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Students' Entrepreneurial Potential:

The influence of Universities, motivations, incentives, opportunities, and resources.

Master Thesis

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ABSTRACT

Framework: Entrepreneurship plays a very important role in the lives of students by enabling them to develop skills that prepare them for the job market. It is seen by the European Commission that an increased investment in entrepreneurship has to be made through education, especially to undertake and improve levels of innovation and economic growth (Commission of the European Communities, 2006). Universities have a huge importance because they have the possibility to train students to become successful entrepreneurs, regardless of their field of training, which is very important especially during this time of crisis that many countries are experiencing where it is harder each day to find a job. Thus, students who could become future employers with all the skills necessary can help to overcome this crisis and play a key role in creating value and increasing the social, economic and technological development of any country.

Objectives: This dissertation is part of a research within the framework of the PoliEntrepreneurship Innovation Network, a network of higher education institutions in Portugal, which continues to work with a multidisciplinary team towards a common goal – education for entrepreneurship – at higher education institutions. This year 13 higher education institutions in Portugal are part of this project, with their professors and researchers cooperating. Thus, this empirical study aims to analyze if better academic preparation in terms of Entrepreneurship fosters the entrepreneurial potential of the student and if personal characteristics and resources (self-efficacy, motivations, opportunities and resources and incentives to undertake) are related to the students' entrepreneurial potential.

Methodology: To this end, questionnaires adapted for this effect – including the modified Carland Index, HEInnovate self-assessment applied to students, sociodemographic questions and motivations that lead students to be entrepreneurs, among others – were applied to university students in Portugal.

Results: We found out that better academic preparation in terms of Entrepreneurship, high self-efficacy, the existence of motivations, incentives and opportunities and resources to undertake appear to be variables likely to contribute to the increase of the entrepreneurial potential of the students.

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State of Art

Introduction

Due to the times of crisis that we recently lived around the world, and especially in Portugal, it is increasingly important to value entrepreneurship and strive for a more entrepreneurial society, recognizing the role of new businesses that are emerging (GEM, 2017). By encouraging the population to create new businesses, new services and new opportunities, we are supporting the development and growth of societies at various levels from economic to technological (Parreira, Brito, & Pereira, 2011). It is even more important to inculcate entrepreneurship in young people who, at the end of their degrees, must be prepared to face the business world, where it is difficult to find a job. Thus, young people must have the skills to create their own jobs, develop projects from the beginning, put ideas into practice, add value to it, and be independent individuals (Laranjeira, 2014). Furthermore, as cited by Lousã (2017), creativity and innovation are considered key factors for the success of current organizations, since the dynamic and competitive environment, rapid changes in technology, and the high demands on new products and services require organizations to develop new approaches that are more attractive to their stakeholders and respond effectively to the challenges they face. In this way, in order to follow organizations needs and to be competitive and competent individuals, it is essential that students are ready to be entrepreneurs and to create innovative value to the business world.

The issues that arise are how can one define who is an entrepreneur? What is the definition of entrepreneurship? According to several authors (e.g., Reynolds, 2005; Shane & Venkataraman, as cited in Parreira et al., 2011), entrepreneurship is the discovery, evaluation and exploration of opportunities to create goods and services. Menezes (2003)

has a different perspective, and sees entrepreneurs as people who have the initiative and promote entrepreneurship with an innovative behavior, knowing how to transform contexts, promote collaboration, develop a network, and generate results. Throughout this paper, we will follow the first one as the basis definition.

Entrepreneurship is also an educational process that requires learning and accompaniment throughout the course and growth, and if we follow the principle that individuals can develop entrepreneurial behaviors if they have the necessary stimuli, Universities play a crucial role. In this sense, entrepreneurship should then, be taught to young people during their academic journey, so that they can have contact with the business world since early and be prepared for it even before they become professionals (Laranjeira, 2014).

Because entrepreneurship is important to start to be inculcated from an early age, it will be decisive to be taught and learned and the entrepreneurial activity throughout the world should be monitored. Thus, Global Entrepreneurship Monitor (GEM), the world's foremost study of entrepreneurship, providing high quality information that greatly enhances the understanding of the entrepreneurial phenomenon, supports a great example. It is also an ever-growing community of believers in the transformative benefits of entrepreneurship. GEM is a trusted resource on entrepreneurship for key international organizations like the United Nations, World Economic Forum, World Bank, and the Organization for Economic Co-operation and Development (OECD), providing custom datasets, special reports and expert opinion (GEM, 2017). Throughout this paper GEM project data' in different years, since 2004, will be used as a background.

Another important element of this study is the HEInnovate Model that helps to evaluate the level of innovation of Higher Education Institutions (HEI), through students' opinion and lenses (Heinnovate, 2017).

Theoretical Framework

Global Entrepreneurship Monitor (GEM) started in 1999 with 10 countries, and it is characterized as an independent entrepreneurship study carried out around the world. The number of countries participating in this study has been growing. Their main objectives are to measure the level of entrepreneurial activity between countries, uncover factors leading to appropriate levels of entrepreneurship and suggest policies that may enhance the national level of entrepreneurial activity (GEM, 2010).

A key finding from the 6th GEM study was that "the general rank order of GEM countries does not vary significantly from year to year" (2004, p. 14), which means that the level of entrepreneurial activity may be a characteristic of a country, implicating that the policies that can succeed in one country may fail in other countries. Nevertheless, countries can learn from one another if they take into account their differences and the circumstances that they are living in/with, which make GEM so important, since their studies play a crucial role by giving access to more than two million observations in more than 100 countries (GEM, 2008). They also found in their study that Total Entrepreneurial Activity (TEA) rates vary according to the level of per capita income, so that greater per capita income is related to more entrepreneurial activity.

What are the characteristics of the entrepreneurs?

According to GEM (2004), young people tend to be more involved in entrepreneurial activity, but the education level varies between low and high-income countries. In low-income countries, the majority of people who wants to start a business have not completed high school while in high-income countries education is related to creating new business – of those who started a business in high-income countries, 57% have a post-secondary degree, compared to 38% in middle-income countries and 23% in low-income countries. Gender is also a variable that influences entrepreneurship, since in all countries studied, GEM (2004) found that men are twice more likely to start new business than women – the study also highlights that this difference is wider in middle-income countries than in high-income countries.

GEM Conceptual Model (2004) point that potential entrepreneurs, when are deciding to start a business, are influenced by characteristics in the existing business environment. Those characteristics are called Entrepreneurial Framework Conditions (financial, government policies, education and training, social norms, among others) that will "determine a country's capacity to encourage start-ups and, combined with skills and motivations of those who wish to go to business for themselves, influence the entrepreneurial process" (GEM, 2004, p.16). The report also assumes that, when these conditions are successfully combined, it will probably lead to offshoot businesses, and increase innovation and competition of a country' marketplace.

Korunka, Frank, Lueger and Mugler (2003) state that entrepreneurs are risk-seeking, optimistic and effective individuals, with higher levels of internal locus of control, that feel higher needs of success. More recently, Yurrebaso, Cruz and Pato (2018), in their work, analyzed the main personality traits more frequently identified in

the literature: self-efficacy, willingness to take risks and the ambiguity tolerance, proactivity, independence and locus of control. However, the authors warn for the fact that there is no consensus about which personality traits do really make a different between an entrepreneurial individual and an individual who is not entrepreneur. Yurrebaso et al. (2018), explain that this happens because personality features are unstable and can change over time, it is not given any attention to cultural and environmental factors and other variables as gender, social class and education are not taken into account, though their obvious influence on entrepreneurship.

Nevertheless, if we want to study undergraduates and see the characteristics that give them entrepreneurship' orientation we need to still think about the personal characteristics that instigate entrepreneurial behaviors. Self-efficacy will be analyzed in this study as it can be seen as the most commonly accepted personal trait associated to desirable characteristics nowadays, as motivation to learn or persistence in pursuing a goal or professional performance (Brinkerhoff, 2006; Colquitt, LePine, & Noe, 2000; Salanova, Grau, Cifre, & Llorens, 2000).

