# Student's Entrepreneurial Intention in Higher Education: The Entrepreneurship Intention Questionnaire Applied At Esce – Polytechnic Institute of Setubal

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**Abstract**: The choice to pursue an entrepreneurial path is the result of a complex cognitive journey. It's vital to comprehend this mental process as it unfolds during the educational phase, especially since entrepreneurship is now a potential career option for a growing number of students. This paper explores and evaluates entrepreneurial intentions (EI) and their antecedents among 132 students from College of Business Administration (ESCE), Polytechnic Institute of Setubal (IPS). To collect data, the research used part of the Entrepreneurial Intentions Questionnaire (EIQ) designed by Liñán and Chen (2009) with additional demographic questions. This paper also examines the role of age, gender, work experience and self-employment in affecting personal attitudes, subjective norms, perceived behavioral control and entrepreneurial intentions. The research is based on a study developed by Liñan and Chen (2009) that was applied in two different cultures: Spain and Taiwan. This research adds another comparison with students from Portugal and the results allowed the confirmation of the findings of previous studies concerning the relationship between the entrepreneurial intention and the personal attitude and perceived behavioral control.

**Keywords**: Entrepreneurship, Entrepreneurial intentions, Entrepreneuship education, Higher education

## 1. Introduction

It is recognized that an entrepreneurial career offers significant opportunities for individuals to achieve financial independence and benefit the economy by contributing to job creation, innovation, competitiveness and economic growth (Barba-Sánchez et al., 2022). Today's students are tomorrow's potential entrepreneurs, which may explain why a growing number of universities, spread across the world, offer entrepreneurship courses and programmes. Numerous studies have identified entrepreneurial intention (EI) as a highly influential predictor of entrepreneurial activities and behaviors (Krueger et al., 2000; Arasti et al., 2012). Consequently, contemporary research has increasingly emphasized EI over the broader field of entrepreneurship (Yu et al., 2021). Indeed, the utilization of EI as a foundational framework for research has increases since the early 90s, underscoring the pivotal role of EI in various contexts (Liñán & Fayolle, 2015).

Taking this into consideration, it becomes crucial to comprehend the factors that shape the EI of students, as this understanding is vital for nurturing their future entrepreneurial aspirations. Numerous scholars have conducted investigations to explore the variables influencing the EI of students in higher education. Cognitive and personality factors, including self-efficacy, individual attitudes, desire for achievement and behavioral control, wield substantial influence over students' intentions towards entrepreneurship (Nasip et al., 2017; Biswas & Verma, 2021). On the other hand, social and environmental researchers have identified elements such as previous experiences, family background, regional culture, and government support as pivotal factors that shape the EI of students (Ali et al., 2019; Tiwari et al., 2020).

The argument that entrepreneurship can be stimulated and developed by education has been gaining importance inside and outside the academic world. The number of studies dedicated to studying the influence of entrepreneurship education on EI is considerable and their conclusions are difficult to ignore. Given the very important position of entrepreneurship as a driver of socio-economic development, there is special attention among policy makers, educators, academics, and scholars as it is considered as a critical factor in fostering the socio-economic development of a country (Nowiński et al., 2019). Considering this, entrepreneurship education in higher education institutions (HEIs) plays an essential role in enhancing students' foundational entrepreneurial knowledge and various cognitive and non-cognitive skills. By doing so, it stimulates and encourages students to engage in entrepreneurial activities (Brüne & Lutz, 2020). This, in turn, serves as a

catalyst for motivating students toward entrepreneurship, contributes to improve entrepreneurship quality, and ultimately leads to entrepreneurial success (Galloway & Brown 2002).

Entrepreneurship education has become a prominent feature in the curricula of HEIs, not only in business schools but also in other areas (Kuratko, 2005). On the other hand, it should be noted that the teaching of entrepreneurship is not only carried out in HEIs, since in last years there has been a focus on teaching entrepreneurship both in high school, as well as in middle and elementary school. The rapid growth of entrepreneurship education in academia is proof that students who attend entrepreneurship courses have more intentions to create new businesses than students who do not participate in entrepreneurship education (Çera et al., 2021; Li et al., 2022). Formal entrepreneurial education has an impact on students' propensity to pursue a career as an entrepreneur (Shinnar et al., 2018).

