

Research Paper

Entrepreneurial intention: the impact of higher education and in particular entrepreneurship courses

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ABSTRACT

Purpose: The Global University Entrepreneurial Spirit Student's Survey (GUESSS), a study on the entrepreneurial spirit of higher education students, which is applied globally, and which in 2018 involved the participation of 4178 Portuguese students, meets the concerns that the States have in deepening the approach to entrepreneurship in the teaching/learning process. The aim of the study is, among others, to assess the impact of entrepreneurship courses on the entrepreneurial intention of students. In this article, we analyze the data from the answers given by Portuguese undergraduate, postgraduate, Master in Business Administration (MBA), Masters, and Ph.D. students.

Methodology: For this purpose, descriptive statistics methods, association measures such as correlation coefficients, and a Structural Equation Model tested with SPSS AMOS v.26 software were used.

Findings: Based on the study carried out and the analysis of the data obtained, it was possible to extract that there are positive relationships between Attitude towards behavior on Entrepreneurial Intention, on Perceived behavioral control on Entrepreneurial Intention, on Entrepreneurial Courses on Attitude towards behavior, on Entrepreneurial Courses on the subjective norm, from Entrepreneurial Courses on Perceived behavioral control, from Perceived University Environment on Attitude towards behavior, from Perceived University Environment on the subjective norm, and from Perceived University Environment on Perceived behavioral control. The relationships of Entrepreneurial Courses and Perceived University Environment on Entrepreneurial Intention were also analyzed and mainly indirect effects were verified,

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and there is a positive relationship between Entrepreneurial Courses and Perceived University Environment on Entrepreneurial Intention.

Originality/value: To answer the question “Do Entrepreneurial courses and the university environment influence entrepreneurial intention in Portugal?” and to offer a new contribution to the scientific community and Portuguese higher education institutions, the data collected through the GUESSS 2018 questionnaire was analyzed. This study then made it possible to test the impact of entrepreneurship courses and of the academic environment on the entrepreneurial intention in Portugal.

Keywords: Guesss, Entrepreneurship, Education, Entrepreneurial Intention

1. Introduction

Portugal was part of the 2018 Global University Entrepreneurial Spirit Students Survey (GUESSS) Project, whose main objective, as in previous editions, was to assess the entrepreneurial spirit of higher education students. This project consisted of promoting an online questionnaire that, in 2018, covered 54 countries and over 3,000 universities (with over 208,000 questionnaires having been answered in full). GUESSS is currently the best international instrument to help understand issues regarding occupational choice and employability via entrepreneurship, allowing for a scientifically strong comparative analysis between higher education institutions in Portugal, Europe and the World.

The definition of the problem was the starting point for the scope of the research, and this stage is the most relevant in the development of any study. As stated by Malhotra et al. (2015), to define the problem, the purpose of the study and the relevant information for the decision-making process should be taken into account.

Therefore, in the present study, the starting question is: Do Entrepreneurial courses and the university environment influence entrepreneurial intention in Portugal?

To answer the question, and to offer a new contribution to the scientific community and Portuguese higher education institutions, the data collected through the GUESSS 2018 questionnaire was analyzed. This study then made it possible to test the impact of entrepreneurship courses and of the academic environment on the entrepreneurial intention in Portugal.

The first part of the article presents a literature review on entrepreneurship, entrepreneurship education and entrepreneurial intention, and acts as a theoretical contextualization on the subject under study. The theoretical foundation also includes the definition of the research hypotheses and a structural equation generic model.

Afterwards, the methodology followed in the study is presented, based on Lopez and Alvarez (2019), namely the descriptive statistics methods used, the association measures such as the correlation coefficients, and the Structural Equation Model.

The results of the study are presented and discussed next, and, at the end of the paper, the main conclusions of the study, the contribution of the study to investigation on entrepreneurship and to Portugal, and the reference to the continuation of the study are presented.

2. Literature Review and Hypotheses Development

2.1. Entrepreneurship

Entrepreneurship, in particular the outcome of entrepreneurial activities, such as business success, has been the subject of increasing international investigation in recent years. There is already extended relevant investigation on the topic, namely on the importance of the business model, the human capital, the external environment and also of the base idea of projects (Lamas, et al., 2019) and its contribution to economic, social and environmental development and, of course, to job creation (European Commission, 2003; Kritikos, 2014; Lamas, 2012; Miller, et al., 2009).

