Entrepreneur profile and entrepreneurship skills: Expert's analysis in the Mexican entrepreneurial ecosystem

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Abstract—Entrepreneurship has high relevance in recent years, thanks to its contribution to the growth of the economy and job generation. The purpose of this research is to analyze and validate through consultation to experts of the entrepreneurial ecosystem in Mexico, the main features and skills that form a successful entrepreneur. The study followed a Delphi method in two rounds, with 26 participants. Results allowed determining which traits and skills are the most relevant for entrepreneurship development in this context, such as perseverance, the attitude to achieve an objective, the ability to identify opportunities and motivation. On the other hand, the experts gave less importance to the sociodemographic traits in their influence on entrepreneurship, as are the cases of gender, age, or level of education. Skills such as seeking opportunities, communication, and persistence were considered as the most important for experts. These findings can be used to develop training programs, to define content that promotes those traits and skills, and to strengthen the entrepreneur’s development into an ecosystem. Analysis of the topic through consultation with experts in Mexico is original and allows validating the findings in an underrepresented region in the literature.

Keywords—entrepreneurship skills, Delphi method, economic development, educational innovation, higher education

I. INTRODUCTION

Entrepreneurship plays a fundamental role in economic growth, innovation, and job creation [1]. An entrepreneur is a person who can exploit market opportunities, is capable of taking risks, has creativity and initiative to carry out activities [2]. Thus, the term is not limited to business, although to other areas in individual life [3].

There are different opinions on entrepreneurship if it is a natural condition or if it can be developed through education [4]. However, conceptions that a person can obtain these skills and entrepreneurship can be taught are increasingly accepted [5]. For instance, Drucker [6] ascertained that learning entrepreneurship is like learning any other discipline, and authors like Hasan, Khan, and Nabi [7] state that all people can be entrepreneurs, but everyone cannot recognize these skills.

How to recognize an entrepreneur has also been an object of debate. On the one hand, it is said that an entrepreneur is a person who starts a new business and assumes the responsibility of developing it [8]. For example, Schumpeter [9] states that the entrepreneur is an innovator who seeks to make a new product, a process or an organization, or to improve existing ones. McClelland [10] defines the successful entrepreneur as someone who takes the initiative, is proactive, and engages with others. In this sense, these authors suggest that personality traits contribute to the success of the entrepreneur [11]. On the other hand, some studies mention that there is no relationship between these features with the performance of new companies [12; 13]. Moreover, there are skills that the entrepreneur should have to contribute to company success, and that can be acquired and developed through entrepreneurship training [14].

Therefore, this paper sought to identify, from the literature, the traits, and skills considered necessary to develop successful companies, and to know the opinion of people from the entrepreneurial ecosystem in Mexico through a Delphi method. The aim was to define the most important aspects to develop entrepreneur training programs for this context, considering the lack of studies related to this specific place.

II. LITERATURE REVIEW

A. Entrepreneur Profile

Previous studies suggest the presence of existing features that define an entrepreneur [15]. Even though the studies do not agree on a single entrepreneur profile, were distinct traits like age, gender, the sociodemographic or economic condition, different traits are presented to characterize the entrepreneur. These traits are personality and social traits.

B. Personality and Social Traits

Personal or endogenous traits are those that have greater relevance at the time of creating a new venture and are those people characteristics, which drive and motivate them to perform this task [16]. Conversely, social or exogenous traits refer to the social environment of an individual, to his family, and to how social norms are perceived towards the possibility of developing an entrepreneurial initiative [17; 18].

The first trait of the entrepreneurial profile is to believe in their capacities [15; 19]. Another trait is the previous knowledge of entrepreneurship and market, in this case, entrepreneurship education and previous training in business creation are significant [20; 21], along with thinking that their decisions are
what control their lives and that they can influence others through their skills [22; 23].

Another personality trait is innovation. Being innovative includes the ability to adapt to a changing reality and is related to the entrepreneurial orientation [24; 25]. Recognizing opportunities that others have not found [26; 27] is another trait that makes it easier to discover, evaluate, and exploit profitable opportunities in the form of new companies [28]. The entrepreneurial orientation is a broader concept that is formed by several dimensions, including innovation, risk-taking, and proactivity [29]. Finally, autonomy is another trait of an entrepreneur [30].