## 2. Literature Review

### 2.1 Entrepreneurial Intention

The intention is a basic model for entrepreneurial behavior development and stands as the most reliable indicator of human behavior (Aamir et al., 2021). According to Ajzen (1991) and Sutton (1998), most socially relevant behaviors are under volitional control. Intention, therefore, can be considered an immediate antecedent of an actual behavior, an indicator of how hard individuals are willing to try, and an indicator of how much effort individuals are planning to exert in order to engage in a specified behavior (Kim & James, 2016).

EI has been extensively investigated in recent decades and continues to be of interest to researchers due to its importance for the development of many countries (Barba-Sánchez et al., 2022; Virasa et al., 2022). The literature on EI includes factors that influence it such as education (Thomas, 2023; Xu et al., 2023), personality traits (Kent et al., 2022), perceived ability (Sedeh et al., 2021) and teaching and training (Chaker & Dellagi, 2023).

Furthermore, entrepreneurship scholars have theorized that a series of external factors, such as the social, political and economic context influence EI (Doanh, 2021). Governments can intervene with financing schemes, tax policies and other support mechanisms that aim to mitigate market inefficiencies and promote entrepreneurship (Owen & Vedanthachari, 2023). Regarding the local context, several studies have focused on the capacity of certain resources, such as financial support (Sabri et al., 2023), entrepreneurship support services (Bazan, 2022) and human capital (Luo et al., 2022), can have in promoting EI.

Researchers Carr and Sequeira (2007) found that exposure to the family business serves as an important intergenerational influence on intentions to become an entrepreneur. Family characteristics have an implication in the emergence of new businesses, in the recognition of opportunity, in decisions to create a startup and in the mobilization of resources (Zaman et al., 2021). Likewise, previous exposure to entrepreneurship, both on the family and personal side, has an impact on EI. Exogenous influences (such as demographics, skills, societal traits, financial support and culture) affect attitudes and also indirectly affect intentions and behaviors to become entrepreneurs (Zaman et al., 2021). Family members in the business become a symbol for the entrepreneur and a source of financial and non-financial help. Likewise, family financial resources have a direct relationship with EI. It was observed that students with intentions of becoming entrepreneurs tend to be more qualified than individuals without entrepreneurial behavior. The experience of self-employment was directly related to students' EI (Gird & Bagraim, 2008).

A gender disparity has also been observed concerning entrepreneurial orientation (Villasana, Alcaraz-Rodríguez, & Alvarez 2016) as well as the motivation and intention to initiate one's own business (Hughes, 2003). The male students, as demonstrated by various empirical investigations (Dıaz-Garcıa & Jimenez-Moreno, 2010), tend to exhibit a stronger EI compared to female students.

Thus, recent studies have emphasized the need for an entrepreneurial attitude and intention as factors that determine entrepreneurial behavior (Cui & Bell, 2022). These factors can be greatly influenced by entrepreneurship education (Cui & Bell, 2022).

### 2.2 Entrepreneurial Intention and Theory of Planned Behavior

Based on the Theory of Reasoned Action (TRA) (Fishbein & Ajzen, 1975), the Theory of Planned Behavior (TPB) (Ajzen, 1988 and 1991) has become one of the most common psychological theories used to explain and predict human behavior (Carr & Sequeira, 2007; Kolvereid, 1996a; Maheshwari & Kha, 2021; Romero-Colmenares & Reyes-Rodríguez, 2022), including in the field of entrepreneurship (Liñán & Chen, 2009; Gieure, et al., 2020; Sampene, et al., 2022).

TPB has been validated as a robust and substantial theory throughout the various domains of human behavior (Cui & Bell, 2022). For example, TPB has been successfully applied to a wide variety of behaviors, such as organizational behavior (Wynn et al., 2021), health protection (Kim, et al., 2020), and purchasing behavior (Dorce et al., 2021).

The TPB establishes that intention is a consciously planned behavior (Bird, 1988; Krueger et al., 2000). Consequently, EI is considered an antecedent of the entrepreneurial behavior (Fayolle et al., 2006). Ajzen (1991, p. 181) defines intentions as "indicators of the difficulty that individuals are willing to try, of how much effort they are willing to exert, to execute the behavior". The stronger the intention to engage in a specific behavior, the more likely it will be to actually perform it (Ajzen, 1991). In other words, Ajzen (1991, 2002) maintains that intention is the immediate antecedent of behavior.

