown in Figure 1.

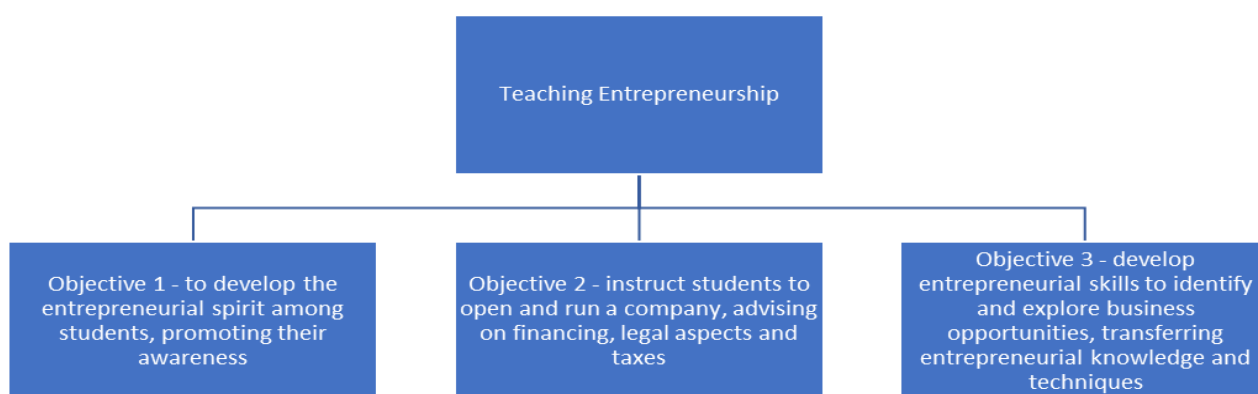


Figure 1: Pillars of Entrepreneurship Teaching Objectives

Source: European Commission Enterprise and Industry Directorate-General (2008)

Despite all the effort presented, there is little evidence in the literature about the connection between entrepreneurial education and the formation of entrepreneurial intentions (Martin McNally & Kay, 2013) due to the lack of a systematic survey of indicators capable of supporting this correlation.

Several models try to measure the learning result related to the opening or the intention of undertaking a business; however, several factors interfere in the process, such as environmental and personal indicators (Izquierdo & Buelens, 2008; Linan & Chen, 2009; Lopes & Souza, 2005; Olakitan & Ayobami, 2011), that must be systematized.

Schmidt & Bohnemberger (2009) studied the conceptual basis of the entrepreneurial profile and created an instrument to measure such profile and its relationship with organizational performance using a Likert scale and validating it through multifactorial analysis.

There are 8 constructs presented by Schmidt & Bohnemberger (2009): self-effectiveness, risk-taking, planning, detecting opportunities, persistence, innovativity, sociability, leadership,

Inácio Jr and Gimenez (2004) state that entrepreneurship involves social, economic and psychological variables, which ends up influencing the act of entrepreneurship. As claimed by the authors, it is a complex and multifaceted process through social mobility, culture and society.

The literature shows that entrepreneurs have characteristics such as the need for achievement, risk propensity, creativity, vision, high energy, strategic posture and creativity.

These characteristics are related to the entrepreneurial behavioral characteristics presented in Chart 1 used by Schmidt and Bohnemberger (2009) to outline the entrepreneurial profile.