Social features are related to the norms and the culture that exists around the individual. Furthermore, with how interacts with its social environment, what causes it to act to determine what to bring to the market [3]. In this sense, the approval or disapproval of social groups in which the entrepreneur develops and social norms that surround it can increase the confidence to create a new business. Since it is not enough to have the right attitude, but also to be able to determine what the market requires to offer the appropriate thing [32].

C. Entrepreneurial skills

Entrepreneurship skills are the abilities to create a new business [2]. These skills are also considered necessary for people to have an independent and sustainable life and to contribute to economic and social development [33]. Developing these abilities is essential to increase competitiveness, and take risks and assessing these skills becomes a significant area of study. Although many researchers try to identify the set of skills that can be called "entrepreneurial skills," there is no standard instrument that can be used to measure them in the entrepreneur [33].

In general, exist three types of skills: technical, administrative, and entrepreneurial [34]. These skills are intertwined, and entrepreneurs must be trained before becoming entrepreneurship [4]. Referring to entrepreneurship skills, consulted authors agreed in relating them to the personality traits of the entrepreneur.

In this way, entrepreneurship skills include creativity, innovation, and taking risks. Creativity refers to providing a different and innovative approach to a new problem [35]. To solve these problems, entrepreneurs use personal initiative to take risks and to apply innovative ideas in the challenge [36; 37]. Additionally, an entrepreneur must develop the locus of control, which consists of the belief that success or failure depends on their abilities and efforts [38].

Communicating ideas is a skill necessary, since as mentioned Spinuzzi [39] the entrepreneurs are not isolated because they have to share with other people, support a community that holds them, or convinces others about their idea. Another skill is to look for opportunities and that consist of recognizing if the problem exists and if there is enough "pain" to make it necessary to make a change and develop an idea [40]. Finally, have an entrepreneurial intention, actions taken by a person who wishes to carry out a venture in the future [38], confidence in their abilities and responsibility [41; 42].

It is necessary to relate the traits of the entrepreneurial profile with each one of the skills, to strengthen its identification, and then its development, to get a maturing of the entrepreneurial talent [43]. This process is possible thanks to entrepreneurship education; recognizing that it has a positive impact on the motivation for the development of new companies and influencing on innovation and economic growth [44], primarily using active methodologies that support the student to learn how to create new business [45].

Hasan, Khan, and Nabi [7] recommended starting with a generalized stage where the person identifies the traits and skills. Continue to a motivational stage, where a link between intention and action exist and include other elements such as family and social. Finally, there is an augmented stage that gives participants the knowledge and skills to act.

The problem is to define what and how it should be taught [46]. Hence a broader analysis with experts in the area to validate these findings can help to determine the most significant issues to be developed in an entrepreneur training program. In this research, a questionnaire was elaborated based on the review of the literature to validate the findings with experts in the entrepreneurship ecosystem in Mexico, to answer the questions: what are the main traits and skills of an entrepreneur and what are the processes to develop entrepreneurship skills to guide training activities that strengthen the entrepreneurial intention.

III. MATERIAL AND METHODS

This study employed a Delphi method to answer the research question. This method consists in the consultation of a group of expert’s opinions about a topic, carried out in repetitive and anonymous rounds [47]. For Hsu and Sandford [48], the Delphi method seeks to generate a consensus in the participating group, using questionnaires to collect the data. As mentioned by Reguant-Alvarez and Torrado-Fonseca [49], the process follows phases that go from the definition of the research problem, through the formation of the experts’ group, make the rounds of consultation and analyze the information collected (Figure 1).

![Figure 1. Phases of the Delphi Method](image)

A. Definition of the Research Problem

In this study, the first phase consisted of a literature review to determine the most common entrepreneurial traits and skills mentioned by the authors. From this review, categories and subcategories contained in the questionnaires were extracted and validated in the consultation of the experts (Table 1). The
objective was to rank the main traits and skills presented in the entrepreneur.