TPB becomes necessary due to the limitations of the original model in dealing with behaviors over which people have incomplete subjective control (Ajzen, 1991). In summary, the theory of planned behavior postulates that intentions have three conceptually independent determinants ("antecedents of intentions"), namely, personal attitude (PA), subjective norm (SN) and perceived behavioral control (PBC) (Ajzen, 1991). PA refers to the degree to which a person has a favorable or unfavorable evaluation or appreciation of the behavior in question. The term SN refers to the perceived social pressure to perform or not perform that behavior. As for PBC, this refers to the perceived ease or difficulty of carrying out the behavior. According to Ajzen and Fishbein (2004), the three theoretical antecedents should be sufficient to predict intentions, but only one or two may be necessary in any given application. In other words, the TPB states that the relative importance of the three factors can vary depending on the context. In a recent investigation conducted by Barba-Sánchez et al. (2022), they examined the components of the TPB within their research and their findings revealed that ATB and PBC exert a direct impact on the EI of students. However, it was observed that SN does not directly influence students' EI, but mediate the relationship between environmental awareness and ATB and between environmental awareness and EI.

Demographic characteristics and other characteristics related to the individual's background and environment are not directly addressed in the theory of planned behavior. This theory predicts that these factors do not have a direct impact on intentions, but an indirect impact through PA, SN and PBC (Kolvereid, 1996b; Krueger & Carsrud, 1993).

### 2.3 Entrepreneurial Intention Questionnaire

Liñan and Chen (2009) conducted research using a cognitive approach, employing an EI model. Their findings highlighted the need for further research to comprehensively understand the elements that influence individuals' perceptions of entrepreneurship. They also proposed the importance of conducting cross-cultural studies to gain deeper insight into how diverse cultures and values impact EI.

The model used by Liñan and Chen will be used in this research and is shown in Figure 1.

The hypotheses developed by Liñan and Chen are:

*H1: Personal attitude positively influences entrepreneurial intention.*

*H2: Perceived behavioral control positively influences entrepreneurial intention.*

*H3: Subjective norm positively influences entrepreneurial intention.*

*H4: Subjective norm positively influences personal attitude.*

*H5: Subjective norm positively influences perceived behavioral control.*

In the original model developed by Liñan and Chen, Hypotheses H6 and H7 are related to the influence of the country of origin: Spain or Taiwan.

