Entrepreneurial Intention in Vocational Technical Schools in Emerging Economies: A Case Study of Barranquilla, Colombia

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Abstract. Entrepreneurship is a subject that according to literature has not been studied in technical institutions and institutions of education for work and human development. Because it has been done primarily in university institutions, primary and secondary schools. Based on the above, this research carries out a trend analysis and then analyzes the business intention given in the technical institutions in Barranquilla, Colombia. For this, the study is administered an online instrument to 738 students, considering the guide of the World Survey of University Business Spirits (GUESSS). The results obtained in the analysis indicate that the qualifications of the attributes that characterize the business intention of students of technical institutions are very similar to the Colombian average for the programs of university institutions, although there is no structure of business support.

Keywords: Entrepreneurship · Education for work · GUESSS · Business performance · Innovation · Competitiveness

1 Introduction

Current trends related to training and employment underscore the demand for changed processes to train human resources to boost competitiveness within this new economic context. Thus, issues such as globalization, scientific and technological change, new business structuring, transformed labor content, and employability and certification, among others, pose new additional challenges to education and training systems [1], especially concerning the creation of companies and the opportunities for independent growth.

A primary element to entrepreneurial behavior, company creation, and the identification of business opportunities is the existence of entrepreneurial intention, which may be defined as "the self-awareness of the conviction to start a business and conscious planning for its future execution" [2]. The entrepreneurial intention has been studied in recent years [3–6]; [7] however, research on entrepreneurial intention, entrepreneurship,

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and education place greater emphasis on higher education, and studies are generally conducted in mature or developed economies [6, 8–11]. References to the study of entrepreneurship in technical and technological education levels and education for work and human development are scarce.

The work conducted by [12] shows that according to the psychological literature, intentions are the best antecedent to predict planned behavior, especially if that behavior is rare, hard to observe, or involves unpredictable time lags. The creation of a new company requires substantial planning, and it represents the ideal planned behavior to be studied through an intention model because it offers a consistent and robust theoretical framework to explain how exogenous factors affect attitudes, intentions, and behaviors, enabling a greater understanding of the business process.

This study aims to analyze the entrepreneurial intention of students in the technical training institutions, using a methodology under the guidelines of the Global University Entrepreneurial Spirit Students' Survey (GUESSS). Sections 1.1 and 1.2 will address the concepts of "education and entrepreneurship" and "education for work and human development." The methods used shall be shown in Sect. 2, and the results obtained from the analysis shall be shown in Sect. 3, and finally, in Sect. 4, the main conclusions and potential research opportunities are listed.

1.1 Education and Entrepreneurship

One of the main drivers of a productive and competitive society is education, and there is a strong correlation between the level of development of countries and the strength of their education and scientific and technological research [13–16]. Thus, education is the vehicle to access equality and improved quality of life, which become the people's goals that perceive education as an opportunity for creating employment and acquiring resources [17].

In addition, the literature shows that the educational systems of developed countries focus on supporting and guiding entrepreneurial ideas and youth innovation from initial education, adopting a particular approach regarding the use of technologies and scientific research [18–26]. In the United States, the first business school course in entrepreneurship was taught at Harvard University in 1947 as a complement to Business Administration, and it is now the country with the oldest tradition in entrepreneurial education [27]. In Europe, entrepreneurship training was pioneered by the United Kingdom and France in the mid-70s and by the end of the decade, respectively [28]. Other countries such as Spain, France, Belgium, Poland, and Sweden implemented a more defined strategy related to the adoption of entrepreneurship skills as part of the objectives and contents of their educational systems [28].

Educational development in entrepreneurship and vocational education is gaining momentum as a strategy to fight unemployment and lack of opportunities [28]. Consequently, governmental organizations and academia show particular interest in understanding the entrepreneurial phenomenon [29–31] faced with implementing endogenous development strategies for countries and regions. In this respect, international evidence confirms that the highest levels of development are found in the countries that also show high levels of innovative entrepreneurship in their economies [32, 33].

