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A proposal for measuring entrepreneurial intention among university students

Una propuesta para la medición de la intención de emprendimiento en estudiantes universitarios

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Abstract
The literature on entrepreneurial intention among university students has largely been grounded in attitudinal models that rely on instruments with limited multidimensional coverage and contextual sensitivity. This study proposes and validates a scale that integrates psychological, educational, and social dimensions. The instrument was administered to a sample of 1,141 students from the Faculty of Accounting and Business Administration at the National Autonomous University of Mexico (UNAM). Exploratory factor analysis identified six factors accounting for 65.78% of the variance. The findings highlight the need to strengthen entrepreneurial competencies within the university context. The study also examines the influence of the family environment and offers practical implications for curriculum design and entrepreneurship education.

Keywords: entrepreneurial intention; psychometric measurement; higher education; entrepreneurial competencies
JEL Classification: A22; L26

Resumen
La literatura sobre intención emprendedora en estudiantes universitarios se ha basado mayoritariamente en modelos actitudinales, utilizando instrumentos con limitaciones en cuanto a su cobertura multidimensional y sensibilidad contextual. Este estudio propone y valida una escala que integra dimensiones psicológicas, educativas y sociales. El instrumento se aplicó a una muestra de 1,141 estudiantes de la Facultad de Contaduría y Administración de la Universidad Nacional Autónoma de México (UNAM). El análisis factorial exploratorio identificó seis factores que explican el 65.78 % de la varianza. Los resultados destacan la necesidad de reforzar las competencias emprendedoras desde el ámbito universitario. Se discute también la influencia del entorno familiar y se proponen implicaciones prácticas para el diseño curricular y la formación emprendedora.

Palabras clave: intención emprendedora; medición psicométrica; educación superior; competencias emprendedoras
Clasificación JEL: A22; L26

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1. Introduction

Entrepreneurship among university students in the Latin American context has emerged as a response to the challenges of unemployment and underemployment in the region, particularly among young university graduates (Gwija et al., 2014; ILO, 2017; OECD, 2020; United Nations, 2020). Youth unemployment in Latin America is three times higher than the overall unemployment rate (De Vries & Navarro, 2011; Saavedra García & Blanco González, 2024), and Mexico is no exception. This situation is especially concerning given that one quarter of the country's population is young (aged 15–29), totaling 31.5 million people (México cómo vamos, 2023). Moreover, according to the Mexican Institute for Competitiveness (IMCO, 2022), 51.9% of young people who have completed a university degree are employed in the informal sector. Although higher education offers the opportunity to obtain formal employment with better income prospects, graduates face labor market conditions that often hinder their professional development. As De Vries and Navarro (2011) demonstrated, this is largely due to an oversupply of professionals. In this context, entrepreneurship presents an opportunity for self-employment and offers a viable career path.

Despite growing interest in understanding entrepreneurial intention within the university setting, the existing literature reveals significant limitations in the instruments used. Ajzen's (1991) theory of planned behavior and its subsequent developments—such as the Entrepreneurial Intention Questionnaire (EIQ) by Liñán and Chen (2009)—have been widely applied but primarily focus on attitudinal variables, overlooking other relevant dimensions of students' academic, social, and psychological environments. Similarly, the scale developed by Krueger et al. (2000) has improved the predictive accuracy of entrepreneurial intention but remains limited in its adaptability to diverse cultural contexts. Moreover, most of these tools were developed and validated in European or Anglo-Saxon countries, which restricts their direct applicability in settings such as Latin America (Moriano et al., 2012; Sánchez-García et al., 2018). These limitations underscore the need for a broader, contextually grounded, and empirically robust measurement approach that integrates the psychological, social, educational, and structural dimensions shaping entrepreneurial intention among university students.

Against this backdrop, there is a need to develop a measurement instrument capable of identifying the factors that drive entrepreneurial activity among university students. Although various instruments have been proposed to measure entrepreneurial intention, they tend to focus primarily on personality traits, demographic characteristics, and individuals' prior experience with similar activities (Alcaraz & Villasana, 2015). For example, González Sánchez et al. (2017) found that students from privileged socioeconomic backgrounds, those with family business experience, older students, and those with a strong entrepreneurial mindset and work capacity are more likely to pursue entrepreneurship. Leiva et al. (2021) likewise confirmed that both the university context and cognitive variables contribute to explaining entrepreneurial intention among students. Similarly, Mavila Hinojoza et al. (2009) identified the following key factors that motivate students to engage in entrepreneurship: social skills, creativity, planning abilities, and personal fulfillment.

However, these studies have largely overlooked economic and political variables specific to the local context that directly affect the promotion of entrepreneurship within higher education institutions. Such variables are particularly relevant in Mexico, where entrepreneurs often face limited access to financing and where the absence of clear investor protections deters capital inflows—both of which influence entrepreneurial intention (México cómo vamos, 2023; Saavedra & Saavedra, 2015).

This study proposes the design and validation of a comprehensive instrument for measuring entrepreneurial intention among university students. The proposed scale is grounded in an extensive review of the literature and is operationalized through an initial questionnaire comprising 140 items grouped into 23 theoretical dimensions. The instrument is then empirically validated using a large sample of students from a representative Mexican university. The methodological process includes reliability analysis, exploratory factor analysis, and item refinement procedures to ensure the internal consistency and structural validity of the proposed scale.

The resulting measurement instrument is intended to assess university students' attitudes toward entrepreneurial activity. Accordingly, the objective of this study was to propose and validate a data collection instrument to measure entrepreneurial intention among university students, using exploratory factor analysis.

This article is structured in three parts. The first presents a review of the literature on attitudes toward entrepreneurship, perceived social norms, entrepreneurial self-efficacy, business and entrepreneurial competencies, factors that promote and inhibit entrepreneurship, and the drivers of entrepreneurship within the university context. These topics provide the theoretical foundation for the variables included in the measurement instrument. The second part describes the study's methodology. The third presents the results of the analysis and their interpretation. Finally, the discussion, conclusions, and recommendations for future research are provided.

2. Literature review

This section reviews the main theoretical and empirical approaches that have guided the study of entrepreneurial intention in university contexts. First, it outlines the foundations of the theory of planned behavior and its applications in the field of entrepreneurship. Next, it analyzes various existing measurement approaches, with particular attention to their dimensions, limitations, and empirical validations. Finally, it examines individual, social, and educational factors that influence entrepreneurial intention, providing the basis for the theoretical framework and measurement instrument proposed in this study.

2.1 Attitudes toward entrepreneurship

Research has focused on identifying ways in which entrepreneurs exhibit similar attitudes despite clear cultural differences. Countries as distinct as Spain, the United Kingdom, and Taiwan share a common trend toward innovation in entrepreneurship (Liñán et al., 2020; Liñán & Chen, 2009). These cross-cultural similarities in entrepreneurial attitudes aim to foster a deeper theoretical understanding of entrepreneurial behavior. Such efforts have included adaptations of theories such as Ajzen's (1991) theory of planned behavior, informed by empirical findings in the business domain related to entrepreneurial intention.

Other studies grounded in the model developed by Liñán and Chen (2009) have also identified differences in entrepreneurial attitudes between Mexican and Spanish students, with Mexican students exhibiting a more positive attitude toward entrepreneurship. They reported stronger perceived support from subjective norms, viewed entrepreneurship as a more enriching professional option, and perceived it as a more satisfying and advantageous activity. Mexican students also expressed less fear of failure (29.8% vs. 46.9%, respectively) and had a more favorable perception of their education (54.4% vs. 25%) and entrepreneurial experience (49.7% vs. 41.9%) compared to their Spanish counterparts (Guerrero et al., 2016).

Conversely, several attitudinal factors can hinder entrepreneurial activity. Among entrepreneurs, these include risk intolerance, a tendency to postpone unpleasant tasks or bad news, and fear of failure (Hoogendoorn et al., 2019; Laachach et al., 2024). These individual factors interact with external factors, such as perceptions of national corruption (Costa & Mainardes, 2016), shaping negative attitudes toward expected outcomes and external conditions. Such dynamics have significant repercussions for entrepreneurial outcomes, as they influence what entrepreneurs are willing to do under given circumstances. For example, an overly optimistic attitude regarding potential outcomes and personal capabilities can lead to overconfidence and an underestimation of financial risks (Invernizzi et al., 2017). Thus, there is a dynamic interaction between entrepreneurs' perceptions of the external business environment and their sense of self-efficacy, which together shape entrepreneurial decision-making (Calanchez Urribarri et al., 2023; Taneja et al., 2024; Vilanova & Vitanova, 2020). These interactions are critical to understanding the factors that contribute to entrepreneurial success and underscore the importance of personal attitudes.

In this regard, Shriha et al. (2025) state that entrepreneurial intention captures the mental and motivational processes that inspire individuals to launch new businesses. Entrepreneurial intention thus represents a deliberate state of mind that focuses attention and energy on starting new ventures and pursuing self-employment. Numerous factors—including social, cultural, and environmental—affect an individual's attitude, perceived behavioral control, and subjective norms regarding entrepreneurship, all of which can influence the desire to become an entrepreneur.

Shriha et al. (2025) further note that the extent to which a person develops the intention to behave in a particular way may be influenced by social pressure. In this context, subjective norms refer to the perceived social pressure from significant others (such as family members, friends, and peers) to engage or not engage in entrepreneurial behavior (Ajzen, 1991). In other words, subjective norms reflect the degree to which an individual believes that important people in their environment approve or disapprove of entrepreneurial behavior. Shriha et al. (2025) found a moderate correlation between subjective norms and entrepreneurial intention. In contrast, Duong (2022) found no correlation between subjective norms and entrepreneurial intention, arguing that this relationship may be mediated by other factors—an observation that opens new avenues for research.

Regarding perceived behavioral control, Shriha et al. (2025) conceptualize it as individuals' control-oriented attitudes toward becoming an entrepreneur. Perceived control plays a crucial role in determining whether someone becomes an entrepreneur, as it reflects the degree to which an individu al believes they have control over a given behavior and is shaped by beliefs about factors that may facilitate or hinder successful performance of that behavior. Both Duong (2022) and Shriha et al. (2025), in their empirical work, found a strong correlation between perceived behavioral control and entrepreneurial intention.

In addition, Liao et al. (2022) identified entrepreneurial knowledge as a key antecedent of entrepreneurial intention, as it influences the cognitive foundations of individuals engaged in new ventures. Personal attitude and self-efficacy are also vital predictors of entrepreneurial intention. In this regard, entrepreneurship

education plays an important role in developing the attitudes, knowledge, and skills associated with entrepreneurial practice. Consistent with this finding, Karyaningsih et al. (2020) demonstrated that students who completed entrepreneurship courses—or related coursework such as business planning, marketing strategies, and other entrepreneurial skills—exhibited stronger entrepreneurial intention than those who did not. Similarly, Shriha et al. (2025), in their empirical study, found a strong correlation between entrepreneurial knowledge and entrepreneurial intention.

