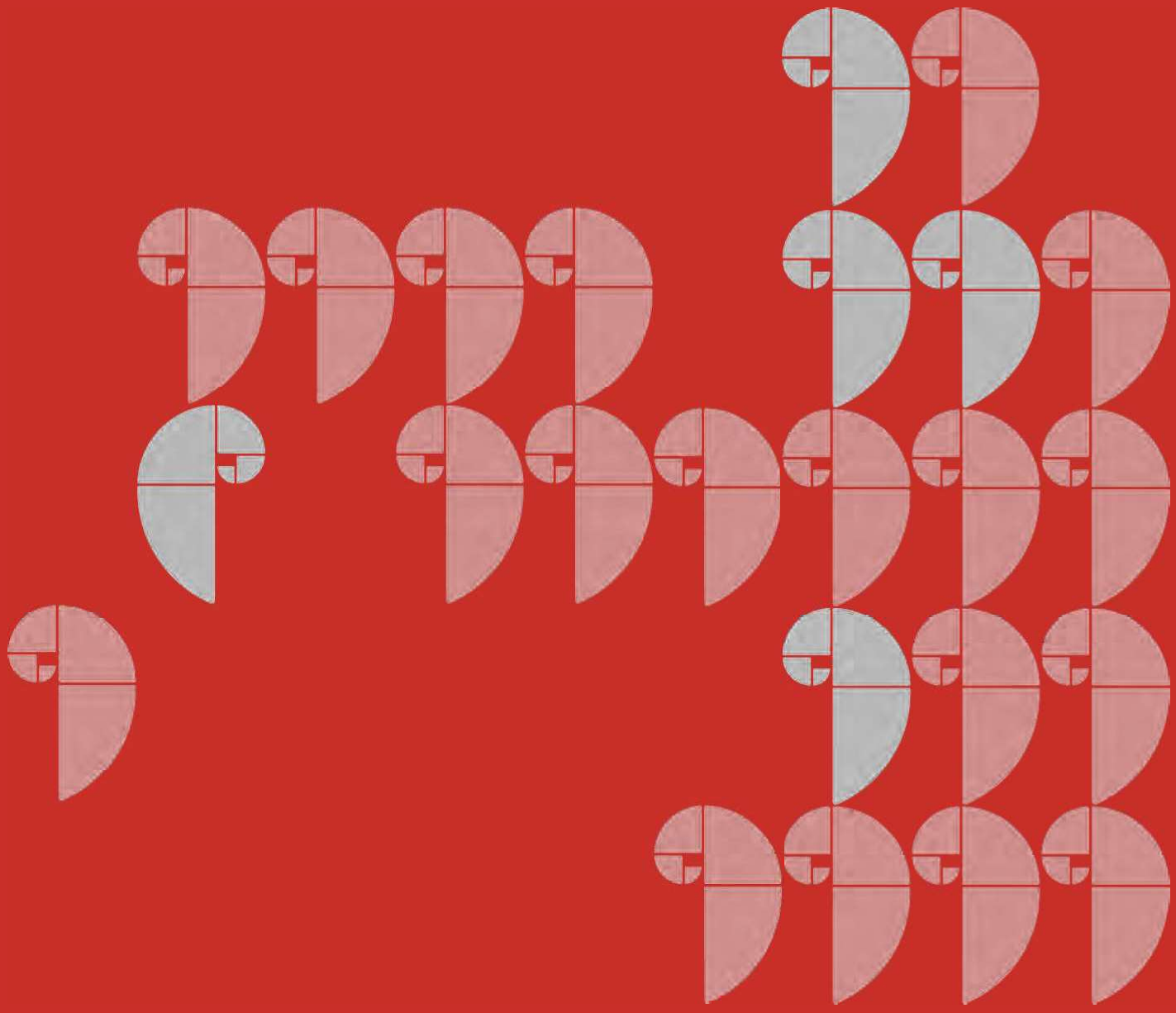

IX Regional HELIX 25

Transforming regions through innovation, sustainability and collaboration

Bragança . 2025

Book of Extended Abstracts

IX Regional Helix'25
Transforming regions through innovation, sustainability and collaboration

Publishing
UNIAG | Instituto Politécnico de Bragança
Campus de Santa Apolónia
5300-253 Bragança
Portugal
Data de Edição: junho de 2025
ISBN: 978-972-745-355-9
DOI: 10.34620/978-972-745-355-9
URL: https://www.helix.ipb.pt/
e-mail: helix@ipb.pt

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Acknowledgement and Gratitude

On behalf of the Organising Committee, we would like to extend our sincere thanks to everyone who contributed to the success of the IX International Regional Helix'25 Congress, held from 26th to 28th June at the School of Technology and Management of the Polytechnic Institute of Bragança (IPB), and organised by the Applied Management Research Unit (UNIAG).