2.2. Entrepreneurship Education

Entrepreneurship Education has been the focus of investigation by several authors in recent decades (Lamas, 2018). As a recent area of investigation, its first evidence came in the 1970s, when entrepreneurship acquired the quality and status of class in Higher Education (Cooper, 2003). Since then, much has been written and much progress has been made in this emerging and multidisciplinary area, and high quality works have been produced (Lorz et al., 2013). As it is a recent, emerging and fast-growing topic, it remains impossible to have an overview and there are several divergent perspectives and little solidity (Baxter et al., 2014; Fellnhofner, 2019; Lamas, 2018; Lorz et al. 2013).

Promoting entrepreneurship has always been important; however, in the society we live in, it is currently an undeniable necessity (Lamas, 2012). Entrepreneurship, and, in particular, entrepreneurship education, is even recognized by various domains in society (political, economic and educational) as the main driver of economic, social and environmental development (Lamas, 2012; Shane & Venkataraman, 2000). Policy makers give it a growing attention and consider it fundamental for the future of economic development, as clearly demonstrated by the green book on entrepreneurial spirit in Europe (European Commission, 2003).

The focus and attention of Entrepreneurship Education is increasingly directed towards the methodology to be adopted in education, challenging the more traditional methods (European Commission, 2011, 2014; Lamas, 2019; Neck & Greene, 2010, Paço et al, 2011) and even curricula (European Commission, 2006, 2012), namely, by focusing the teaching-learning process on learning-by-doing. Entrepreneurship Education cannot be restricted to the formal and institutional perspective, it must be present throughout life and in all contexts and environments we experience in our academic and professional paths (Lamas, 2018). Teachers must, therefore, be properly prepared in any model, formal, informal and non-formal, to motivate and engage students, taking into account their reality, goals and ambitions, implementing practical activities that allow them to develop characteristics such as: creativity, innovation, ability to measure risk, perception and use of opportunities, curiosity, predisposition to build and make use of networks.

Knowledge and skills development should also be promoted, which, not only increase with the different perceptions of reality, but also transform, with challenges and/or obstacles that teachers and students face on a daily basis.

It is therefore essential to guarantee, in the teaching context, in the classroom and outside of it, the necessary conditions for there to be a constant interaction between knowledge, experience and social and emotional dimensions and, also, with the

surrounding community in order to promote the entrepreneurial skills already identified (Lamas, et al, 2019, Markowoska, 2011).

2.3. Entrepreneurial Intention

As it was possible to understand, entrepreneurship, or, better yet, entrepreneurial initiatives are fundamental for sustainable development, economic, social and environmental. Therefore, after the focus on Entrepreneurship Education, it is now important to focus on entrepreneurial intention. Intention is a relevant topic for all those interested in entrepreneurship and in business creation. Degen (1989) actually states that, to be an entrepreneur, it is essential to feel the need to act, the basic concept of entrepreneurship which results from the action of the entrepreneur, the valorization of opportunities over attempts, as part of a clearly intentional process (Krueger et al., 2000).

The assessment of students' entrepreneurial orientation, their intention and interest for entrepreneurship is, therefore, crucial for both educational institutions, especially universities and technology institutes, and for policy makers. As entrepreneurial orientation is one of the best indicators of what is and what will be the level of entrepreneurial initiatives and business creation (Krueger et al., 2000), it becomes a support tool for the creation of courses and/or subjects and their respective plan and curricula, and of legislative initiatives to build a favorable ecosystem that will promote entrepreneurship.

The investigation on entrepreneurial intention has already produced several models, three of which are most widely used: the entrepreneurial intention model (Shapero & Sokol, 1982), the concept of self-efficacy (Bandura, 1989) and the theory of planned action (Ajzen, 1991). According to the model developed by Shapero & Sokol (1982), intention is influenced by the received attraction, coming from the value system and the social system related to each individual, and by the received feasibility, related to potential financial support and potential partners. This means that only a catalyst event will make individuals act, as their life is guided by inertia (Oliveira et al, 2013). This model, although not a model of entrepreneurial intention *per se*, has gained importance and is accepted as such by the community of researchers on entrepreneurship. As for the model based on Bandura's concept of perceived self-efficacy, it can be defined on the basis of each individual's personal beliefs about one's abilities to succeed in the possible action to be made. Finally, Ajzen's model of the theory of planned action states that intention is determined by subjective attitudes and norms.

