

Exploring entrepreneurial orientation in higher education

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Abstract

Purpose: This study aims to analyze the entrepreneurial profile of students at the University of Alicante by examining how specific entrepreneurial characteristics influence their future professional interests, and whether there are any differences across gender, age, and faculty.

Design/methodology/approach: Data were collected from 1,013 undergraduate students at the University of Alicante through an online questionnaire, using a cross-sectional and correlational research design.

Findings: Students perceive themselves as possessing entrepreneurial skills. However, only 16.6% reported being willing to become entrepreneurs, with this percentage being significantly higher among men than among women. Although no significant differences in entrepreneurial interest were observed across age groups or faculties, variations were identified in certain traits related to self-perceived personal skills and organizational competencies. Specifically, older students reported greater confidence in their self-perceived entrepreneurial skills and capabilities, while students from the faculties of Economics and Law perceived themselves as having effective communication and negotiation skills. Additionally, men reported higher levels of self-perceived self-efficacy and negotiation skills, whereas women expressed greater confidence in their self-perceived teamwork skills.

Research limitations: The sample consists exclusively of students from the University of Alicante, and therefore the results cannot be generalized to a broader population. Moreover, given the non-experimental, cross-sectional, and comparative nature of the study, causal inferences cannot be drawn. Instead, the analysis only allows the identification of associations or differences between groups.

Practical implications: The findings highlight the need for targeted educational interventions to foster entrepreneurial skills and interest among university students. Universities may use these insights to design training programs and extracurricular activities that specifically address the entrepreneurial skills students perceive as being underdeveloped.

Originality/value: This study contributes to the literature by offering a detailed assessment of the entrepreneurial characteristics of university students in Alicante, paying particular attention to differences by gender, age, and academic faculty. Unlike prior research, it combines the analysis of self-perceived entrepreneurial skills with students' future professional intentions, providing a more nuanced understanding of how individual traits and competencies relate to entrepreneurial aspirations within a higher education context.

Keywords: Entrepreneurial profile, Higher education, Socio-demographic variables

Jel Codes: I23, I26

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1. Introduction

Entrepreneurship is commonly defined as the process of creating and managing a new business (Global Entrepreneurship Monitor, 2025). It is widely acknowledged that entrepreneurship contributes to economic growth, as it favors the shift from obsolete activities to more innovative and competitive ones that create new job positions with better prospects (De-Jorge-Moreno, 2017).

Research on entrepreneurship has expanded considerably in recent years (Margaça et al., 2023; Valencia-Arias et al., 2016), encompassing topics such as entrepreneurial potential (Shapero & Sokol, 1982), intentions to engage in entrepreneurial behaviors (Ajzen, 1991), and personality traits associated with entrepreneurship, often referred to as entrepreneurial spirit (Baum et al., 2007; European Parliament, 2019; Global Entrepreneurship Monitor, 2025).

Creativity, self-efficacy, attitude towards risk and the ability to plan and manage projects are commonly identified as key characteristics of entrepreneurial individuals. These individuals possess a set of personal and professional competencies that place them in a more advantageous position, not only for establishing a new venture, but also to meet the demands of the labor market, either through self-employment or by contributing innovative solutions within existing organizations (Prüfer & Prüfer, 2020; Stoica et al., 2020).

Within this context, the knowledge acquired through university education plays a decisive role, as current students represent the potential entrepreneurs and professionals of the future. Therefore, integrating entrepreneurial skills into university curricula may be crucial for preparing graduates to successfully address dynamic and uncertain environments (Global Entrepreneurship Monitor, 2025; Laguna-Sánchez et al., 2020; Yasir et al., 2021). According to Global Report Entrepreneurship (2025) and Truong et al. (2022), graduates who develop entrepreneurial competencies tend to achieve higher success rates in the creation and development of firms and institutions. Consequently, universities should implement initiatives and educational programs that foster an entrepreneurial mindset and strengthen transversal entrepreneurial competencies, enabling students to identify and exploit market opportunities (Nicolás-Martínez & Rubio-Bañón, 2020; Vall-llosera-Casanovas et al., 2022). In this way, graduates may become key drivers of economic growth in the new era (Fichter & Tiemann, 2018; Gorostiaga et al., 2023).

The link between the entrepreneurial spirit of university students and the economic and employment growth of regions has led to a growing body of research examining the entrepreneurial skills and competencies of students worldwide. At the beginning of this century, Autio et al. (2001) concluded that attitudes toward entrepreneurship and perceived behavioral control were strong predictors of entrepreneurial intention among university students from Finland, Sweden, the USA, and the UK. Similar results were later reported in Germany, India, Iran, Poland, and the Netherlands (Moriani et al., 2012), as well as in the United Kingdom (Liñán et al., 2013). Comparable findings have also been documented in Spain (Liñán et al., 2013; Moriano et al., 2012; Rueda-Sampedro et al., 2012).

More recent studies conducted in Asian countries indicate that educational support and project-based entrepreneurial learning enhance entrepreneurial skills and strengthen students' interest in entrepreneurship (Kurata et al., 2025; Paray & Kumar, 2020; Sharma et al., 2023; Tassawa, 2019; Yasa et al., 2023; Yasir et al., 2021). In addition, previous studies have shown that personality traits are robust determinants of entrepreneurial intention in countries such as Mexico (López-Torres et al., 2021), Brazil and Portugal (Fragoso et al., 2020), Colombia (Blanco-Mesa et al., 2024), and in other countries across Latin America (Lopez et al., 2021). However, despite the growing interest in identifying the skills that explain entrepreneurial interest among university students, to the best of our knowledge, only two studies have explicitly examined this relationship in Spain in recent years. On the one hand, Barba-Sánchez et al. (2022) analyzed a sample of students at the University of

Oviedo and concluded that attitudes toward entrepreneurship, together with perceptions of self-confidence and capability, significantly influence entrepreneurial intention. In addition, environmental awareness was found to orient students toward entrepreneurship in environmentally sustainable activities. On the other hand, Vall-Ilosera Casanovas et al. (2022), using a sample of 314 students from the Faculty of Economics and Business at the University of Girona, also found that entrepreneurial skills explain a substantial proportion of the students' entrepreneurial intentions, even outperforming traditional intention-based models.