2.2 Perception of social norms

Abaddi (2024) and Shriha et al. (2025) define subjective norms as the perceived social pressure from close individuals (such as family members, friends, and peers) to engage or not engage in entrepreneurial behavior. Subjective norms reflect the degree to which an individual believes that others approve or disapprove of their entrepreneurial behavior. It is expected that subjective norms will influence entrepreneurial intentions, as a supportive social environment can encourage and inspire potential entrepreneurs.

Among university students, particular attention has been given to aspects of personal development in shaping attitudes toward entrepreneurship, including the interaction between upbringing and traits conducive to entrepreneurial activity. In this regard, Calanchez Urribarri et al. (2023) found that, among students, only perceived social support was directly associated with a stronger entrepreneurial orientation.

Among the variables most closely linked to entrepreneurial intention, family influence and individualist values stand out, along with educational experiences that promote self-employment (Moriano León et al., 2006).

To the original model—which includes personal attitude toward becoming an entrepreneur, subjective norms (i.e., the approval of significant others regarding entrepreneurial activity), and perceived behavioral control (i.e., perceptions of the difficulty or ease of becoming an entrepreneur)—additional factors have been incorporated. These include social evaluation, which encompasses cultural attitudes that encourage or discourage certain entrepreneurial traits and behaviors, and close social evaluation, which refers to the influence of family members, friends, and colleagues with whom the entrepreneur interacts daily. The model also considers entrepreneurial skills (as a measure of the degree to which such skills are possessed) and knowledge of the business environment (i.e., the level of awareness and understanding the individual has of themselves and their support systems) (Calanchez Urribarri et al., 2023; Liñán et al., 2020).

2.3 Entrepreneurial capacity

Training for entrepreneurial activity, aimed at developing business skills, may be limited by individuals' existing attitudes. For example, those with greater risk tolerance—i.e., a more positive attitude toward risk—derive greater benefit from entrepreneurship training (Calanchez Urribarri et al., 2023; Fairlie & Holleran, 2012; Laachach et al., 2024; Shriha et al., 2025). As Shriha et al. (2025) observe, a positive attitude toward risk can enhance the creativity and innovation of potential entrepreneurs in seizing business opportunities. However, they did not find a direct association between risk propensity and entrepreneurial intention, explaining that this inconsistency may result from the influence of cultural, social, and economic factors that vary across countries.

Gender differences have also been observed. Shinnar et al. (2014) found that in entrepreneurship training courses, women exhibited lower initial and final scores for both entrepreneurial intention and self-efficacy. Unsurprisingly, the best outcomes were observed among those with favorable personal conditions, a strong capacity to achieve their goals, and a higher perception of their own abilities. Thus, attitudes play a central role in both goal setting and goal attainment.

In a sample of Mexican university students, Barrera González et al. (2024) found that young people express an intention to pursue entrepreneurship and display a positive attitude toward acquiring the knowledge, skills, abilities, and competencies needed to enter the business world in the future.

Positive effects are also observed in attitudes such as perceived control over one's own activities and the perceived importance that one's social group places on entrepreneurship (Karimi et al., 2016). This is particularly relevant when the entrepreneur's reference group does not support such activities, as education can moderate the negative influence of social disapproval—an effect that was especially notable among women (Entrialgo & Iglesias, 2016). It is worth noting that as entrepreneurial training increases, the relationship between perceived personal capacity and entrepreneurial intention strengthens, while the influence of social approval weakens (Akinleke, 2024; Arruda et al., 2023; Entrialgo & Iglesias, 2016; Potishuk & Kratzer, 2017). In other words, training helps individuals resist the disapproval of those close to them by providing information and tools that strengthen their confidence in their own capacity.

Among the types of content that have demonstrated the strongest effects on entrepreneurial intention and attitudes are those that foster positive attitudes toward the usefulness of acquired knowledge and promote self-

perceptions of being capable of launching successful ventures—ultimately improving risk tolerance. Such training also helps moderate the attitudes of individuals who may initially exhibit excessive confidence due to a lack of experience with project rejection, particularly in technological fields (Bandera et al., 2018).

In programs targeting adolescents (average age 15), training in four components—(1) accounting, finance, marketing, and management; (2) self-efficacy, proactivity, and risk-taking; (3) business plan development; and (4) experiential learning—delivered through lectures, reading discussions, exercises, games, and computer simulations resulted in significant improvements in self-efficacy, proactivity, and risk-taking. These, in turn, had a positive impact on participants' intention to pursue self-employment in the future. Among all the variables studied, self-efficacy showed the strongest correlation with the others, even before participation in the educational program (Sánchez, 2013).

Thus, the impact of entrepreneurship training—particularly prior to engaging in ventures through trial and error, as allowed by simulations—can lead to better planning, control, and sustainability of entrepreneurial efforts, in addition to fostering attitudes that support personal growth. In this regard, Arruda et al. (2023) found a positive relationship between entrepreneurship education among university students and their entrepreneurial attitudes, knowledge, skills, self-efficacy, and initial entrepreneurial behavior. Similarly, Nogaibayeva et al. (2024) confirmed a significant relationship between entrepreneurship education and students' enthusiasm and determination to pursue entrepreneurship. Taneja et al. (2024) found a positive relationship between entrepreneurial success and self-efficacy, while Al-Tekreeti et al. (2024), Jiatong et al. (2021) and Murad et al. (2021) reported a strong, positive, and significant relationship between creativity and entrepreneurial intention.

Regarding the perceived attractiveness of entrepreneurship as a career option, Al-Mamary et al. (2020), Duong (2022), Liñán et al. (2020), and Liñán and Chen (2009) found that students generally view entrepreneurial activity positively as a professional path. In contrast, Pérez Paredes et al. (2022) did not find evidence of strong interest among university students in pursuing entrepreneurship after completing their university education.

Entrepreneurial intention can be defined as a process of acquiring the knowledge needed to launch a business—a process that guides individuals in planning and taking action to create a new enterprise. In this sense, entrepreneurship education has been identified as a driver of entrepreneurial intention, although findings on this relationship have been somewhat mixed (Al-Tekreeti et al., 2024).

In addition, education can foster entrepreneurial intention, particularly by enhancing perceptions of preparedness, improving access to relevant information, and strengthening perceptions of personal characteristics such as a stronger internal locus of control and self-efficacy. With regard to self-efficacy, Kalitanyi (2019) and Taneja et al. (2024) suggest that universities should place greater emphasis on including training components aimed at improving students' entrepreneurial self-efficacy.

Moreover, exposure to entrepreneurial activity through work experience can also contribute to more positive entrepreneurial attitudes. Individuals who have worked in small businesses or who have attempted an entrepreneurial venture themselves may develop a more favorable view of entrepreneurship. For example, in Mexico, among the 21% of students who reported having created a business, 42% had entrepreneurial parents (Guerrero et al., 2016).

2.4 Business and entrepreneurial competencies

Entrepreneurial competencies are typically associated with knowledge and skills; however, they are also closely linked to initiative and creativity, as well as to the importance of personal independence and creative capacity. In other words, training for entrepreneurial competence must help individuals generate new projects and develop additional competencies that go beyond the technical performance of entrepreneurial tasks (Ahumada Méndez, 2014; Arruda et al., 2023).

Varela (2014) defines business competencies as "the set of attributes—namely motivations, attitudes, values, self-concepts, knowledge, and skills—of a person, which are expressed through definable, observable, and measurable behaviors, and which are causally linked to superior performance in entrepreneurial activity" (p. 3).

Bird (1995) similarly describes entrepreneurial competencies as "the underlying characteristics of individuals, including specific knowledge, motivation, traits, self-perception, social roles, and skills that can lead to the creation, growth, or survival of a business" (p. 51).

The list of business and entrepreneurial competencies is extensive, making it unsurprising that various authors have proposed overlapping frameworks. Table 1 summarizes the principal competencies identified by the authors reviewed in this study.

Table 1. Business and entrepreneurial competencies

Authors	Business and Entrepreneurial Competencies	Description
Delors (1996); Varela and Bedoya Arturo (2006)	Business Career Vision	Developing and implementing a creative strategy with long-term goals.
Ahumada Méndez (2014); Guerrero et al. (2016); Varela and Bedoya Arturo (2006)	Social Sensitivity	Considering human and environmental development when applying new ideas and projects aimed at the well-being of all social actors, and always acting ethically, responsibly, and with social awareness.
Delors (1996); Guerrero et al. (2016); Hofstede (2011); Varela and Bedoya Arturo (2006)	Achievement Orientation	Pursuing challenging objectives that go beyond excellence, with a focus on autonomy, independence, and recognition.
Delors (1996); Kalitanyi (2019); Taneja et al. (2024); Varela and Bedoya Arturo (2006)	Self-Confidence	Recognizing one's own abilities, knowledge, attitude, and energy to carry out activities that help achieve objectives.
Ahumada Méndez (2014); Varela and Bedoya Arturo (2006)	Perceptual Breadth	Having a broad vision to identify new opportunities.
Ahumada Méndez (2014); Varela and Bedoya Arturo (2006)	Flexibility	Adapting to changing perspectives in order to generate more options for solving problems or carrying out activities.
Ahumada Méndez (2014); Delors (1996); Varela and Bedoya Arturo (2006)	Empathy	Being willing to understand and acknowledge others' needs, emotions, and interests to foster a deeper understanding of one's own.
Ahumada Méndez (2014); Varela and Bedoya Arturo (2006)	Conceptual Thinking	Identifying connections among complex, indirectly related elements to propose models and concepts that can be more easily applied.
Sodha et al. (2024); Varela and Bedoya Arturo (2006)	Market Orientation	Taking into account market characteristics and conditions to support informed decision-making.
Ahumada Méndez (2014); Guerrero et al. (2016); Varela and Bedoya Arturo (2006)	Business Management	Innovatively integrating the necessary resources to initiate and develop entrepreneurial activity.
Varela and Bedoya Arturo (2006)	Building Business Networks	Creating, maintaining, and developing alliances with individuals and organizations to achieve business objectives.
Ahumada Méndez (2014); Guerrero et al. (2016); Varela and Bedoya Arturo (2006)	Decision-Making	Analyzing various options to identify the best course of action, while taking responsibility for the expected outcomes.
Delors (1996); Varela and Bedoya Arturo (2006)	Action Orientation	Demonstrating the determination and energy required to carry out activities that turn ideas, projects, proposals, and business opportunities into reality.