And what is the role of higher education in promoting entrepreneurial intention and, in particular, of the courses on entrepreneurship in a higher education context in Portugal? Several available studies show that there is direct relation between education on entrepreneurship and entrepreneurial intention (Paço et al, 2011; Piperopoulos & Dimov, 2015; Walter & Block, 2016).

2.4. Research hypotheses and structural equation generic model

Sampieri *et al.* (2006, p.122) define research hypotheses as "attempts to explain the investigated phenomenon, which are formulated in the form of propositions". According to the same authors, together with Hill and Hill (2005), the investigation hypothesis is a very important part of the research process, as it bridges the gap between the theoretical and the empirical parts of the research and, therefore, the hypothesis plays a key role, as it is relevant the formulation of hypotheses in studies that combine

different methodological approaches. Thus, the research hypotheses to be tested in the current investigation based on the method of Lopez and Alvarez (2019), are presented below:

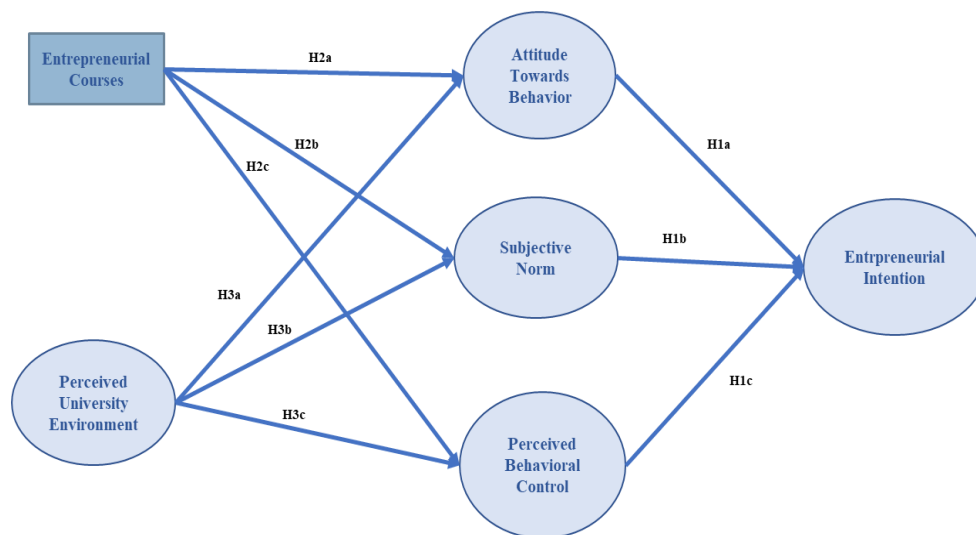
Hypothesis 1: There is a positive relation between (H1a) attitude towards the behavior, (H1b) subjective norm, (H1c) perceived behavioral control and entrepreneurial intention.

Hypothesis 2: There is a relation between attending entrepreneurial courses and (H2a) attitude towards the behavior, (H2b) subjective norms, (H2c) and perceived behavioral control.

Hypothesis 3: There is a relation better perception garnered by having an encouraging university environment and (H3a) attitude towards the behavior, (H3b) subjective norms, (H3c) perceived behavioral control.

Figure 1 presents the theoretical model that is to be tested

Figure 1: Structural equation generic model to be tested



Source: Own elaboration

3. Research Methodology

3.1. Participants

In Portugal, a total of 4178 students took part in the study: 35.3% men, 64.2% women, and 0.6% did not answer this indicator. In terms of age, 71.7% were up to 24 years old, 12.8% between 25 and 30 years old and 14.3% over 31 years old. In terms of education, 66.7% of students were attending undergraduate, 21.7% a postgraduate (Master) programme, and only 6.2% of respondents were in a PhD programme and 5.4% in others (for example, MBA).

The study guarantees anonymity and confidentiality to the respondents; to minimize bias and obtain a higher response rate, the questionnaire was sent by email to all students at the institutions participating in the study.

3.2. Measures

The constructs were operationalized based on scales established in the GUESSS 2018 study. The measures are presented below:

- *Entrepreneurial Intention (EI)*. To operationalize this variable, students rated six items on a seven-point scale (1=strongly disagree, 7=strongly agree).