Colombia is betting highly on entrepreneurship and innovation because they are the methods to solve people's problems by enhancing the quality of life and accumulating wealth. However, entrepreneurship training is limited to higher education levels, as shown by results such as those gathered by the research entitled "Emprendedores en crecimiento II" (Growing Entrepreneurs II) conducted by INNpulsa Colombia, the Colombian Confederation of Chambers of Commerce (CONFECAMARAS), and the School of Administration of Universidad de Los Andes. It shows that 3% of entrepreneurs are high school graduates; 36.8% hold an undergraduate degree; 31.8% pursued a specialist degree; 21.2% earned a master's degree; and 1.8% obtained a doctorate, disregarding other levels such as technicians and technologists.

Colombia is a developing country with an expanding economy and aims to bridge social, productive, and technological gaps to consolidate as a developed country. Consequently, significant adjustments were made in several systems, such as the educational system that is structured into kindergarten, preschool education, elementary education (five grades of primary education and four grades of secondary education), high school education (two grades so that students earn the bachelor's degree), and higher education. In addition, it also offers technical and technological education and education for work and human development (Act 1064 of 2006) (formerly known as "nonformal education"). This education is offered supplementarily to formal schooling to update or compensate for missing knowledge and offer training in academic or vocational matters without following the levels and grades of the formal education system [34]. Based on information published by the Colombian Ministry of Education, there are 4,420 institutions with 21,823 programs catering to 452,369 students across Colombia [35]. The Atlántico Department has 162 institutions that offer 1,208 programs for 44,795 students, from which 39,864 are from the District of Barranquilla divided into 924 programs [35].

1.2 Education for Work and Human Development

In Colombia, entrepreneurship culture has been transformed over the past few years by launching education reforms and introducing educational changes according to the employment market. These changes fueled entrepreneurship training through Act 1014 of 2006, which sets forth the creation of a mandatory class in schools, in addition to establishing the liaison with the Colombian Training Service (SENA), the entity in charge of supporting and providing advisory services to schools concerning entrepreneurship and education for work [28].

The purpose of vocational programs is to train people in specific areas within the productive sectors and develop specific employment skills related to the performance areas in the Colombian Classification of Occupations so that productive activities are carried out either individually or collectively as independent dependent entrepreneurs. To be registered, the program should last at least 600 (six hundred) hours. Moreover, at least 50% of the program should involve hands-on learning in face-to-face and computer-based training sessions.

1.3 Trend Analysis

Through the literature and visualization generated by the VOSviewer software, Fig. 1 shows a heat map using a color key, indicating the trendy topic are, such as start-up, entrepreneur, business, teaching.

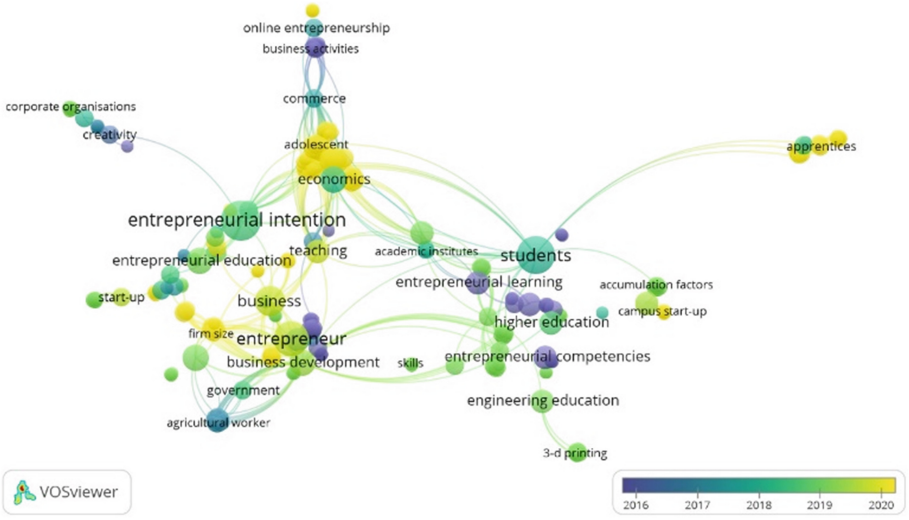

Fig. 1. .