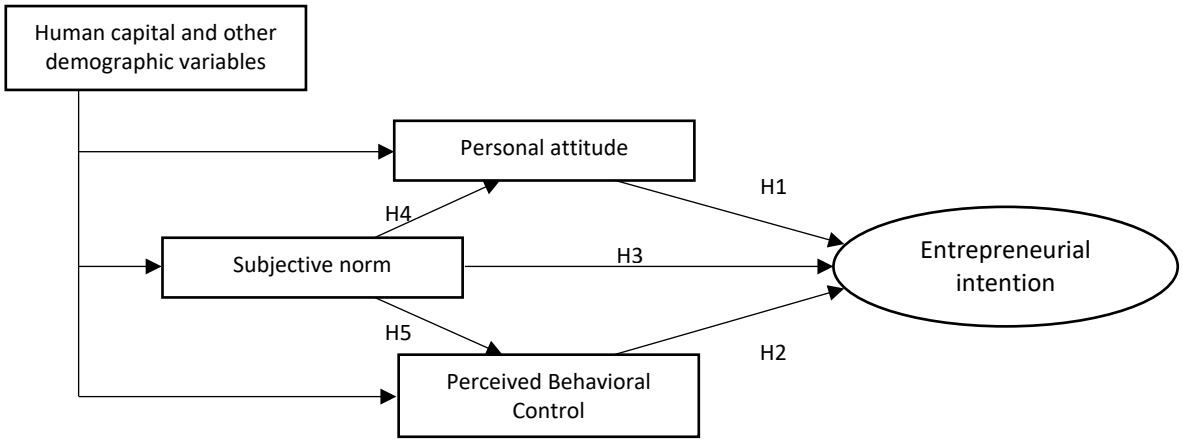


**Figure 1: Entrepreneurial Intention Model by Liñan and Chen (2009)**

Following the analysis of their data, Liñan and Chen (2009) reached at the conclusion that hypothesis H3 was not supported. Their core EI model, as proposed, received overall validation, except for the relationship between SN and EI (Hypotheses H3). Hypotheses H1 and H2 were confirmed, and it was established that SN indirectly influences EI through two pathways: one through PA (as confirmed by H4) and the other through perceived behavioral control (as confirmed by H5). Based on the findings of Liñan and Chen, this study intends to apply the entrepreneurship model to a sample of students from the Polytechnic Institute of Setubal (Portugal).

## 3. Methodology

Measures

This study used the Entrepreneurial Intention Questionnaire (EIQ) developed and validated by Liñán and Chen (2009). The questionnaire was specifically designed for applying the theory of planned behavior to entrepreneurship (Liñán & Chen, 2009; Liñán, 2008; Liñán et al., 2011). Initially tested with Spanish and Taiwanese samples, it has also been validated across various contexts, including both developed and developing countries (e.g. Hoda et al., 2021). The questionnaire comprised questions using a seven-point Likert scale (1=Strongly disagree to 7=Strongly agree) and nominal scales. The Likert scale questions assessed PA (5 items), SN (3 items), PBC (6 items) and EI (6 items). Nominal scales were used to measure gender (1=Male, 2=Female) and prior entrepreneurial exposure (whether respondents have work experience, or self-employment experience, with 1=Yes and 2=No).

Sample

The empirical analysis has been carried out on a sample of last-year students from College of Business Administration, Polytechnic Institute of Setubal, who attended the subject of entrepreneurship in the 2022/2023 school year. A total of 132 questionnaires were thus collected.

Student samples are very common in entrepreneurship research (Liñán & Chen, 2009) especially given evidence that university graduates between 25 and 34 years of age show the highest propensity toward starting up a firm (Reynolds, Bygrave & Autio, 2004).

To collect data, the research used part of the EI Questionnaire (EIQ) designed by Liñán and Chen (2009) with additional demographic questions (age, gender, course, labor experience and self-employment experience).

Entrepreneurial Intentions Questionnaire (EIQ)

The EIQ is an instrument developed by Liñan and Chen (2009) to measure EI and other variables such as PA, SN, and PBC.

Reliability and validity of the questionnaire were already verified by Liñán and Chen (2009) to ensure that each pool of questions is related to same subject and each subject corresponds to the required measure.

The questionnaire used in the research is divided into 2 sections. The first section identifies the profile of the respondents. In this section the main characteristics identified are: (1) the gender; (2) the age; (3) the course; (4) the work experience and (5) the self-employment experience. Section 2 comprehend the questions taken from the EIQ to measure, through a 7 Likert-type scale, the different constructs of the EI model (PA, SN, PBC and EI).

## 4. Results

As shown in Table 1, 51.5% of students are male and 48.5% are female and most are aged between 20 and 22 years.

The students participating in this study are from different courses, namely: Human Resource Management, information Systems Management, Marketing and Distribution and Logistics Management.

36.4% of the students surveyed indicated that they were pursuing a bachelor's degree in Distribution and Logistics Management, followed by Information Systems Management students (26.5%), Human Resource Management students (18.9%) and, finally, Marketing students (18.2%).

With regard to work experience, the majority (59.8%) reported having some work experience. However, only 19.7% of the total respondents claimed to have self-employment experience.

**Table 1: Students' profile**

| | Frequency | Percentage |
|---|---|---|
| **Gender** | | |
| Male | 68 | 51.5 |
| Female | 64 | 48.5 |
| **Age** | | |
| 20 – 22 | 95 | 72.0 |
| 23 – 25 | 24 | 18.2 |
| 26 – 28 | 5 | 3.8 |
| ≥ 29 | 8 | 6.1 |
| **Course** | | |
| Human Resource Management | 25 | 18.9 |
| Information Systems Management | 35 | 26.5 |
| Marketing | 24 | 18.2 |
| Distribution and Logistics Management | 48 | 36.4 |
| **Work experience** | | |
| Yes | 79 | 59.8 |
| No | 53 | 40.2 |
| **Self-employment experience** | | |
| Yes | 26 | 19.7 |
| No | 106 | 80.3 |

