The Role of Resilience and Theory of Planned Behavior Components in Shaping Entrepreneurial Intentions: A Study Among Business Students at IPS

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Abstract: Entrepreneurial intention (EI) is shaped by a combination of cognitive and psychological factors. This study investigates how resilience and the three components of the Theory of Planned Behavior (TPB) – Personal Attitudes (PA), Subjective Norms (SN), and Perceived Behavioral Control (PBC) – influence EI among undergraduate business students at the Polytechnic Institute of Setúbal (IPS). A quantitative approach was employed, using a structured questionnaire that combined the Entrepreneurial Intention Scale developed by Liñán and Chen (2009) with the Resilience Scale proposed by Campbell-Sills and Stein (2007). Data from 128 students were analyzed using factor analysis to confirm construct validity, followed by linear regression to test the proposed hypotheses. The results demonstrate that PA and PBC are strong positive predictors of EI, while SN has a weaker, though still significant, effect. Additionally, resilience shows a moderate but significant positive impact on EI, supporting its role as a relevant psychological contributor to entrepreneurial motivation. These findings reinforce the validity of the TPB framework while highlighting the added value of resilience. The study suggests that entrepreneurship education should not only address cognitive determinants but also integrate strategies that foster students' psychological adaptability to better prepare them for entrepreneurial challenges.

Keywords: Entrepreneurship, Entrepreneurial Intentions, Resilience, Entrepreneurship Education, Higher Education

1. Introduction

Entrepreneurship is widely recognized as a promising path for individuals to achieve financial independence while simultaneously contributing to economic development through job creation, innovation, competitiveness and economic growth (Barba-Sánchez et al., 2022). In this context, higher education institutions (HEIs) have increasingly promoted entrepreneurship education, viewing students as the entrepreneurs of tomorrow. This trend is supported by a growing body of research that identifies entrepreneurial intention (EI) as one of the most reliable predictors of entrepreneurial behavior (Bordean et al., 2025; Yu et al., 2021).

Understanding the factors that shape students' EI is therefore critical to nurturing future entrepreneurial aspirations. A range of cognitive and personality-related factors have been found to significantly influence students' intentions to engage in entrepreneurial activities (Biswas & Verma, 2021; Xanthopoulou & Sahinidis, 2024). 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 through education has gained growing recognition both within and outside the academic world. A substantial number of studies have examined the influence of entrepreneurship education on EI, and their findings are difficult to ignore. Given the central role of entrepreneurship in driving socio-economic development, there is increasing attention among policymakers, educators, and researchers toward entrepreneurship education as a strategic lever for national development (Nowiński et al., 2019). HEIs play an essential role in this process by equipping students with foundational entrepreneurial knowledge, as well as cognitive and non-cognitive skills that foster entrepreneurial engagement (Brüne & Lutz, 2020; Ncanywa & Dyantyi, 2022). This process not only motivates students to pursue entrepreneurial paths but also improves the overall quality of entrepreneurial ventures and increases the likelihood of success (Galloway & Brown 2002).

Entrepreneurship education has become a prominent feature in higher education curricula, not only in business schools but across a wide range of academic disciplines (Ncanywa & Dyantyi, 2022). Moreover, it should be

noted that the teaching of entrepreneurship is not only carried out in HEIs, since in last year's there has been a focus on teaching entrepreneurship both in high school, as well as in middle and elementary school.

This study seeks to explore the influence of resilience on EI, focusing on business students in higher education. By integrating resilience into the analysis of EI, this research aims to provide a more comprehensive understanding of the psychological foundations that support entrepreneurial aspirations.

The central research question guiding this work is: To what extent does resilience influence the EI of business students in higher education?

2. Literature Review

2.1 Entrepreneurial Intention

EI is widely recognized as a fundamental precursor to entrepreneurial behavior and is considered one of the most reliable predictors of human action (Aamir et al., 2021). According to Ajzen (1991) and Sutton (1998), most socially relevant behaviors fall under volitional control, meaning that individuals act based on conscious decisions. Intention thus represents the immediate antecedent of behavior, reflecting both the individual's willingness to engage in an activity and the effort they are prepared to invest to carry it out (Kim & James, 2016).