According to Meneses and Abbad (2010), self-efficacy perception is positively related to individual's success in specific activities, which makes it very important to analyze in order to provide important guidance and self-knowledge tools. This concept is part of psychological mechanisms of motivation, due to Bandura work (1977; 1986). The author defined the concept and proposed the Social Learning Theory, suggesting that learning happens through behavioral modeling. In line with Bandura (1986), self-efficacy perception is defined as people's beliefs about their own abilities to achieve levels of performance that exert influence on subsequent events that affect their lives. This theory defends that the degree of self-efficacy of an individual over a certain activity or situation

may influence the feelings, thoughts, behaviors, or degree of motivation that a person possesses and demonstrates about them. Bandura (1986, 1989, 1994) argued that self-efficacy is a dynamic construct, which changes as new information and experiences are acquired by the individual.

Bandura (1994) proposed four sources of information that may affect the degree of self-efficacy perceived by the individual: personal experience, vicarious observation, verbal persuasion and emotional focus. The first source suggests that a person's perception of their abilities tends to improve if their previous experiences have provided positive information. The second one states that observing similar people to succeed through personal effort increases the belief that they also have the skills to master and succeed in a similar situation. The third source of influence of self-efficacy on the individual, verbal persuasion, suggests that one person may influence the degree of self-efficacy of the other from verbal information about the task and the ability of the subject to perform it. Finally, the fourth source defends that individuals are more likely to develop expectations of success if they do not reveal anxiety about a social object or situation.

Therefore it is possible to defend that the self-efficacy and the auto-perception that the individual has is fundamental in the act of becoming entrepreneur since those with higher self-efficacy are more able to persist in carrying out a task, than those who have a low self-efficacy (Bandura, 1997).

The connection between self-efficacy and entrepreneurship is sustained by several authors (e.g., Krueger, 2003; Shane, Lochey & Colling, 2003), with self-efficacy as a predictor of the career path selection, the occupational preferences, the capacity to overcome problems and the personal realization (Krueger, 2004).

In addition, Baron and Markman (2000) explain that an important trait of entrepreneurs is their social skills as a number of specific skills play a role in determining the capacity of individuals to interact effectively with others. These include the ability to read other persons accurately, to make a good first impression on them, and to persuade or influence them.

However, Naur and Pandey (2006) found out in their study that both technical education/training and work experience in a similar or related field favorably affect entrepreneurship, which highlights the importance of Higher Education Institutions to be innovative.

What motivates individuals to be entrepreneurs?

According to several authors (e.g., Farnhagmehr, Gonçalves, & Sarmento, 2016; Kuratko, 2005; Storen, 2014; Valencia, Restrepo, & Restrepo, 2014), if we want to understand the whole process of undertaking, we first need to understand the factors that motivate individuals to adopt entrepreneurial behaviors. In the perspective of Hessels, Gelderen, and Thurik (2008), by identifying the entrepreneurial motivations, better policies and programs can be applied to develop and promote entrepreneurship. As Driessen and Zwart (2007) state, motivation depends on ambition, (internally driven) motives and values of an individual. They add that someone with a great deal of knowledge about a certain task and the capabilities to perform it is not likely to use his knowledge and capabilities if he lacks the motivation for it.

The first thing appointed as a motivation to undertake is the necessity of realization, which helps understanding entrepreneurial activity (McClelland, 1961; Pereira, 2001). This necessity is not inborn and can be developed over time, through

different stimuli and contexts (Valencia et al., 2014), which leave the opportunity for the schools to intervene, since according to Parreira, Pereira and Brito (2011) this can be linked to the acquisition of knowledge, by motivating students to start their own business. Entrepreneurs' also experience more the need to be independent as a motivation than the rest of the population (Hornaday & Aboud, 1971) what was confirmed within academies (Garter, 2001; Shane, Kolvereid, & Westhead, 1991).

The reasons that make individuals participate in entrepreneurial activities also vary between the necessity to exploit a perceived business opportunity, which GEM calls "opportunity entrepreneurship", and absence or unsatisfactory employment options, called "necessity entrepreneurship" (GEM, 2004, 2016, 2017). In fact, GEM (2016) data showed that three-quarters of people involved in entrepreneurial work in all countries are opportunity entrepreneurs, what means the majority of the entrepreneurs are people that have a business idea or perceive a business opportunity and then put it in practice. This kind of entrepreneurs is more common in high-income countries and necessity entrepreneurs are prevalent in low-income countries. This report also states that a portion of these entrepreneurs seek to improve their situation, through increased independence or through increased income, called "improvement-driven opportunity (IDO) entrepreneurs" (2016, p. 11). GEM Motivational Index revealed that there were more IDO entrepreneurs than necessity-driven ones in all types of driven economies, with a larger difference in the innovation-driven economies – almost four times more IDOs than necessity-driven entrepreneurs (GEM, 2016).

In 2011, Parreira et al. conducted an empirical study among students, observing that the most common reasons for this population to create a business were "to continue

to learn", to "give security to the family", to "be innovative and aware of new technologies" and because "entrepreneurship makes sense for life".

However, entrepreneurs' can also be motivated to create new business because of the prestige, by the need to be accepted and recognized and to create status in their society (Cassar, 2007; Parreira et al., 2011; Parreira et al., 2016).

Finally, we can also point family reasons as motives to undertake. Family businesses are one of the main sources of job creation in labor markets (Shanker & Astrachan, 1996), so one can say that this is an important motivation to create and develop companies at societal and economical level. Actually, according to Almeida & Teixeira (2014), family connections are fundamental in one's personal motivations and can lead someone to create an entrepreneurial career path. Mueller (2006) showed a different way of families' to influence their members. The author states that the presence of entrepreneurs in the family environment inspire the other members to create their own business, and shows that people that has entrepreneurs' parents are 1.5 more likely to be self-employed and initiate a company.

However, it is important to emphasize that the motivation is not static. One individual can start to create a business for some reason and, during the process, his motivation can change due to the experience he is getting or because of different factors that can influence him (Ferreira, Loiola, & Gondim, 2017). For example, one can start a business to exploit a business idea, and during the creation process feel motivated because of the prestige he is getting.

What kind of incentives takes individuals to undertake?

Incentives are different from motivations because they are related to support services in order to create a company/business. Schoof (2006) explain in his book that there are five crucial incentives for entrepreneurial engagement that should be addressed by appropriate programs to promote youth entrepreneurship: social and cultural attitude towards youth entrepreneurship; entrepreneurship education; access to finance/start-up financing; administrative and regulatory framework; and business assistance and support.

Some authors (e.g., Bruton, Ahlstrom, & Li, 2010; Thai & Turkina, 2014, as cited in Pinho & Thompson, 2016) believe that a bigger entrepreneurial activity is associated to the effective enforcement of the law, property' rights well defined, transparency and simplicity of administrative processes, efficient political and economic institutions and an efficient regulation of the economic system. According to GEM (2016), governmental programs could be the creation of agencies to support new companies, existence of scientific parks and business incubators that give efficient support to new companies, governmental agencies with training and knowledge appropriate to support new businesses, easy identification of services and governmental support programs (Amorós & Bosma, 2014).

Which are the opportunities and resources that take individuals to undertake?

The way that the environmental factor affects the entrepreneurial performance has been studied throughout the years by several authors (e.g., Armington & Acs, 2002; Borges, Mondo, & Machado, 2016; Lichtenstein & Lyons, 2001; Taylor, 2006) and these researches had contribute with relevant information to create favorable conditions to develop entrepreneurship (Borges et al., 2016). These authors defend that the environment is a set of exogenous factors that create conditions to develop entrepreneurial

activities. This means that institutions, laws, policies, networks, regulations and knowledge are agents and factors that decisively influence the entrepreneurial activity. As Timmons, Zacharakis and Spinelli (2004) state, entrepreneurship results from the interaction between the entrepreneur, the team, the opportunity, the idea and the available resources.

Another important point of view is the one that several authors have (e.g., Gartner, 1975; Pereira, 2001; Bygrave, 2003), sustaining that when talking about environment, one should take into consideration some factors: the availability of resources, the existence of qualified labor force, the accessibility to suppliers, the market and the clients, the governmental influences, the buying power, the conditions of the implementation zone of the business and level of the industrial base. Other environment characteristics that play a key role in this process are economic infrastructure and political aspects (Borges et al., 2016).