Source: Compiled by the authors

Identifying business and entrepreneurial competencies makes it possible to view them as the set of characteristics, skills, attitudes, knowledge, and values that, collectively, enable an individual to achieve business objectives—that is, to create, sustain, and/or develop an organization.

In this regard, Villa and Poblete (2008) highlight three key components of entrepreneurial competence:

1. motivating a group, team, or organization;
2. developing individual potential; and
3. taking risks in a specific context while being aware of the associated commitments.

Considering these elements as part of an effort to improve the discouraging employment prospects faced by many young people in Latin America underscores the urgent need for investments in competency development and the creation of new opportunities for entrepreneurship. Such measures could help young people transition more smoothly from education to the labor market by empowering them to become active participants who can take advantage of opportunities arising from political, social, and economic changes.

An important point to note is the observation by San-Martín et al. (2020), who argue that entrepreneurship education can enhance students' attitudes, skills, and business competencies—effects that, in turn, motivate them to pursue entrepreneurship. It is therefore essential to foster entrepreneurial skills and abilities, attitudes, and knowledge through education and training.

2.5 Factors that promote or inhibit entrepreneurship

Bird (1988) notes that entrepreneurial intention combines contextual factors—such as political, economic, and social elements—with personal factors, including competencies, experience, and characteristics that define the entrepreneur. Together, these factors can create conditions that motivate and foster entrepreneurial activity. Similarly, Neira et al. (2013) classify the factors that shape entrepreneurship into three broad categories: individual, social, and macroeconomic.

Individual factors refer to psychological characteristics (such as attitudes) and demographic attributes (such as gender, age, occupation, education level, and work experience). These factors are important because they

strongly influence an individual's decision to pursue entrepreneurship. In particular, gender, education level, and income level have been shown to affect entrepreneurship rates across different contexts.

Social factors relate to the availability of social capital and to the norms that support the emergence of entrepreneurial initiatives (Neira et al., 2013). According to Bourdieu (2000), capital can take three fundamental forms: economic, social, and cultural. In the context of entrepreneurship, social capital allows entrepreneurs to leverage support networks that facilitate business development. Moreover, it is important that social capital be complemented by economic, cultural, and symbolic capital.

In this regard, Sánchez García et al. (2005) argue that the combination of individual and social factors influences the development of entrepreneurial intention. Both personal history and vicarious experience (experience acquired through observing others), along with personal characteristics and skills, affect individuals' entrepreneurial intention. In addition, the social context—including culture, cooperative networks, and subjective norms—also contributes to shaping this intention (Maslakcı et al., 2021; Neira et al., 2013; Oliveira et al., 2015).

Finally, macroeconomic factors—such as access to financing, unemployment, and inflation—force individuals to make decisions they might not otherwise consider if they had more favorable alternatives or a more supportive environment.

The capital that entrepreneurs invest themselves is typically the primary source of funding for developing their business ideas. However, this personal capital is often insufficient, prompting entrepreneurs to seek external financing (Irwin & Scott, 2010). Among these external sources, bank loans remain one of the most common, though they frequently involve significant barriers—especially for small and medium-sized enterprises—as banks may perceive these businesses as high-risk ventures (Arango Vásquez & Durango Gutiérrez, 2014).

Arango Benjumea (2017) emphasizes that the family is the most influential factor in entrepreneurship, surpassing other actors such as the state and universities. In line with this view, Guerrero et al. (2016) found that among students who expressed an intention to pursue entrepreneurship, 48% had at least one parent who was an entrepreneur; 65% reported that another family member was an entrepreneur; 35% cited a friend; 12% mentioned a teacher; and 65% identified another person close to them. These findings are consistent with the observations of scholars such as Caballero García et al. (2019) and Davidsson and Honig (2003), who argue that individuals are more likely to undertake entrepreneurial ventures if their parents, friends, or neighbors are entrepreneurs or have attempted entrepreneurship themselves.

The relationship between entrepreneurs and the legal framework required to create or develop a business is critical. The factors involved—such as legal requirements and accessibility—directly affect the difficulty of starting and growing a business and thus influence entrepreneurial performance. Within this component of the entrepreneurial ecosystem, elements such as regulation, bureaucratic procedures, taxation, and corruption can either foster or hinder the creation of new ventures (Aguirre-González, 2020; IMCO, 2014).

Organizations and programs that support entrepreneurs—by providing guidance, planning, access to financing, and other resources—play an important role. Such support is often provided by incubators and accelerators and is especially valuable, as many entrepreneurs lack information about marketing, industry structure, and business networks (Calanchez Urribarri et al., 2023; IMCO, 2014). Examples of entrepreneurial support services include accelerators, incubators, and mentorship programs.

Among the factors that inhibit entrepreneurship, Çera et al. (2021) highlight the macroeconomic environment: contextual conditions—including institutional and economic factors—affect individuals' cognition, preferences, and intentions regarding entrepreneurship. Similarly, Aguirre-González (2020) found that limited government support constitutes a significant barrier to entrepreneurship among university students.

2.6 Fostering entrepreneurship in the university context

According to the OECD (2019), "Higher education contributes to inclusive growth by strengthening human capital formation, research and development (R&D), and innovation. One of the primary goals of higher education is to produce graduates with the competencies needed to succeed in the labor market. This is particularly important in today's innovation-driven and skills-based global economies and aligns well with students' expectations of finding suitable employment upon graduation" (p. 12).

In line with this perspective, the 2018 edition of the *GUESSS Global Report* emphasizes that the university context is fundamental for fostering entrepreneurship. Engaging in entrepreneurial activities during the university years encourages students to generate business ideas and envision a future in entrepreneurship. For this reason, investing in entrepreneurship education is a worthwhile strategy to increase the number of students who are prepared to start their own ventures (Calanchez Urribarri et al., 2023; Sieger et al., 2019).

Some universities also offer an extensive support network for entrepreneurs, including incubators, accelerators, innovation labs, and business development centers. These resources aim to help students generate new ideas and perspectives. In some cases, this activity extends to faculty members, who serve as advisors and mentors for student-led business projects. Certain universities even extend these services to the broader community, positioning themselves as catalysts for business creation and playing an increasingly important role within the entrepreneurial ecosystem. This support is critical in encouraging university students to engage in entrepreneurial activity (Calanchez Urribarri et al., 2023).

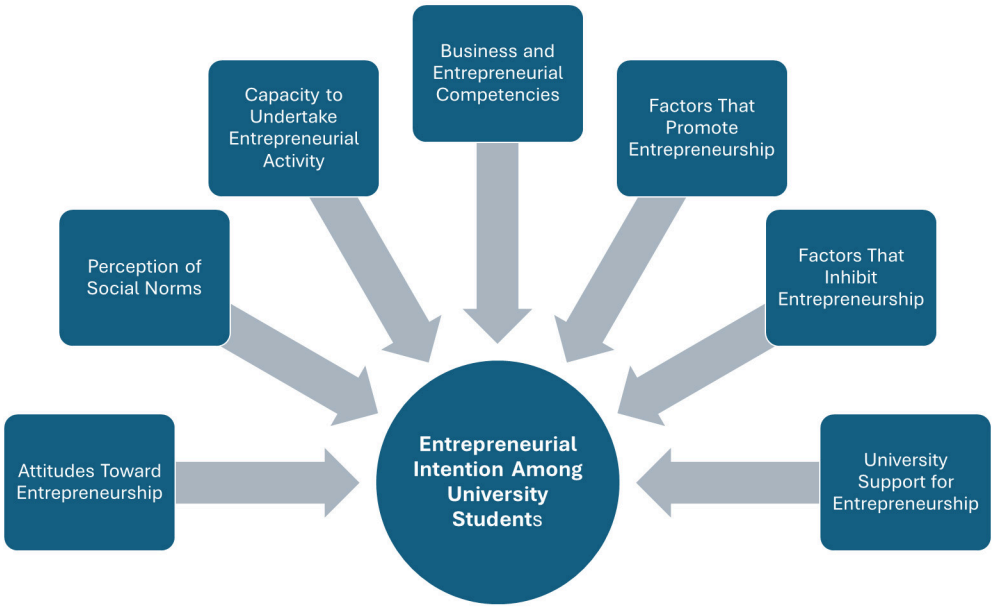
Moreover, it is widely recognized that "Research and knowledge are essential for innovation and entrepreneurship. The creation of innovative businesses based on university-generated knowledge is a valuable way to contribute to the desirable goals of economic growth and social cohesion" (Red Emprendía, 2015, p. 3).

In the realm of innovation, ideas developed within universities can give rise to startups or spin-offs. Startups are innovative ventures that, with the support of university services, evolve into high-growth companies. Spin-offs originate from scientific and/or technological developments that—when supported by university knowledge, infrastructure, and services—can be linked to productive sectors to create technology-based enterprises.

According to Eisenberg et al. (2019), several critical factors support collaboration between universities and industry, including organizational structure and personnel. The former fosters the creation of a framework for industry partnerships. Such relationships offer several advantages, including access to and collaboration with students and university staff who contribute talent to support emerging businesses. One example is the Triple and Quintuple Helix Models, in which universities, businesses, government, and other actors form a virtuous circle of support for industry and regional development. In these models, universities often participate through technology parks, contributing knowledge, research, and other resources.

Amponsah et al. (2025) argue that students' entrepreneurial behavior depends on the quality and effectiveness of the entrepreneurship education provided by universities. Their empirical study confirmed a significant positive relationship between university support for entrepreneurship, entrepreneurship training, and entrepreneurial intention—findings consistent with those of Leiva et al. (2021). However, Duong (2022) did not find a direct relationship between entrepreneurship training and entrepreneurial intention. Rather, when attitude toward entrepreneurship and perceived behavioral control were included as mediating variables, a correlation between entrepreneurship training and entrepreneurial intention did emerge. Similarly, Hoang et al. (2020) confirmed that entrepreneurship training positively affects entrepreneurial intention, with this relationship mediated by both learning orientation and self-efficacy. Moreover, they found that entrepreneurship training is significantly and positively related to entrepreneurial efficacy (Hoang et al., 2020).

Figure 1. Variables included in the measurement instrument



Source: Prepared by the authors based on the reviewed literature

Çera et al. (2021) also emphasize that human capital acquired through education is a key factor in fostering entrepreneurial spirit. Furthermore, the university environment can either encourage or discourage students

from pursuing entrepreneurship. In this respect, higher education institutions play an essential role in motivating students to choose an entrepreneurial career—a finding that was empirically validated by these authors.

Based on the literature review, the variables for this study were defined, as the primary objective of this research is to propose and validate a measurement instrument to assess entrepreneurial intention among university students (see Figure 1).