TABLE I: ENTREPRENEURSHIP TRAITS AND SKILLS ACCORDING TO THE LITERATURE REVIEW

<table>
<thead>
<tr>
<th>Categories</th>
<th>Subcategories</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal traits of the entrepreneur</td>
<td>Take risks, Innovative, Confidence in their abilities, Able to influence others, Able to identify opportunities, Autonomy, Perseverance, Creativity, Prior knowledge, Motivation, Outgoing, Proactivity, Attitude to achieve an objective, Responsibility, Tolerance to stress, Anxiety, Professionalism</td>
</tr>
<tr>
<td>Sociodemographic traits</td>
<td>Level of studies, Gender, Age, Culture and society, Approval of the social environment, Social norms, Socioeconomic condition, Civil status, Entrepreneurship condition</td>
</tr>
<tr>
<td>Entrepreneurship skills</td>
<td>Innovation, Take risks, Self-confidence, Creativity, Search for opportunities, Communicate ideas, Entrepreneurial intention, Internal control locus, Leadership, Persistence, Self-efficacy, Networking, Initiative, Take decisions, Resilience, Orientation to change</td>
</tr>
</tbody>
</table>

B. Phase 2. Participant’s Profile

The number of participants in the Delphi method can be between seven and 30 [50]. Experts can be of two types: affected and specialists. The first one is people that know the situation under study, in this case, entrepreneurs who have faced the experience of creating a new company. Also, the specialists formed of people in the entrepreneurial ecosystem, such as incubators, accelerators, entrepreneurship professors, research center directors, among others.

The research was from February to May of 2019 and was invited 40 people from the Mexican entrepreneurship ecosystem to participate, of which they agreed to respond 26 in the first round and 19 in the second one. The selection of the participants was intentional to respond to the objective of the study, and the participants who agreed were composed of two groups: one of 20 entrepreneurs from different places of Mexico, of whom 11 people are graduates of a master's program in science and technology commercialization and nine entrepreneurs who had not received this type of training. The other group is composed of six people from the entrepreneurial ecosystem: two professors in entrepreneurship from two Mexican universities, two managers of accelerators and incubators, a director of a technology park, and a director of a research center located in Monterrey, Mexico.

C. Phase 3. Consultation Rounds

This research applied a modified Delphi method. It consists of two consultation rounds to maintain the interest of the participants in the study. It aims to reach agreements on a given topic, facilitated by the use of the Internet and questionnaires [51; 52].

The questionnaire is composed of three parts. In the first, it is requested to complete identification data of the participant as name, age, gender, marital status, place of residence, last academic degree, name of the company, position or type of entrepreneurship and years of having the company (if the survey is an entrepreneur answer the question). The second and third part, present the personal, social, and entrepreneurial skills most mentioned in the consulted literature and, by closed questions, they were asked to answer with a Likert scale (1 to 4, being 4 A lot, 3 Enough, 2 Little and 1 Not at all), depending on the level of importance of each one for entrepreneurship.

In the first round, 26 experts participated, questionnaires applied through an online form. In the second round, the questionnaire was sent by email with the answers compiled from the first round.

D. Phase 4. Analysis of the Results

Statistical analysis of the data uses the Minitab program 18. The main statistics are the measures of central tendency and dispersion: mean, standard deviation, and coefficient of variation. As recommended by Landeta (2012), the coordinators of the research established an arbitrary value of the coefficient of variation (CV) to determine if there is a less or greater consensus. High consensus existed when the CV was 0–25, moderate from 26–50, and no consensus if it is more than 51. Additionally, to determine the importance of the statements consulted, the response percentages were used. The ranges were defined as follows: 0–25 nothing important, 26–50 little important, 51–75 sufficiently important, and 76–100 very important.
IV. RESULTS AND DISCUSSION

The participants were in an age range between 29 to 60 years old. Five are women and 21 men; 20 people have a postgraduate degree, five a bachelor’s degree, and one is licensed; 15 of the interviewees live in the city of Monterrey, 13 in different entities in Mexico. Finally, the type of entrepreneurship was nine dedicated to the commercial area, seven to services, two from the industrial sector, one family company, and one technological company.