The items on this scale were:

- ie1*- I am ready to do anything to be an entrepreneur;
- ie2*- My professional goal is to become an entrepreneur;
- ie3*- I will do all I can to start and develop my own business;
- ie4*- I am determined to set up a business in the future.
- ie5*- I have seriously been thinking about starting a company;
- ie6*- I have a strong intention to one day create a company.

Cronbach's alpha (α) reported for the items of this scale in previous studies was 0.8 (Liñán, et al., 2011b), 0.96 (Shirokova et al., 2016) and 0.95 (Lopez & Alvarez, 2019).

- *Attitude towards behavior (ATB)*. This variable refers to students' assessment of their own behavior and its possible outcomes. The items, in a seven-point scale (1=strongly disagree, 7=strongly agree), were:

- atb1*- For me, being an entrepreneur entails more advantages than disadvantages;
- atb2*- A career as an entrepreneur is attractive to me;
- atb3*- If I had the opportunity and the resources, I could pursue a career as an entrepreneur;
- atb4*- Out of several options, I would prefer to be an entrepreneur;
- atb5*- Being an entrepreneur would give me great satisfaction;

Data from other studies confirm the reliability of the scales, Cronbach's $\alpha = 0.72$ (Liñán et al, 2011b) and 0.94 (Lopez & Alvarez, 2019).

- *Perceived subjective norm (SN)*. This variable refers to the social perception of entrepreneurship students. Following Liñán and Chen (2009), in the research, students answered the following question: If you wanted to develop a career as an entrepreneur, how would people in your immediate environment react? ' The answers were coded in a

seven-point scale (1=very negatively, 7=very positively) and corresponded to three types of relationship:

sn1- Close family;

sn2- Friends;

sn3- Classmates.

Similarly, previous research confirmed the reliability of the scales Cronbach's $\alpha = 0.83$ (Souitaris et al., 2007), 0.81 (Liñán et al., 2011b) and 0.83 (Lopez & Alvarez, 2019).

• *Perceived behavioral control (PBC)*. This variable captured a perception of easiness or difficulty in maintaining an entrepreneurial behavior or in achieving good performances. As with the other constructs, a seven-point scale (1=strongly disagree, 7=strongly agree) was used; the three items, according to Liñán and Chen (2009), were:

pb1- I am usually able to defend my personal interests;

pb2- When I make plans, I am almost sure that I will be able to execute them;

pb3- I am able to determine what will happen in my life.

Cronbach's α for the three-item scale in previous research was 0.73 (Liñán et al., 2011b) and 0.75 (Lopez & Alvarez, 2019).

• *Entrepreneurship courses (EC)*. This variable identifies if the student attended an entrepreneurship course unit. It is a dummy variable where 0= I have never attended an entrepreneurship course until now and 1= I have attended at least one entrepreneurship course, optional or mandatory.

• *Perceived university environment (PUE)*. It refers to the perception students have on the environment and on the facilities offered by the university to motivate entrepreneurship. The three items, answered in a seven-point scale (1=strongly disagree, 7=strongly agree), were:

PUE 1- The environment at my institution inspires me to develop ideas for new businesses;

PUE 2- There is a favorable setting for someone to become an entrepreneur in my institution;

PUE 3- In my institution, students are encouraged to engage in entrepreneurial activities.

Data from previous research confirmed the reliability of the scales, Cronbach's $\alpha = 0.83$ (Bergmann et al., 2016) and 0.91 (Lopez & Alvarez, 2019).

3.3. Procedures

Descriptive statistics methods, such as mean, median and standard deviation, were used. The subsequent statistical analyses depend on whether the variables follow (or not) a normal distribution, to test the assumption of normality of the variables. Marôco (2010)

indicates that the results of the asymmetry and tailedness measures can be used. The asymmetry represents the skewness of the distribution of values around its mean, while the tailedness coefficient, or kurtosis, allows checking whether the distribution of each variable is more or less tailed. According to the same author, whenever the values of these indicators are greater than 1, it may be assumed that the data follow a distribution that should not be considered normal. Measures of association are also used as correlation coefficients, in which *Pearson's* correlation coefficient or *Spearman's* R_0 can be used, depending on whether the variables follow (or not) a normal distribution. The use of Structural Equation Models allows to understand the interrelationships between latent variables or constructs and observable variables (Hair et al., 2014). The main advantage of applying this method of analysis is the possibility of defining or testing a model to simultaneously explain all relationships.