The aim of this study is to contribute to the limited research on entrepreneurial spirit among university students in the Spanish context by examining the self-perceived entrepreneurial skills and profile of students at the University of Alicante. Specifically, the study explores students' perceptions of their entrepreneurial skills and analyzes whether these perceptions vary across socio-demographic characteristics. Entrepreneurial skills are understood as the set of abilities, competencies and qualities possessed by individuals that are not only essential for launching projects, but also for managing and optimizing an established business (Hisrich, 1992; Smilor, 1997). Our analysis does not seek to determine the students' entrepreneurial intentions, but rather it focuses on analyzing the self-perceived skills and competencies related to entrepreneurship, as these skills can be developed through education and training (Contreras-Cueva & González-Morales, 2019; Entrialgo & Iglesias, 2016; Gorostiaga et al., 2023; Liñán & Fayolle, 2015; Sharma et al., 2023).

The selection of the University of Alicante as the focus of this study is justified by a combination of critical socio-economic and institutional factors. First, Alicante is one of the Spanish provinces with the highest overall and youth unemployment rate (Casado-Díaz et al., 2021; Instituto Nacional Estadística, 2022). Second, the University of Alicante ranks among the lowest of Spanish universities in terms of graduate employability (Pérez et al., 2025). Third, students at the University of Alicante report the lowest level of entrepreneurial interest as compared to their peers in the Valencian Community, Spain, the European Union, and countries participating in GUESSS (Valdés-Conca & Soriano-Úbeda, 2025). The root causes of this situation are multifaceted, although the impact of a provincial economic structure based on traditional sectors, such as manufacturing and the hospitality industry, is particularly significant. These economic activities tend to generate little added value (Moreno-Izquierdo et al., 2021) and, consequently, require a low-skilled workforce, leading to lower wages, deteriorating working conditions, and stagnation in educational attainment (Casado-Díaz et al., 2021; Ródenas-Calatayud & Martí-Sempere, 2020). This challenge can only be addressed by modernizing the production system, with the promotion of entrepreneurship serving as the strategy for developing an efficient model of business innovation, facilitating growth and integration into the labor market (Aloulou, 2016; Moreno-Izquierdo et al., 2021). In short, these contextual indicators highlight a structural socio-economic problem in the province of Alicante and justify the selection of the University of Alicante as a critical case for understanding entrepreneurial dynamics in contexts with limited job opportunities, thereby enhancing the relevance of the findings for broader discussions on entrepreneurship, entrepreneurial spirit, and employability in similar socio-economic settings.

The theoretical implications of this study are threefold. First, this study contributes to the literature on entrepreneurship in higher education by providing empirical evidence on how socio-demographic factors (gender, age, and field of study) shape the students' perceptions of their own entrepreneurial skills. Second, it extends the applicability of intention-based models (e.g., the Theory of Planned Behavior) by examining not only entrepreneurial intention, but also the underlying competencies and skills, which are malleable and can be modified by educational programs. Third, the findings highlight the importance of considering contextual factors, such as regional labor market conditions and socio-economic and institutional characteristics, when analyzing the self-perceived entrepreneurial skills and profile of university students.

The findings of this study also offer several practical implications for universities, policymakers, and society. First, the results underscore the importance of integrating entrepreneurial training and transversal skill development into university curricula, particularly in contexts characterized by high youth unemployment, such as that found in Alicante. Second, policymakers may use these insights to design targeted initiatives aimed at fostering entrepreneurial mindsets among specific student groups (e.g., women or students from fields of study with lower entrepreneurial interest). Third, promoting entrepreneurship education can enhance employability, stimulate innovative business creation, and, ultimately, support regional economic development.

The remainder of the paper is organized as follows: Section 2 reviews the previous literature, which addresses the theoretical background from which testable hypotheses are derived; Section 3 describes the data and the methodology; Sections 4 and 5 present and discuss the main results. Finally, Section 6 presents the main conclusions.

2. Literature Review

Entrepreneurs are typically characterized as creative, innovative, and communicative individuals who display high levels of adaptability, self-confidence, teamwork abilities, opportunity recognition, and risk tolerance. To examine entrepreneurial skills among university students, researchers have developed multiple models, most of which are grounded in Ajzen's Theory of Planned Behavior (Ajzen, 1991) or Shapero's Entrepreneurial Event Model (Shapero & Sokol, 1982).

When examining entrepreneurship, it should remain clear that having an entrepreneurial intention is not the same as having an entrepreneurial spirit. The literature defines entrepreneurial intention as "the commitment to creating a business", whereas entrepreneurial spirit encompasses the skills and capabilities that drive this intention (European Parliament, 2019; Global Entrepreneurship Monitor, 2021; Krueger & Carsrud, 1993). From this perspective, entrepreneurs possess certain personality traits and social characteristics that underlie their intention to create a business (Gonzalez-Garcia et al., 2017; Yasir et al., 2021). In other words, an individual's skills, capabilities, and socio-demographic characteristics constitute the initial foundation of the entrepreneurial process, which may eventually lead to the creation of a business (European Parliament, 2019; Global Entrepreneurship Monitor, 2021; Toledano-Garrido, 2006). Furthermore, unlike entrepreneurial intention, these entrepreneurial skills are malleable and can be modified through educational programs (Contreras-Cueva & González-Morales, 2019; Entrialgo & Iglesias, 2016; Liñán & Fayolle, 2015; Silva et al., 2021; Vall-Iloera-Casanovas et al., 2022), which motivates the present study.

2.1. Personality Traits Related to Entrepreneurship

Personality is defined as enduring patterns of feelings, thoughts, and behaviors (Roberts, 2009) and it has been widely recognized in the literature as an important determinant of entrepreneurial interest. The Big Five is one of the most widely accepted frameworks for examining personality traits (McCrae & John, 1992). However, several theoretical models have emerged that more specifically conceptualize the personality profile of entrepreneurs. These include the Entrepreneurial Personality Model (Rauch & Frese, 2007), the Measuring Entrepreneurial Talent Approach (Ahmetoglu & Chamorro-Premuzic, 2013), the Entrepreneurial and Intrapreneurial Attitudes Model (Jain et al., 2015), the Integral Model of Entrepreneurship (Suárez-Álvarez & Pedrosa, 2016), the Entrepreneurial Personality System (Obschonka & Stuetzer, 2017), and more recently, the updated Integral Model of Entrepreneurship (Postigo et al., 2023).

In this context, the study of personality and entrepreneurship can be approached from a dual perspective. On the one hand, some authors advocate the use of broad theoretical frameworks to examine entrepreneurial interest (Brandstätter, 2011; Youssef et al., 2025; Zhao et al., 2010). On the other hand, other scholars focus on narrower entrepreneurship-specific traits or entrepreneurial skills, arguing that these dimensions provide a more direct representation of the psychological mechanisms underlying entrepreneurial interest (Ahmed et al., 2022; Contreras-Cueva & González-Morales, 2019; Gielnik et al., 2021; Silva et al., 2021). This study focuses on specific entrepreneurial skills, since previous research has shown that entrepreneurial-related personality traits offer additional explanatory power beyond broad frameworks such as the Big Five (Leutner et al., 2014).