2 Methods

An observational design was adopted because the subjects were selected based on their characteristics, mainly such as that they belonged to training programs offered by the institution, which has a population of almost 2,400 students. To determine the sample, we considered an N population of 2,400, a 99% confidence level, and a 5% margin of error. Based on this data, we obtained a sample of 522 individuals. However, upon applying the instrument, 783 members participated through the web. The instrument used was based on the Global University Entrepreneurial Spirit Students' Survey (GUESSS) [36]. The structure of the categories and variables analyzed is disclosed below (Table 1).

Table 1. Structure of the instrument employed

Categories	Variables	Type
Identification	ID number, Age	Open-ended
	Sex, Marital status	Close-ended
	Academic program	Open-ended
	Courses on entrepreneurship	Yes/No

(*continued*)

Table 1. (*continued*)

Categories	Variables	Type
Family and environment	Valuation of entrepreneurship within the family	Likert scale
	Valuation of entrepreneurship among friends	Likert scale
	Valuation of entrepreneurship across the region/community	Likert scale
	Family's opinion on entrepreneurship	Likert scale
	Friends' opinion on entrepreneurship	Likert scale
	Society's opinion on entrepreneurship	Likert scale
	Existence of family/friends that are entrepreneurs	Close-ended
	Valuation as an entrepreneur	Likert scale
	Attitude toward failure	Likert scale
Personal characteristics	Confidence	Yes/No
	Foresight	Yes/No
	Skills	Yes/No
	Open-mindedness	Yes/No
	Creative problem-solving	Yes/No
	Perseverance	Yes/No
	Achievement orientation	Yes/No
	Teamwork	Yes/No
	Communication	Yes/No
	Adaptation to change	Yes/No
	Innovation	Yes/No
	Attitude toward risk	Likert scale
	Creativity	Likert scale
	Leadership	Likert scale
	Competitive spirit	Likert scale
Entrepreneurial orientation	Intention to start a business upon conclusion of the academic program	Likert scale
	Entrepreneurial attraction	Likert scale
	Feasibility of starting a business	Likert scale
	Understanding of the political and funding context related to the enterprise	Likert scale
	Generation of business ideas	Yes/No
	Desire to start a business	Yes/No
	Capacity to partner up with others	Yes/No

(*continued*)

Table 1. (*continued*)

Categories	Variables	Type
Motivation	Independence/Autonomy	Likert scale
	Recognition and social status	Likert scale
	Profitability	Likert scale
	Challenge/Personal satisfaction	Likert scale
	Family tradition	Likert scale
	Lack of employment	Likert scale
	Management/Top management	Likert scale
	Equity investment	Likert scale
Institutional environment	Educational institution support	Likert scale
	Entrepreneurial training	Likert scale
	Success stories	Likert scale
	Vision upon conclusion of the academic program	Likert scale
	Vision 5 years after the conclusion of the academic program	Close-ended
	Useful entrepreneurial tools	Likert scale
	Vision of employment v. enterprise	Likert scale
	Creation of a network of contacts	Likert scale
	Development of entrepreneurial skills	Likert scale

Source: Own preparation based on [37]

3 Results

The institution currently offers different programs based on needs. It offers 13 programs and several courses according to the specific needs and requests of companies and other stakeholders. It has about 2,400 students and 92 faculty members, and administrative employees. The institution has no entrepreneurship center or office. No specific entrepreneurship-oriented content is offered within the program and courses.

3.1 Sample Characterization

The following section includes a brief characterization of the students that completed the survey of the institution because as there is no benchmark information for the institutions that offer education for work and human development (ITDH, in the Spanish acronym), we are unable to make comparisons using national and international data. See Fig. 2.

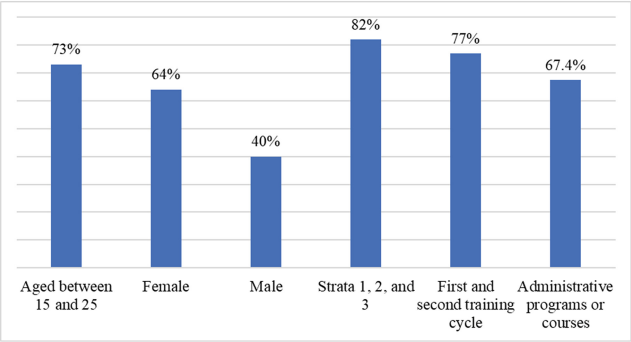

Fig. 2. .