The dimensions of innovation at HEI- Higher Education Institutions

Universities have a crucial role in teaching entrepreneurship, since it is proved that Education and Training have an important influence in what touches to individuals becoming entrepreneurs (GEM, 2009). In order to evaluate if Higher Education Institutions (HEI) are an innovative HEI, the HEInnovate self-assessment was created in 2015 by the European Commission. This self-assessment, also used in our questionnaire, includes seven dimensions that we will explain below. Heinnovate (2017) states that those seven dimensions are essential for a HEI to score the maximal points in order to be considered an innovative Institution:

1. Strong Leadership and Good Governance. These are crucial characteristics to develop an entrepreneurial and innovative culture within Universities. In order to consolidate HEI's entrepreneurial agenda, some factors need to be considered. For example, entrepreneurship must be a major part of the HEI's strategy and the HEI should be a driving force for entrepreneurship and innovation in regional, social and community development.
2. Organizational Capacity: Funding, People and Incentives. It is said that the organizational capacity of an HEI drives its ability to deliver on its strategy. For this purpose, an HEI should have, among others, the capacity and culture to build new relationships and synergies across the institution and entrepreneurial objectives supported by a wide range of sustainable funding and investment sources.
3. Entrepreneurial Teaching and Learning. This dimension involves an exploration of innovative teaching methods and finding ways to stimulate entrepreneurial mindsets. It is not only learning about entrepreneurship and innovation but also getting exposed to entrepreneurial experiences and acquiring skills and competences to develop entrepreneurial mindsets.
4. Preparing and Supporting Entrepreneurs. An innovative HEI should help students, graduates and also their staff to start a business as a career option, and help those individuals to reflect on their objectives, aspirations and intentions. The HEI's should also help in finding team members for the new businesses and in getting access to finance and effective networks.
5. Knowledge Exchange and Collaboration. It is really important for organizational innovation, advancement of teaching and research and local development that knowledge exchange is made. In this dimension is valued, for example, that the HEI

is committed to collaboration and knowledge exchange with industry, the public sector and society and has strong links with incubators, science parks and other external initiatives.

6. The Internationalized Institution. The design and delivery of education, research and knowledge exchange should have and international or global dimension, that works as a vehicle for change and improvement. Internationalization introduces alternative ways of thinking, questions traditional teaching methods, and opens our governance and management to external stakeholders.
7. Measuring Impact. Lastly, HEI should be capable of measuring and understanding the impact of changes they bring about in their institution. Since impact measurement in HEIs remains underdeveloped, this section wants to identify the areas where an institution might measure impact.

What is the entrepreneurial potential?

Besides the importance that motivations, incentives, resources and the HEI can have, the individual is the main responsible agent for creating entrepreneurial initiatives as well as to maintain them. This way, it is important to study the entrepreneurial potential and the factors that lead to it, besides not being consensual in the literature.

In Krueger and Brazeal (1994) perspective, it should exist an Entrepreneurial Potential before the real entrepreneurial behavior emerges because without a "base", without the potential, it is harder to create, develop and stimulate the entrepreneurial behavior in individuals.

For Baum, Frese, Baron and Katz (2007) the process of undertake is strongly related to the individual' personal characteristics, once he is the agent of the decisions and actions.

Santos (2008) defends that entrepreneurial potential has three main dimensions: Realization, Planning and Power, and a fourth complementary dimension – the Entrepreneurial Intention. Realization is related to the recognition of opportunities, persistence and efficacy, while Planning relates to the definition of objectives, information search, continuous planning and permanent control. The third dimension, Power, is identified through the capacity for persuasion and for the establishment of relations. Finally, Entrepreneurial Intention is associated to the one's desire to undertake, to have a business that comes from the perception of the existence of favorable conditions (Santos, 2008; Souza, Santos, Lima, Cruz, & Lezana, 2016). However, Souza et al. (2016) draws attention to the fact that the individual can have typical characteristics associated to the entrepreneurial behavior, and do not manifest the desire to undertake.

According to Barreiro, Gonçalves and Sousa (2014), the educational level has a big influence in the entrepreneurial intention of one person. This way, education can help to develop an entrepreneurial personality, which brings us to the fundamental question: accept this is fundamental to develop the education for entrepreneurship, where HEI have a determinant role in developing the entrepreneur spirit.

Carland, Carland and Hoy (1992), in their work concluded that entrepreneurship was best understood as an individual drive – the drive toward entrepreneurial behavior. Posteriorly Carland, Carland and Ensley (2001) defended that entrepreneurship is primarily a gestalt of four elements: cognition, preference for innovation, risk-taking, and strategic posture and that these elements combined produce a drive to create

entrepreneurial ventures. This way, they created an instrument to measure the proclivity of an individual for each of the four constructs, resulting in measuring the entrepreneurial potential.

Method

Research design and expected contributions

With this study we intent to analyze if better academic preparation in terms of Entrepreneurship fosters the entrepreneurial potential of the student and if personal characteristics and resources (self-efficacy, motivations, opportunities and resources and incentives to undertake) are related to the students' entrepreneurial potential.

The knowledge of the students' Entrepreneurial Potential is very important since it will permit to: develop students' knowledge and competencies necessaries to undertake; adjust those competencies to the labor market' necessities; and also to prepare the curriculums, incentive programs, and initiatives of the HEI in order to create innovation and business with value to the society, to the students and also for the academy. We would also like to help people become more aware of the importance of entrepreneurship to the economy and society.

Thus, we propose the follow hypothesis:

Given that better academic preparation in terms of Entrepreneurship fosters the entrepreneurial potential of the student we expect that:

H1. There is a positive relationship between HEI innovation and students' entrepreneurial potential.

Personal characteristics and resources should be related to entrepreneurial potential as well. Thus:

H2. Greater self-efficacy will lead to greater entrepreneurial potential. That is, if an individual has higher levels of self-efficacy, he or she will also have higher levels of entrepreneurial potential.

H3. Motivations based on family and societal realization, income, prestige and learning and development are positively related to students' entrepreneurial potential.

H4. The existence of incentives is positively related to the students' entrepreneurial potential.

H5. The existence of resources and opportunities to undertake is positively related to the students' entrepreneurial potential.

Instruments

The variables under study are incentives to entrepreneurship, the motivations that lead students to be entrepreneurs, self-efficacy, opportunities and resources to undertake and the Innovative HEI.

In this way, the questionnaire applied has a set of scales and socio-demographic questions.

1. Carland Entrepreneurship Index

It includes an adapted version of the Carland Entrepreneurship Index (Carland, Carland, & Hoy, 1992) – instead of choosing between two antagonistic perspectives individuals evaluated the sentence from 1 "totally disagree" to 5 "totally agree" – with

33 items, that evaluates the entrepreneurial potential of the student. Respondents had to evaluate items like "I want my business to grow and become strong" and "Usually I let my head control my heart".

EFA was carried out since the original Carland Entrepreneurship Index was adapted to a new version, with 50% of the sample randomly selected. With this purpose, PCA was performed with VARIMAX rotation (Kaiser's normalization), given that we expected independent factors. Previously, we checked the requirements for a reliable interpretation of PCA. According to Gorsuch (1983) a minimum of five subjects per item is needed; since the questionnaire has 33 items, the ratio found was 470/33 items = 14.24 subjects/item, which enables, a priori, reliable use of PCA. Furthermore, the Kaiser-Meyer-Olkin test (KMO) was higher than .70 (KMO = .859), showing sampling adequacy. The Bartlett's Test of Sphericity presented a $X^2(465) = 2942.75$, $p < .001$, showing that the correlation matrix differs from the identity matrix (Gorsuch, 1983). The scale was divided into two different factors – *Judging Perceiving* (F1 - e.g.,, "I am responsible for thinking and planning the business") and *Thinking Feeling* (F2 - e.g.,, "I consider myself as an imaginative person").

Confirmatory Factor Analysis of the two-factorial solution achieved with EFA was performed with AMOS software (Arbuckle, 2013). This solution revealed an acceptable fit, $X^2/df = 2.08$, *NFI* = .737, *CFI* = .838, *TLI* = .816, *SRMR*=.0864 and *RMSEA* = .069. The scale presented good reliability (Nunally, 1978), since $\alpha = .89$, as well as good composite reliability ($CR \geq .70$; Hair et al., 2008), and $AVE \geq .50$ (Bagozzi & Yi, 1988) (see table 2).