One of the most frequently examined traits is self-efficacy. This concept refers to an individual's perception of their ability to successfully perform a given task (Bandura, 2006). Self-efficacy is closely related to entrepreneurial spirit and is often associated with self-confidence. Accordingly, it is widely regarded as a key antecedent of entrepreneurial intention (Krueger & Carsrud, 1993; Newman et al., 2019; Vamvaka et al., 2020).

Another personality trait commonly associated with entrepreneurial spirit is the willingness to take risks. This trait refers to the perceived probability of success or failure when undertaking a new venture. The literature suggests that people with a higher willingness to take risks are more likely to engage in entrepreneurial activity (Ahmed et al., 2022; López-Hernández & Serrano-Santoyo, 2017).

Autonomy has also been identified as an important motivational driver of entrepreneurship, reflecting the desire to achieve personal independence through self-employment (Gelderen & Jansen, 2006). Similarly, creativity plays a fundamental role in entrepreneurial processes, as it enables individuals to generate innovative ideas and solve problems in novel ways (Ahmetoglu & Chamorro-Premuzic, 2013; Pedraza-Rodríguez et al., 2023).

Adaptability, recognized in the traditional literature as an intrinsic component of resilience, is conceptualized in the field of entrepreneurship as the ability to adjust effectively in the face of adverse circumstances, imminent threats, and fluctuations in the environment (Bullough & Renko, 2013; Powell & Baker, 2012). The entrepreneurial characteristics associated with self-confidence, risk tolerance, creativity, autonomy, and adaptability can be conceptualized as integral components of the broad spectrum of entrepreneurial skills (Alroaia & Baharun, 2017; Hisrich, 1992).

Drawing on the taxonomy initially proposed by Hisrich (1992) and subsequently corroborated by Alroaia and Baharun (2017) to classify entrepreneurial skills, it is appropriate to categorize these attributes within a dimension that we refer to as 'Personal Skills'. The theoretical construct is based on the premise that these traits form a network of competencies that enable individuals to proactively identify opportunities, strategically mobilize resources, overcome adversity and engage in heuristic learning through error. Therefore, the first hypothesis examines whether self-perceived Personal Skills positively influence the desire to become an entrepreneur (H1a).

In addition, the ability to plan, work in teams, manage financial resources, and negotiate effectively has also been linked to entrepreneurial skills, and, as a consequence, these qualities shape the entrepreneurial spirit (Durán-Aponte & Arias-Gómez, 2015; Gonzalez-Garcia et al., 2017; Joensuu-Salo et al., 2015; Marulanda-Valencia et al., 2014). In this case, they are a set of entrepreneurial skills that reflect the technical and managerial dimension described by Hisrich (1992) and Alroaia and Baharun (2017), which is why we refer to this as "Organizational Capacity". Accordingly, the second hypothesis examines whether higher levels of self-perceived organizational capacity exert a positive association on the desire to become an entrepreneur (H1b).

2.2. Socio-Demographic Factors

Entrepreneurship may also be influenced by demographic characteristics, as certain circumstances can either encourage or inhibit the decision to start a new business (Fernández-Pérez et al., 2019; Uribe-Toril et al., 2013; Vamvaka et al., 2020).

Previous research has generally shown that men tend to exhibit higher levels of entrepreneurial skills than women (González-Serrano et al., 2016; Hernández, 2013; Medina-Brito et al., 2014; Toledano-Garrido, 2006; Vall-llosera-Casanovas et al., 2022; Vamvaka et al., 2020). However, other studies suggest that the gender gap in entrepreneurship varies depending on the specific skills considered. In particular, women tend to display greater persistence and proactivity, whereas they also report a greater fear of failure, being more risk-averse and perceiving more obstacles than men (Marques et al., 2018). Therefore, we hypothesize that men will report higher levels of self-perceived personal skills (H2a), and higher levels of self-perceived organizational capacity (H2b).

With respect to age, the literature shows mixed results. Some authors argue that younger people are more likely to engage in entrepreneurial activity because they possess more up-to-date knowledge, tend to be risk-averse, and are often more creative (Caballero-García et al., 2019). Similarly, Minola et al. (2016) concluded that the relationship between age and the desire to start a new business follows an inverted U-shaped pattern, reaching its highest peak at 22 years of age. However, other studies do not find any evidence of this relationship (Gielnik et al., 2018) or suggest that the desire to start a new business is more closely related to an individual's self-image than to his or her biological age (Kautonen et al., 2015). In this way, older students in more advanced years of study may have received more training and have developed more competencies, which could enhance their self-image and translate into a greater interest in entrepreneurship, as compared to younger students (Chacón-Araya & Moncada-Jiménez, 2006; Rodríguez-Gómez et al., 2018; Zhang et al., 2024). Therefore, we hypothesize that older students will report a higher level of self-perceived personal skills (H3a), and higher levels of self-perceived organizational capacity (H3b).

Larger discrepancies can be found in the literature when analyzing the relationship between entrepreneurial spirit and the choice of university studies. For example, Maresch et al. (2016) found that students in technical and science-related fields (STEM) display greater entrepreneurial traits. However, Caballero-García et al. (2019) found that education students exhibit higher levels of creativity. Conversely, Rodríguez-Gómez et al. (2018) argue that economics, business, and law students tend to perceive themselves as more creative, more innovative and with greater organizational competencies, which often translates into a greater interest in entrepreneurship. Similarly, Ayalew and Zeleke (2018), Kumar et al. (2021), and Lopez et al. (2021) suggest that business students tend to strengthen their entrepreneurial skills, intensifying the positive impact on their entrepreneurial intention. Therefore, we hypothesize that business students will report higher levels of self-perceived personal skills (H4a), and higher levels of self-perceived organizational capacity (H4b).

3. Methodology

3.1. Participants

The target population of the study consisted of students enrolled in undergraduate or a master's degree programs at the University of Alicante during the 2021-2022 academic year. A fully anonymous survey was distributed to all the students through the university's virtual bulletin board, and a total of 1,029 responses were obtained. After removing questionnaires with missing or outlier values, the final sample comprised 1,013 students. The distribution of the final sample across gender and faculty was consistent with the enrollment rate at the University of Alicante (Universidad Alicante, 2023). All data were collected anonymously, and neither informed consent nor ethical approval was required.