Cronbach's alpha was employed to assess reliability, resulting in values ranging from 0.785 to 0.955 (Table 2). Convergent validity was measured using the Kayser-Meyer-Olkin (KMO) test, yielding a score of 0.856, and Barlett's sphericity test, which had a significance level of $p < 0.001$. Subsequently, based on the aforementioned test results, factor analysis was conducted. A Shapiro-Wilk test was performed to examine data normality. Consequently, the principal axis factorization extraction method was utilized. The analysis yielded a solution comprising four factors, for which the eigenvalues are requested to be greater than 1. The cumulative variance explained by these factors is 76.9 percent (Table 2).

As shown in table 2, item SN1 does not load strong enough for PA and item PBC1 also does not load strong enough for PBC. Consequently, these two items were excluded from the subsequent phases of the research. To gauge discriminant validity, correlation values among the various construct groups were analyzed. The results confirmed that each item has a strong correlation with its respective construct and not with others.

**Table 2: Rotated Components Matrix**

| | Component | | | |
|---|---|---|---|---|
| **Factor** | **1** | **2** | **3** | **4** |
| **PA1** | | 0.578 | | |
| **PA2** | | 0.748 | | |
| **PA3** | | 0.840 | | |
| **PA4** | | 0.831 | | |
| **PA5** | | 0.639 | | |
| **SN1** | | | | |
| **SN2** | | | | 0.873 |
| **SN3** | | | | 0.914 |
| **PBC1** | | | | |
| **PBC2** | | | 0.577 | |
| **PBC3** | | | 0.586 | |
| **PBC4** | | | 0.888 | |
| **PBC5** | | | 0.676 | |
| **PBC6** | | | 0.625 | |
| **EI1** | 0.718 | | | |
| **EI2** | 0.793 | | | |
| **EI3** | 0.702 | | | |
| **EI4** | 0.848 | | | |
| **EI5** | 0.847 | | | |
| **EI6** | 0.844 | | | |
| **Percentage variance explained** | 53.6% | 10.5% | 7.2% | 5.6% |
| **Cronbach's α** | 0.955 | 0.913 | 0.883 | 0.785 |
| | EI | PBC | PA | SN |

Extraction method: Principal components analysis

When we examine the correlations between variables (table 3), it becomes evident that hypotheses H1, H2, H4, and H5 find support based on the strength of their correlation coefficients and regression values. On the other hand, hypothesis H3 is rejected. This is because the SN exhibits a relatively weak correlation with EI, standing at 0.399, and the regression coefficient of SN in relation to EI holds a significance value of 0.814, which exceeds the threshold of 0.01.

This findings are consistent with the findings of previous studies referred in literature review (Kolvereid 1996a; Kolvereid, 1996b; Tkachev & Kolvereid, 1999; Krueger et al., 2000; Liñán, 2004; Veciana et al., 2005; Fayolle & DeGeorge, 2006; Engle et al., 2010; Kautonen et al., 2015).

**Table 3: Correlation Matrix**

| | **PA** | **SN** | **PBC** | **EI** |
|---|---|---|---|---|
| **PA1** | | 0.324 | 0.202 | 0.460 |
| **PA2** | 0.729 | 0.031 | 0.208 | 0.432 |
| **PA3** | Average | 0.065 | 0.148 | 0.147 |
| **PA4** | | 0.101 | 0.101 | 0.384 |
| **PA5** | | -0.138 | 0.295 | 0.544 |
| **SN1** | | | | |
| **SN2** | 0.129 | 0.897 | 0.124 | -0.124 |