In the first round of consultation for the question, which personal characteristics do you consider favorably influencing the entrepreneurial initiative? There was a high consensus in most of the statements, as shown in Table 2, reaching a coefficient of variation in the range from 0 to 25, which was considered high by the coordinating group. This agreement level occurred in 14 of the 17 traits consulted, which reaffirms the findings in the literature on these subcategories. In the attitude to achieve an objective, a consensus was the highest obtained, and it was also considered as the most important, getting 92% of importance. Following in importance were motivation, perseverance (91%), and confidence in their abilities with 90%. On the other hand, the lowest consensus was in the anxiety factor that also had the least importance (58%).

TABLE II. EXPERT OPINION ON THE PERSONAL TRAITS OF THE ENTREPRENEUR

<table>
<thead>
<tr>
<th>Traits</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>CV</th>
<th>Consensus</th>
<th>%</th>
<th>Impor-tance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitude to achieve an objective</td>
<td>26</td>
<td>3.85</td>
<td>0.37</td>
<td>9.57</td>
<td>High</td>
<td>92</td>
<td>Very important</td>
</tr>
<tr>
<td>Motivation</td>
<td>26</td>
<td>3.81</td>
<td>0.40</td>
<td>10.6</td>
<td>High</td>
<td>91</td>
<td>Very important</td>
</tr>
<tr>
<td>Perseverance</td>
<td>26</td>
<td>3.81</td>
<td>0.5</td>
<td>12.9</td>
<td>High</td>
<td>91</td>
<td>Very important</td>
</tr>
<tr>
<td>Confidence in their abilities</td>
<td>26</td>
<td>3.73</td>
<td>0.45</td>
<td>12.1</td>
<td>High</td>
<td>90</td>
<td>Very important</td>
</tr>
<tr>
<td>Able to identify opportunities</td>
<td>26</td>
<td>3.7</td>
<td>0.68</td>
<td>18.4</td>
<td>High</td>
<td>88</td>
<td>Very important</td>
</tr>
<tr>
<td>Proactivity</td>
<td>26</td>
<td>3.6</td>
<td>0.64</td>
<td>18</td>
<td>High</td>
<td>88</td>
<td>Very important</td>
</tr>
<tr>
<td>Tolerance to stress</td>
<td>26</td>
<td>3.6</td>
<td>0.58</td>
<td>16</td>
<td>High</td>
<td>87</td>
<td>Very important</td>
</tr>
<tr>
<td>Able to influence others</td>
<td>26</td>
<td>3.5</td>
<td>0.58</td>
<td>16.4</td>
<td>High</td>
<td>86</td>
<td>Very important</td>
</tr>
<tr>
<td>Take risks</td>
<td>26</td>
<td>3.6</td>
<td>0.53</td>
<td>16.4</td>
<td>High</td>
<td>86</td>
<td>Very important</td>
</tr>
<tr>
<td>Responsibility</td>
<td>26</td>
<td>3.6</td>
<td>0.65</td>
<td>18.3</td>
<td>High</td>
<td>86</td>
<td>Very important</td>
</tr>
</tbody>
</table>

TABLE III. SOCIODEMOGRAPHIC TRAITS ACCORDING TO EXPERT OPINION

<table>
<thead>
<tr>
<th>Sociodemographic traits</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>CV</th>
<th>Consensus</th>
<th>%</th>
<th>Impor-tance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Culture and society</td>
<td>26</td>
<td>2.85</td>
<td>0.83</td>
<td>29.3</td>
<td>Moderate</td>
<td>71</td>
<td>Sufficiently important</td>
</tr>
<tr>
<td>Entrepreneurship training</td>
<td>26</td>
<td>2.5</td>
<td>0.90</td>
<td>36.2</td>
<td>Moderate</td>
<td>63</td>
<td>Sufficiently important</td>
</tr>
<tr>
<td>Socioeconomic condition</td>
<td>26</td>
<td>2.27</td>
<td>0.72</td>
<td>31.9</td>
<td>Moderate</td>
<td>57</td>
<td>Sufficiently important</td>
</tr>
<tr>
<td>Approval of the social environement</td>
<td>26</td>
<td>2.19</td>
<td>0.85</td>
<td>38.8</td>
<td>Moderate</td>
<td>55</td>
<td>Sufficiently important</td>
</tr>
<tr>
<td>Social norms</td>
<td>26</td>
<td>2.08</td>
<td>0.89</td>
<td>43</td>
<td>Moderate</td>
<td>52</td>
<td>Sufficiently important</td>
</tr>
<tr>
<td>Age</td>
<td>26</td>
<td>2.03</td>
<td>0.77</td>
<td>38</td>
<td>Moderate</td>
<td>51</td>
<td>Sufficiently important</td>
</tr>
<tr>
<td>Civil status</td>
<td>26</td>
<td>1.96</td>
<td>0.82</td>
<td>42</td>
<td>Moderate</td>
<td>49</td>
<td>Little important</td>
</tr>
</tbody>
</table>