3. Method

3.1 Sample selection

The target population for this study consists of undergraduate students enrolled in the Faculty of Accounting and Business Administration (FCA) at the National Autonomous University of Mexico (UNAM). According to data from UNAM's General Directorate of Academic Affairs and Enrollment, the faculty had a total enrollment of 10,682 students in 2018. The distribution of these students is presented in Table 2.

Table 2. Student population of the FCA-UNAM

Program	Men	Women	Total	Proportion
Bachelor's Degree in Business Administration	2,133	2,473	4,606	43%
Bachelor's Degree in Accounting	3,109	2,501	5,610	53%
Bachelor's Degree in Computer Science	364	102	466	4%
Total	5,606	5,076	10,682	100%

Source: Compiled by the authors

The sample used in this study consisted of volunteer students who elected to participate in the research.

3.2 Questionnaire

Based on the literature review, a structured direct questionnaire was developed, consisting of seven variables and 140 items and questions, as summarized in Table 3. Response options included a 6-point Likert scale and yes/no choices for dichotomous questions. The full version of the questionnaire as administered to students is provided in Table A1.

Table 3. Variables, dimensions, and items

Variables	Dimensions	Items	Qn
Attitudes Toward Entrepreneurship	**Personal Attitude** Ajzen (1991); Laachach et al. (2024); Liñán et al. (2020); Shriha et al. (2025)	Entrepreneurial career Own business Goal achievement Self-fulfillment Entrepreneurial intention	1 2 3 4 5
	Subjective Norm Ajzen (1991); Liñán et al. (2020); Shriha et al. (2025)	Family evaluation Friends' evaluation Colleagues' evaluation	6 7 8
	Perceived Control Ajzen (1991); Duong (2022); Liñán et al. (2020); Shriha et al. (2025)	Ease of starting a business Uncertainty about entrepreneurship Confidence in success Difficulty of the business idea Knowledge to start a business Control over the business process	9 10 11 12 13 14
	Knowledge of the Business Environment Calanchez Urribarri et al. (2023); Karyaningsih et al. (2020); Liao et al. (2022); Liñán et al. (2020); Shriha et al. (2025)	Private associations Public support organizations Business incubators Preferential financing Support for start-ups Business centers	15.1 15.2 15.3 15.4 15.5 15.6
Perception of Social Norms	**Social Evaluation** Abaddi (2024); Calanchez Urribarri et al. (2023); Laachach et al. (2024); Liñán et al. (2020)	Culture Value for the economy Societal perception Business risk Entrepreneurial image Self-employment	16 17 18 19 20 21
	Close Social Evaluation Abaddi (2024); Calanchez Urribarri et al. (2023); Laachach et al. (2024); Liñán et al. (2020)	Friends' approval Family approval Colleagues' approval	22 23 24
Entrepreneurial Capacity	**Business Skills** Al-Tekreeti et al. (2024); Calanchez Urribarri et al. (2023); Jiatong et al. (2021); Liñán et al. (2020); Murad et al. (2021); Nogaibayeva et al.	Business opportunities Creativity Problem-solving Leadership	25.1 25.2 25.3 25.4

Table 3. Variables, dimensions, and items

Variables	Dimensions	Items	Qn
	(2024); Shriha et al. (2025); Sodha et al. (2024)	Communication	25.5
		New products or services	25.6
		Social networks	25.7
		Professional contacts	25.8
	Professional Attractiveness Al-Mamary et al. (2020); Duong (2022); Liñán et al. (2020); Liñán & Chen (2009)	Advantages of being an entrepreneur	26
		Attractiveness as a career	27
		Availability of resources	28
		Satisfaction from entrepreneurship	29
		Choosing entrepreneurship	30
		Professional option (salaried job, self-employment, entrepreneurship)	31.1, 31.2, 31.3
	Entrepreneurial Intention Al-Tekreeti et al. (2024); Duong (2022); Liñán et al. (2020); Liñán & Chen (2009)	Serious intention to start a business	32
		Prepared to start a business	33
		Willing to start at any time	34
		Effort dedicated to entrepreneurship	35
		Personal goal	36
		Starting a business in the future	37
		Seriously thinking about starting a business	38
	Risk-Taking Barrera González et al. (2024); Calanchez Urribarri et al. (2023); Laachach et al. (2024); Liñán et al. (2020); Liñán & Chen (2009); Shriha et al. (2025)	Ability to find solutions	39
		Financial risk	40
		Doubts about the business idea	41
		Entrepreneurial assessment	42
		Fear of failure	43
		Inability to solve problems	44
	Experience Bird (1988); Guerrero et al. (2016); Neira et al. (2013)	Own business	45
		Family business	46
		Working with entrepreneurs	47
		Business experience	48
	Mathematical and Verbal Skills Guerrero et al. (2016); Varela (2014)	Speaking and writing in native language	49
		Clear expression of ideas	50
		Difficulty with mathematics	51
		Enjoyment of mathematics	52
		Mathematical ability	53
		Reading comprehension	54
		Vocabulary richness	55
		Comprehension of complex texts	56
		Reading aloud fluently	57
Business and Entrepreneurial Competencies	**Skills and Abilities** Ahumada Méndez (2014); Alanya Reque (2012); Arruda et al. (2023); Calanchez Urribarri et al. (2023); Delors (1996); Gámez (1998); Gartner (1990); Guerrero et al. (2016); Hofstede (2011); Mauri Estevez (2013); Nogaibayeva et al. (2024); Piperopoulos (2012); C. Rodríguez & Jiménez (2005); E. Rodríguez & Serralde (1991); Schumpeter (1939); Sodha et al. (2024); Timmons (1990); Varela (2001); Varela & Bedoya Arturo (2006)	Use of resources	58
		Putting ideas into practice	59
		Curiosity and innovation	60
		Leadership ability	61
		Professional advisor	62
		Seeking professional support	63
		Social well-being	64
		Foresight ability	65
		Communication ease	66
		Autonomy	67
	Attitudes Ahumada Méndez (2014); Alanya Reque (2012); Arruda et al. (2023); Bandura (1994); Castaño (1983); De Noble et al. (1999); Delors (1996); GEM (2014); Laachach et al. (2024); Varela & Bedoya Arturo (2006)	Perseverance	68
		Avoiding procrastination	69
		Willingness to embrace change	70
		Problem-solving ability	71
		Opportunity recognition	72
		Considering staff members	73
	Knowledge Arruda et al. (2023); Echeverría Samanes & Martínez Clares (2018); Gómez (2014); Mavila Hinojoza et al. (2009); Sansone et al. (2024); Sodha et al. (2024); Varela & Bedoya Arturo (2006)	Finance and economics	74
		Market conditions	75
		Strengths and weaknesses	76
		Threats and opportunities	77
		Business plan	78
		Economic sectors	79
		Basic business functions	80
		Business regulations	81
		New technologies	82
Factors Promoting Entrepreneurship	**Financing** Arango Vásquez & Durango Gutiérrez (2014); IMCO (2014); Irwin & Scott (2010)	Own capital	83
		Venture Capital	84
		Angel investors	85
		Private equity	86
		Microcredits	87
		Banking requirements	88
		Difficulty accessing banking	89
	Entrepreneurial Culture Garza (2013); GEM (2015, 2020); Calanchez Urribarri et al. (2023); González Sánchez et al. (2017); Mykolenko et al. (2022); Neira et al. (2013); Sánchez et al. (2017)	Entrepreneurial family members	90
		Successful entrepreneurs	91
		Positive image of entrepreneurs	92
		Promotion of entrepreneurial spirit	93
		Entrepreneurial contests	94
		Basic education (subjects, activities, knowledge, skills)	95.1, 95.2,

Table 3. Variables, dimensions, and items

Variables	Dimensions	Items	Qn
			95.3, 95.4
	Human Capital Arteaga & Lasio (2005); Balakrishnan & Vijayalakshmi (2014); Calanchez Urribarri et al. (2023); Camarena & Saavedra (2016)	Career plan Motivation since childhood Postgraduate studies Entrepreneurship courses Appropriate role models	96 97 98 99 100
	Market Castillo (2018); Guiltinan et al. (1998); Henao & Córdoba (2007); Johannisson & Mønsted (1997); Nguyen & Phan (2024); Sodha et al. (2024)	Product adoption Feedback from new customers Distribution channels Customers on social networks Business chambers Business associations	101 102 103 104 105 106
	Legal and Political Framework Huntington (1968); IMCO (2014); Leff (1964); Nguyen & Phan (2024); Secretaría de Economía (2012a)	Procedures Corruption Time Costs Taxes Violence	107.1 107.2 107.3 107.4 107.5 107.6
	Entrepreneurial Support Services Arthur & Kram (1985); IMCO (2014); Nguyen & Phan (2024); Secretaría de Economía (2012a, 2012b)	Accelerators Incubators Mentoring programs Current government programs	108 109 110 111
Factors Inhibiting Entrepreneurship	**Macroeconomic Conditions** Aguirre-González (2020); Çera et al. (2021); IMCO (2014); Leiva et al. (2021); Nguyen & Phan (2024); Vizueta Tomalá (2020)	Unemployment Networking Female entrepreneurship	112 113 114
University Support for Entrepreneurship	**Entrepreneurial Culture** Amponsah et al. (2025); Asai et al. (2015); Çera et al. (2021); Fundación Universidad Empresa (2012); Hernández & Arano (2015); Isenberg (2014); Red Emprendía (2015); Sieger et al. (2019); Varela (2014)	Entrepreneurship promotion Entrepreneurial university Fairs and contests Conferences	115 116 117 118
	Entrepreneurial Support Services Amponsah et al. (2025); ANFECA (2021); Asai et al. (2015); Çera et al. (2021); Eisenberg et al. (2019); InnovaUNAM (2021); Isenberg (2014)	Entrepreneurial services Protection of ideas and products Business accelerators Business incubators Innovation laboratories Patent development and registration Technology parks Guidance on financial support Mentoring programs Technology transfer	119 120 121 122 123 124 125 126 127 128
	Entrepreneurship Training Akinleke (2024); Amponsah et al. (2025); Arruda et al. (2023); Asai et al. (2015); Barrera González et al. (2024); Calanchez Urribarri et al. (2023); CENAPyME (2021); Çera et al. (2021); Contreras-Velásquez et al. (2017); Hernández & Arano (2015); Hoang et al. (2020); Leiva et al. (2021); Mykolenko et al. (2022); Nogaibayeva et al. (2024); Paz et al. (2014); Porkodi et al. (2023); Sodha et al. (2024); Varela (2014)	Business plan Entrepreneurial skills Creativity and innovation Marketing knowledge Financial planning Entrepreneurship workshops Innovative and entrepreneurial faculty Faculty motivation for entrepreneurship	129 130 131 132 133 134 135 136
	Teaching Techniques / Tools CENAPyME (2021); Hernández & Arano (2015); InnovaUNAM (2021); NOBIU (2020); Sánchez & Hernández (2017); Varela (2014)	Methodologies: case studies, project-based learning, problem-solving Business models Business simulators Entrepreneurial tools: CANVAS, Lean Startup, Kanban boards, Design Thinking, Naming & Branding, Elevator Pitch, Prototyping	137.1, 137.2, 137.3 138 139 140.1, 140.2, 140.3, 140.4, 140.5, 140.6, 140.7

Source: Compiled by the authors

A pilot test was conducted with a sample of 30 students who completed the questionnaire in a self-administered format. This process allowed for adjustments to several questions to clarify their content and for modifications to some response options to improve their accuracy.