The event demonstrated the essential role of collaboration among the four key actors of the Quadruple Helix model - academia, industry, government, and civil society - as a driver of sustainable regional development. We were especially pleased to count on the participation of members from the STARS EU consortium and the Thematic Interest Group (TIG) on Entrepreneurship & Innovation, whose contributions to the organising and scientific committees, as well as to the scientific programme, reflected a strong commitment to cooperation and innovation.

A particularly memorable moment of the congress was the round table "Transforming Regions through Innovation, Sustainability and Collaboration", which fostered critical dialogue on the challenges and opportunities of collaborative innovation and the role of the Quadruple Helix in regional transformation. We thank all speakers for their valuable contributions and for enriching this important session with meaningful perspectives.

The programme also included a Doctoral Forum, offering PhD students a valuable platform to present their research and receive feedback from experienced academics. This initiative supported scientific quality, intergenerational exchange, and the visibility of emerging researchers in an international context.

A total of 62 papers were submitted, representing over 150 authors and addressing a wide range of themes, including management, digital transformation, tourism, cultural heritage, entrepreneurship, regional economics, sustainability, and green transitions. Eleven of these papers were recognised during the closing session for their scientific excellence.

The quality and impact of the congress are a direct result of the outstanding work presented and the depth of discussion led by all participants, researchers, keynote speakers, and moderators. With participants from Albania, Brazil, Chile, Colombia, Mexico, the Netherlands, Spain, and Portugal, the congress reinforced its international dimension and its role as a platform for knowledge sharing, collaboration, and regionally focused innovation.

We are grateful to the Presidency of the Polytechnic Institute of Bragança, the Management Board of the School of Technology and Management, the Vice-Presidency for Communication, and the IPB Image Services and IT Technical Services for their support, as well as to the Foundation for Science and Technology, UNIAG, and all sponsoring organisations, both public and private, for making this event possible.

A special thank you goes to the Scientific Committee and the Steering Committee, whose valuable guidance and support were instrumental to the success of Regional Helix'25. Last but not least, heartfelt thanks to the Organising Committee and its dedicated team for their commitment, professionalism, and enthusiasm throughout what was both a challenging and rewarding mission.

As this chapter closes, we reaffirm our belief in the relevance and future potential of the Regional Helix initiative. We hope it continues to inspire reflection, foster meaningful debate, and open new paths for cooperation, knowledge transfer, and shared development.

Many thanks to all!

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From students to entrepreneurs: the forces that shaped entrepreneurial intentions in higher education institutions

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Abstract

Higher education institutions (HEI) and their surroundings play a fundamental role for contemporary societies in the field of education and knowledge generation. During the last decade, the university and its surroundings have become a special ecosystem. Specifically, favourable conditions are created for cooperation between various entities, namely, HEI, business incubators, technology transfer centers and funding institutions, which contribute to developing the academic entrepreneurship ecosystem. The ecosystem conception represents a new competitive force that includes universities that reveal their influence over entrepreneurial ecosystems. This study investigates the impact of entrepreneurial attitudes, subjective norms, and perceived behavioural controls on entrepreneurial intention using the theory of planned behaviour (TPB) as the theoretical framework. The consideration of more factors in the TPB were explored with the main aim of building a more comprehensive and complete explanation of EIs. This involvement builds a more comprehensive explanation of entrepreneurial intentions (EI). The research analyses data from 545 students through statistics and Structural Equation Modeling. This outcome was facilitated through entrepreneurial education and support from higher education institutions (HEIs), which, notably, did not significantly influence students' entrepreneurial intentions (EI). It has been observed that personality traits exert a positive influence on EI. This finding highlights the potential for creating or enhancing a structured academic ecosystem that more effectively promotes entrepreneurship.

Keywords: entrepreneurial intention, Theory of planned behaviour, higher education

1 INTRODUCTION

Understanding why entrepreneurs are born, what they do, and how their actions are successful is a central research topic in entrepreneurship [1].