3.2. Instruments and Statistical Techniques

The questionnaire was divided into three sections: (1) socio-demographic characteristics, (2) future professional interest, and (3) self-perceived entrepreneurial skills. The first section collected information on the students' socio-demographic characteristics. Specifically, students reported their age (18-22, 23-25, 26-30, and over 30 years of age), gender (male/female), and faculty affiliation (Sciences (S), Health Sciences (HS), Law (L), Economics and Business Studies (E&B), Education (E), Philosophy and Arts (P&A) and the Higher Polytechnic School (HPS)). The second section focused on the students' future professional interest (PI) through the following question: "When you complete your higher education, how would you like to work?" Two response options were provided: "Salaried worker" (PI-) or "Self-employed" (PI+).

Finally, the third part of the questionnaire assessed the students' self-perceived entrepreneurial skills and was based on an adapted version of the questionnaire administered by the Spanish Government to measure entrepreneurial skills (Gobierno España, 2017). This questionnaire includes most of the entrepreneurial skills proposed by Hisrich (1992) and Alroaia and Baharun (2017). Students were asked to indicate their level of agreement with 13 statements about themselves using a five-point Likert scale ranging from 1 ("Completely disagree") to 5 ("Completely agree").

The present study adopts a dual analytical strategy. First, self-perceived entrepreneurial skills are examined through higher-order latent dimensions derived from principal component analysis, allowing the identification of broader entrepreneurial profiles based on shared variance among interrelated traits. Second, item-level analyses are conducted to examine the specific contribution of individual entrepreneurial characteristics.

Given the nature of entrepreneurial skills, an oblique rotation method (Promax) and the Kaiser criterion are used, as this approach allows for correlation among the underlying factors. This methodological strategy has been previously used in the entrepreneurship literature (Messina-Scolaro et al., 2024). The analysis identified two factors (Table 1). The first, labelled Personal Skills (PS), included six items capturing a set of interrelated psychological traits that jointly reflect an individual's propensity to engage in entrepreneurial behavior, such as adaptability to change, self-efficacy, ease of communication, creativity, initiative, and willingness to take risks. An overall Personal-Skill score was computed as the sum of the responses to the six items. The resulting scores range from 6 to 30, with higher values indicating greater levels of self-perceived Personal Skills. The second component, labelled Organizational Capacity (OC), included seven items related to operational and managerial competencies of entrepreneurial activity, such as the capacity to distribute tasks, manage financial resources,

meet deadlines, engage in teamwork, negotiate successfully, and plan, and the willingness to sacrifice leisure time for work. Similarly, a composite measure of Organizational Capacity was constructed by aggregating the seven items. Scores vary between 7 and 35, with higher scores reflecting stronger self-perceived Organizational Capacity.

	Principal Components	
	Personal Skills	Organizational Capacity
Adaptable to change	0.71	
Self-efficacy	0.69	
Ease of communication	0.63	
Creativity	0.68	
Initiative	0.75	
Willingness to take risks	0.71	
Capacity to distribute tasks		0.37
Manage financial resources		0.71
Meet deadlines		0.80
Engage in teamwork		0.59
Negotiate successfully		0.41
Plan		0.56
The willingness to sacrifice leisure time for work		0.56

Note: Correlation coefficient between the two factors ($r=0.61$).

Table 1. Rotated factor loadings. Rotation method: Promax with Kaiser normalization

Cronbach's alpha ($\alpha = 0.84$) exceeded the recommended threshold of 0.70, confirming the reliability of the survey scale. In addition, the Kaiser–Meyer–Olkin (KMO) measure of sampling adequacy was 0.904, and Bartlett's test of sphericity was statistically significant ($p < 0.05$), indicating that the data were suitable for factor analysis (Cea, 2004). Moreover, the internal consistency of the two extracted factors was satisfactory (Cronbach's Alpha = 0.80 for Personal Skills and 0.75 for Organizational Capacity). Moreover, as suggested by Fuller et al. (2016), when several constructs are measured simultaneously through a self-reported survey, common method variance should be examined. Harman's single-factor test is the most frequently used to check for common method variance (Fuller et al., 2016). The underlying assumption is that if a substantial amount of common method variance is present, either a single factor will emerge or one general factor will account for more than 50% of the variance among variables (Podsakoff & Organ, 1986). The results showed that the first factor accounted for 36.96% of the variance, which is below the recommended threshold of 50%, suggesting that common method bias is not a major concern in this study.

An independent t-test was conducted to assess whether significant differences existed, based on gender and future professional interest. When more than two groups were compared (e.g. age and faculty), one-way ANOVA tests were performed. Where significant effects were identified, Bonferroni post hoc tests were used to compare the groups (Dunn, 1961). Moreover, the association between interest in undertaking entrepreneurial activities and sociodemographic variables was examined using the Chi-square test (χ^2). These methods have previously been used in the literature to analyze entrepreneurial profiles (Ruiz et al., 2022).

4. Results

4.1. Descriptive Statistics

This study involved 1,013 university students enrolled in undergraduate or master's degree programs during the 2021–2022 academic year at the University of Alicante. The descriptive statistics (Table 2) show that most of the participants were under 22 years of age and that the majority were women. In addition, the respondents were evenly distributed across the university's seven faculties. With respect to the Professional Intention (IP) variable, only 16.65% of the participants expressed an interest in self-employment (IP+).

Variables	Frequency	Percentage (%)
Gender		
Male	278	27.44
Female	735	72.25
	1,013	
Age		
18-22 years of age	690	68.11
23-25 years of age	144	14.21
26-30 years of age	78	7.69
Over 30 years of age	101	9.97
	1,013	
Faculty of study		
Sciences	156	15.39
Health Sciences	52	5.13
Law	155	15.30
Economics and Business	213	21.06
Education	146	14.41
Philosophy and the Arts	153	15.10
Higher Polytechnic School	138	13.62
	1,013	
Professional Intention (PI)		
Self-employed (PI+)	168	16.65
Salaried worker (PI-)	845	83.41
	1,013	

Table 2. Descriptive statistics

(Item)	Mean	Variance	Cumulative percentage (%) ("agree," and "completely agree" responses)
Construct 1: Personal Skills			
Adaptable to change	21.41	4.38	
Self-efficacy	3.89	0.91	68.10
Ease of communication	3.64	1.08	61.40
	3.63	1.05	58.80
Creativity	3.59	1.06	56.00
Initiative	3.60	0.99	56.80
Willingness to take risks	3.09	1.11	36.10
Construct 2: Organizational Capacity			
Capacity to distribute tasks	26.66	4.51	
Manage financial resources	3.61	1.10	59.00
Meet deadlines	3.87	1.00	68.00
Engage in teamwork	3.65	1.15	60.70
Negotiate successfully	4.18	0.87	82.40
Plan	3.41	1.01	46.40
	3.84	1.00	66.40
The willingness to sacrifice leisure time for work	4.06	0.94	76.10

Table 3. Descriptive statistics of the self-perceived personal-skill and organizational-capacity variables and the cumulative percentage of high scores (4 and 5)

Regarding self-perceived entrepreneurial skills (Table 3) the high scores obtained across most items suggest that students at the University of Alicante generally perceive themselves as possessing several entrepreneurial

competencies. In particular, respondents consider themselves to be adaptable to change, self-confident, capable of managing resources, and willing to plan and sacrifice their leisure time for work. Moreover, teamwork was identified as one of the strongest self-perceived competencies among the students. However, two items stand out for their comparatively lower scores: the willingness to take risks and negotiation skills. Only 36.1% of the participants reported being willing to take risks, and less than half indicated that they felt capable of negotiating successfully.