Over last decades, EI has attracted significant academic attention due to its crucial role in fostering entrepreneurship and, consequently, in supporting national development (Barba-Sánchez et al., 2022; Virasa et al., 2022). Literature identifies a wide range of factors that influence EI, including entrepreneurship 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).

Beyond individual characteristics, external contextual factors also play a pivotal role in shaping EI. The social, political, and economic environment can create enabling or constraining conditions for entrepreneurship (Doanh, 2021). Public policies such as financial incentives, tax policies, and entrepreneurship support programs are often used by governments to reduce market failures and stimulate entrepreneurial activity (Owen & Vedanthachari, 2023). At the local level, resources such as financial capital (Sabri et al., 2023), support infrastructures (Bazan, 2022), and human capital (Luo et al., 2022) have been identified as key contributors to the development of EI.

Research also highlights the influence of family background and exposure to entrepreneurial environments. Studies by Carr and Sequeira (2007) and Wang et al. (2018) show that exposure to the family businesses has a significant intergenerational effect on EI. Family-related factors can influence opportunity recognition, decision-making regarding business creation, and the mobilization of necessary resources (Zaman et al., 2021). Both direct exposure to entrepreneurship and symbolic family influence are linked to increased EI. Students with such backgrounds tend to exhibit higher EI, often accompanied by greater qualifications or prior self-employment experience (Mónico et al., 2021).

Moreover, empirical studies have revealed a persistent gender disparity in EI and motivation, with male students generally demonstrating higher levels of EI compared to their female counterparts (Villasana et al., 2016). These disparities are often attributed to differences in perceived behavioral control, social expectations, and access to entrepreneurial networks and resources.

Considering these findings, recent research has increasingly highlighted the importance of fostering an entrepreneurial mindset and intention as precursors to entrepreneurial behavior (Cui & Bell, 2022). These elements can be significantly shaped by entrepreneurship education, which plays a crucial role in developing both cognitive and attitudinal competencies conducive to entrepreneurship.

2.2 Theory of Planned Behavior

The Theory of Planned Behavior (TPB), developed by Ajzen (1988, 1991) and rooted in the Theory of Reasoned Action (TRA) by Fishbein and Ajzen (1975), has become one of the most widely adopted psychological models for explaining and predicting human behavior (Carr & Sequeira, 2007; Kolvereid, 1996a; Maheshwari & Kha, 2021; Romero-Colmenares & Reyes-Rodríguez, 2022). Within the field of entrepreneurship, the TPB has proven particularly useful in explaining the emergence of EI (Liñán & Chen, 2009; Sampene et al., 2022).

Validated across various domains, the TPB offers a robust framework for understanding how individuals form intentions to act. In the entrepreneurial context, the theory posits that EI is a planned, volitional behavior (Bird, 1988), and therefore represents a reliable predictor of future entrepreneurial action (Fayolle et al., 2006).

Ajzen (1991) 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 act, the more likely it is that the behavior will be performed. Accordingly, intention is considered the immediate antecedent of behavior (Ajzen, 1991, 2002).

The TPB postulates that intentions have three conceptually independent determinants (“antecedents of intentions”), namely, Personal Attitudes (PA), Subjective Norms (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.

Ajzen and Fishbein (2004) note that while all three antecedents contribute to predicting intention, their relative importance may vary depending on the context. In some cases, one or two may suffice to explain behavioral intentions.

Empirical studies have validated this structure in entrepreneurial contexts. For example, Barba-Sánchez et al. (2022) found that PA and PBC had a direct impact on students' EI, whereas SN played a more indirect role, acting as a mediator between environmental awareness and the other two constructs.

Importantly, the TPB does not assume that demographic or background variables directly influence intentions. Instead, these variables are expected to exert their influence indirectly, through their effects on PA, SN and PBC (Kolvereid, 1996b). This distinction reinforces the theory’s cognitive and motivational focus, highlighting the mediating role of individual perceptions in shaping EI.

Given its empirical robustness and conceptual clarity, the TPB offers a solid foundation for modeling EI. In the present study, its three components – PA, SN, and PBC – are considered as primary cognitive antecedents of EI.