To assess the quality of the adjustment of the model, several measures can be used. The Chi-squared test (χ^2) represents the difference between the observed and the estimated matrices of covariance. The number of degrees of freedom relates the number of observed variables and the number of parameters to be estimated. A smaller value of χ^2 represents a smaller difference, so the adjustment is better. For Hair et al (2010) a value of χ^2/df less than or equal to 3 means a good adjustment. However, for these authors, this measure is affected by the size of the sample and by the number of variables observed.

The RMSEA (*Root Mean Square Error of Approximation*) is one of the most widely used measures, representing the viability of the model to the population. Lower RMSEA values indicate a better adjustment. For Hair et al (2010) RMSEA values between 0.03 and 0.08 mean a good adjustment, for 95% CI. According to the same authors, a CFI (*Comparative Fit Index*) above 0.9 indicates a good adjustment. The TLI (Tucker-Lewis Index) is an incremental index, and the closer to 1, the better the model adjustment (Hair et al, 2010).

Next, the results demonstrate the validity of the theoretical model presented in Figure 1, through structural equation modelling (SEM), and confirmatory factor analysis (CFA) that was performed to test the measurement model. SPSS and SPSS Amos version 26 was used as statistical software.

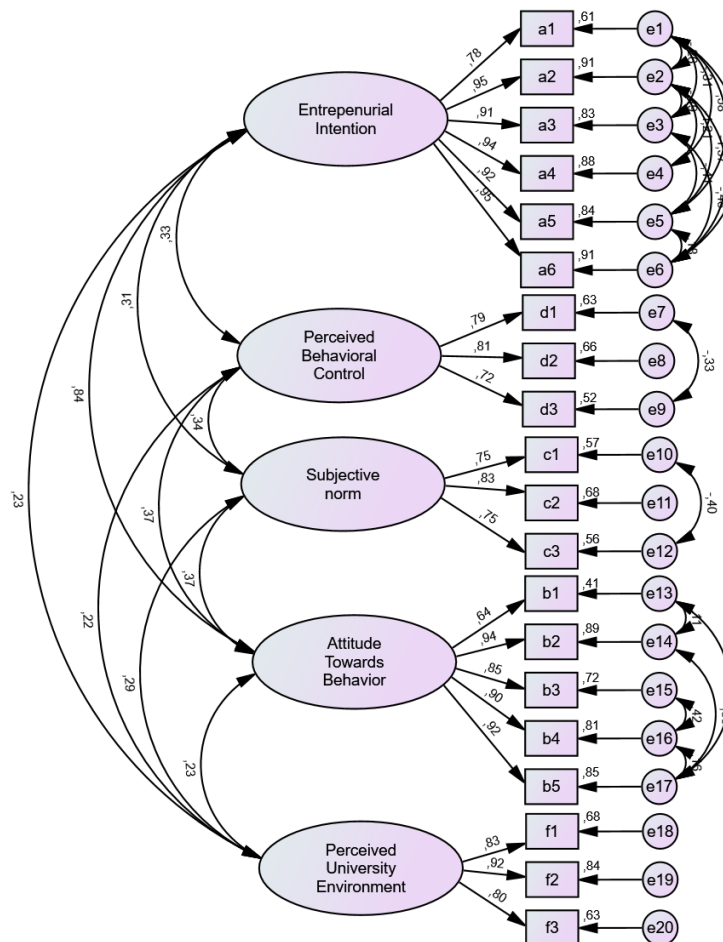
4. Results and Discussion

To validate the approximation of a normal distribution, we used skewness and kurtosis indicators. Values for skewness and kurtosis between -1 and +1 are considered acceptable to prove the normality of the variables (Marôco, 2010). The skewness and kurtosis values validated approximation to a normal distribution.

Validity is the property of the scale that assesses whether it measures the respective latent construct (Hair et al., 2010). Construct validity has three components: factor validity, convergent validity and discriminant validity (Marôco, 2014). In this investigation, it is possible to calculate factor validity and convergent validity. Hair et al. (2010) believe that factor validity exists when the standardized factor weights (λ_{ij}) are equal to or greater than 0.5.

Figure 2 presents the CFA results used to demonstrate the validity of the adjustment of the factor structure.