3.3 Data collection

Given the conditions under which this study was conducted (the COVID-19 pandemic), the questionnaire was created using Google Forms, a free survey administration platform provided by Google. The questionnaire was distributed to students via a link, with the support of program coordinators and faculty members from the Faculty of Accounting and Business Administration who agreed to assist with the research. As such, the questionnaire was self-administered and conducted in June 2021.

To mitigate potential bias associated with collecting data via Google Forms, faculty members were first asked to explain to students the purpose of the questionnaire and the potential benefits they could derive from the study's results. Additionally, a 5% margin of error was established, recognizing that the inability to administer the questionnaire in person—due to pandemic restrictions—constituted a limitation of the study. However, this was the only feasible method available under the circumstances.

As a result of the data collection process, 1,141 completed questionnaires were obtained. The distribution of responses by academic program and semester is presented in Table 4. As shown, the distribution of the collected data is proportionally consistent with the population described in Table 2.

Table 4. Questionnaires collected

Program	Business Administration			Accounting				Computer Science	Total
Semester	2nd	4th	8th	2nd	4th	6th	8th	All	
Cases	163	278	153	58	128	178	133	50	1,141
Total per program	594			497				50	1,141
Percentage of total	52.06%			43.56%				4.38%	100%

Source: Compiled by the authors
Note: These data correspond to those published by Briseño-Aguirre et al. (2024), as they are derived from the same research project

4. Results

Analysis of demographic variables

The demographic variables considered in this analysis included age, gender, marital status, and work experience. These are presented in Table 5. As shown, the average age of the sample ranged from 19 to 21 years. Female students predominated across most programs, with the exception of the Computer Science program, where male students were the majority. In terms of marital status, a high percentage of students were single, with 100% of students in both the Computer Science and International Business programs reporting that they were single. Regarding work experience, only about one-third of the students reported having prior work experience.

Table 5. Demographic variables

Program	Average Age (years)	Gender (%)		Marital Status (%)				Work Experience (%)	
		F	M	S	M	UL	D	Yes	No
Business Administration	20.4	62.0	38.0	97.0	1.27	1.58	0.16	38	62
Accounting	21.0	52.0	48.0	98.0	0.60	1.60	0.20	32	68
Computer Science	19.9	18.0	82.0	100	0	0	0	32	68
International Business	19.0	55.0	45.0	100	0	0	0	27	73

Note: Marital Status — S: Single; M: Married; UL: Common-law union; D: Divorced

When examining the relationship between entrepreneurial intention and the age of the students in the sample, the results indicated no significant relationship. In this case, the findings contrast with those of Liao et al. (2022), who found that older students were more likely to start a business than younger ones.

When correlating entrepreneurial intention with students' gender, no significant relationship was found. This result is consistent with the findings of Laachach et al. (2024), who reported no differences between men and women in their entreprenurial intentions. However, it contrasts with the findings of Akinleke (2024), Liao et al. (2022) and Mykolenko et al. (2022), who found that a higher proportion of male students were willing to start their own businesses upon completing their university studies.

In contrast, a significant relationship was observed between prior work experience and entrepreneurial intention. The results suggest that greater work experience is associated with higher entrepreneurial

intention. This finding aligns with the results of Mykolenko et al. (2022), who reported that students with prior work experience in the business field demonstrated a stronger entrepreneurial orientation than those without relevant experience.

Reliability analysis

To assess the reliability of the questionnaire, Cronbach's alpha coefficient was calculated using SPSS PC version 20 for Windows. The overall result was 0.868, which is close to 1, indicating a high level of reliability. Table 7 presents the Cronbach's alpha values for each variable included in the data collection instrument, all of which exceed 0.80, further confirming the instrument's high reliability.

Factor analysis

Before conducting the factor analysis, the Kaiser-Meyer-Olkin (KMO) measure and Bartlett's test of sphericity were computed to determine whether the dataset was suitable for factor analysis. A KMO value closer to 1 indicates a good instrument; according to George and Mallery (2019), a value of 0.70 or higher is considered acceptable. Similarly, if the significance level of Bartlett's test of sphericity is below 0.05, factor analysis is considered appropriate. As shown in Table 6, the results confirm that the data meet the necessary conditions for conducting factor analysis.

Table 6. KMO and Bartlett's Test of Sphericity

Test	Result
Kaiser-Meyer-Olkin measure of sampling adequacy	.904
Bartlett's test of sphericity	
Approximate chi-square	12214.83
df	253
Sig.	.000

Principal component analysis

To proceed with the factor analysis, the optimal number of factors was extracted using a communalities table, which identifies the underlying variables that explain the construct of entrepreneurial intention. The communality of a variable represents the proportion of its variance explained by the factor model. By examining the extracted communalities, it is possible to assess which variables are least explained by the model. In this case, 23 out of 26 variables reached values above 0.40 (see Table 7). A factor loading of 0.40 was used as the validity threshold, following the guidelines of Stevens (2016), who recommends that for a sample size of 50, a loading of 0.722 is considered significant; for 100, the loading should exceed 0.512; for 200, greater than 0.364; for 300, greater than 0.298; for 600, greater than 0.210; and for 1,000, greater than 0.162.

The amount of variance in a variable explained by a factor can be obtained by squaring the factor loading. Accordingly, Stevens (2016) recommends interpreting only those factor loadings with an absolute value greater than 0.40, as these explain approximately 16% of the variable's variance. Items with factor loadings below 0.40 were eliminated from the analysis; these are listed in Table A2.

Table 7. Communalities

Variables	Initial	Extraction	Cronbach's Alpha
AHE Personal Attitude	1.000	0.671	0.880
AHE Subjective Norm	1.000	0.846	0.871
AHE Perceived Control	1.000	0.588	0.859
AHE Knowledge of the Business Environment	1.000	0.657	0.863
PNS Close Social Evaluation	1.000	0.455	0.867
CaDeEm Business Skills	1.000	0.662	0.858
CaDeEm Professional Attractiveness	1.000	0.789	0.861
CaDeEm Entrepreneurial Intention	1.000	0.787	0.860
CaDeEm Risk-Taking	1.000	0.635	0.873
CaDeEm Mathematical and Verbal Skills	1.000	0.558	0.862
CoEm Skills and Abilities	1.000	0.759	0.859
CoEm Attitudes	1.000	0.623	0.860
CoEm Knowledge	1.000	0.698	0.856

Table 7. Communalities

Variables	Initial	Extraction	Cronbach's Alpha
FImpulsan Financing	1.000	0.687	0.859
FImpulsan Entrepreneurial Culture	1.000	0.646	0.856
FImpulsan Human Capital	1.000	0.627	0.858
FImpulsan Market	1.000	0.653	0.856
FImpulsan Legal and Political Framework	1.000	0.599	0.873
FImpulsan Entrepreneurial Support Services	1.000	0.633	0.859
FInhiben Macroeconomic Conditions	1.000	0.426	0.861
IEPU Entrepreneurial Culture at the University	1.000	0.760	0.863
IEPU Business Knowledge / Entrepreneurship Training	1.000	0.742	0.859
IEPU Teaching Techniques / Tools	1.000	0.628	0.861

Note: Extraction method: Principal Component Analysis

Convergent and discriminant validity testing

A detailed analysis of convergent and discriminant validity was conducted by calculating the average variance extracted (AVE) for each factor. The results confirmed that the AVE value for each factor was ≥ 0.50, in accordance with the Fornell-Larcker criterion. Table A3 shows that the square root of the AVE for each factor is greater than the correlations between factors.

Total variance explained

The total variance explained was also calculated. The results indicate that six factors account for 65.78% of the total data variance, as shown in Table 8. Specifically, Factor 1 explains 31.99% of the variance; Factor 2, 10.17%; Factor 3, 7.70%; Factor 4, 6.19%; Factor 5, 5.33%; and Factor 6, 4.37%.

Table 8. Total variance explained

Component	Initial Eigenvalues			Sum of Squared Loadings (Extraction)		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	7.359	31.996	31.996	7.359	31.996	31.996
2	2.341	10.177	42.172	2.341	10.177	42.172
3	1.773	7.707	49.879	1.773	7.707	49.879
4	1.424	6.193	56.072	1.424	6.193	56.072
5	1.227	5.336	61.408	1.227	5.336	61.408
6	1.006	4.375	65.783	1.006	4.375	65.783
7	0.760	3.305	69.088			
8	0.734	3.193	72.281			
9	0.680	2.958	75.239			
10	0.646	2.809	78.048			
11	0.568	2.470	80.518			
12	0.531	2.307	82.825			
13	0.501	2.180	85.005			
14	0.478	2.078	87.083			
15	0.441	1.919	89.002			
16	0.409	1.778	90.780			
17	0.362	1.576	92.356			
18	0.354	1.540	93.895			
19	0.347	1.508	95.404			
20	0.314	1.366	96.770			
21	0.277	1.204	97.974			
22	0.252	1.094	99.068			
23	0.214	0.932	100.000			

By obtaining the rotated matrix of this analysis using the Varimax method (Table 9), the composition of the six factors is revealed, along with the variables that comprise each factor and are found to be significant.

It is important to note that the instrument initially consisted of 170 questions, based on the literature review and further enriched through contributions from experts at the National Center for Small Business Support, FCA, UNAM, who have extensive experience working with university students and entrepreneurs. An exploratory factor analysis was conducted, resulting in 23 variables consistent with the proposed framework and corresponding to the identified thematic areas. These variables were then subjected to a second factor analysis to examine the underlying grouping of variables within the identified factors, as presented in Table10.