2. Incentive Scale for Entrepreneurship

The survey also has an Incentive Scale for Entrepreneurship (Parreira, Mónico, Carvalho, & Silva, 2018), with 15 items where respondents had to evaluate the sentences on a *Likert* scale between 1 "Little important" and 5 "Very important". Each item was classified by the respondents according to the degree of importance they attributed to the support services to create a company/business. The instructions presented before all the sentences were "of the following statements classify the degree of importance it attaches to the support services to create or come to create a company / business". The items are divided in two different dimensions – *Financial and Governmental* (F1 - e.g., "Loan guarantees") and *Educational and Consulting* (F2 - e.g., "Training courses for entrepreneurs").

CFA was performed in order to test the fit of the factorial solution. This solution revealed an acceptable fit, X^2/df = 4.28, *NFI* = .909, *CFI* = .929, *TLI* = .910, *SRMR* = .075 and *RMSEA* = .084. The scale presented high reliability (Nunally, 1978), since α = .90, as well as good composite reliability (*CR* $\geq$ .70; Hair et al., 2008), and *AVE* $\geq$ .50 (Bagozzi & Yi, 1988) (see table 2).

3. Entrepreneurial Motivations Scale

This scale is composed by 17 items (Parreira et al., 2011), measured in a 5-point *Likert* scale between 1 "Little important" and 5 "Very important". Each item was classified by the respondents according to the degree of importance they attributed to the motivations to undertake. The scale was divided into four factors – *Family and Societal Realization* (F1 – e.g., "Give security to my family"), *Resources and Income* (F2 – e.g.,

"Reduce tax burden"), *Prestige* (F3 – e.g., "Be respected by my friends"), and *Learning and Development* (F4 – e.g., "Keep learning").

CFA was performed in order to test the fit of the factorial solution. This solution revealed an acceptable fit, X^2/df = 4.12, *NFI* = .851, *CFI* = .882, *TLI* = .854, *SRMR* = .077 and *RMSEA* = .082. The scale presented high reliability (Nunally, 1978), composite reliability (*CR* ≥ .70; Hair et al., 2008), and *AVE* ≥ .50 (Bagozzi & Yi, 1988), α = .85, *CR* = .94, *AVE* = .50 (see table 2).

4. Scale of Opportunities and Resources to Undertake

This scale of Parreira, Santos, Carvalho, and Mónico (2017) is composed by 22 items, measured on a 5-point *likert* scale between 1 "Little influential" and 5 "Very influential". It is grouped in four dimensions – *Availability of resources* (F1 – e.g., "Managers availability"), *Business Stability* (F2 – e.g., "Majority of clients being locals"), *Economic and Political Instability* (F3 – e.g., "Political uncertainty in the country") and *Business Opportunities* (F4 – e.g., "Existence of a large number of businesses in the desired sector"). The instruction given before the items was "from the following statements classify the environment factors as to the degree of importance to create or come to create a company / business".

CFA was performed in order to test the fit of the factorial solution. This solution revealed an acceptable fit, X^2/df = 3.34, *NFI* = .873, *CFI* = .907, *TLI* = .892, SRMR =.062 and *RMSEA* = .071. The scale presented high reliability (Nunally, 1978), composite reliability (*CR* ≥ .70; Hair et al., 2008), and *AVE* ≥ .50 (Bagozzi & Yi, 1988), α = .90, *CR* = .95, *AVE* = .48 (see table 2).

5. Self-Efficacy Scale

The Self-Efficacy scale (Parreira, Silva, Mónico & Carvalho, in press) has only one factor and nine items to be answered between 1 "Totally disagree" and 5 "Totally agree". Examples of items are "If someone opposes, I can find the means and the ways to achieve what I want" and "I am confident that I could deal efficiently with unexpected events".

CFA was performed in order to test the fit of this unifactorial solution. This solution revealed a good fit, X^2/df = 2.08, *NFI* = .973, *CFI* = .986, *TLI* = .978, *SRMR* = .026 and *RMSEA* = .048. The scale presented high reliability (Nunally, 1978), composite reliability (*CR* ≥ .70; Hair et al., 2008), and *AVE* ≥ .50 (Bagozzi & Yi, 1988), α = .88, *CR* = .88, *AVE* = .44.

6. HEInnovate Self-Assessment

Finally, the HEInnovate Self-Assessment (available online at Heinnovate.eu) scale was also adapted for students to evaluate the entrepreneurial skills of their universities, with 37 items being part of the seven previously mentioned dimensions. Individuals, in this part of the questionnaire, have to evaluate their University using a scale between 1 "Totally disagree" and 5 "Totally agree" in items like "There is a high commitment in the implementation of the entrepreneurial agenda" and "The University supports its students and collaborators to move from generating ideas to creating business".

CFA was performed in order to test the fit of the seven factorial solution. This solution revealed a good fit, X^2/df = 2.53, *NFI* = .924, *CFI* = .953, *TLI* = .947, SRMR =.033 and *RMSEA* = .057. The scale presented high reliability (Nunally, 1978), composite

reliability ($CR \geq .70$; Hair et al., 2008), and $AVE \geq .50$ (Bagozzi & Yi, 1988), $\alpha = .98$, $CR = .99$, $AVE = .71$ (see table 2).

7. Socio-demographic questions

In the last part of the questionnaire, we can find 12 socio-demographic questions, like the gender, age, nationality, the existence of entrepreneurs in the family, which course is the student taking and the University he attends.

Procedures

Participants were contacted personally by the researcher, by phone and by e-mail, and a shortly explanation about the research was provided. The questionnaire (see Annex 1) was available both in paper-and-pencil and on-line and was in the Portuguese language. The data was collected between April and May 2017, and the estimated response time was 15 minutes.

All the care was taken to ensure participants' anonymity and the confidentiality of the answers, for ethical reasons as well as for biases avoidance. Formal and ethical situations were taken into account: the voluntary nature of participation in the study, the confidentiality of the data, and the informed consent. At the end of the completion of the questionnaire, information about the research objectives was given to each participant.

Sample

The sample is made up of a total of 470 participants, 325 (69.1%) being females and 145 (30.9%) being males, 87.5% single/divorced/widow(er), with the youngest participant having 18 years old and the oldest 63 years old (M=25.55). The majority of the participants are Portuguese (88.3%), although all of them are studying in Portuguese Universities, most in the Bachelor' degree (39.8%). Also, the majority of the sample has

entrepreneurs in the family (57.7%), they did not attend a mobility program (77%) and are non-worker students (76.6%) (See table 1 for the complete sample characteristics).

Table 1. Demographic characteristics of the sample

Sample	*n*	*%*
Gender:		
Male	145	30.9
Female	325	69.1
Age:		
[18-24]	324	69
[25-34]	82	17.4
[35-49]	48	10.2
[50-64]	15	3.2
Non-Answer	1	.2
Marital Status:		
Single/Divorced/Widow(er)	411	87.5
Married/Civil Union	57	12.1
Non-Answer	2	.4
Entrepreneurs in the family:		
No	199	42.3
Yes	271	57.7
Kinship:		
Parents	111	23.6
Brothers	26	5.5
Both	8	1.7
Others	117	24.9
Nationality		
Portuguese	415	88.2
Angolan	1	.2
Brazilian	37	7.9
Cape Verdean	1	.2
Chinese	1	.2
Colombian	1	.2
Spanish	2	.4
French	1	.2
Galician	1	.2
Mozambican	1	.2
Moldavan	1	.2
Portuguese&Brazilian	2	.4
Italian&Portuguese	1	.2
Portuguese&South African	2	.4
Non-Answer	3	.6
Mobility Program:		
No	362	77.0
Yes	104	22.1
Non-Answer	4	.9

Type of Degree attending:		
Bachelor	187	39.8
Integrated Master	160	34
Master	79	16.8
PhD	43	9.2
Postgraduate	1	.2
Condition:		
Student	360	76.6
Student Worker	109	23.2
Non-Answer	1	.2

Data analysis

The data were analyzed with version 22.0 of the IBM SPSS and AMOS programs (for Windows operating system). The existence of outliers was evaluated by the square distance of Mahalanobis (Tabachnick & Fidell, 2013). MCAR missing-values were replaced by the series mean method. In turn, the normality of the variables was evaluated by skewness (Sk) and kurtosis (Ku) coefficients. The values of the skewness and kurtosis did not deviate from those considered adequate for the assumption of the normality assumption, since Sk <2 and Ku <3 (Kline, 2011).