| | PA | SN | PBC | EI |
|---|---|---|---|---|
| **SN3** | -0.032 | Average | -0.159 | 0.070 |
| **PBC1** | | | | |
| **PBC2** | 0.265 | 0.036 | | 0.590 |
| **PBC3** | 0.063 | 0.061 | 0.760 | 0.595 |
| **PBC4** | 0.102 | -0.078 | Average | 0.183 |
| **PBC5** | 0.240 | 0.081 | | 0.335 |
| **PBC6** | 0.345 | -0.084 | | 0.465 |
| **EI1** | 0.422 | 0.008 | 0.095 | |
| **EI2** | 0.298 | -0.089 | 0.137 | |
| **EI3** | 0.412 | -0.055 | 0.315 | 0.798 |
| **EI4** | 0.286 | -0.004 | 0.312 | Average |
| **EI5** | 0.270 | -0.002 | 0.348 | |
| **EI6** | 0.210 | 0.045 | 0.308 | |
| | PA | SN | PBC | EI |
| **Correlations (significant at 0.01 (bilateral))** | | | | |
| **PA** | 1 | 0.411 | 0.693 | 0.837 |
| **SN** | | 1 | 0.481 | 0.399 |
| **PBC** | | | 1 | 0.779 |
| **EI** | | | | 1 |

A nonparametric test – Spearman's correlation was utilized to measure the strength of the relationships between demographic variables (age, gender, work experience and self-employment experience) and the constructs of the EI model (PA, SN and PBC).

Based on Table 4, there was a statistically significant low negative correlation between the PA and age (correlation coefficient = -0.363, p=0.000), and between the PBC and self-employment experience (correlation coefficient = -0.329, p=0.000). The relationships between the other variables showed negligible correlations with correlation coefficients ranging between -0.153 and 0.099.

**Table 4: Correlation Test**

| | | | PA | SN | **PBC** |
|---|---|---|---|---|---|
| Spearman's rho | Age | Correlation Coefficient | -.363* | .033 | .046 |
| | | Sig. (2-tailed) | .000 | .000 | .000 |
| | | N | 60 | 60 | 60 |
| | Gender | Correlation Coefficient | -.007 | -.149 | -.001 |
| | | Sig. (2-tailed) | .000 | .000 | .000 |
| | | N | 60 | 60 | 60 |
| | Work experience | Correlation Coefficient | -.153 | -.090 | -.080 |
| | | Sig. (2-tailed) | .000 | .000 | .000 |
| | | N | 60 | 60 | 60 |
| | Self-employment experience | Correlation Coefficient | .099 | .031 | -.329* |
| | | Sig. (2-tailed) | .000 | .000 | .000 |
| | | N | 60 | 60 | 60 |
| *. Correlation is significant at the 0.05 level (2-tailed). | | | | | |

These results contrast with the results evidenced by Liñan and Chen (2009), who reported that gender, self-employment experience, and work experience had an impact on the constructs of the EI model.

## 5. Discussion

This study utilized the EIQ instrument, originally developed by Liñan and Chen (2009). In the original paper by Liñan and Chen (2009), a comparative analysis was conducted between Spain and Taiwan. The objective of this present research is to introduce a new comparison, this time with a sample of students from Portugal.

The EIQ questionnaire, which was validated by Liñan and Chen, proved to be comprehensive and provided ample data to assess the proposed model. The proposed model, rooted in the theory of planned behavior, assesses variables such as PA, SN, and PBC. In our study, demographic factors such as age, gender, and self-employment experience did not exhibit significant influence on the constructs of the EI model. In contrast, Liñan and Chen reported that gender, self-employment experience, and work experience had an impact on the model.

Considering both the prior utilization and outcomes of the EI model and the results of our current research, the model demonstrates robust support.

## 6. Conclusions and Future Direction

In this study, we present a model with the variables that influence EI among students from Polytechnic Institute of Setubal (Portugal). Our study builds upon the work previously conducted by Liñan and Chen (2009), which explored the same variables but in different cultural contexts, namely Spain and Taiwan. Our research extends this comparison to a third country, Portugal.

This study allowed the confirmation of the findings of previous studies that have demonstrated that EI is predicted by PA, SN, and PBC. The results achieved contribute to reinforce the application of the theory of planned behavior (Ajzen, 1991) and confirm the influence of cultural and social environment in human behavior. The results obtained in this study confirm the findings of previous studies that have demonstrated that EI is predicted by PA, SN and PBC.

The main limitations of this study are the non-representativeness of the sample, and therefore extrapolations should not be made. In future studies, it is suggested that the sample may have a greater number of higher education institutions, in order to cover students from different areas of education. On the other hand, it is also suggested to analyze other variables that may have an influence on students' EI, such as analyzing the influence of the family on the development of EI.

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