2.3 Resilience

Nowadays "resilience" is extensively used in several scientific areas, namely psychology, medicine, and social sciences and is usually referred to the impact on a person of adverse (extreme, threatening, stressful) conditions and the ability to maintain normal performance of a person during and after such an impact (Grygorenko & Naydonova, 2023).

Many researchers state that the negative impact of stress or psychological trauma precedes resilience, and they agree that resilience belongs to the category of positive adaptation and adjustment (Ten Hove & Rosenbaum, 2018).

Most studies emphasize that resilience is a process. This shift in understanding stems from a gradual transition over the years – from viewing resilience as a personal trait to seeing it as a dynamic, developing process (Ten Hove & Rosenbaum, 2018; Stainton et al., 2018). As a result, there is now a consensus in the scientific community that resilience is not static but inherently dynamic in nature (Stainton et al., 2018).

Contextualizing resilience in business and entrepreneurship Manzano and Ayala (2013) refers to resilience as an important factor that becomes a fundamental source and expertise for entrepreneurs so that the business is run successfully. According to these authors, if a person has resilience, he/she will use this attribute to overcome the physical and psychological demands that must be faced later when adapting to change. Consequently, resilience is a critical factor for those with high EI.

Earlier research discusses how EI and resilience influence entrepreneurial behavior. According to Rohanara (2023), the effect of EI and resilience on entrepreneurial behavior in the millennial generation indicate that college students have scores of EI and higher resilience than employees, because they have taken courses which provide them with training on entrepreneurship.

Several authors agree that there is a relationship between resilience and EI and some of them have considered TPB and its effect on resilience (e.g., Silva et al., 2019). Some authors link attitude to variables such as risk, suggesting a connection with resilience (González-López et al., 2018); others highlight family roles and social support as key to resilience in the entrepreneurial process (Bernar & Barbosa, 2016) and some view perceived control as the ability to face challenges (Margaca et al., 2021).

3. Study Model and Hypothesis

Based on the literature reviewed above, the following hypotheses are proposed as part of this study and are illustrated in Figure 1.

H1: PA have a positive impact on EI

H2: SN have a positive impact on EI

H3: PBC have a positive impact on EI

H4: Resilience has a positive impact on EI

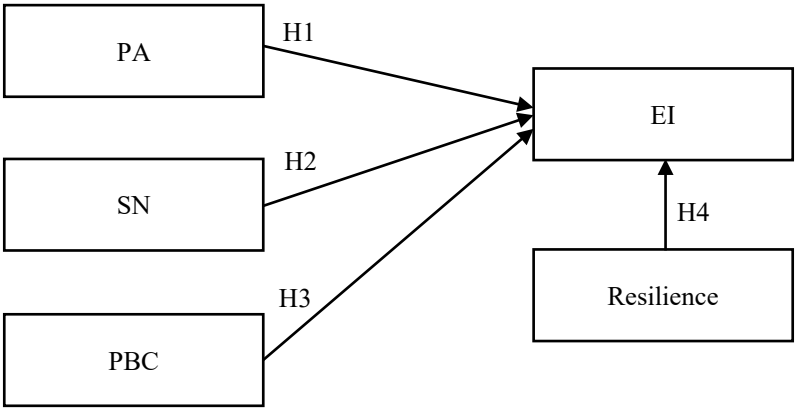

Figure 1: Proposed Study Model

To ensure clarity regarding the operationalization of the study variables, table 1 presents a summary of how each construct was measured, including the source of the scale, number of items used and items description.