Table 9. Rotated component matrix[a]

Variables	Component					
	1	2	3	4	5	6
CaDeEm Business Skills	0.677					
CaDeEm Mathematical and Verbal Skills	0.723					
CoEm Skills and Abilities	0.807					
CoEm Attitudes	0.718					
CoEm Knowledge	0.644					
FImpulsan Market	0.531					
AHE Knowledge of the Business Environment		0.779				
FImpulsan Financing		0.773				
FImpulsan Entrepreneurial Support Services		0.738				
IEPU Teaching Techniques / Tools for Entrepreneurship		0.689				
AHE Personal Attitude			-0.699			
CaDeEm Professional Attractiveness			0.819			
CaDeEm Entrepreneurial Intention			0.793			
FImpulsan Entrepreneurial Culture			0.515			
FImpulsan Human Capital				0.632		
IEPU Entrepreneurial Culture at the University				0.857		
IEPU Business Knowledge / Entrepreneurship Training				0.806		
AHE Subjective Norm					0.908	
AHE Perceived Control					0.562	
PNS Close Social Evaluation					0.627	
CaDeEm Risk-Taking						0.759
FImpulsan Legal and Political Framework						0.767
FInhiben Macroeconomic Conditions						0.404

Note: Extraction method: Principal Component Analysis
Rotation method: Varimax with Kaiser Normalization
(a) Rotation converged in 6 iterations

Based on the results obtained, it was deemed necessary to regroup the factors that describe the entrepreneurial intention of university students, including only those items with loadings equal to or greater than 0.40, in order to develop a clearer profile of entrepreneurial characteristics. The results, presented in Table 10, provide a characterization of the entrepreneurial intention of the university students in the sample.

The first factor, labeled *Entrepreneurial Capacity and Business Skills,* highlights the importance of possessing business, mathematical, and verbal skills; goal-oriented attitudes; entrepreneurial knowledge; and an understanding of market opportunities for offering goods or services resulting from entrepreneurial activity.

The second factor, *Entrepreneurial Drive,* underscores the critical role of knowledge about the business environment and access to financing in fostering entrepreneurial intention among students. In addition, it highlights the important contribution of university-provided entrepreneurial support services and tools in encouraging entrepreneurship.

The third factor, labeled *Entrepreneurial Vocation,* reveals that a negative personal attitude toward entrepreneurship does not foster entrepreneurial intention. However, when entrepreneurship is perceived as an attractive professional path—one that appeals to nearly all students, who often prefer self-employment over working for others (Al-Mamary et al., 2020)—entrepreneurial intention is strengthened. Furthermore, being immersed in a culture of entrepreneurship can positively reinforce students' entrepreneurial intention.

The fourth factor, *Resources for Entrepreneurship,* identifies the importance of having well-prepared human capital—both in terms of the entrepreneur's own capabilities and the ability to collaborate effectively with others. The role of the university is also crucial in fostering an entrepreneurial culture and providing entrepreneurship training to university students.

The fifth factor, *Attitudes Toward Entrepreneurship,* emphasizes the influence of close social evaluation (from family, colleagues, and friends), which reinforces entrepreneurial intention through subjective norms (the attitudes of family, friends, and colleagues toward entrepreneurship) and perceived behavioral control (students' perception of their ability to successfully launch a business). These factors play an important role in motivating students to pursue entrepreneurship.

The sixth factor, *Ability to Navigate the Environment,* identifies the influence of three key variables: risk-taking (tolerance for failure), the legal and political framework, and macroeconomic conditions. These aspects significantly affect the entrepreneurial intention of university students.

Table 10. Factors promoting entrepreneurial intention among university students

Entrepreneurial Capacity and Business Knowledge	Entrepreneurial Drive	Entrepreneurial Vocation	Resources for Entrepreneurship	Attitudes Toward Entrepreneurship	Ability to Navigate the Environment
Business skills	Knowledge of the business environment	Personal attitude (-)	Human capital	Subjective norm	Risk-taking
Mathematical and verbal skills	Financing	Professional attractiveness	Entrepreneurial culture at the university	Perceived control	Legal and political framework
Skills and abilities	Entrepreneurial support services	Entrepreneurial intention	Entrepreneurship training at the university	Close social evaluation	Macroeconomic conditions
Attitudes	Tools for entrepreneurship	Entrepreneurial culture			
Knowledge					
Market					

5. Discussion of results

The analysis identified six main factors that drive entrepreneurial intention among university students. The first factor—*entrepreneurial capacity and business knowledge,* particularly market knowledge—was found to promote entrepreneurial behavior. Previous literature and empirical studies support this finding (Ahumada Méndez, 2014; Akinleke, 2024; Alanya Reque, 2012; Amponsah et al., 2025; Barrera González et al., 2024; Calanchez Urribarri et al., 2023; Echeverría Samanes & Martínez Clares, 2018; Entrialgo & Iglesias, 2016; GEM, 2014; Guerrero et al., 2016; Hoang et al., 2020; Hofstede, 2011; Jiatong et al., 2021; Karyaningsih et al., 2020; Liao et al., 2022; Liñán et al., 2020; Mauri Estevez, 2013; Nogaibayeva et al., 2024; Piperopoulos, 2012; Potishuk & Kratzer, 2017; Sodha et al., 2024). This finding suggests that entrepreneurship education can foster students' entrepreneurial intention, potentially encouraging them to start businesses after graduation.

However, some authors report contrasting results, with no observed relationship between entrepreneurial knowledge and entrepreneurial intention (Duong, 2022; Laachach et al., 2024; Mykolenko et al., 2022). Likewise, Arruda et al. (2023) and Leiva et al. (2021) found a negative relationship between entrepreneurship courses and entrepreneurial intention. In their studies, learning tools such as the Business Model Canvas helped students better understand the complexities and uncontrollable factors that could hinder their success as entrepreneurs—leading some students to adopt a more cautious or less enthusiastic view of entrepreneurship.

Regarding the factor labeled *entrepreneurial drive,* the findings are consistent with the literature, which highlights that knowledge of the business environment (Liñán et al., 2020), access to financing (Arango Vásquez & Durango Gutiérrez, 2014; IMCO, 2014), and the availability of entrepreneurial support services and tools (Amponsah et al., 2025; ANFECA, 2021; Briseño-Aguirre et al., 2024; Calanchez Urribarri et al., 2023; CENAPyME, 2021; Çera et al., 2021; InnovaUNAM, 2021; NOBIU, 2020) are all fundamental in enabling young people to launch entrepreneurial ventures.

Çera et al. (2021) argue that from an educational perspective, higher education institutions should identify and cultivate students' entrepreneurial traits and enhance their entrepreneurial competencies. In this way, universities can promote students' entrepreneurial intention. The influence of universities on students' intentions is also linked to a supportive campus environment, which provides various mechanisms to foster entrepreneurship—such as technology transfer and business incubation. In general, these support mechanisms contribute to a favorable entrepreneurial ecosystem and motivate students to develop business ideas that may lead to successful ventures.

However, these findings contrast with those of Nguyen and Phan (2024), who reported no significant relationship between perceived entrepreneurial support and entrepreneurial intention. This suggests that environmental support alone may not be sufficient to foster entrepreneurship; other factors must also be addressed to stimulate entrepreneurial activity.

The analysis of *entrepreneurial vocation* revealed negative values—indicating that a negative personal attitude toward entrepreneurship diminishes entrepreneurial intention. However, the literature shows that when students hold positive attitudes toward entrepreneurship (Ahumada Méndez, 2014; Alanya Reque, 2012; GEM, 2014), they are more likely to view it as a viable career option (Jiatong et al., 2021; Liñán et al., 2020; Liñán & Chen, 2009), which in turn fosters entrepreneurial intention. Further research is needed to better understand

why the university students in this study exhibited low entrepreneurial vocation and to identify interventions that could reverse this outcome.

At universities, students not only acquire the theoretical and practical business knowledge needed to undertake entrepreneurial activity under the best possible conditions and increase their likelihood of success, but they can also discover their *entrepreneurial vocation.* Universities can provide the necessary resources for entrepreneurship—beginning with human capital (Balakrishnan & Vijayalakshmi, 2014;Camarena & Saavedra, 2016), by fostering an entrepreneurial culture within the university context (Çera et al., 2021; GEM, 2020; González Sánchez et al., 2017), and by offering the training required to pursue this activity (Akinleke, 2024; CENAPyME, 2021; Contreras-Velásquez et al., 2017). This is consistent with Porkodi et al. (2023), who found that higher education institutions play an important role in promoting entrepreneurship by fostering passion and innovation. Similarly, Leiva et al. (2021) found that the university context influences entrepreneurial intention, and Murad et al. (2021) confirmed that university support for entrepreneurship strengthens entrepreneurial intention. In addition, there is a growing need to provide students with digital skills, as Sansone et al. (2024) found a positive correlation between these skills and entrepreneurial intention among university students.

In addition to students' own attitudes toward entrepreneurship, subjective norms—namely, the opinions of family, friends, and colleagues—play a vital role, as does perceived behavioral control, which reflects whether students believe they are capable of succeeding in entrepreneurial activity (Ajzen, 1991; Liñán et al., 2020). Another key factor is *close social evaluation,* which relates to the cultural context of the region or environment regarding entrepreneurship and entrepreneurs (Liñán et al., 2020). University students who receive consistent support from family, colleagues, and other significant people are more likely to start a business. This is especially relevant in Mexican culture, where young people often depend on their immediate social environment and value family approval highly when making professional decisions.

All of these factors help equip students with the foundations to foster entrepreneurship and develop the ability to navigate their environment. This enables them to take risks (Al-Mamary et al., 2020; Calanchez Urribarri et al., 2023; Laachach et al., 2024; Liñán et al., 2020; Liñán & Chen, 2009), manage the legal and political framework (IMCO, 2014; Secretaría de Economía, 2012a), and respond to macroeconomic conditions (Çera et al., 2021; IMCO, 2014; Vizueta Tomalá, 2020), allowing them to make informed decisions that leverage market, technological, legal, and economic conditions in favor of their entrepreneurial ventures.

However, regarding the influence of subjective norms on entrepreneurship, these findings contrast with those of Al-Mamary et al. (2020), Amponsah et al. (2025) and Duong (2022), who found that subjective norms did not influence entrepreneurial intention among university students. In contrast, with respect to perceived behavioral control, Duong (2022) did find a positive relationship between this variable and students' entrepreneurial intention—suggesting that students with high perceived behavioral control have a positive sense of their capacity to manage unexpected challenges that may arise when launching their entrepreneurial ventures.

6. Conclusions

Academic implications

The objective of this study—to propose and validate a measurement instrument to assess entrepreneurial intention among university students—was successfully achieved. The instrument was administered to a sample of 1,141 students, yielding a reliability level of 0.955. In addition, factor analysis allowed for the calculation of the total variance explained, with six factors accounting for 65.78% of entrepreneurial intention. The rotated matrix obtained through the Varimax method revealed the composition of six significant factors: *entrepreneurial capacity and business knowledge,entrepreneurial drive,entrepreneurial vocation,resources for entrepreneurship,attitudes toward entrepreneurship,* and *ability to navigate the environment.* These factors exert the greatest influence on shaping entrepreneurial intention among young people in the Mexican context and make an important contribution to the literature on the factors that foster entrepreneurial intention among university students.