Figure 2: CFA result



Source: Own elaboration

Next, Table 1 presents the values of the index of factor adjustment.

Table 1: Index of factor adjustment

Index	Value	Index assessment
χ^2/df	6.154 ($p < 0.01$)	Bad adjustment
RMS EA	0.038	Great adjustment
CFI	0.988	Great adjustment
TLI	0.983	Great adjustment
GFI	0.975	Great adjustment

Source: Own elaboration

Table 2 summarizes all the reliabilities measures applied and presents good results. Cronbach’s α reliabilities has 3 constructs above 0.8 and two above 0.70; AVEs are all above 0.5, and, in terms of CFA, the values are quite acceptable.

Table 2: Reliability measures

	Cronbach’s α	AVE	%	CR
Entrepreneurial intention	0.947	0.829	82.9	0.967
Perceived behavioral control	0.786	0.601	60.1	0.818
Attitude towards behavior	0.933	0.736	73.6	0.932
Subjective norm	0.766	0.603	60.3	0.819
Perceived university environment	0.880	0.718	71.8	0.883

Source: Own elaboration

Analyzing the hypotheses raised, through SEM, it can be seen that they present statistically significant values and confirm most of the relationships proposed in the model.

Regarding the first hypothesis, it is partially supported as there are positive relationships between Attitude towards behavior on Entrepreneurial Intention (H1a), between Perceived behavioral control - Entrepreneurial Intention, but regarding the relationship between subjective norm on Entrepreneurial Intention (H1b) it was not significant.

In the second hypothesis, the results support the same by showing a positive relationship between Entrepreneurial Courses on Attitude towards behavior (H2a), between Entrepreneurial Courses on subjective norm(H2b) as well as Entrepreneurial Courses on Perceived behavioral control(H2c).

The third hypothesis is supported in that there is a positive relationship between Perceived University Environment on Attitude towards behavior (H3a), Perceived University Environment on subjective norm(H3b) and by the relationship Perceived University Environment on Perceived behavioral control(H3c).

In the structural model, the results showed eight significant coefficients for a level of 0.05. In Table 3 we can see these results.

Table 3: Analysis - Statistical significance of the trajectory coefficients of the structural model.

Test	structural model trajectory	p-value
H1a	Attitude towards behavior – Entrepreneurial Intention	***
H1b	Subjective norm- Entrepreneurial Intention	0.320
H1c	Perceived behavioral control - Entrepreneurial Intention	***
H2a	Entrepreneurial Courses - Attitude towards behavior	***
H2b	Entrepreneurial Courses – subjective norm	0.048*

H2c	Entrepreneurial Courses - Perceived behavioral control	***
H3a	Perceived University Environment - Attitude towards behavior	***
H3b	Perceived University Environment - subjective norm	***
H3c	Perceived University Environment - Perceived behavioral control	***
	Entrepreneurial Courses - Entrepreneurial Intention	0.235
	Perceived University Environment - Entrepreneurial Intention	0.747

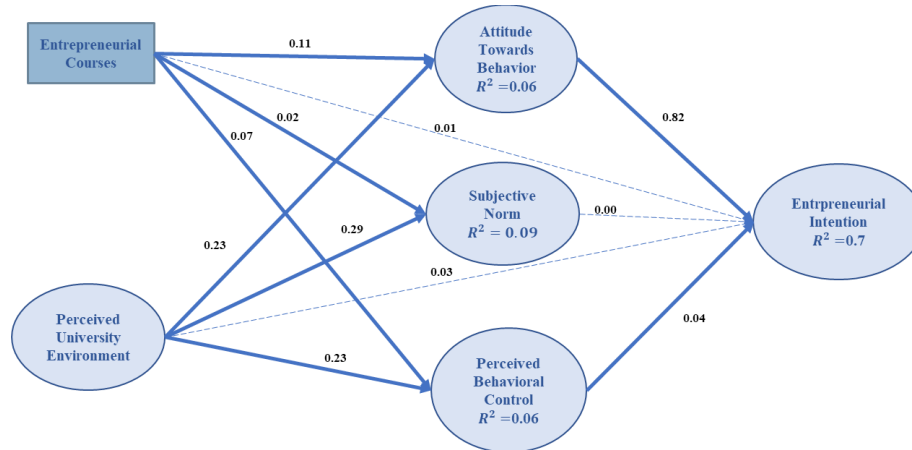
* p<0.05
 *** p<0.01

Source: Own elaboration

The relationships of the variables Entrepreneurial Courses and Perceived University Environment on Entrepreneurial Intention were also analyzed and mainly indirect effects were verified, with Image 3 showing the results of a positive relationship between Entrepreneurial Courses and Perceived University Environment on Entrepreneurial Intention.