<b>Behavioral characteristics</b>	<b>Description</b>
<b>Self-effectiveness</b>	"It is a person's cognitive estimate of their abilities to mobilize the motivation, cognitive resources, and courses of action necessary to exert control over events in their life" (Chen, Greene, & Crick, 1998, p. 296). "In almost all definitions of entrepreneurship, there is a consensus that we are talking about a type of behavior that includes: (1) taking initiative; (2) organizing and reorganizing social and economic mechanisms in order to transform resources and situations into practical advantage. ; (3) accepting the risk of failure" (Hisrich & Peters, 2004, p. 29).
<b>Taking calculated risks</b>	"It is completely impossible for individuals who have to rely on certainty to be good entrepreneurs" (Drucker, 1986, p. 33). "The company's passport to the year 2000 will be the entrepreneurial capacity, i.e., the capacity to innovate, to intelligently take risks, to act quickly and efficiently to adapt to the constant changes in the economic environment" (Kaufman, 1991). , p. 3).
<b>Planning</b>	"Entrepreneurs not only define situations, but also imagine visions of what they want to achieve. Their main task seems to be to imagine and define what they want to do and, nearly always, how they are going to do it" (Filion, 2000, p. 3). ). "The entrepreneur is the one who makes things happen, anticipates the facts and has a future vision of the organization" (Dornelas, 2001, p. 15).
<b>Detecting opportunities</b>	"it is the ability to capture, recognize and make effective use of abstract, implicit and constantly changing information" (Markman & Baron, 2003, p. 289). "which has the ability to identify, explore and capture the value of business opportunities" (Birley & Muzyka, 2001, p. 22). "The will to identify opportunities is fundamental for anyone who wants to be an entrepreneur, and consists of taking advantage of any opportunity to observe businesses" (Degen, 1989, p.
<b>Persistence</b>	"ability to work intensely, even while undergoing social deprivation, on projects of uncertain return" (Markman & Baron, 2003, p. 290). "Developing an entrepreneurial profile is to enable the student to create, lead and implement the process of developing new life plans. ... Entrepreneurial training is based on the development of self-knowledge, with an emphasis on perseverance, imagination, creativity, associated with innovation" (Souza, Souza, Assis and Zerbini, 2004, p. 4).
<b>Sociable</b>	"Entrepreneurs... create jobs, introduce innovations and stimulate economic growth. We no longer see them as providers of uninteresting goods and auto parts. Instead, they are seen as energizers who take necessary risks in a growing and productive economy" (Longenecker, Moore, & Petty, 1997, p. 3).
<b>Innovativity</b>	Carland, Hoy and Carland (1988) conclude that entrepreneurship is primarily a function of four elements: personality traits (the need for achievement and creativity), innovation propensity, risk taking, and strategic posture.
<b>Leadership</b>	"Once entrepreneurs recognize the importance of their face-to-face contact with others, they seek to act quickly and vigorously on it" (Markman & Baron, 2003, p. 114).

Table 1: Behavioral characteristics  
Source - Schmidt and Bohnenberger (2009)

Visiting the literature, it was possible to see several evidences and interrelationships between the characteristics and entrepreneurial skills that supported the survey of the variables of each dimension of the entrepreneur's construction.

Table 2 presents the characteristics of entrepreneurs, raised by Barreto (1998)

<b>Authors</b>	<b>Features</b>
Sexton & Bowman (1984)	Energetic, dominant, less stimulating, socially qualified, varied interests, less responsible, autonomous, high self-esteem, low conformity, low associativism, less participative, less favorable, low tolerance.
Hornaday & Aboud (1971)	Less need for social support. Greater need for independence.
Welsh & White (1983)	Sense of urgency, low need for status, self-reliance, comprehensive awareness and attention, objective.
Miller (1963)	Ambitious, robust, (physically, mentally and morally), controlled vitality, courageous, optimistic, intelligent, articulate and erect.

Table 2: Characteristics of entrepreneurs  
Source: Barreto (1998, p. 191)

Hisrich and Peters (2004) state that researchers agree that the entrepreneur is involved in numerous characteristics that include taking initiative, organizing and reorganizing social and economic mechanisms, accepting the risk of failure, being courageous, among others.

These characteristics were categorized within three skill scopes: technical, administrative and personal. As shown in Table 3

Technical abilities	Administrative Skills	Personal Skills
writing	Internal goal setting planning	control and discipline
oral expression	Ability to make decisions	Ability to take risks
technical commercial administration	Marketing	Orientation changing
Technology	finance	Persistence
ability to listen	Management	Ability to manage change
Building a relationship network	Control	
administrative style	Negotiation	
Training	Project Launch	
Ability to work in a team	growth management	

Table 3: Set of technical, administrative and personal skills  
Source: Hisrich & Peter (2004, p. 39)

These skills can help to understand the variables that make up the entrepreneurial profile.

Hisrich and Peters (2004) mention the entrepreneur's need for achievement and add to the work of McClelland (1961) who identified three psychological characteristics inherent to it, namely: (1) individual responsibility to solve problems, set goals and achieve them through their own efforts; (2) moderate risk acceptance based on skill rather than chance; and (3) knowledge of the results of performing the task.

### Method

The method chosen for this research was exploratory-descriptive, of a quantitative nature at first, based on a literature review and on the application of bibliometric procedures. Bibliometric analysis is a tool that requires periodic review and updating. It should be noted that citation maps may change as fields mature.