3.2 Entrepreneurial Intention Index

As already mentioned, the method employed herein is developed under the GUESSS project, which calculates entrepreneurial intention by determining the students' intention to start their own business in the future. The index is an average of six attributes rated by students on a scale from 1 (strongly disagree) to 7 (strongly agree). See Fig. 3.

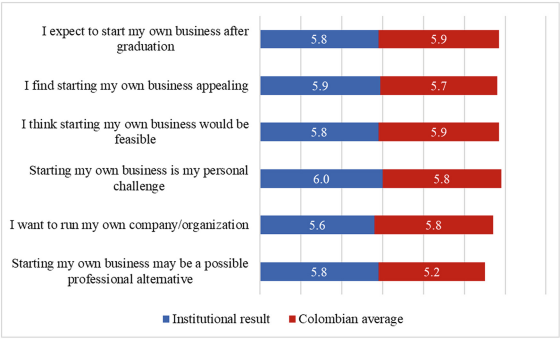

Fig. 3. .

3.3 Enterprise Context

3.3.1 Institutional Context

According to the GUESSS method, to assess the institutional context, we calculated the average between the ratings obtained for the three attributes assessed by the students on a scale from 1 (strongly agree) to 7 (strongly disagree).

Therefore, the institution has an average rating of 5.5 regarding the assessment of the institutional context. This shows that the institution provides a suitable environment and facilitates company creation among students. The attributes assessed upon rating the environment are broken down as follows: the item "The institution encourages students to

become involved in entrepreneurial activities" is the best rated with 5.7, followed by "The institution fosters a favorable entrepreneurial environment by consolidating knowledge and skills" and "The institution fosters idea generation and company creation" rated 5.5 and 5.4, respectively. When we compared the national (universities involved in the GUESSS project) and international classification concerning institutional context, we found that the rating obtained by the institution (5.5) is above the Colombian average for universities (5.4), and both are well above the international average (4.2).

3.3.2 Family Context

Academic literature suggests that family is key to young entrepreneurs' intention to start a business. In this sense, according to the method used (GUESSS project), it is essential to examine the family context of the students surveyed to understand thus their decisions about the efforts made toward starting a business [38].

3.3.3 Social Context

As in the case of institutional and family context, the GUESSS method studies the social context for creating companies as a factor that may influence students' decision to start new businesses [39]. In order to analyze the social context, the students surveyed were asked about the expected social reaction should they disclose their plans to start a company. Each attribute had to be rated on a scale from 1 (strongly agree) to 7 (strongly disagree). The value obtained for fellow students stood out with 5.7, followed by the value for the closest family's opinion with 5.4, which shows strong agreement with the participant's intention to start a business. In addition, the community considers that enterprises are worth the risk, with a rating of 5.4. Moreover, we surveyed the students of the participant institution to know whether they were acquainted with the policies, methods, opportunities, programs, and other environmental elements that favor entrepreneurial activity. We found that 74.8% of participants stated that they are aware and clearly understand state policies to finance enterprises. Besides, 71.2% of the parties surveyed asserted that they are familiarized with the function and contributions of business incubators and accelerators.

3.4 Motivation and Attitudes Toward Company Creation

This section describes the attitudes identified among students that are necessary to face the entrepreneurial challenge. The main drivers are personal satisfaction, the desire to be self-employed and independent, and the desire to build up one's self-confidence by fulfilling the personal challenge of becoming an entrepreneur.

The study assessed the students' attitudes toward entrepreneurship. The results show the desire to start their own business as a life alternative (90.4%), to which end they mentioned that they are willing to invest their savings (86.%), which is not considered the only source of financing because they are aware of different sources (60.6%). They also consider partnering up with others to add complementarities (89.9%) and assign equity in exchange for financing (73.6%). See Fig. 4.