Practical implications

The results underscore the need to promote entrepreneurship within university classrooms by equipping students with the capacities, knowledge, and skills needed to engage in entrepreneurial activity. This can be achieved by teaching them about the business environment, methods of obtaining financing, and the provision of entrepreneurial support services through business incubators and practical tools. In short, it is necessary to foster an entrepreneurial culture throughout the university experience and to promote entrepreneurship as a professional path. This includes providing training and guidance on legal frameworks, macroeconomic and market conditions that either enable or constrain entrepreneurship, and business model development, among other aspects.

It is also critically important to design differentiated public policies to promote entrepreneurship among young people, thereby helping to reduce unemployment in this segment of the population. Such policies should include government contributions of seed capital to support new ventures, as well as reinforcement of the entrepreneurial ecosystem to foster an entrepreneurial culture and provide logistical, technical, and financial support for new entrepreneurs, starting at the university level. Greater collaboration between universities and the business sector is also needed so that students can undertake internships in companies and acquire valuable practical knowledge.

Study limitations

It is important to acknowledge several limitations of this study. Methodologically, the data collection was not based on a probabilistic sample, which limits the generalizability of the findings. In addition, the study focused on only one higher education institution. Another limitation stems from the use of a self-administered Google Forms questionnaire, which may have introduced bias—particularly regarding respondents' comprehension of certain questions, which could have been clarified in a face-to-face setting.

Contextual limitations include the difficulty of accounting for the effects of labor, economic, and family uncertainty, which may have influenced students' propensity toward entrepreneurial activity during the pandemic period. This is consistent with the findings of Laachach et al. (2024), who reported a significant negative effect of the COVID-19 pandemic on the entrepreneurial intentions of tourism students in Morocco.

Future research directions

Future research should focus on how universities can actively cultivate an entrepreneurial culture—moving from dissemination to action—by creating true incubators of university entrepreneurs who can enter the business world equipped with the necessary tools to build successful ventures. Future studies should also aim to include a greater number of higher education institutions and employ random sampling techniques. In addition, longitudinal studies should be prioritized to deepen understanding of how entrepreneurial intention develops over time.

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Data Availability Statement

Due to privacy or ethical restrictions, the research data for this study are not available for sharing

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Appendix

Table A1. Questionnaire: Entrepreneurial intention among university students

Questionnaire: Entrepreneurial intention among university students		
We kindly request your valuable support in completing this questionnaire, which aims to assess the entrepreneurial intention of university students. The goal of this study is to propose actions that will help equip students with the business competencies needed to pursue entrepreneurial activity.		
General information		
	Gender: Female; Male; Other	
	Age (completed years):	
	Marital status: Single; Common-law union; Married; Divorced; Widowed	
	Do you have children? Yes; No	
	How many children do you have? 1; 2; 3 or more	
	What is (or was) your mother's occupation? Homemaker; Employee; Own business	
	What is (or was) your father's occupation? Homemaker; Employee; Own business	
	What is (or was) your mother's highest level of education? No formal education; Primary; Secondary; Technical degree; High school; Bachelor's degree; Graduate degree (Master's or Doctorate)	
	What is (or was) your father's highest level of education? No formal education; Primary; Secondary; Technical degree; High school; Bachelor's degree; Graduate degree (Master's or Doctorate)	
	What degree program are you studying? Business Administration; Accounting; Computer Science; International Business	
	What semester are you currently in? 1st; 2nd; 3rd; 4th; 5th; 6th; 7th; 8th	
Work experience		
	Do you have work experience? Yes; No	
	The company where you work(ed) is… Public; Private	
	Is (was) the company where you work(ed) a family-owned business? Yes; No	
	What positions have you held, and for how long? I have not held this position; 6 months or less; 7 to 12 months; 13 to 18 months; 19 to 24 months; 25 months or more	
	Operational positions	
	Middle management positions	
	Executive positions	
	What sector does (did) the company where you work(ed) belong to? Industry; Commerce; Services	
	The company where you work(ed) is… Formal; Informal	
Attitudes toward entrepreneurship. Rate from 1 to 6 where: 1 = Strongly disagree 6 = Strongly agree		
No.	Question	Rating
1	A career as an entrepreneur does not attract me at all.	
2	I believe I would be incapable of starting my own business.	
3	Achieving the goals I set for myself is important to me.	
4	I would only become an entrepreneur if it provided personal fulfillment.	
5	I have very little intention of starting a business.	
6	My family values entrepreneurial activity more than other careers.	
7	My friends value entrepreneurial activity more than other careers.	
8	My colleagues value entrepreneurial activity more than other careers.	
9	Starting a sustainable business would be easy for me.	
10	I have serious doubts about starting my own business.	
11	If I tried to start a business, I would have a good chance of success.	
12	It would be very difficult to develop a business idea.	
13	I know everything needed to start a business.	
14	I can manage the process of creating a new business.	
15. Please indicate your level of knowledge about the following business associations, support programs, and other sources of assistance for entrepreneurs. Rate from 1 to 6 where: 1 = I do not know them 6 = I know them in depth		
No.	Question	Rating
15.1	Private associations (chambers of commerce, business associations, etc.)	
15.2	Public support organizations (INADEM, FONDESO, etc.)	
15.3	Business incubators	
15.4	Entrepreneur-friendly financing options	
15.5	Technical support for start-ups	
15.6	Business centers	
Perception of social norms. Rate from 1 to 6 where: 1 = Strongly disagree 6 = Strongly agree		
No.	Question	Rating
16	The culture in my country is very supportive of entrepreneurship.	
17	The entrepreneurial role is not highly valued in my country's economy.	
18	Most people in my country consider it unacceptable to be an entrepreneur.	
19	In my country, entrepreneurship is considered valuable despite its risks.	
20	In my country, entrepreneurs are seen as taking advantage of others.	
21	If I could not find a job that met my expectations, I would consider becoming an entrepreneur.	
22	My friends would approve of me starting a business.	
23	My immediate family would approve of me starting a business.	
24	My colleagues would approve of me starting a business.	
Entrepreneurial capacity		

Table A1. Questionnaire: Entrepreneurial intention among university students

Questionnaire: Entrepreneurial intention among university students		
25. How would you rate yourself in the following business skills? Rate from 1 to 6 where: 1 = Not at all skilled 6 = Very skilled		
No.	Question	Rating
25.1	Recognizing business opportunities	
25.2	Creativity	
25.3	Problem-solving	
25.4	Leadership skills	
25.5	Communication skills	
25.6	Developing new products and/or services	
25.7	Managing social media	
25.8	Building professional networks	
Rate from 1 to 6 where: 1 = Strongly disagree 6 = Strongly agree		
No.	Question	Rating
26	Being an entrepreneur offers more advantages than disadvantages.	
27	A career as an entrepreneur seems attractive to me.	
28	If I had the resources and the opportunity, I would love to start a business.	
29	Being an entrepreneur would be very satisfying.	
30	Among different options, being an entrepreneur is what I would most like to do.	
31. In the medium and long term, considering all advantages and disadvantages (economic, personal, social recognition, job stability, etc.), please indicate your level of attraction to each professional option. Rate from 1 to 6 where: 1 = Minimum attraction 6 = Maximum attraction		
No.	Question	Rating
31.1	Salaried employment	
31.2	Self-employment	
31.3	Entrepreneurship	
32	Have you ever seriously considered becoming an entrepreneur? Yes, No	
Rate from 1 to 6 where: 1 = Strongly disagree 6 = Strongly agree		
No.	Question	Rating
33	I am ready to do whatever it takes to become an entrepreneur.	
34	I intend to start a business at some point.	
35	I will make every effort to start and maintain my business.	
36	My personal goal is to become an entrepreneur.	
37	I am determined to become an entrepreneur in the future.	
38	I have thought very seriously about starting a business.	
39	If something went wrong in my business, I would find a way to solve it.	
40	Starting a business would put my personal assets at risk.	
41	My business ideas are not good enough to implement.	
42	Before starting a business, one should carefully weigh the pros and cons.	
43	I would like to start a business, but I am afraid of failing.	
44	I would not know how to solve the problems involved in running a business.	
45	I currently own or have previously owned a business.	
46	I have participated or currently participate in my family's business.	
47	I have worked with other entrepreneurs in making business decisions.	
48	I have business experience, even if informal.	
49	I can speak and write correctly in my native language.	
50	I can express my ideas clearly.	
51	I find mathematics very difficult.	
52	I enjoy mathematics.	
53	I am skilled in mathematics.	
54	I can understand written texts well, even if they have no illustrations.	
55	I know words that most people do not know.	
56	I easily understand complex texts.	
57	When I read aloud, people enjoy listening to me.	
Entrepreneurial competencies. Rate from 1 to 6 where: 1 = Strongly disagree 6 = Strongly agree		
No.	Question	Rating
58	Available resources should be used to the fullest to achieve business objectives.	
59	I prefer to implement my ideas rather than just plan them.	
60	I am always questioning why things are done and looking for new ways to do them.	
61	When working in a team, I am usually the one who leads the group.	
62	My peers always seek my opinion before making academic or professional decisions.	
63	I seek the opinion of experts in areas where I am not strong.	
64	As an entrepreneur, I would prioritize the well-being of collaborators, partners, suppliers, and customers—even over economic gain.	
65	I am capable of anticipating problems that businesses might face.	
66	I find it easy to communicate my ideas and disagreements.	
67	Independence and autonomy are the main rewards of achieving success.	
68	When I do not achieve my goal, I try again and again.	
69	I do not like leaving things unfinished; if I start something, I must finish it—even if I dislike the task.	