This bibliometric research was structured through the following steps:

- Search by keywords in the Scopus tools search engine. Available at [www.scopus.com](http://www.scopus.com).
- Using the Vosviewer tool, available at <https://www.vosviewer.com/>, to create a citation analysis chart. This step makes it possible to identify clusters.
- Research in an open database, with the objective of helping to theoretically support the dimensions that define the entrepreneurial profile, as well as the variables included in each dimension.

Figure 2, adapted from Campos and Cazarini (2011) represents the steps proposed in the methodology and the main results expected in each phase.

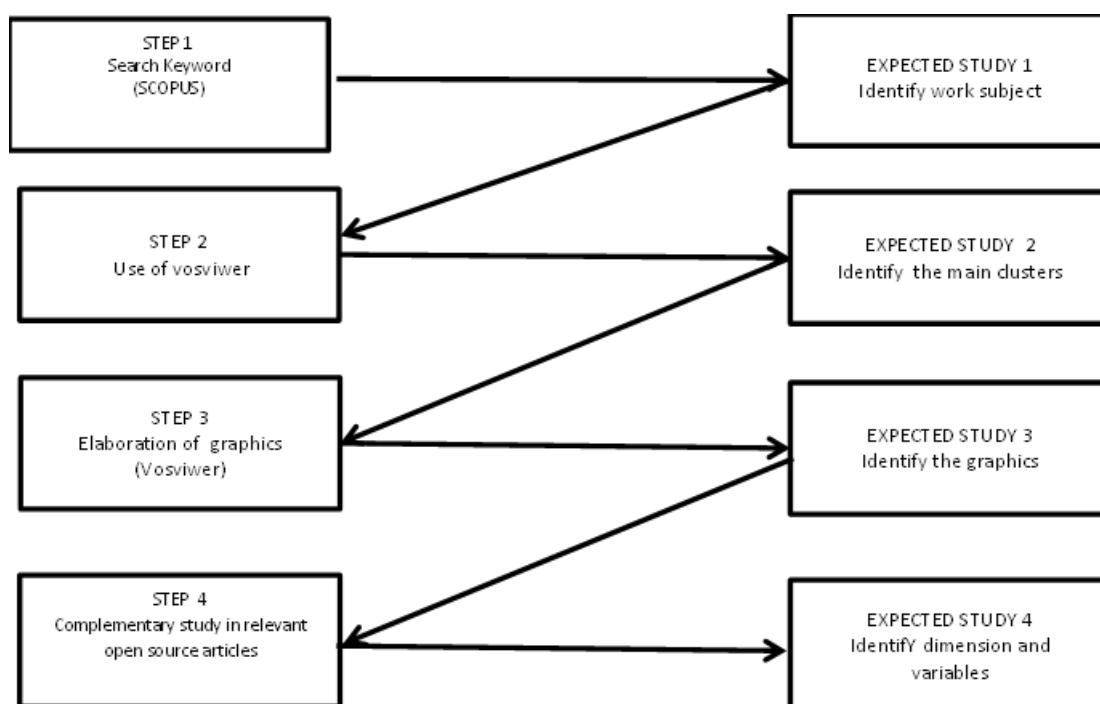


Figure 2 - Representation of the Graphic Methodology  
(adapted from Campos and Cazarini 2011)

## Research strategies

For each step, the methodology described was worked out with the respective results.

### • Step 1 - Keyword Research

Searches were carried out to quantify the international literature on the subject through the Scopus database, chosen due of its credibility in the academic world. A total of 921 articles were found, using the expression (TITLE (entrepreneurs\*) AND TITLE-ABS-KEY (profile\* or pattern\*)) AND (LIMIT-TO (DOCTYPE, "air")) AND (LIMIT-TO (SRCTYPE, "j")) using the keywords: entrepreneur; profile; pattern.

The searched words were restricted, since the objective of the research was to identify the indicators that make up the entrepreneurial profile, and no type of filter was applied in relation to the publication date of the articles. These articles are from different fields including engineering, computing, education, management and at different academic levels. The protocol used is described in Table 4.

Steps	Objective	Material
Data survey	Identifying the collection of articles to compose the SCOPUS analysis	scopus
Treatment	Documenting the export of articles in spreadsheets	EXCEL
View	Identifying connections	VOSviewer
Analysis	Describing relevant information	word

Table 4: Methodological protocol

Source: authors

### • Step 2 - Clusters Elaboration of Vosviewer

VOSviewer is a software tool for building and visualizing bibliometric networks, and allows the creation of networks of citation relationships, bibliographic coupling, co-citation or co-authorship, in addition to offering data mining functionality.