Table 1: Measurement of Study Constructs and Items

Construct	Item Code	Item Description
Personal Attitudes (PA)	PA1	Being an entrepreneur implies more advantages than disadvantages
	PA2	A career as an entrepreneur is attractive for me
	PA3	If I had the opportunity and resources, I would like to start a firm
	PA4	Being an entrepreneur would give me great satisfaction
	PA5	Among various options, I would rather be an entrepreneur
Subjective Norms (SN)	SN1	My closest family members would approve of my decision to start a business
	SN2	My friends see entrepreneurship as a good career choice
	SN3	Important people in my life think I should pursue entrepreneurship
Perceived Behavioral Control (PBC)	PBC1	I am confident I can develop a successful business
	PBC2	Starting a firm would be easy for me
	PBC3	I know the necessary steps to start a business
	PBC4	I can control the creation process of a new business
	PBC5	If I tried to start a firm, I would have a high probability of success
	PBC6	I have the skills and abilities to be an entrepreneur
Entrepreneurial Intention (EI)	EI1	I am determined to create a firm in the future
	EI2	My professional goal is to become an entrepreneur
	EI3	I will make every effort to start and run my own firm
	EI4	I am ready to do anything to be an entrepreneur
	EI5	I am seriously thinking of starting a business
	EI6	I have the firm intention to start a business someday

Construct	Item Code	Item Description
Resilience (R)	R1	I tend to bounce back quickly after hard times
	R2	I have a hard time making it through stressful events
	R3	It does not take me long to recover from a stressful event
	R4	I usually come through difficult times with little trouble
	R5	I can deal with whatever comes my way
	R6	I believe I can achieve my goals, even if there are obstacles
	R7	I can stay calm in difficult situations
	R8	I believe I can handle unexpected problems
	R9	I think I am strong when facing challenges
	R10	I am able to adapt when things do not go according to plan

4. Methodology

This study followed a quantitative methodological approach with a descriptive and exploratory scope, which aimed to examine the relationships between resilience and the cognitive determinants of EI among higher education students. Data were collected through an online questionnaire administered to all undergraduate students enrolled in the Entrepreneurship course unit at the Polytechnic Institute of Setúbal (IPS), during the 2024/2025 academic year. Therefore, the sampling was non-probabilistic and intentional, based on the accessibility and relevance of the target group.

The collected responses were processed using IBM SPSS Statistics. Descriptive statistics were employed to characterize the sample. In addition, inferential statistical analyses, including factor analysis and linear regression were conducted to test the theoretical model and evaluate the proposed research hypotheses.

4.1 Instrument Design

Data was collected through a structured questionnaire composed of three main sections. The first section gathered demographic information, including age, gender, degree program, work experience, and prior self-employment experience.

The second section assessed EI using the Entrepreneurial Intention Questionnaire (EIQ) developed by Liñán and Chen (2009). The EIQ includes 20 items measuring four key dimensions: PA, SN, PBC, and EI. Items were answered on a seven-point Likert scale from 1 (Totally Disagree) to 7 (Totally Agree). The EIQ has been widely validated in cross-cultural entrepreneurship studies (e.g., Barba-Sánchez et al., 2022; Elnadi & Gheti, 2021).

The third section measured resilience using the 10 item Resilience Scale developed by Campbell-Sills and Stein (2007), a validated short form of the original scale by Connor and Davidson (2003). Respondents rated each item on a seven-point Likert scale ranging from 1 (Totally Disagree) to 7 (Totally Agree). This scale has been widely used in recent studies on psychological and entrepreneurial traits (e.g., Lozano-Díaz, 2020).

Both the EIQ by Liñán and Chen (2009) and the 10-item Resilience Scale by Campbell-Sills and Stein (2007) were selected due to their widespread use and robust psychometric validation across diverse contexts. Despite their original publication dates, these instruments remain current in the academic literature and have been employed in several recent empirical studies involving student populations (e.g., Barba-Sánchez et al., 2022; Cachón et al., 2020; Lozano-Díaz, 2020; Sampene et al., 2023). Their continued use facilitates cross-study comparability and ensures a theoretically sound measurement of the constructs under investigation.

4.2 Sample

The empirical analysis was based on a sample of 128 undergraduate students from the College of Business Administration (ESCE) at IPS. All participants were enrolled in the Entrepreneurship course unit during the 2024/2025 academic year, across four degree programs: Distribution and Logistics Management (36.7%), Marketing (25.0%), Information Systems Management (24.2%), and Human Resource Management (14.1%) (Table 3).