Prior to conducting exploratory and confirmatory factor analyses, the distribution of items by the five response options was investigated. The exploratory factorial analysis (EFA) was carried out through a Principal Component Analysis (PCA) with Sample 1. The assumptions of a correct PCA were tested through the sample size, the normality and linearity of the variables, as well as extreme values (outliers), R's factorability and sampling adequacy (Tabachnick & Fidell, 2013). We used the Varimax rotation method, since we wanted to get as many independent factors as possible.

The confirmatory factorial analyzes (AFC) were performed with the software AMOS, v. 22 (Arbuckle, 2013). The method of maximum likelihood estimation was used. The composite reliability and the mean variance extracted for each factor were analyzed

as described in Fornell and Larcker (1981). The existence of outliers was evaluated by the square distance of Mahalanobis (Tabachnick & Fidell, 2013).

The quality of the overall fit of the factorial models were analyzed by the NFI (Normed of fit index, good fit > .80; Schumacker & Lomax, 2010), SRMR (Standardized Root Mean Square Residual; appropriate fit < .08; Brown, 2015), TLI (Tucker-Lewis Index, appropriate adjustment > .90, Brown, 2015), CFI (Comparative fit index, good fit > .90, Bentler, 1990), RMSEA (Root Mean Square Error of Approximation, good fit <.05, acceptable fit < .08; Kline, 2011; Marôco, 2011; Schumacker & Lomax, 2010) and X^2/df (acceptable fit < 5; good adjustment < 2; Marôco, 2011; Schumacker & Lomax, 2010).

The improvement of the model fit was evaluated by the modification indices (MI; Bollen, 1989), and we decided releasing the parameters with a higher MI. We followed the suggestion of Arbuckle (2013), which indicates to analyze the MIs by their statistical significance, considering the value of $\alpha = .05$. Another criterion used was focused on Marôco (2011), who advises to be safer to modify the parameters with MI higher than 11 ($p < .001$).

The reliability was evaluated by calculating the Cronbach's Alpha (Nunally, 1978), both for the global scale and for the constituent dimensions of each scale. We followed Hair, Black, Babin and Anderson (2010), which indicate that coefficients of internal consistency higher than .70 indicate adequate convergence and internal consistency. Among other authors, Hill and Hill (2012) point to the value of .80 as an indicator of good internal consistency.

A significance level of $\alpha = .05$ for Type I error for all the analyses was considered. Inter-correlations were performed using the Pearson correlation coefficient. Effect sizes

of correlations (low, medium, or high correlations) were classified according to Cohen (1988). For the analysis of multiple regression, the assumptions of the normal distribution and the homogeneity of variances were validated graphically, as well as the assumption of independence of errors, validated with the Durbin-Watson statistic (Marôco, 2011). At the same time, and to diagnose the multicollinearity of the predictor variables, Inflation Variance Factor (IVF) was used.

Results

Table 2 presents the minimum, maximum, means (*M*), standard-deviations (*SD*), composite reliability (*CR*), average variance extracted (*AVE*) and Cronbach's Alpha (α) values of the different global scales and factors. We can notice that motivations related to *Learning and Development* (*M*=4.17) and *Family and Societal realization* (*M*= 4.16) are the type of motivations more present in the students and the ones related to resources and income (*M*=2.92) are the ones that motivate less the students to undertake. The *Availability of resources* (*M*=3.98) are the type of Opportunities and Resources to Undertake more important for the students, while *Economic and political instability* (*M*=2.79) is not that much taken into account for them. In regards to Incentives to Undertake Scale, it is possible to see that *Educational and Consulting* (*M*=4.03) are bigger incentives for the students than *Financial and Governmental Incentives* (*M*=3.86). At the same time, the student's entrepreneurial potential is higher in terms of *Judging Perceiving* (*M*=3.81) than in terms of *Thinking Feeling* (*M*=3.54). Finally, students evaluated their HEI as being more Innovative in terms of *Internationalized Institutions* (*M*=3.27), while the worse Innovative factors evaluated were the capacity of *Measuring Impact* (*M*=2.82) and *Preparing & Supporting Entrepreneurs* (*M*=2.84).

Table 2. Descriptive statistics, composite reliability (*CR*), average variance extracted (*AVE*) and Cronbach's Alpha (α) of the different scales and factors.

	Min	*Max*	*M*	*SD*	*CR*	*AVE*	α
Entrepreneurial Motivations - Global Scale	1.65	5.00	3.63	.57	.94	.50	.85
F1. Family and Societal Realization	1.20	5.00	4.16	.71	.79	.46	.78
F2. Resources and Income	1.00	5.00	2.92	.85	.88	.67	.73
F3. Prestige	1.00	5.00	3.16	.97	.82	.54	.83
F4. Learning and Development	1.25	5.00	4.17	.63	.65	.33	.64
Opportunities and Resources to Undertake - Global Scale	1.36	5.00	3.64	.59	.95	.48	.90
F1. Availability of resources	1.00	5.00	3.98	.73	.88	.51	.88
F2. Business Stability	1.00	5.00	3.79	.62	.84	.34	.84
F3. Economic and Political Instability	1.00	5.00	2.79	1.13	.86	.68	.85
F4. Business Opportunities	1.00	5.00	3.00	1.07	.85	.74	.85
Incentives to Undertake - Global Scale	1.64	5.00	3.92	.65	.93	.48	.90
F1. Financial and Governmental	1.00	5.00	3.86	.72	.88	.46	.88
F2. Educational and Consulting	1.00	5.00	4.03	.72	.83	.51	.83
Self-efficacy – Global Scale	1.33	5.00	3.94	.61	.88	.44	.88
Carland Entrepreneurship Index - Global Scale	2.19	5.00	3.74	.50	.91	.30	.89
F1. Judging Perceiving	2.00	5.00	3.81	.54	.88	.28	.88
F2. Thinking Feeling	1.50	5.00	3.54	.68	.76	.38	.76
HEInnovate - Global Scale	1.00	5.00	2.98	.85	.99	.71	.98
F1. Leadership Governance	1.00	5.00	2.95	.94	.92	.70	.93
F2. Organizational Capacity	1.00	5.00	3.01	.93	.88	.60	.90
F3. Entrepreneurial Teaching & Learning	1.00	5.00	2.95	.92	.93	.72	.93
F4. Preparing & Supporting Entrepreneurs	1.00	5.00	2.84	.94	.94	.74	.95
F5. Knowledge Exchange & Collaboration	1.00	5.00	3.08	.96	.94	.75	.94
F6. Internationalized Institution	1.00	5.00	3.27	.97	.92	.68	.92
F7. Measuring Impact	1.00	5.00	2.82	.92	.95	.78	.95

Table 3 presents the intercorrelations among factors and global scale of the measures. By analyzing it we can see that correlations are almost all significant but tend to have low and medium-low magnitude. Verifying our H1 (There is a positive relationship between HEI innovation and students' entrepreneurial potential) through the correlation matrix', we find that there is a positive relationship (despite a low effect size), between the Carland Entrepreneurship Index Global Scale and the HEInnovate Global Scale (r=.23; R^2=5.29% of shared variance).

About the H2 (Greater self-efficacy will lead to greater entrepreneurial potential), we can notice that it is the highest correlation between different scales, as the correlation between the Self-efficacy global scale and the Carland Entrepreneurship Index Global Scale is positive and high (r=.51; R^2=26.01% of shared variance).

The global scales referred in H3 (Motivations based on family and societal realization, income, prestige and learning and development are positively related to students' entrepreneurial potential) showed a positive and medium effect size correlation (r=.43; R^2=18.49% of shared variance).

While trying to understand our H4 (The existence of incentives is positively related to the students' entrepreneurial potential) we found a significant and almost medium correlation between the global scales (r=.29; R^2=8.41% of shared variance).

Finally, our H5 states that the existence of resources and opportunities to undertake is positively related to the students' entrepreneurial potential, and we found that they are significantly and medium correlated (r=.34; R^2=11.56% of shared variance).