The objects of interest, connection and co-occurrence links between the terms extracted from a body of scientific literature are defined from the definition of terms. Each link has a strength, represented by a positive numerical value. The higher this value, the stronger the link.

The strength of a link indicates the number of cited references that two publications have in common, the number of publications that two researchers have co-authored, or the number of publications in which two terms occur together.

Clusters (a set of items included in a map) appear as a result of these correlation. Each item can appear in only one cluster.

Through the central concept, relationships are formed, other concepts that have strong ties to others and can be highlighted. This is how clusters are formed, although they do not necessarily cover exhaustively all items on a map.

Therefore, there may be items that do not belong to any cluster. In this research, 76 items were defined, separated into 7 clusters.

Table 5 shows the main items of each Cluster.

cluster 1	cluster 2	cluster 3	cluster 4	cluster 5	cluster 6	cluster 7
Development	Biotechnology	Brazil	Business development	Adult	academic entrepreneurs	Job
Education	Business	Culture	Cluster Analysis	Commercial Phenomena	Entrepreneurial Behavior	self-employed
Entrepreneurship	China	Economic development	Corporate Entrepreneurship	Female	Small companies in the sector	self-employed
Businessperson	Businessperson	Entrepreneurship	Entrepreneurial intention	Humans	South Africa	
entrepreneurial education	Eurasia	Egg yolk	Entrepreneurial Orientation	Male	technology transfer	
Female Entrepreneurship	Europe	Human capital	Entrepreneurial University	entrepreneurial attitude		
Genre	Immigrant population	women entrepreneurs	Entrepreneurship	entrepreneurial education		



<b>Time management</b>	<p>on the type of behavior that includes:  (1) taking initiative;  (2)organizing and reorganizing social and economic mechanisms in order to transform resources and situations into practical advantage;  (3) accept risk or failure".</p> <p>For Macedo &amp; Boava (2008, p. 7) the Neoclassical School of Economics - represented by Alfred Marshall, characterized the entrepreneur as an individual who takes risks, so Schumpeter was the one who built the main economic bases of entrepreneurship</p> <p>Plumly et al. (2008) talks about entrepreneurial skills in university students.</p>
<b>Subject</b>	
<b>Persistence</b>	
<b>Ability to take risks</b>	
<b>Being innovative</b>	
<b>Being visionary</b>	
<b>Being aware of changes</b>	
<b>Management skills and competences</b>	

Table 6: Entrepreneurial Skills  
Source - Authors

**Results and discussion**

There are different interpretations of entrepreneurship that can be justified by the influence of different areas of knowledge that address and constitute the theme. (Carland, 1988; Feuerschütte, S.; 2006).

Ferreira and Mattos (2004) argue that the student's potential and entrepreneurial profile are influenced by factors that go beyond the academic environment.

As important as the school practices themselves is the historical-social context in which young people are inserted and the culture that surrounds them, at the family level, or in other closer social groups.

Through a systematic review of the literature, using a bibliometric study and a survey of reference articles in an open database, it was possible to identify the skills that impact on the elaboration of a construct capable of mapping the entrepreneurial profile and that can be systematized and organized into six dimensions.

The results indicate that the research field can be analyzed from the perspective of 6 (six) constructs that define the entrepreneurial profile, as shown in Figure 4:

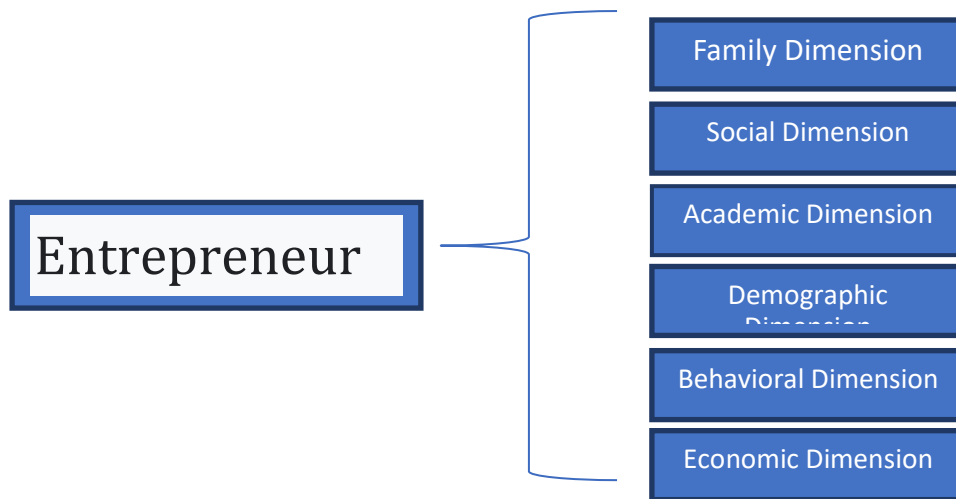


Figure 4: Constructs that define the entrepreneurial profile  
Source: authors

The dimensions and variables necessary to work the data in each proposed group were raised through the identification of the construct and taking the theoretical foundation as basis.