Table 2: Demographic Results of the Sample

Degree Program	Total number of students enrolled	Number of valid responses	Response rate (%)
Distribution and Logistics Management	72	47	65.3
Human Resource Management	28	18	64.3
Information Systems Management	71	31	43.7
Marketing	57	32	56.1

Of the total respondents, 70 (54.7%) were female and 58 (45.3%) were male. In terms of age, the majority were between 20 and 22 years old (65.6%), followed by those aged 23 to 25 (22.7%).

Regarding professional background, 51.6% of students reported having previous work experience, while 48.4% had none. Additionally, 21.9% of the participants had self-employment experience.

Table 3: Demographic Results of the Sample

Demographic Characteristics	Variable	Frequency	Percentage
Gender	Female	70	54.7
	Male	58	45.3
Age	20 to 22 years	84	65.6
	23 to 25 years	29	22.7
	26 to 28 years	4	3.1
	≥ 29 years	11	8.6
Course	Distribution and Logistics Management	47	36.7
	Human Resource Management	18	14.1
	Information Systems Management	31	24.2
	Marketing	32	25
Work experience	Yes	66	51.6
	No	62	48.4
Self-employment experience	Yes	28	21.9
	No	100	78.1

5. Results

To begin the analysis, a factor analysis was conducted to reduce the dimensionality of the variables derived from the Theory of Planned Behavior (TPB) - namely, PA, SN, and PBC – as well as the additional constructs of EI and Resilience. Cronbach's alpha was employed to assess reliability, resulting in values ranging from 0.792 to 0.968 (Table 4). The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy yielded a value of 0.889, while Bartlett's test of sphericity was statistically significant ($p < 0.000$), confirming the appropriateness of applying factor analysis. The extraction method used was Principal Component Analysis with Varimax rotation. These results confirm that the constructs under study are adequately represented and statistically supported.

As presented in table 4, item PA1 did not load strongly onto the PA factor, item EI1 showed a similarly weak loading on the EI factor, and items R3 and R4 demonstrated low loadings on the Resilience factor. Consequently, these items were excluded from subsequent analyses in order to enhance the reliability and validity of the constructs. To evaluate discriminant validity, the correlation values between the different construct groups were examined. The results confirmed that each item correlated more strongly with its respective construct than with others, supporting the adequacy of the factor structure and the distinctiveness of the constructs.

Table 4: Rotated Components Matrix

Factor	Loadings	Cronbach's Alpha	Variance Explained
PA1	-	0.915	4.0%
PA2	0.810		
PA3	0.703		
PA4	0.700		
PA5	0.747		
SN1	0.805	0.792	6.2%
SN2	0.880		
SN3	0.744		
PBC1	0.706	0.895	8.5%
PBC2	0.760		
PBC3	0.841		
PBC4	0.748		
PBC5	0.757		
PBC6	0.720		
EI1	-	0.968	43.8%
EI2	0.807		
EI3	0.709		
EI4	0.846		
EI5	0.823		
EI6	0.859		
R1	0.843	0.926	13.5%
R2	0.792		
R3	-		
R4	-		
R5	0.818		
R6	0.788		
R7	0.853		
R8	0.759		
R9	0.678		
R10	0.715		

Extraction method: Principal components analysis; Varimax rotation method with Kaiser standardization

Subsequently, to test Hypothesis H1, H2 and H3 of the study, a linear regression analysis was conducted using PA, SN, and PBC as independent variables, and EI as the dependent variable. The model explained a substantial proportion of the variance in EI, with an R-squared value of 0.621, indicating a strong predictive relationship.

In addition, a separate linear regression was performed to assess the relationship between Resilience (independent variable) and EI (dependent variable) (Hypothesis H4), in order to explore its individual contribution. This model yielded an R-squared value of 0.365, suggesting that resilience also plays a meaningful, although more moderate, role in predicting EI.

The results of both regression models are illustrated in Figure 2.