In this sense, we present in Figure 3 the structural model tested, through the SPSS AMOS v.26 software. We can see that the variance explained (R^2) is 0.06 for Attitude towards behavior, 0.09 for Subjective norm, 0.06 for Perceived behavioral control and 0.7 for Entrepreneurial Intention.

Figure 3: Structural model



**p < 0.01

Source: Own elaboration

Next, Table 4 presents the values of the adjustment index of the structural model. The values are fully satisfactory, and it is possible to conclude that this model has a fairly good adjustment, corroborating previous studies (Lopez & Alvarez, 2019) and showing similar values even in a different cultural and social context from that study.

Table 4: Model Adjustment Index

Index	Value	Model Adjustment quality
χ^2/df	10.405 ($p < 0.01$)	Bad adjustment
RMSEA	0.052	Good adjustment
CFI	0.974	Great adjustment
TLI	0.966	Great adjustment

Source: Own elaboration

Finally, the following section presents the main conclusions of this study and the final considerations, knowing that this remains a subject in continuous growth, not being possible, as mentioned by Baxter et al., (2014), Fellnhofer (2019), Lamas (2018) and Lorz et al. (2013), to draw solid and convergent conclusions from studies in this domain.

Therefore, as stated by Lamas et al. (2019) and Markowoska (2011), it is crucial to continue to focus on the continuous interaction between knowledge, experience and social and emotional dimensions and with the surrounding community in higher education.

As for the role played by higher education in promoting entrepreneurial intention, and as several studies have shown that there is a direct relationship between entrepreneurship education and entrepreneurial intention (Paço et al., 2011; Piperopoulos & Dimov, 2015; Walter & Block, 2016), the results obtained in this study show statistically significant values and confirm the majority of the relationships proposed in the structural model.

5. Conclusions

This investigation aimed at analyzing the impact that entrepreneurship courses and higher education have on entrepreneurial intention in Portugal. This analysis was carried out based on the data collected within GUESSS 2018 with the aim of answering the question: Do Entrepreneurial courses and the university environment influence entrepreneurial intention in Portugal? In the work, a theoretical contextualization on the subject is made first and the methodology followed with scientific grounding is then presented.

The results achieved allow us to verify that the research hypotheses present statistically significant values and confirm the majority of the relationships proposed in the structural model. Regarding the first hypothesis, it is only partially supported, as there are positive relationships between Attitude towards behavior on Entrepreneurial Intention (H1a), between Perceived behavioral control - Entrepreneurial Intention, but the relationship between subjective norm on Entrepreneurial Intention (H1b) it was not significant.

The results support hypothesis two, showing a positive relationship between Entrepreneurial Courses on Attitude towards behavior (H2a), between Entrepreneurial

Courses on subjective norm (H2b), as well as Entrepreneurial Courses on Perceived behavioral control (H2c).

The third hypothesis is also supported because there is a positive relationship between Perceived University Environment on Attitude towards behavior (H3a), Perceived University Environment on subjective norm (H3b) and by the relationship Perceived University Environment on Perceived behavioral control (H3c). Regarding the proposed structural model, the results show eight significant coefficients for a 0.05 level.

Concerning the relationships between the variables Entrepreneurial Courses and Perceived University Environment over Entrepreneurial Intention, there are mainly indirect effects, but there is a positive relationship between Entrepreneurial Courses and Perceived University Environment over Entrepreneurial Intention.

Thus, in the context of the GUESSS project that has been carried out since 2003, this work allows us to conclude that, although it is necessary to continuously evaluate this object of study, entrepreneurship courses and higher education play an important role, even if indirect, on the entrepreneurial intention of a country. Therefore, it is concluded that the development of entrepreneurship in university students should be an increasing concern of the higher education system in Portugal.

In order to consolidate this investigation, it is planned to continue the study through the annual application of the online questionnaire survey, to continuously analyze the role that entrepreneurship courses and higher education have in the entrepreneurial intention in Portugal.

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