Regarding the question, what do you consider are the sociodemographic characteristics that influence the person to develop an enterprise? The traits consulted were found to be of little importance to sufficiently important, with a moderate consensus among the participants (Table 3). Obtaining the highest percentages, culture, and society with 71% and training for entrepreneurship with 63%, the least important was gender with 38%.
For the question, what do you consider are the most important skills to identify in the entrepreneur? There was a high consensus in the majority of the consulting skills, the most important was leadership, and making decisions with 93%; persistence, initiative, and to communicate ideas with 92%. On the other hand, the one considered sufficiently important was self-efficacy, with 74% (Table 4).

Once obtained, the results of the first round, traits, and skills with higher percentages were included in a new questionnaire. This instrument requested participants to organize the traits and skills from highest to lowest and organize them in order of importance to obtain the most relevant. The mean score of the responses was considered to organize this information [47]. Participants in this second round were 19 (17 entrepreneurs, a professor of entrepreneurship, and a director of a research center).

The results of the Delphi method point that the experts ranked the entrepreneurial skills with the highest effect, followed by the personal traits of the entrepreneur and the sociodemographic traits as relevant in the development of ventures (Table 5).

About the personal traits of the entrepreneur, most important are perseverance, the attitude to achieve an objective, and the ability to identify opportunities (Figure 2).
V. CONCLUSIONS

The results showed a high consensus in the opinions of experts with findings in the literature, mainly in the personal traits of the entrepreneur and in the entrepreneurial skills consulted. In the case of personal traits, respondents considered that there are personality traits that influence the entrepreneur, such as perseverance, the attitude to achieve an objective, the ability to identify opportunities and motivation, among others. It agrees with studies such as that of Alam et al. [15], who declare that personal traits influence the entrepreneur.

Contrarily, the consulted experts gave less importance to sociodemographic features, such as gender, age, or level of studies, which partially agrees with the analyzed studies that not found differences in entrepreneurship due to these traits [21]. It was partial because, although they did not have the same importance for the experts consulted, these traits were considered sufficiently important.

In terms of entrepreneurship skills, an interesting detail in this research is the lower importance to aspects such as self-efficacy, entrepreneurial intention, and innovation, which are features mentioned continuously in the literature and which are essential in some inquiries [11; 23; 18]. However, for these participants, the most important skills were seeking opportunities, communicating ideas, and persistence. Concerning the search for opportunities, Spinuzzi et al. [39] mention that it is necessary to know what needs to be changed to be improved, and it is a fundamental element to start with the process of developing a business idea.

Regarding these findings, it is necessary to consider the best alternative to develop these skills. As recommended by international organizations such as OECD [53], the role of education for entrepreneurship becomes relevant to develop the entrepreneur, so identifying the traits and skills that favor their performance becomes necessary. Hence, the contribution of this study is their identification to be developed in training programs. Also, the instrument can be used in broader contexts or different sectors to identify the entrepreneur traits and abilities and to elaborate strategies of development in educational programs of the most important ones. Moreover, it can be used by managers of incubators, accelerators, investors, or public policy designers to identify them in the entrepreneurs and to promote good practices for the regional economic development [3].

Limitations of the study are related to findings that are limited to the Mexican context and the limited participants number. However, it complies with the recommendations of Landeta [50], and other authors consulted for the amount suggested in the Delphi method.

Finally, this article proposes a series of entrepreneurial traits and skills. These findings can be used for different types of entrepreneurs and in different contexts to analyze if people own them. They can also be used by those in charge of designing training programs or strengthening the sector to create programs to develop these skills. It is recommended for future studies to continue to carry out empirical studies that demonstrate the importance or not of sociodemographic traits that affect entrepreneurship, to elaborate proposals that support the development of successful entrepreneurs.

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