4.2. Professional Intention

Table 4 presents the average scores for the Personal Skills and Organizational Capacity constructs, as well as their individual items, for students who reported an interest in starting a new business in the future (PI+) and for those who prefer to work as salaried employees (PI-). At the construct level, students with entrepreneurial interest report significantly higher levels of self-perceived Personal Skills and Organizational Capacity than their counterparts who prefer salaried employment. At the item level, the results indicate that students with entrepreneurial interest (PI+) perceive themselves as more adaptable, communicative, creative, and proactive than those who prefer salaried employment. They also report stronger abilities in task allocation, planning, and teamwork. The largest differences between the two groups are observed in the willingness to take risks, self-efficacy, and negotiation skills.

	Mean (PI+)	Mean (PI-)	Difference (PI (-) – PI (+))
Construct 1: Personal Skills	22.91	21.12	-1.79***
Adaptable to change	4.05	3.86	-0.19**
Self-efficacy	3.89	3.59	-0.30***
Ease of communication	3.80	3.59	-0.20**
Creativity	3.83	3.54	-0.29***
Initiative	3.82	3.56	-0.26***
Willingness to take risks	3.48	3.01	-0.47***
Construct 2: Organizational Capacity	27.47	26.5	-0.97**
Capacity to distribute tasks	3.80	3.57	-0.24***
Manage financial resources	3.93	3.85	-0.08
Meet deadlines	3.67	3.64	-0.03
Engage in teamwork	4.31	4.16	-0.15**
Negotiate successfully	3.66	3.36	-0.30***
Plan	3.98	3.81	-0.17**
The willingness to sacrifice leisure time for work	4.13	4.05	-0.08

Note: Significance levels: *** $p < 0.01$, ** $p < 0.05$.

Table 4. Differences between students (PI+) vs (PI-)

The association between interest in undertaking entrepreneurial activities and sociodemographic variables was examined using the Chi-square test (χ^2) (Table 5). The results indicate that gender and the future professional interest are not statistically independent, suggesting that women report lower professional interest than men (Table 6). In contrast, no statistically significant association was found between future professional interest and the variables age and faculty. This result suggests that entrepreneurial interest is similarly distributed across age groups and fields of study (Table 5).

χ^2	Value	Df
Gender	7.81**	2
Age	4.57	3
Faculty	9.32	6

Note: Significance levels: *** $p < 0.01$, ** $p < 0.05$.

Table 5. Chi-squared test: Professional Interest vs gender; age; faculty

When you finish your higher education, how would you like to work?	Male	Female	Total
Salaried worker	77%	85.4%	83.4%
Create an enterprise	23%	14.6%	16.6%

Table 6. Professional interest by gender

4.3. Entrepreneurial Profile: Personal Skills (PS) and Organizational Capacity (CO)

4.3.1. Personal Skills (PS)

Table 7 presents the results of the ANOVA conducted for age and faculty with respect to Personal-Skill Construct and its individual items. Regarding age, the results revealed statistically significant differences across age groups at the construct level. The Bonferroni post hoc test (Table 8) revealed that older students reported significantly higher levels of self-perceived Personal Skills than younger students. In particular, students over age 30 showed significantly higher scores than students aged 18-22, 23-25, and 26-30. Similarly, students aged 26-30 also reported significantly higher levels of self-perceived Personal Skills than the youngest age group (18-22). At the item level, statistically significant differences were observed in adaptability to change, self-efficacy, communication, initiative and taking risks, suggesting that age influences the self-perception of these personal skills. The post hoc analysis (Table 8) indicates that the youngest age groups (18-22 and 23-25) perceive themselves as being less adaptable, with lower self-efficacy and weaker communication skills, and as more risk-averse than the older groups (26-30 and over age 30). Furthermore, significant differences were also observed between the two youngest age groups for two items. Specifically, students aged 18-22 reported poorer communication skills and less willingness to take risks than those in the 23-25 age group. Finally, students over age 30 reported greater initiative in solving problems than the other age groups.

	Age	Faculty
(Item)	F	F
Construct 1: Personal Skills	19.82***	1.54
Adaptable to change	10.58***	1.12
Self-efficacy	16.41***	1.14
Ease of communication	12.14***	3.44***
Creativity	1.75	1.18
Initiative	12.78***	1.06
Willingness to take risks	11.56***	1.23
Construct 2: Organizational Capacity	6.51***	2.83**
Capacity to distribute tasks	1.72	2.14
Manage financial resources	3.89***	1.97
Meet deadlines	5.58***	1.47
Engage in teamwork	2.21	1.85
Negotiate successfully	5.92**	3.56***
Plan	1.45	0.29
The willingness to sacrifice leisure time for work	1.19	1.05

Note: Significance levels: *** $p < 0.01$, ** $p < 0.05$.

Table 7. ANOVA entrepreneur profile: PS and OC

Regarding faculty, the ANOVA results (Table 7) showed no statistically significant differences across faculties in levels of self-perceived Personal Skills at the construct level. Nevertheless, the item-level analysis did reveal significant differences for self-perceived communication skills. The post hoc analysis (Table 8) shows that the students from the faculties of law and/or economics and business perceived themselves as having stronger communication skills than students from faculty of science.