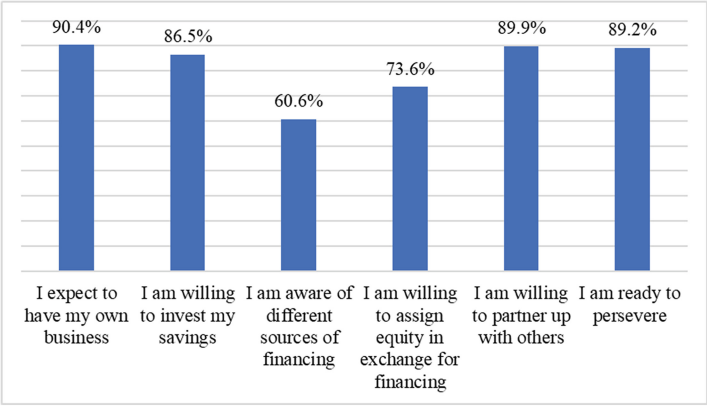

Fig. 4. .

Since failure is a possibility for any entrepreneur, they need to embrace failure and develop attitudes to carry on with their initiative. A total of 94.4% of the students mentioned that it is possible to learn from failure to generate new ideas without making the same mistakes; in this sense, 39.9% of students stated that they have already failed as entrepreneurs and that failure has consolidated their capacity to achieve entrepreneurial success. Only 34.6% of students would abandon the idea of starting a business for fear of failure. In general, motivation is high, and there is a healthy attitude toward company creation, in addition to high self-perception of their entrepreneurial competencies, latent business ideas, and a favorable institutional, family, and social context. All this validates that the intention to start a business upon the termination of the academic program and five years after finishing their studies is higher than the desire to work in a big company or an SME.

4 Conclusion

Entrepreneurship plays a significant role in Colombia's economic growth; this relationship is evidenced when comparing the figures reported by the Global Entrepreneurship Development Institute (GEDI) and the competitiveness ranking disclosed by the World Economic Forum. It is no surprise that the top ten positions in both rankings are held by countries like the United States, Switzerland, Sweden, Holland, and the United Kingdom. Colombia ranks 47th among the 147 countries analyzed in 2018 by the GEDI in entrepreneurship development, and it ranks 66th among the 137 countries analyzed regarding global competitiveness. Under this program, Colombia still has a long road ahead to enhance competitiveness through entrepreneurship.

The Colombian educational system is divided into preschool, elementary school, high school, technical school and higher education, and education for work and human development, offering employment opportunities. Technical vocational schools prepare students to face challenges in the productive sector but limit their actions to technical training; therefore, initiatives are needed to boost entrepreneurship because of its great

advantages across the economy and society, such as employment generation, revenue generation, and life quality improvement, among others.

This paper shows that there are no substantial differences between the institution and the average for universities concerning entrepreneurial intention, confirming that entrepreneurial intention is high in both cases. Although the entrepreneurial intention is very high among the students from the institution, most of them are interested in gaining knowledge and professional experience as employees of a big company before dealing with the formal procedures to start their own businesses.

There is also a lack of collaborative work surrounding entrepreneurship in the sectorial context, so the goal or orientation is not clearly defined. There are no interinstitutional activities that coordinate efforts to pave the way for students' initiatives. It is essential to design research projects to classify, offer, and supply processes, programs, and other factors related to entrepreneurship in the context of vocational schools.

This research may be the starting point of a series of works aimed at classifying entrepreneurial intention among these institutions to generate a positive impact on the perception of entrepreneurship in this level of training and to maximize income and increase employment, among other benefits broadly analyzed in the entrepreneurship literature. The method under the guidelines of the Global University's Global University Entrepreneurship Student Survey (GUESSS), which calculates the entrepreneurial intention by determining the students' intention to start their own business in the future, is used primarily in universities. The main contribution of this article is the implementation of this method in the context of technical training institutions or institutions for human work and development, obtaining similar and better results in some cases.

Relevant results can be achieved in relation to entrepreneurship in technical training institutions or institutions for work and human development.

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