Higher education institutions (HEI) and their surroundings play a "fundamental role for contemporary societies in the field of education and knowledge generation" [2]. For the authors, the university and its surroundings have become a special ecosystem during the last decade. Specifically, favourable conditions are created for cooperation between various entities, namely, HEI, business incubators, technology transfer centres and funding institutions, which contribute to developing the academic entrepreneurship ecosystem ([2], [3]). For [4], the ecosystem conception represents a new competitive force that includes universities that reveal their influence over entrepreneurial ecosystems. For [4] and [5], there exists a notable gap in the understanding of how entrepreneurial education, support systems, and personality traits can be effectively integrated to cultivate entrepreneurial intentions (EI) among students. Thus, this study seeks to answer the following research question:

How can entrepreneurial education, HEI support and personality traits influence students' EI in higher education institutions?

To this end, we employ the consideration and involvement of more factors in the TPB, which was explored using the theory of planned behaviour (TPB) as the theoretical framework with attitudes, subjective norms and perceived behavioural control [6]. This model is particularly appropriate for analysing the complex interaction between educational and personality factors in forming entrepreneurial intentions. In this context, this research examines the predictive factors influencing students' EIs at a polytechnic HEI in Portugal.

2 METHODOLOGY

The study, therefore, investigates EI and the resulting change among university students. As a basic framework, the influences of contextual factors such as entrepreneurial education, university support and personality factors are examined, resulting in the conceptual model proposed in Figure 1.

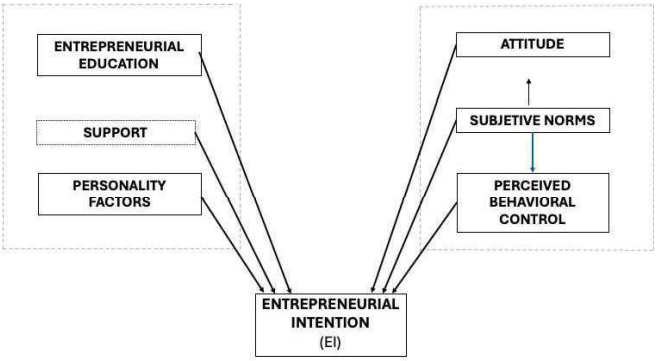

Figure 1. Conceptual Model

[6] argues that behavioral intention is fundamental to the Theory of Planned Behavior (TPB), as it reflects the motivations behind a given behavior. The theory suggests that stronger intentions increase the likelihood of actually carrying out the behavior. While TPB asserts that individuals have complete control over their decisions, it also acknowledges that behavioral intention is influenced by capabilities, opportunities, and resources. In the context of entrepreneurship, TPB emphasizes the importance of entrepreneurial intention in understanding the motivations that drive entrepreneurial behavior, confirming that a stronger entrepreneurial intention enhances the chances of becoming an entrepreneur.

The questionnaire was structured into three sections, with the first section focusing on the respondents' characterisation. The second and third sections comprises measures from TPB and three constructs were elaborated and measured according to the theoretical models. The groups of items are measured in 7-point Likert scales adapted from previous research (Table 1).

This multifaceted conceptual model provided a comprehensive framework for understanding the skillsets crucial to EIs.

Table 1. Summary of sections and constructs used in the questionnaire

Sections	*Constructs*			*Source*
I	Respondents' characterisation: Age, gender, cycle and areas of studies, year attended, work experience, student profile and residence region			-
II	Attitude		4 items	[7]
	Subjective Norms		3 items	[7]
	Perceived Behavioural Control		6 items	[7]
III	Entrepreneurial education	Entrepreneurial consciousness	5 items for example: 'Teachers have a creative approach to the process of developing entrepreneurial learning.'	[8] , [9]
		Perceived entrepreneurial education	6 items for example: 'My HEI offers elective courses on entrepreneurship.'	[8] , [9]
	University support	Concept development	4 items for example: 'My HEI provides students with the knowledge they need to start a business.'	[8] , [9]
		Business development	3 items	[8] , [9]

			for example: 'My HEI provides students with the financial means to start a new business.'	
	Personality traits	Recognising opportunities and creativity	3 items for example: 'It is easy for me recognize opportunities'	[10] , [11]
		Leadership, communication and problem-solving	2 items for example: 'I have leadership skills'	[10] , [12]
		Networking	1 item 'I have capacity for professional contacts and networking'	[10] , [13]

The Bragança Polytechnic Institute (IPB) was selected due to its accessibility and convenience for data collection purposes. The data was gathered through an online questionnaire distributed between June and July 2024, targeting students from all six schools affiliated with the IPB. This diversity was crucial to ensure the data captured a broad spectrum of perspectives and educational contexts.