Bonferroni				
	Age		Faculty	
	Groups of comparison with significant mean differences	Difference in means	Groups of comparison with significant mean differences	Difference in means
Construct 1: Personal Skills	[18-22]-[23-25]	-1.34***		
	[18-22]-[26-30]	-1.43**		
	[18-22]-[+30]	-3.31***		
	[23-25]-[+30]	-1.97***		
	[26-30]-[+30]	-1.88**		
Adaptable to change	[18-22]-[26-30]	-.31**		
	[18-22]-[+30]	-.47***		
Self-efficacy	[18-22]-[26-30]	-.40***		
	[18-22]-[+30]	-.73***		
	[23-25]-[+30]	-.52***		
Ease of communication	[18-22]-[23-25]	-.26**	[S]-[IL]	-.37**
	[18-22]-[+30]	-.62***	[S]-[E&B]	-.34**
	[23-25]-[+30]	-.37**		
Creativity				
Initiative	[18-22]-[+30]	-.61***		
	[23-25]-[+30]	-.38**		
	[26-30]-[+30]	-.40**		
Willingness to take risks	[18-22]-[23-25]	-.31***		
	[18-22]-[+30]	-.62***		
Construct 2: Organizational Capacity	[18-22]-[+30]	-2.07***		
Capacity to distribute tasks				
Manage financial resources	[18-22]-[+30]	-.34***		
Meet deadlines	[18-22]-[+30]	-.44***		
Engage in teamwork				
Negotiate successfully	[18-22]-[+30]	-.45***	[S]-[IL]	-.39***
			[S]-[E&B]	-.34**
Plan				
The willingness to sacrifice leisure time for work				

Note: Non-significant differences have been removed for ease of viewing. Significance levels: *** $p < 0.01$, ** $p < 0.05$.

Table 8. Bonferroni post hoc hypothesis test

Finally, Table 9 presents the results for gender. The results showed no statistically significant differences between men and women at the construct level regarding self-perceived Personal Skills. This finding suggests that broader personality traits are similarly distributed across gender. However, the item-level analysis revealed significant differences in self-efficacy, with men reporting higher levels of self-perceived confidence in their entrepreneurial capabilities than women. For the remaining items, no statistically significant gender differences were observed.

4.3.2. Organizational Capacity (OC)

The results of the ANOVA conducted for age and faculty with respect to the Organizational Capacity Construct and its individual items are also presented in Table 7. The findings revealed statistically significant differences across age groups at the construct level. The Bonferroni post hoc test (Table 8) showed that students over age 30 reported significantly higher levels of self-perceived Organizational Capacity than students aged 18-22. At the item level, the findings indicate statistically significant differences according to age for self-perceived negotiation skills, resource management, and the ability to meet deadlines. The post hoc analysis (Table 8) reveals that students over the age of 30 perceive themselves as having stronger negotiation skills than the youngest group (18–22). Moreover, the results also suggest that the youngest students (18-22) perceive themselves as being less capable of managing resources and meeting deadlines than students over the age of 30.

Regarding the faculty in which the students were enrolled, the ANOVA results (Table 7) revealed statistically significant differences across the faculties in self-perceived Organizational Capacity at the construct level. However, the Bonferroni post hoc test (Table 8) did not reveal statistically significant pairwise differences between faculties at the construct level. One possible explanation for this apparent inconsistency is that the overall ANOVA detects the existence of variability across groups collectively, whereas the Bonferroni correction applies a much more conservative criterion to pairwise comparisons in order to reduce the probability of Type I error, but this also decreases its statistical power (Bland & Altman, 1995; Perneger, 1998). Consequently, moderate differences distributed across several faculties may be sufficient to produce a significant overall ANOVA result, while individual pairwise differences may fail to reach significance after the Bonferroni adjustment (Bonferroni adjusts the comparison-wise error rate based on the upper limit of the Bonferroni inequality: $\alpha = \alpha_{adjusted} * m$; where α = original significance level; $\alpha_{adjusted}$ = adjusted significance level; and m = number of comparisons). At the item level, significant differences were observed only for self-perceived negotiation skills. Specifically, students from the faculties of economics and business and law reported stronger self-perceived negotiation skills than students from the faculty of science (Table 8).

Finally, the analysis by gender (Table 9) showed no statistically significant differences between men and women in self-perceived Organizational Capacity at the construct level, indicating that organizational and managerial entrepreneurial competencies are similarly distributed across genders. Nevertheless, the item-level analysis revealed that male students perceive themselves as more capable of negotiating successfully, whereas female students report stronger teamwork skills as compared to their male counterparts.

Item	Men	Women	Difference (Men -Women)
Construct 1: Personal Skills	21.83	21.25	0.58
Adaptable to change	3.88	3.89	–0.01
Self-efficacy	3.89	3.55	0.34***
Ease of communication	3.61	3.63	–0.03
Creativity	3.63	3.57	0.06
Initiative	3.68	3.57	0.12
Willingness to take risks	3.15	3.07	0.08
Construct 2: Organizational Capacity	26.64	26.66	–0.02
Capacity to distribute tasks	3.63	3.61	0.03
Manage financial resources	3.86	3.87	–0.01
Meet deadlines	3.65	3.65	0.01
Engage in teamwork	4.08	4.22	–0.15**
Negotiate successfully	3.55	3.36	0.18**
Plan	3.81	3.85	–0.05
The willingness to sacrifice leisure time for work	4.01	4.08	–0.07

Note: Significance levels: *** $p < 0.01$, ** $p < 0.05$.

Table 9. Difference in terms of gender in the PS and OC variables

5. Discussion

This study aimed to examine the interest of University of Alicante students in starting a business in the future and to determine whether they perceive themselves as possessing entrepreneurial traits. The analysis was conducted both overall and according to socio-demographic characteristics, namely gender, age, and faculty.

5.1. Professional Interest (PI)

Only 16.6% of the survey participants reported that they intended to start a new business after completing their studies. In addition, the results revealed that men were more likely than women to express an interest in starting a new business (23% vs. 14.6%). This is in line with the existing literature (Hernández, 2013; Medina-Brito et al., 2014; Toledano-Garrido, 2006; Vamvaka et al., 2020; Zhang et al., 2024). This relatively low percentage may be explained by the traditional culture values and socio-economic context of Alicante, where unemployment rates are high and economic activity is largely concentrated in small, low-skilled businesses (Ródenas-Calatayud & Martí-Sempere, 2020). Applying Inglehart's Theory of Cultural Values (Inglehart, 1997), less dynamic economic environments tend to promote more conservative values. In this context, university students in Alicante may perceive entrepreneurship as a less attractive career option, leading many to conventional career paths (Valdés-Conca & Soriano-Úbeda, 2025). These contextual barriers may also contribute to the observed gender gap in entrepreneurial interest, particularly within more traditional social environments where women may face additional constraints when considering entrepreneurial careers (Bae et al., 2014; Global Entrepreneurship Monitor, 2025; Minniti & Nardone, 2007).