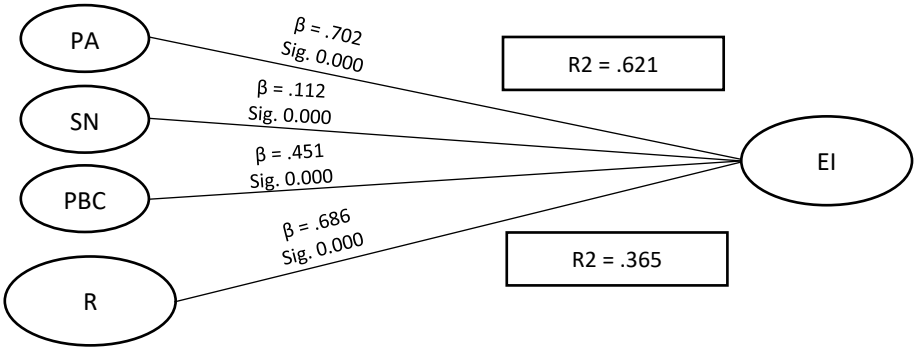

Figure 2: Linear Regression of Study Model

Note: PA = Personal Attitudes; SN = Subjective Norms; PBC = Perceived Behavioral Control; R = Resilience; EI = Entrepreneurial Intention

The results obtained from the linear regression analysis provide empirical support for Hypotheses H1, H2 and H3, indicating that PA, SN, and PBC all exert a positive influence on students' EI. Nevertheless, while SN contribute positively, their explanatory power is considerably weaker compared to the other constructs examined. These findings are consistent with previous research (e.g., Kolvereid 1996a; Kolvereid, 1996b).

In addition, Hypothesis H4 - which posits that Resilience positively influences EI - was also supported by the regression analysis, although the effect size was more modest.

6. Conclusions

6.1 Discussion

This study set out to explore the role of resilience and TPB components (PA, SN and PBC) in shaping EI among undergraduate business students. The empirical findings confirm that PA and PBC are strong predictors of EI, while SN, though statistically significant, had a weaker influence – consistent with prior research suggesting that personal and efficacy-related factors often outweigh social influences in entrepreneurial decision-making.

Moreover, resilience demonstrated a moderate and positive association with EI, confirming its relevance as a psychological resource that supports the formation of EI.

These findings reinforce the relevance of combining cognitive-motivational models with psychological attributes to obtain a more holistic understanding of EI.

6.2 Theoretical Contributions

This study contributes to literature in two key ways:

1. Extension of the TPB model: By integrating resilience into a TPB-based model, this research proposes a more psychologically enriched framework for explaining EI, aligning with recent calls for broader conceptualizations that include emotional and adaptive traits.
2. Empirical validation: The study validates the TPB constructs and resilience scale in a Portuguese higher education context, confirming their structural consistency and relevance for entrepreneurship research among students.

6.3 Implications for Entrepreneurship Education

The findings have several implications for entrepreneurship education in HEIs:

- Beyond knowledge and skills: While traditional entrepreneurship curricula focus on knowledge transfer and skill development, the results suggest the value of also fostering psychological resilience among students.
- Developing adaptive mindsets: Introducing reflective practices, experiential learning, and failure-tolerant environments may strengthen students' ability to cope with uncertainty – a critical asset in entrepreneurial contexts.

- Supporting EI formation: By recognizing resilience as a complementary factor to attitudes, norms, and control beliefs, educators can adopt a more integrative approach to developing entrepreneurial potential.

6.4 Final Conclusions

In sum, this study confirms the theoretical validity of the TPB in explaining EI among business students and introduces resilience as an additional factor that enhances our understanding of entrepreneurial motivation.

By addressing both cognitive and psychological dimensions, the research provides a more comprehensive model of how students form EI and offers insights that can inform the design of more effective entrepreneurship education programs.

6.5 Limitations and Future Research

The main limitation of this research is the non-representativeness of the sample, as it was restricted to students from a single HEI and limited to business-related degree programs. As such, generalizations to the broader student population should be made with caution. For future research, it is recommended to expand the sample to include students from multiple institutions and diverse academic fields, in order to enhance external validity.

Ethics Declaration

This research did not require formal ethical clearance as it did not involve any vulnerable populations or sensitive topics. All participants provided informed consent prior to their participation in the study.

AI Declaration

No generative artificial intelligence (AI) was used in the writing or editing of this work.

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