Table 3. Intercorrelations among factors and global scales

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
1 - Entrepreneurial Motivations Family and Societal Realization	1	.35**	.40**	.34**	.73**	.30**	.38**	.15**	.28**	.39**	.23**	.35**	.31**	.20**	.29**	.24**	.31**	.21**	.22**	.22**	.20**	.17**	.16**	.16**	.21**
2 - Entrepreneurial Motivations Resources and Incomes		1	.53**	.26**	.76**	.25**	.28**	.28**	.27**	.35**	.26**	.18**	.26**	.11*	.23**	.18**	.25**	.11*	.08	.11*	.14**	.07	.05	.11*	.11*
3 - Entrepreneurial Motivations – Prestige			1	.27**	.80**	.29**	.26**	.21**	.23**	.33**	.14**	.23**	.19**	.13**	.33**	.21**	.34**	.24**	.21**	.23**	.25**	.16**	.09*	.19**	.22**
4 - Entrepreneurial Motivations Learning and Development				1	.58**	.37**	.37**	.09	.17**	.37**	.31**	.41**	.39**	.25**	.36**	.26**	.38**	.26**	.27**	.24**	.24**	.23**	.21**	.20**	.26**
5 - Entrepreneurial Motivations - Global Scale					1	.41**	.43**	.26**	.33**	.49**	.31**	.39**	.38**	.23**	.41**	.30**	.43**	.28**	.26**	.27**	.28**	.21**	.17**	.22**	.27**
6 - Opportunities and Resources Availability of resources						1	.57**	.18**	.26**	.76**	.46**	.50**	.53**	.12**	.27**	.11*	.26**	.26**	.26**	.24**	.22**	.21**	.15**	.15**	.23**
7 - Opportunities and Resources Business Stability							1	.38**	.52**	.89**	.52**	.48**	.56**	.07	.31**	.15**	.31**	.25**	.29**	.28**	.25**	.23**	.20**	.18**	.26**
8 - Opportunities and Resources Economic and Political Instability								1	.53**	.61**	.26**	.25**	.28**	-.02	.21**	.10*	.21**	.10*	.08	.12**	.12**	.09	.07	.11*	.11*
9 - Opportunities and Resources Business Opportunities									1	.66**	.33**	.23**	.33**	.01	.20**	.12**	.21**	.21**	.24**	.22**	.23**	.18**	.14**	.21**	.23**
10 - Opportunities and Resources to Undertake - Global Scale										1	.55**	.53**	.61**	.08	.35**	.16**	.34**	.28**	.30**	.30**	.28**	.25**	.19**	.21**	.29**
11 - Incentives to Undertake Financial and Governmental											1	.57**	.95**	.10*	.24**	.15**	.24**	.12**	.16**	.13**	.10*	.12*	.15**	.05	.13**
12 - Incentives to Undertake Educational and Consulting												1	.81**	.11*	.30**	.16**	.30**	.20**	.22**	.19**	.15**	.16**	.15**	.11*	.19**

13 - Incentives to Undertake Global Scale													1	.11*	.29**	.17**	.29**	.17**	.20**	.17**	.13**	.15**	.17**	.08	.17**
14 - Self-efficacy														1	.45**	.43**	.51**	.05	.04	.04	.03	.03	.06	.03	.05
15 - Carland Entrepreneurship Index_Judging Perceiving															1	.43**	.96**	.23**	.28**	.20**	.22**	.18**	.13**	.19**	.22**
16 - Carland Entrepreneurship Index_Thinking Feeling																1	.67**	.15**	.14**	.14**	.14**	.10*	.09*	.11*	.14**
17 - Carland Entrepreneurship Index_Global Scale																	1	.23**	.27**	.21**	.23**	.18**	.13**	.19**	.23**
18 - HEInnovate_Leadership Governance																		1	.83**	.83**	.84**	.78**	.63**	.76**	.90**
19 - HEInnovate_ Organizational Capacity																			1	.85**	.83**	.78**	.65**	.77**	.90**
20 - HEInnovate Entrepreneurial Teaching & Learning																				1	.89**	.85**	.71**	.79**	.94**
21 - HEInnovate_Preparing & Supporting Entrepreneurs																					1	.85**	.65**	.81**	.93**
22 - HEInnovate_Knowledge Exchange & Collaboration																						1	.78**	.80**	.92**
23 - HEInnovate Internationalized Institution																							1	.70**	.81**
24 - HEInnovate_Measuring Impact																								1	.90**
25 - HEInnovate_Global Scale																									1

*$p \leq 0.05$; **$p \leq 0.01$

1. Prediction of Entrepreneurial Potential through HEInnovate

We performed three multiple regression analyzes (see Table 4), considering as dependent variables the two Carland Entrepreneurship Index factors (Judging Perceiving and Thinking Feeling) and the global scale and as predictors the seven HEInnovate factors.

As we can see in Table 4, HEInnovate predicts 8.4% of the global Entrepreneurial Potential. One analysis by **Carland Entrepreneurship Index's** dimensions indicates that the model explains 8.7% of the *Judging Perceiving* and 2.9% of the *Thinking Feeling*. With regard to Entrepreneurial Potential in general, *Organizational Capacity* seems to be the most significant, although in the *Thinking Feeling* factor it did not show to have influence. Also, in the *Thinking Feeling* factor none of the predictors was significant.

This way, our H1 is sustained since there is a positive correlation between HEInnovate Predictors and students' Entrepreneurial Potential.

Table 4. Multiple regression Hypothesis 1 – "There is a positive relationship between HEI innovation and students' entrepreneurial potential"

HEInnovate Predictors	Carland Entrepreneurship Index – Global Scale				Carland Entrepreneurship Index – **Judging Perceiving (**F1)				Carland Entrepreneurship Index – **Thinking Feeling** (F2)			
	B	*SE*	*B*	*T*	*b*	*SE*	*B*	*t*	*b*	*SE*	*β*	*t*
Leadership Governance (F1)	.04	.05	.07	.73	.02	.05	.04	.42	.08	.07	.11	1.19
Organizational Capacity (F2)	.17	.05	.32	3.40***	.21	.06	.37	3.91***	.04	.07	.06	.57

Entrepreneurial Teaching & Learning (F3)	-.07	.06	-.13	-1.09	-.09	.07	-.15	-1.33	.00	.09	.00	.02
Preparing & Supporting Entrepreneurs (F4)	.06	.06	.12	.99	.06	.07	.10	.83	.09	.09	.12	.96
Knowledge Exchange & Collaboration (F5)	-.04	.06	-.08	-.71	-.02	.06	-.04	-.37	-.10	.08	-.14	-1.25
Internationalized Institution (F6)	-.02	.04	-.04	-.50	-.03	.04	-.06	-.77	.02	.05	.03	.45
Measuring Impact (F7)	-.01	.05	-.02	-.21	-.01	.05	-.01	-.13	-.02	.07	-.03	-.31
	$r_{multiple}$=.289, R^2=.084				$r_{multiple}$=.294, R^2=.087				$r_{multiple}$=.170, R^2=.029			
	R^2_{aj}=.070, *SE*=.483				R^2_{aj}=.073, *SE*=.518				R^2_{aj}=.014, *SE*=.677			
	F(7,462)= 6.017, p<.001				*F*(7,462)=6.251, p<.001				*F*(7,462)=1.969, p=.058			

*$p \leq 0.05$;**$p \leq 0.01$;***$p \leq 0.001$

2. Prediction of Entrepreneurial Potential through Self-efficacy

We performed three multiple regression analyzes (see Table 5), considering as variables criteria the two Carland Entrepreneurship Index factors (*Judging Perceiving* and *Thinking Feeling*) and the global scale and as predictors the Self-efficacy.

As we can see in Table 5, Self-efficacy predicts 25.6% of the global Entrepreneurial Potential. One analysis by dimensions indicates that the model explains 20% of the *Judging Perceiving* and 18.9% of the *Thinking Feeling*. Self-efficacy showed to have a bigger influence in the *Judging Perceiving* factor (t=10.828) than in the *Thinking Feeling* factor (t=10.429), although with little difference.

This way, our hypothesis 2 is sustained, since there is a significant and acceptable interaction between self-efficacy and students' entrepreneurial potential, which means that higher levels of self-efficacy will lead to higher levels of entrepreneurial potential.