The results showed that students interested in starting a business reported significantly higher levels of Personal Skills than students who preferred salaried employment, supporting H1a. At the item level, students with entrepreneurial interest perceived themselves as more adaptable, communicative, and proactive than their counterparts who preferred salaried employment. This result is consistent with previous research linking entrepreneurial interest to traits such as initiative, adaptability, creativity, and self-confidence (Contreras-Cueva & González-Morales, 2019; Gorostiaga et al., 2023; Peñaherrera-León & Cobos-Alvarado, 2012; Silva et al., 2021). However, the largest differences were observed in the components “Willingness to take risks” (diff = -0.47), “Self-efficacy” (diff = -0.30), and “Creativity” (diff = -0.29). Previous research supports these findings, since it has shown that individuals with higher levels of self-efficacy, individuals who are more willing to assume risk and face uncertainty, and individuals with high levels of creativity are more likely to show stronger entrepreneurial interest (Ahmed et al., 2022; Ahmetoglu & Chamorro-Premuzic, 2013; Krueger & Carsrud, 1993; López-Hernández & Serrano-Santoyo, 2017; Newman et al., 2019; Vamvaka et al., 2020). Similarly, students with high levels of self-perceived organizational and managerial skills reported greater levels of interest in starting a new business, thereby supporting H1b. At the item level, significant differences emerged in the students' self-perceived skills related to task delegation, teamwork, negotiation skills, and planning. These findings are consistent with previous studies (Durán-Aponte & Arias-Gómez, 2015; Gonzalez-Garcia et al., 2017; Joensuu-Salo et al., 2015; Marulanda-Valencia et al., 2014). It is worth noting that starting a business is a complex and uncertain process that requires effective organization, planning, negotiation, and collaboration, making individuals with these competencies more likely to display stronger entrepreneurial interest.

5.2. Entrepreneurial Profile

5.2.1. Personal Skills (PS)

The results suggest that men and women showed similar levels of self-perceived Personal Skills at the construct level. Therefore, H2a is not supported. However, the item-level analysis revealed significant gender differences in self-perceived self-efficacy, with men reporting higher levels of confidence in their entrepreneurial capabilities than women. This result is consistent with previous studies (González-Serrano et al., 2016; Hernández, 2013; Medina-Brito et al., 2014; Toledano-Garrido, 2006; Vall-Ilosa-Casanovas et al., 2022; Vamvaka et al., 2020). The traditional social contexts in Alicante may undermine women's confidence in their self-perceived skills, due to persistent gender stereotypes. In addition, it is pertinent to mention that, surprisingly, no significant gender differences emerged in self-perceived willingness to take risks. Both men and women reported similar low levels of risk tolerance. This finding contrasts with previous evidence (González-Serrano et al., 2016; Hernández, 2013; Medina-Brito et al., 2014; Toledano-Garrido, 2006; Vall-Ilosa-Casanovas et al., 2022; Vamvaka et al., 2020).

Therefore, future research should examine the economic, historical, social, anthropological, and psychological factors converging in the province of Alicante to establish a more robust explanation for this notable finding.

As expected, statistically significant differences were found among age groups in Personal Skills at the construct level, showing a monotonically increasing trend in these self-perceived skills with age. Therefore, H3a was supported. At the item level, age significantly influenced the students' self-perceived self-efficacy, willingness to take risks, adaptability, communication skills, and initiative. These results are consistent with previous studies (Chacón-Araya & Moncada-Jiménez, 2006; Kautonen et al., 2015; Rodríguez-Gómez et al., 2018; Zhang et al., 2024), which argue that older students—who typically possess greater educational experience and maturity—tend to exhibit higher levels of self-confidence, greater tolerance for risk, and a stronger inclination toward entrepreneurial activity.

Surprisingly, the field of study did not significantly affect the Personal-Skill Construct and H4a cannot be supported. These findings contrast with previous studies, suggesting that students in law and business disciplines perceive themselves as more innovative, creative, and more positively oriented toward entrepreneurship (Rodríguez-Gómez et al., 2018). Moreover, when examining the items that comprise this construct, a significant difference was found only in self-perceived ease of communication. The post hoc analysis indicated that students enrolled in Law and Economics and Business degrees reported higher levels of communication skills. These differences in self-perceived communication skills may reflect the nature of the disciplines themselves. In fields such as law and economics, professional practice often requires the ability to persuade clients, courts, policymakers, or organizational stakeholders, as well as to communicate complex ideas and justify decisions. In these contexts, verbal communication constitutes a central professional competence. By contrast, students in science, technology, engineering, and mathematics (STEM) disciplines typically focus on the analysis of natural phenomena, data, formulas, and algorithms governed by objective principles. Therefore, mathematical and symbolic languages may play a more prominent role than verbal communication, which may explain why students in STEM disciplines reported lower self-perceived communication skills. The remaining items showed no statistically significant differences.

5.2.2. Organizational Capacity (OC)

The results showed no statistically significant differences between men and women in self-perceived Organizational Capacity at the construct level. Therefore, H2b was not supported. The item-level analysis provided a possible explanation for this lack of significance. While men perceived themselves as more capable of negotiating successfully, the teamwork item operated in the opposite direction, with women reporting stronger teamwork abilities than men. Consequently, these opposite effects may compensate for each other, contributing to the absence of significant gender differences at the construct level. Furthermore, the remaining items did not show statistically significant differences between men and women. These results do not support previous studies (Hernández, 2013; Medina-Brito et al., 2014; Toledano-Garrido, 2006; Vamvaka et al., 2020). One possible explanation is that skills such as planning, decision-making, problem-solving, and responsibility tend to be relatively evenly distributed in men and women from an early age (Chen et al., 2010). Moreover, as malleable skills through educational programs, they may have been further equalized through higher education.

The results showed that there are differences in Organizational Capacity at the construct level due to age. The Bonferroni post hoc test subsequently indicated that students over age 30 reported significantly higher levels of Organizational Capacity than students aged 18-22. Therefore, H3b was supported. At the item level, older students perceive themselves as more capable of managing resources, meeting deadlines, and negotiating successfully than younger students (aged 18–22). These findings are consistent with previous studies (Chacón-Araya & Moncada-Jiménez, 2006; Rodríguez-Gómez et al., 2018; Zhang et al., 2024), which suggest that the desire to start a new business is closely associated with an individual's perceived self-image (Kautonen et al., 2015). Older students, who typically possess greater personal and educational experience, may perceive themselves as more competent and mature, which translates into a higher self-perceived organizational capacity.

Finally, although the ANOVA results revealed statistically significant differences among faculties in self-perceived Organizational Capacity, the subsequent Bonferroni post hoc analysis did not identify statistically significant pairwise differences between Economics and Business students and the remaining faculties at the construct level.