Table 7 presents the dimensions with their respective variables and the authors who gave the theoretical support to the proposal.

DIMENSION	VARIABLES	AUTHORS
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<b>familiar</b>	<ul style="list-style-type: none"> <li>• Degree of kinship</li> <li>• Experience in business</li> <li>• Level of education of family members</li> <li>• brother</li> <li>• birth order</li> <li>• Influence of relatives</li> <li>• Models already developed in family</li> </ul>	Schmidt and Bohnenberger (2009); Robbins (2005); Mc Clelland (1961)
<b>Social</b>	<ul style="list-style-type: none"> <li>• Genre</li> <li>• Breed</li> <li>• Age</li> <li>• Social class</li> <li>• Religious</li> <li>• Group of competent people with similar characteristics</li> </ul>	Schmidt and Bohnenberger (2009); Robbins(2005), Huggins and Thompson (2015); Kolstad and Wiig (2015)
<b>Academic</b>	<ul style="list-style-type: none"> <li>• education</li> <li>• Training in public or private school</li> <li>• Percentage of course completed</li> <li>• Impact of the teaching staff on undertaking decisions</li> <li>• management training</li> </ul>	Schmidt and Bohnenberger (2009); Plumly et al. (2008);
<b>Demographic</b>	<ul style="list-style-type: none"> <li>• Living place</li> <li>• Development environments</li> </ul>	Huggins and Thompson, (2015); Kolstad and Wiig (2015)
<b>behavioral</b>	<ul style="list-style-type: none"> <li>• Leadership</li> <li>• innovativity</li> <li>• Sociability</li> <li>• Risk-taking</li> <li>• Opportunity detecting</li> <li>• Persistence</li> <li>• self effectiveness</li> <li>• Network</li> <li>• Persuasion</li> </ul>	Filion (1993), Gibb (2002); Macedo & Boava (2008); Fillion (2000) Cabana et al. (2013); Sanchez (2013); Plumly et al. (2008), Covin and Lumpkin, 2011; Miller and Friesen (1978)
<b>Economic</b>	<ul style="list-style-type: none"> <li>• Regional or local incentives to support business start-ups</li> <li>• Analyzing and identifying business opportunities</li> <li>• Possibility of joining a project</li> <li>• Access to resources</li> <li>• Valuing creativity</li> <li>• Opportunity generation</li> </ul>	Robbins, 2005, Morris, Webb, Fu and Singhal (2013), McGrath and MacMillan (2000)

Table 7: Construction of variables

Source: Authors

### Final considerations

The research highlights the fact that young and smaller companies have been at greater risk of closing than larger and more consolidated ones, creating the so-called "survival entrepreneurship" in a context of rising unemployment rates, in which entrepreneurship is also emerging. as an option for the individual to enter the market, constituting an alternative for the generation of self-employment and for the formation of a local business class.

This fact has a direct impact on the search for solutions to elevate the country to a more competitive level through the training of young entrepreneurs capable of proposing businesses based on innovation and competitive business models.

Thus, higher education institutions and government agencies have promoted numerous actions for the development and training of individuals focused on their entrepreneurial profile and characteristics, but the lack of indicators makes it difficult to formulate and evaluate public and educational policies to support entrepreneurship.

The study hypothesis is confirmed, pointing out that the entrepreneur's profile is a multidimensional construct, composed of different facets that can be identified, measured and constructively modified through the learning process.

Therefore, the use of skills in multiple assessment appropriate to the initial proposal of a qualitative and quantitative nature can bring relevant theoretical and empirical contributions, directing pedagogical strategies and curricular changes to improve entrepreneurial education, as well as evaluating graduates and their impact on society.

However, further research was carried out to deepen the present study. New findings were found and are under study.

The results point to 100 items, 5 clusters, 1721 links and 4473 of link strength. This demonstrates the importance of continuing the study.

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