Prior to presenting the main questions of the questionnaire, participants were informed about the study's objectives, the estimated time required for completion, and the voluntary nature of their participation. Informed consent was obtained from all participants. It was used LimeSurvey software for the collection of data and the sample includes 545 responses validated for data analysis.

To process and validate the data for the conceptual and proposed model, we utilized SMARTPLS 4.0 software. This software is well-suited for our exploratory study, which aims to adopt a causal-predictive approach to understanding EI. We followed the systematic two-stage approach for implementing PLS-SEM as proposed by [14] enhancing it with recent best practices discussed by [15].

3 RESULTS

SPSS statistics provides a detailed characterization of the student sample examined in this study. This study aged 18-61 years (Mage = 22 years, SDage = 5.8) with a minimum age of 18 years and maximum age of 61 years. The majority of respondents aged between 18 and 21 years, which corresponds with the first two degrees. Corroborating age, most of the sudents were enrolled in a Bachelor's degree (89%). Futhermore, there were 174 men (31.9%) and 371 women (68.1%) among the participants in this study.

The Cronbach's alpha based on standardised items is equal to 0.965 for the complete model with 45 variables. This value indicates an excellent internal consistency. This suggests that the items in the scale are highly correlated and reliably measure the same underlying construct. However, Cronbach's alpha only measures internal consistency and not construct validity, i.e. whether the scale actually measures the intended construct.

As a consequence, we also presents internal consistency, and convergent validity results. All item loadings exceed the 0.70 threshold, confirming indicator reliability, except Perceived entrepreneurial education – EDU9 (0.672). Cronbach's alpha and composite reliability values are above 0.70, indicating strong internal consistency. All AVEs are above 0.50, confirming convergent validity.

To examine discriminant validity, we analise the HTMT ratio between the constructs. All values are below 0.85, demonstrating discriminant validity ([16]). It confirms that the constructs are conceptually different from each other.

4 HYPOTHESIS DEVELOPMENT

With Figure 1 we presented the conceptual model. Extending TPB to include entrepreneurial education, HEI support and personality traits is essential for understanding their effects on EI. Entrepreneurship scholars have validated this assertion by showing that these constructs affects entrepreneurial intention positively (Table 1). Thus, we hypothesize.

4.1 Behavioral intention determinants and TPB

Hypothesis H1: the more favorable the attitude towards entrepreneurship, the stronger a student's entrepreneurial intention

Hypothesis H2: The more favorable the subjective norms towards entrepreneurship, the stronger a student's entrepreneurial intention.

Hypothesis H3: The greater the perceived behavioral control, the stronger a student's entrepreneurial intention.

4.2 Entrepreneurial education and HEI support

Hypothesis H4: entrepreneurial education significantly affect student's entrepreneurial intention.

4.3 Behavioral intention determinants and HEI support

Hypothesis H5: the more favorable the HEI support towards entrepreneurship, the stronger a student's entrepreneurial intention.

4.4 Behavioral intention determinants and personality traits

Hypothesis H6a: Recognising opportunities and creativity towards entrepreneurship, the stronger a student's entrepreneurial intention.

Hypothesis H6b: Leadership, communication and problem-solving towards entrepreneurship, the stronger a student's entrepreneurial intention.

Hypothesis H6c: networking skills solving towards entrepreneurship, the stronger a student's entrepreneurial intention.

5 CONCLUSIONS

This study reveal the importance of a holistic approach to developing entrepreneurial intentions. The conceptual model established could show the factors that need to be maximised to increase EI and specifically, have implications for EI among higher education students at IPB, in the north of Portugal.

The research analyses data from 545 students through statistics and the model presents internal consistency, and convergent validity results which means that these factors collectively contribute to the development and reinforcement of student's EI

The model has a limitation when it comes to analyses and hypothesis testing that should be considered when interpreting the findings in designing future research. Furthermore, deepening this study through PLS-SEM reveal the positive effect of these factors, such as education, university support, and personality traits. Its strength will be stablished with multivariate analyses that will facilitate the evaluation of the measurement model and hypothesis testing.

The collection instrument could also be used effectively in future research to refine and improve the survey items for future studies. Also, this future finding highlights the potential for creating or enhancing a structured academic ecosystem that more effectively promotes entrepreneurship.

ACKNOWLEDGEMENTS

This work is supported by national funds, throught the FCT – Portuguese Foundation for Science and Technology under de Project UID/04011: CETRAD – Centre for Transdisciplinary Development Studies. Optional statement to thank other contributors, assistance, or financial support.

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