Table A1. Questionnaire: Entrepreneurial intention among university students

Questionnaire: Entrepreneurial intention among university students		
70	I see all changes as opportunities to grow, so I avoid routine and stagnation.	
71	I worry that I may lack the ability to solve certain business problems.	
72	I can recognize opportunities even in the midst of problems.	
73	I would consult my staff before making a decision that could affect them.	
74	I understand how finance and the economy affect business performance.	
75	I know what is important about market conditions for businesses.	
76	I know how to analyze the strengths and weaknesses of businesses.	
77	I know how to analyze the opportunities and threats to businesses.	
78	I know how to prepare a business plan for starting a company.	
79	I know the characteristics of different economic sectors.	
80	I know the basic functions of an organization.	
81	I know the regulations that apply to organizations.	
82	I research and use new technologies that may be useful for businesses.	
Factors promoting entrepreneurship. Rate from 1 to 6 where: 1 = Strongly disagree 6 = Strongly agree		
No.	Question	Rating
83	When I start a business, I would prefer to use my own capital as a source of financing.	
Rate from 1 to 6 where: 1 = I do not know it 6 = I know it in depth		
No.	Question	Rating
84	I am familiar with venture capital as a source of financing.	
85	I know how to obtain financing from angel investors.	
86	I am familiar with private equity as a source of financing.	
87	I am familiar with financing through microcredits.	
Rate from 1 to 6 where: 1 = Strongly disagree 6 = Strongly agree		
No.	Question	
88	Banks require too many conditions to grant financing.	
89	It is difficult to meet the requirements that banks demand for a loan application.	
90	There are entrepreneurs in my family. Yes, No	
Rate from 1 to 6 where: 1 = Strongly disagree 6 = Strongly agree		
No.	Question	Rating
91	Successful entrepreneurs motivate me to become an entrepreneur.	
92	I want to become an entrepreneur to gain respect and admiration.	
Rate from 1 to 6 where: 1 = They do not do this 6 = They do this very frequently		
No.	Question	Rating
93	My school offers activities that foster an entrepreneurial spirit.	
Rate from 1 to 6 where: 1 = Strongly disagree 6 = Strongly agree		
No.	Question	Rating
94	Entrepreneurial development contests motivate me to become an entrepreneur.	
95	In the basic education schools I attended (primary, secondary, high school):	Select
95.1	... I was taught subjects related to entrepreneurship. Yes, No	
95.2	... entrepreneurship was encouraged through various activities. Yes, No	
95.3	... I acquired knowledge related to entrepreneurship. Yes, No	
95.4	... I developed skills for entrepreneurship. Yes, No	
Rate from 1 to 6 where: 1 = Strongly disagree 6 = Strongly agree		
No.	Question	Rating
96	My degree program includes elements that promote entrepreneurship.	
97	At school, we are encouraged to become entrepreneurs from a young age.	
98	I am likely to become an entrepreneur after completing postgraduate studies.	
99	Entrepreneurship courses would be very helpful in starting a business.	
100	There are enough capable and intelligent people when I have to work in a team.	
101	If I launched a new product on the market, it would be easily adopted.	
102	More attention should be paid to the opinions of new customers.	
103	I know the distribution channels to reach my market.	
104	I know how to use social media to attract customers.	
105	I know the business networks (chambers of commerce) that can support entrepreneurship.	
106	I would seek to participate in business associations when starting a business.	
107. Concerns related to carrying out a business venture. Rate from 1 to 6 where: 1 = Not at all concerned 6 = Very concerned		
No.	Question	Rating
107.1	Administrative procedures	
107.2	Corruption	
107.3	Time required to complete the start-up process	
107.4	Cost of administrative procedures	
107.5	Tax payments	
107.6	Violence and “protection money” extortion	
Rate from 1 to 6 where: 1 = Strongly disagree 6 = Strongly agree		
No.	Question	Rating
108	I am familiar with some business accelerators and their importance for companies seeking to grow.	

Table A1. Questionnaire: Entrepreneurial intention among university students

Questionnaire: Entrepreneurial intention among university students		
109	I plan to approach a business incubator when I start my company.	
110	I might seek support from a mentoring program if I decide to start a business.	
Rate from 1 to 6 where: 1 = I do not know it 6 = I know it in depth		
No.	Question	Rating
111	I am familiar with the current government programs that support businesses.	
Factors inhibiting entrepreneurship. Rate from 1 to 6 where: 1 = Strongly disagree 6 = Strongly agree		
No.	Question	Rating
112	The existence of barriers in the formal labor market (supply and demand) drives people to entrepreneurship.	
113	If companies, the government, and universities provided better conditions for entrepreneurship, I would definitely pursue it.	
114	Women start businesses to balance their economic and family responsibilities.	
University support for entrepreneurship. Rate from 1 to 6 where: 1 = Strongly disagree 6 = Strongly agree		
No.	Question	Rating
115	My university promotes an entrepreneurial culture.	
116	My university is recognized as an entrepreneurial university.	
Rate from 1 to 6 where: 1 = They do not do this 6 = They do this very frequently		
No.	Question	Rating
117	My university organizes entrepreneur fairs and contests.	
118	My university holds conferences with successful entrepreneurs.	
119	My university provides support services for businesspeople and entrepreneurs. Yes, No, Don’t know	
120	My university provides support to protect the development of new ideas or products. Yes, No, Don’t know	
121	My university has a business accelerator. Yes, No, Don’t know	
122	My university has a business incubator. Yes, No, Don’t know	
123	My university has innovation laboratories. Yes, No, Don’t know	
124	My university promotes the development and registration of patents. Yes, No, Don’t know	
125	My university participates in technology parks. Yes, No, Don’t know	
126	My university provides guidance on economic support for entrepreneurs. Yes, No, Don’t know	
127	My university offers mentoring programs for entrepreneurs. Yes, No, Don’t know	
128	My university supports technology transfer. Yes, No, Don’t know	
Rate from 1 to 6 where: 1 = Strongly disagree 6 = Strongly agree		
No.	Question	Rating
129	The knowledge I have acquired at university enables me to prepare a business plan.	
130	My university has influenced the development of my entrepreneurial skills.	
131	The courses I take promote creativity, innovation, and an entrepreneurial spirit.	
132	My curriculum includes marketing knowledge.	
133	My curriculum includes knowledge for evaluating a business’s financial plan.	
134	I have attended entrepreneurship support workshops at my university. Yes, No	
Rate from 1 to 6 where: 1 = Strongly disagree 6 = Strongly agree		
No.	Question	Rating
135	My professors are known for being innovative and entrepreneurial.	
136	My professors motivate me to become an entrepreneur.	
137. In my undergraduate courses, the following methodologies are used: Rate from 1 to 6 where: 1 = Strongly disagree 6 = Strongly agree		
No.	Question	Rating
137.1	Case studies	
137.2	Project-based learning	
137.3	Problem analysis and problem solving	
138	In my courses, I have learned how to design business models. Yes, No	
139	In my courses, I have used simulators to make business projections. Yes, No	
140. In my undergraduate education, I have learned tools that could be useful for starting a business, such as: Rate from 1 to 6 where: 1 = Strongly disagree 6 = Strongly agree		
No.	Question	Rating
140.1	Business Model Canvas	
140.2	Lean Startup	
140.3	Kanban boards	
140.4	Design Thinking	
140.5	Naming and branding	
140.6	Elevator pitch	
140.7	Prototyping	
Your responses will be of great help. Thank you very much.		

Table A2. Items eliminated from the measurement instrument

Dimension	Qn	Variable	Factor Loading
		Attitudes toward entrepreneurship	
Personal attitude	3	Achieving the goals I set for myself is important to me.	0.274
Perceived control	10	I have serious doubts about starting my own business.	
	12	It would be very difficult to develop a business idea.	0.325
		Perception of social norms	
Social evaluation	16	The culture in my country is very supportive of entrepreneurship.	0.211
	17	The entrepreneurial role is not highly valued in my country's economy.	0.321
	18	Most people in my country consider it unacceptable to be an entrepreneur.	0.118
	19	In my country, entrepreneurship is considered valuable despite its risks.	0.345
	20	In my country, entrepreneurs are seen as taking advantage of others.	0.258
	21	If I could not find a job that met my expectations, I would consider becoming an entrepreneur.	0.095
Professional attractiveness	31	In the medium and long term, considering all advantages and disadvantages (economic, personal, social recognition, job stability, etc.), please indicate your level of attraction to each professional option.	
		31.1 Salaried employment	0.121
		31.2 Self-employment	0.369
		31.3 Entrepreneurship	0.267
Entrepreneurial intention	32	Have you ever seriously considered becoming an entrepreneur?	0.112
Risk-taking	39	If something went wrong in my business, I would find a way to solve it.	0.126
Experience	45	I have owned or currently own a business.	0.322
	46	I have participated or currently participate in my family's business.	0.314
	47	I have worked with other entrepreneurs in making business decisions.	0.269
	48	I have business experience, even if informal.	0.113
Mathematical and verbal skills			
	51	I find mathematics very difficult.	0.099
Attitudes	71	I worry that I may lack the ability to solve certain business problems.	0.118
Entrepreneurial culture	90	There are entrepreneurs in my family.	0.213
	95	In the basic education schools I attended (primary, secondary, high school):	
		95.1 ... I was taught subjects related to entrepreneurship.	0.354
		95.2 ... entrepreneurship was encouraged through various activities.	0.082
		95.3 ... I acquired knowledge related to entrepreneurship.	0.259
		95.4 ... I developed skills related to entrepreneurship.	0.317
Entrepreneurial knowledge	134	I have attended entrepreneurship support workshops at my university.	0.164
Teaching techniques / tools	138	In my courses, I have learned how to design business models.	0.247
	139	In my courses, I have used simulators to make business projections.	0.282

Note: All eliminated items had a factor loading below 0.40

Table A3. AVE (Fornell-Larcker)

Factors	AVE	Square Root of AVE	Highest r Between Factors
AHE Personal Attitude	0.752023	0.867	0.218
AHE Subjective Norm	2.064865	1.437	0.246
AHE Perceived Control	0.728680	0.854	0.542
AHE Knowledge of the Business Environment	3.347980	1.830	0.530
PNS Close Social Evaluation	1.884740	1.373	0.349
CaDeEm Business Skills	2.643550	1.626	0.629
CaDeEm Professional Attractiveness	1.763888	1.328	0.509
CaDeEm Entrepreneurial Intention	3.938672	1.985	0.759
CaDeEm Risk-Taking	1.416033	1.190	0.347
CaDeEm Mathematical and Verbal Skills	4.087828	2.022	0.504
CoEm Skills and Abilities	1.192913	1.092	0.682
CoEm Attitudes	1.054126	1.027	0.682
CoEm Knowledge	1.466062	1.211	0.594
FImpulsan Financing	2.125581	1.458	0.502
FImpulsan Entrepreneurial Culture	1.191273	1.091	0.566
FImpulsan Human Capital	0.852984	0.924	0.566
FImpulsan Market	0.651760	0.807	0.667
FImpulsan Legal and Political Framework	3.108819	1.763	0.347
FImpulsan Entrepreneurial Support Services	1.563250	1.250	0.542
FInhiben Macroeconomic Conditions	0.663822	1.072	0.251
IEPU Entrepreneurial Culture at the University	2.417908	1.555	0.626
IEPU Entrepreneurial Knowledge / Entrepreneurial Training	1.587657	1.260	0.626
IEPU Teaching Techniques and Tools	5.942036	2.438	0.499