Table 5. Multiple regression Hypothesis 2 – "Greater self-efficacy will lead to greater entrepreneurial potential"

Self-efficacy Predictor	Carland Entrepreneurship Index – Global Scale				Carland Entrepreneurship Index – **Judging Perceiving (**F1)				Carland Entrepreneurship Index – **Thinking Feeling** (F2)			
	B	*SE*	*β*	*T*	*B*	*SE*	*B*	*t*	*b*	*SE*	*β*	*T*
Self-efficacy	.42	.03	.51	12.68***	.40	.04	.45	10.828***	.49	.05	.43	10.429***
	$r_{multiple}$=.506, R^2=.256				$r_{multiple}$=.448, R^2=.200				$r_{multiple}$=.434, R^2=.189			
	R^2_{aj}=.254, *SE*=.433				R^2_{aj}=.199, *SE*=.481				R^2_{aj}=.187, *SE*=.615			
	F(1,468)=160.810, p<.001				*F*(1,468)=117.253, p<.001				*F*(1,468)=108.756, p<.001			

*$p \leq 0.05$;**$p \leq 0.01$;***$p \leq 0.001$

3. Prediction of Entrepreneurial Potential through Entrepreneurial Motivations

We performed multiple regression analyzes (see Table 6), considering as variables criteria the two Carland Entrepreneurship Index factors (*Judging Perceiving* and *Thinking Feeling*) as well as the global scale and as predictors the four Entrepreneurial Motivations factors.

As we can see in Table 6, Entrepreneurial Motivations predicts 21.9% of the global Entrepreneurial Potential. One analysis by dimensions indicates that the model explains 19.8% of the *Judging Perceiving* and 10.4% of the *Thinking Feeling*. With regard to Entrepreneurial Potential in general, *Learning and Development* seems to be the most significant in all factors. In the prediction of the *Judging Perceiving* factor, Family *and Societal Realization*, *Prestige* and *Learning and Development* are significant, while in the prediction of the Thinking Feeling factor only *Family and Societal Realization* and *Learning and Development* are significant.

Thus, our hypothesis 3 is sustained since there is a significant interaction between Entrepreneurial Motivations and the students' Entrepreneurial Potential.

Table 6. Multiple regression Hypothesis 3 – "Motivations based on family and societal realization, income, prestige and learning and development are positively related to students' entrepreneurial potential"

Entrepreneurial Motivations Predictors	Carland Entrepreneurship Index – Global Scale				Carland Entrepreneurship Index – **Judging Perceiving (**F1)				Carland Entrepreneurship Index – **Thinking Feeling** (F2)			
	B	*SE*	*B*	*t*	*b*	*SE*	*β*	*t*	*b*	*SE*	*β*	*T*
Family and Societal Realization (F1)	.09	.33	.13	2.79**	.09	.04	.11	2.35*	.12	.05	.12	2.44*
Resources and Incomes (F2)	.01	.03	.02	0.45	.01	.03	.01	.22	.03	.04	.04	.79
Prestige (F3)	.103	.03	.20	3.95***	.11	.03	.21	4.03***	.07	.04	.09	1.74
Learning and Development (F4)	.22	.04	.28	6.25***	.23	.04	.27	5.92***	.20	.05	.18	3.85***
	$r_{multiple}$=.468, R^2=.219				$r_{multiple}$=.445, R^2=.198				$r_{multiple}$=.323, R^2=.104			
	R^2_{aj}=.212, *SE*=.445				R^2_{aj}=.191, *SE*=.483				R^2_{aj}=.097, *SE*=.648			
	F(4,465)= 32.574, p<.001				*F*(4,465)=28.771, p<.001				*F*(4,465)=13.549, p<.001			

*$p \leq 0.05$;**$p \leq 0.01$;***$p \leq 0.001$

4. Prediction of Entrepreneurial Potential through Incentives to Undertake

We performed multiple regression analyzes (see Table 7), considering as variables criteria the two Carland Entrepreneurship Index factors (*Judging Perceiving* and *Thinking Feeling*) and the global scale and as predictors the two Incentives to Undertake factors. As we can see in Table

7, the existence of Incentives to Undertake predicts 9.8% of the global Entrepreneurial Potential. One analysis by dimensions indicates that the model explains also 9.8% of the *Judging Perceiving* and 3% of the *Thinking Feeling*. With regards to Entrepreneurial Potential in general, *Educational and Consulting* seems to be the most significant, although in the *Thinking Feeling* factor it was not shown to be significant.

We can conclude that there is a significant, although low, relationship between Incentives to Undertake and the students' Entrepreneurial Potential, which means that our hypothesis 4 was supported.

Table 7. Multiple regression Hypothesis 4 – "The existence of incentives is positively related to the students' entrepreneurial potential"

Incentives to Undertake Predictors	Carland Entrepreneurship Index – Global Scale				Carland Entrepreneurship Index – **Judging Perceiving (**F1)				Carland Entrepreneurship Index – **Thinking Feeling** (F2)			
	B	*SE*	*B*	*t*	*b*	*SE*	*β*	*t*	*b*	*SE*	*B*	*t*
Financial and Governmental (F1)	.07	.04	.11	1.98*	.07	.04	.09	1.76	.09	.05	.09	1.63
Educational and Consulting (F2)	.17	.04	.24	4.46***	.19	.04	.25	4.65***	.10	.05	.11	1.90
	$r_{multiple}$=.313, R^2=.098				$r_{multiple}$=.314, R^2=.098				$r_{multiple}$=.174, R^2=.030			
	R^2_{aj}=.094, *SE*=.477				R^2_{aj}=.095, *SE*=.512				R^2_{aj}=.026, *SE*=.673			
	F(2,467)= 25.318, p<.001				*F*(2,467)=25.485, p<.001				*F*(2,467)=7.313, p=.001			

*$p \leq 0.05$;**$p \leq 0.01$;***$p \leq 0.001$

5. Prediction of Entrepreneurial Potential through Opportunities and Resources to Undertake

We performed multiple regression analyzes (see Table 8), considering as variables criteria the two Carland Entrepreneurship Index factors (*Judging Perceiving* and *Thinking Feeling*) and the global scale and as predictors the four Opportunities and Resources to Undertake factors.

As we can see in Table 8, the existence of Opportunities and Resources to Undertake predicts 11.5% of the global Entrepreneurial Potential. One analysis by dimensions indicates that the model explains also 12.3% of the *Judging Perceiving* and 2.7% of the *Thinking Feeling*. With regards to Entrepreneurial Potential in general, *Business Stability* seems to be the most significant, although in the *Thinking Feeling* factor it was not shown to be significant. In fact, none of the predictors was significant in the *Thinking Feeling* factor.

After the analyses, we can conclude that our hypothesis 5 is sustained, since there is a significant, although low, interaction between Opportunities and Resources to Undertake and students' Entrepreneurial Potential.

Table 8. Multiple regression Hypothesis 5 – "The existence of resources and opportunities to undertake is positively related to the students' entrepreneurial potential"

Opportunities and Resources to Undertake Predictors	Carland Entrepreneurship Index – Global Scale				Carland Entrepreneurship Index – **Judging Perceiving (**F1)				Carland Entrepreneurship Index – **Thinking Feeling** (F2)			
	B	*SE*	*B*	*T*	*b*	*SE*	*β*	*t*	*b*	*SE*	*β*	*t*
Availability of resources (F1)	.09	.04	.13	2.46*	.11	.04	.14	2.71**	.04	.05	.04	.72

Business Stability (F2)	.15	.05	.18	3.01**	.16	.05	.19	3.06**	.11	.07	.10	1.52
Economic and Political Instability (F3)	.05	.02	.10	1.97*	.05	.03	.11	2.16*	.02	.03	.03	.58
Business Opportunities (F4)	.01	.03	.02	0.39	.01	.03	.01	.19	.03	.04	.04	.71
	$r_{multiple}$=.340, R^2=.115				$r_{multiple}$=.350, R^2=.123				$r_{multiple}$=.165, R^2=.027			
	R^2_{aj}=.108, *SE*=.473				R^2_{aj}=.115, *SE*=.506				R^2_{aj}=.019, *SE*=.676			
	F(4,465)= 15.165, p<.001				*F*(4,465)=16.264, p<.001				*F*(4,465)=3.248, p=.012			

*$p \leq 0.05$;**$p \leq 0.01$;***$p \leq 0.001$

Discussion

This study was designed to explore if better academic preparation in terms of Entrepreneurship fosters the entrepreneurial potential of the student and to analyze if personal characteristics – self-efficacy – and external/internal variables - motivations, opportunities and resources and incentives to undertake – are related to the students' entrepreneurial potential. This is, if these variables will increase the entrepreneurial potential of a student.