Consequently, H4b cannot be supported. Nevertheless, at the item level, significant differences were observed in self-perceived negotiation skills. Specifically, the Bonferroni post hoc analysis revealed that students from the faculties of Economics and Business and Law perceived themselves as more capable of negotiating successfully than students from the faculty of Science. These findings are consistent with previous research, indicating that students with business-related knowledge tend to exhibit greater organizational competencies (Ayalew & Zeleke, 2018; Barba-Sánchez et al., 2022; Kumar et al., 2021; Lopez et al., 2021; Rodríguez-Gómez et al., 2018). Communication and negotiation skills are widely recognized as closely interconnected competencies, as the success of a negotiation process largely depends on how communication is managed (Cohen & Altimira, 2003). In this sense, successful negotiation requires effective communication abilities. Since such competencies can be developed through training and education, the higher self-perceived levels reported by students in business and legal disciplines may reflect the orientation of their academic curricula. Programs in economics and law traditionally emphasize the development of interpersonal skills that are essential for negotiation and professional interaction. In contrast, science and technology programs tend to focus more strongly on analytical reasoning, logical rigor, and technical problem-solving rather than interpersonal communication. However, it should be noted that these results are based on self-reported perceptions rather than objective measures of competency. Therefore, the higher scores observed among Law and Business students may partly reflect differences in self-perception shaped by their disciplinary background and identity.

6. Conclusions

This study provides a comprehensive examination of the entrepreneurial profile of university students enrolled at the University of Alicante. Overall, the results indicate that students perceive themselves as possessing entrepreneurial skills, but the actual interest in becoming an entrepreneur is low and varies according to socio-demographic characteristics. These findings underscore the relevance of higher education institutions in fostering entrepreneurial skills in students, emphasizing those competencies that they are considered to lack. These educational programs should not be targeted at the population level, because as our results suggest, there are significant differences in terms of gender, age, and faculty and, therefore, the activities should take this heterogeneity into account. For instance, this study suggests that female students reported significantly lower levels of self-efficacy as compared to their male peers. However, previous research has shown that entrepreneurial education is more beneficial for women because it helps strengthen their skills relative to those of men (Bae et al., 2014; Nabi et al., 2017). Therefore, the implementation of educational activities aimed at strengthening women's confidence in their own abilities would contribute to empowering female students, fostering greater autonomy and confidence in making entrepreneurial and business-related decisions (Nowiński et al., 2019; Vall-llosera-Casanovas et al., 2022). One example is the “Women Entrepreneurs Program” run by the Alicante Chamber of Commerce and co-funded by the European Social Fund and the Women's Institute of the Ministry of Equality. This program aims to inform and guide women on how to set up a business; another example is the “Activa Àgora Program,” run by Alcoy City Council, which offers free training to guide, train, and mentor female entrepreneurs in launching their own businesses.

Our findings have also revealed that students enrolled in degrees unrelated to economics, business or law show low levels of self-perceived communication and negotiation skills. According to the theory of cumulative advantage, also known as the Matthew effect, early exposure to business-related knowledge and training contributes to the progressive development of entrepreneurial competencies (Walberg & Tsai, 1983). As a result, small initial advantages may expand over time through repeated opportunities to practice activities, such as oral presentations, financial analysis, and negotiation simulations. Conversely, students from other disciplines may have fewer opportunities to develop these interpersonal competencies, which could progressively widen the gap. Therefore, bridging this gap should be addressed by educational institutions through targeted educational interventions aimed at students who demonstrate weaker competencies in these areas. In this regard, Barba-Sánchez and Atienza-Sahuquillo (2018), Gorlewicz and Jayaram (2020), and more recently, Berbegal-Mirabent et al. (2024) confirmed a significant improvement in the entrepreneurial competencies of engineering students through the use of different pedagogical methodologies, such as practical experiences, workshops, business competitions, role-playing games, project-based learning approaches, and challenge-based learning approaches. Moreover, these methodologies would be more effective when they are integrated within

university-level curricula—such as capstone projects or Project-Based Learning (PBL) modules—rather than being offered as a separate course dedicated solely to entrepreneurship (Berbegal-Mirabent et al., 2024).

Finally, our results reveal that older students exhibit high levels of self-perceived entrepreneurial skills and interest in creating a new firm in the future. As suggested by Chacón-Araya and Moncada-Jiménez (2006), Rodríguez-Gómez et al. (2018), and Zhang et al. (2024), maturity is often acquired through education and personal experience, and it enhances the perception of possessing the necessary competences and skills. Therefore, universities should promote an entrepreneurial spirit at an early stage of the graduate career, by offering more flexible curricula that allow students to engage in both curricular and extracurricular activities.

6.1. Limitations and Future Work

Despite its contributions, our study has some limitations. First, although this study has been conducted with a large sample of students enrolled at the University of Alicante ($n = 1,013$), it only considered university students from this same university. Therefore, the main weakness of this study is the generalization of the results. Future research should replicate the analysis in other Spanish universities, in order to generalize the findings for Spain and achieve more robust evidence in the field of entrepreneurship. Second, the questionnaire was sent to all students, completing it was voluntary, and no incentives were given to students for doing so. Therefore, the voluntary participation of students may introduce an inherent potential selection bias (only highly motivated students would answer the questionnaire) that could not be eliminated. To address this limitation, future research should seek to improve the study design by minimizing any potential self-selection bias associated with voluntary survey participation. For example, the use of incentives or classroom-based survey administration could ensure a more representative sample of the student population. Finally, we relied on self-report measures and, therefore there is a potential for respondents to misinterpret and thus misrepresent their entrepreneurial skills. Combining self-reported perceptions with more objective assessments of entrepreneurial skills, such as performance-based tasks, practical exercises or role-playing could provide a more accurate and comprehensive assessments.

The findings of the current study also suggest potential avenues for future research. Risk-taking showed the lowest mean score of all the skills considered. It would be of interest to assess the underlying reasons for this result. Future studies could employ the Domain-Specific Risk-Taking (DOSPERT) scale (Blais & Weber, 2006) to examine whether the propensity to take entrepreneurial risk reflects a general attitude toward risk or whether it is affected by domain-specific risk dimensions, such as financial, health/safety, ethics, recreational, and social aspects. Additionally, age appears to play a facilitating role in entrepreneurial confidence. Future research is needed to determine whether the role of age in entrepreneurial confidence exerts only a direct effect, or it is partially or fully mediated by factors such as prior entrepreneurial experience or personal maturity. There is also a need to investigate self-perceived strength in communication and negotiation skills among specific faculties, particularly among students of Economics and Law, as compared to those of students from science-related disciplines. It would be valuable to conduct a qualitative study to examine curricular contents, teaching methodologies, and learning activities that may explain these differences and contribute to the development of these competencies.

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Data availability

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Use of Artificial Intelligence

During the preparation of this work, the authors used ChatGPT to improve the English language expression, grammar, and readability of the manuscript. After using this tool, the authors reviewed and edited the content as needed and took full responsibility for the accuracy and integrity of the final text.

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