Throughout the theoretical framework, we discussed the importance of creating new businesses, new value, and of developing entrepreneurship among young people. Thus, personal characteristics of entrepreneurs such as education, gender and personal traits were argued, with emphasis on self-efficacy – the most commonly accepted personal trait associated to desirable characteristics. According to several authors, as mentioned before, self-efficacy is directly connected with entrepreneurship (e.g., Krueger, 2003; Shane et al., 2003), and predicts the career path of one individual.

What can motivate entrepreneurs was another crucial point to explain in order to develop this work. We presented the main motivational factors, such as the necessity of realization (McClelland, 1961; Pereira, 2001) that can be developed over time by different stimuli and contexts (Valencia et al., 2014), providing the opportunity for HEI to motivate students (Parreira et al., 2011). Other motivational factors can be the necessity to exploit a perceived business opportunity (GEM, 2014, 2016, 2017), the necessity to become independent, give security to the family, continue to learn and develop the knowledge, to innovate, to have prestige and, finally, to create sense for one's life (Parreira et al., 2011). Family is also a motivational factor for entrepreneurs and can really take individuals to

undertake, since family connections are fundamental in one's personal motivations (Almeida & Teixeira, 2014).

In terms of incentives to undertake, we clarified their difference from motivations since they are related to support services to create a business. In fact, the Incentive Scale for Entrepreneurship (Parreira et al., 2018) is divided in two different dimensions: Financial and Governmental incentives, such as loan guarantees; and Educational and Consulting incentives, such as training courses, for example. Schoof (2006) highlights five crucial incentives for entrepreneurial engagement: social and culture attitude towards youth entrepreneurship; entrepreneurship education; access to finance; administrative and regulatory framework; and business assistance and support.

However, to be capable of creating a business, one needs to have the necessary opportunities and resources, also presented earlier in this study, such as the availability of resources, the existence of qualified labor force, the accessibility to suppliers, the market and the clients, the buying power, the governmental influences, inter alia (Bygrave, 2003; Gartner, 1975; Pereira 2001). Parreira et al. (2017) divided their Scale of Opportunities and Resources to Undertake into four different factors, covering the important variables discussed in the literature: *Availability of resources*, evaluating, for example, the managers availability; *Business Stability*, evaluating factors related to the clients and the context where the business could be created; *Economic and Political Instability*; and *Business Opportunities*. This scale can give us a wider view about which are the real opportunities and resources that entrepreneurs' value.

Finally, it was also evaluated the role that Universities can have in creating entrepreneurs and which dimensions and factors should exist and improved. Thereby, in the current paper, HEInnovate self-assessment, created in 2015 by European

Commission, was applied and validated in order to evaluate the students' perspective on seven crucial dimensions, explained above, for a HEI to be considered innovative. These dimensions are a Strong Leadership and Good Governance; Organizational Capacity; Entrepreneurial Teaching and Learning; Preparing and Supporting Entrepreneurs; Knowledge Exchange and Collaboration; The Internationalized Institution; and the capacity to Measure Impact.

Our main objective was, as said, to explore if these variables have an impact on students' entrepreneurial potential. In order to study it, the definition of Carland et al. (2001) was used, defending entrepreneurship as a set of four elements, that combined will create entrepreneurial ventures: cognition, preference for innovation, risk-taking and a strategic posture.

The results showed that all the measuring instruments used in this study are reliable in terms of their use and all the study hypothesis were supported by the data.

As concern the Hypothesis 1, the findings show that there is a relation between the degree of innovation in Higher Education Institutions and the students' entrepreneurial potential. This means that better academic preparation in terms of Entrepreneurship do fosters the entrepreneurial potential of the student. Our results correspond to those who Naur and Pandey (2006) found out in their study that both technical education/training and work experience in a similar or related field favourably affect entrepreneurship, highlighting the importance of Higher Education Institutions to be innovative. This way, the results we present should be a concern, since we can notice a low investment of HEI in preparing students to undertake, especially in the items of the "Measuring impact" factor, showing that HEI is not being capable of measuring and understanding the impact of changes they bring about in their institution. In fact, if we do

a brief search on the internet about the programs of the different bachelors and masters' in Portugal, we can easily notice that they do not have courses oriented to innovation and entrepreneurship. At the moment, there is no entrepreneurial culture and practice in HEI in Portugal and, from the 11.8% (see table 1) of international students, doing Erasmus in Portugal, that answered our questionnaire, we can notice that this culture does not exist abroad, as well. It can explain our results in this hypothesis, since only one dimension (*Organizational Capacity*) had impact. It is also important to highlight that the students, from different Portuguese HEI, in a scale of 1 to 5, evaluated their institutions as less than 3 in five dimensions, out of seven (see table 2). This means that they consider their HEI very little innovative.

Taking into account the importance of entrepreneurship, and the proved crucial role that HEI have on creating entrepreneurs and developing students' in that sense, it is of extremely importance to change the Universities point of view and increase their innovative role. Thus, we want to appeal institutions to introduce reforms in their courses programs in order to contemplate entrepreneurship, which is aligned with what European Commission stimulates. HEI need to innovate, and to innovate is to undertake.

To start, a *Strong Leadership and Good Governance* should be part of Universities' culture, including entrepreneurship in HEI's strategy. Besides being the most developed one in Portuguese Institutions, according to our results, the *Organizational Capacity* should also be developed, increasing their capacity to build new relationships and synergies, supported by different sustainable funds and investment sources.

In this area, it is also necessary to invest in more proactive employees, engaged with solving problems, related to HEInnovate third dimension (*Entrepreneurial Teaching*

and Learning) – there is the need to train teachers to an entrepreneurial mindset, to use innovative teaching methods and to expose them to entrepreneurial experiences. In fact, there is a good example of this method used in high and elementary schools, since 2005, the Junior Achievement Portugal (JAP), partner of Junior Achievement, the biggest and oldest educative organization in the world that takes to schools programs and conquests to develop entrepreneurship among children and young adults (Laranjeira, 2014). If schools in Portugal are already using innovative teaching methods and exposing students and teachers to entrepreneurial experiences, why is not this mirrored in HEI? From the results showed in this paper, it is clear that the Academy is not doing efforts to create entrepreneurship, as could be done.

Other dimension very poorly evaluated by our students, is the capacity of the Portuguese Universities to *Prepare and Support Entrepreneurs*, which, at this point, we could expect, according with the last results presented. To increase this dimension, we suggest HEI to coach students and staff to start a business, be a counsellor and help in the access to financial support and other resources.

Linked to the last dimension, is the *Knowledge Exchange and Collaboration*, since HEI should have an extensive network, collaborating with the industry, the public sector and the society and, also, incubators, science parks and other external initiatives.

The *Internationalized Institution* was the best evaluated dimension (see table 2), which means that Portuguese HEI is making efforts to promote knowledge exchange between countries, introducing alternative ways of thinking. One can probably explain these results because of the Erasmus program, increasingly common in Portugal, where not only students but also professors, participate in this exchange, contributing for change and improvement of education and research. However, Portuguese institutions can still

become more international and open the governance and management to external stakeholders.

Finally, the worst evaluated dimension, *Measuring Impact*, shows that Portuguese HEIs are not capable of measuring and understanding the impact of changes in their institutions. The Heinnovate (2017) also stated that this section remains underdeveloped in HEIs among different countries, which support our results.

We could see that according to GEM (2004), young people tend to be more involved in entrepreneurial activity, that in high-income countries education is related to creating new business and that gender is also a variable that influences entrepreneurship since men are twice more likely to start new business than women. Self-efficacy was also analyzed in this study as according to different authors it can be seen as a personal trait associated to desirable characteristics nowadays, as motivation to learn or persistence in pursuing a goal (Brinkerhoff, 2006; Colquitt, LePine, & Noe, 2000; Salanova, Grau, Cifre, & Llorens, 2000). After reflecting about Bandura (1997) work it was possible to defend that the self-efficacy and the auto-perception that the individual has is fundamental in the act of becoming entrepreneur since those with higher self-efficacy are more able to persist in carrying out a task, than those who have a low self-efficacy (op. cit.).

This takes us to our H2: Greater self-efficacy will lead to greater entrepreneurial potential. That is, if an individual has higher levels of self-efficacy, he/she will also have higher levels of entrepreneurial potential.

The second hypothesis was sustained both by the literature mentioned as well as by our results, since the findings indicate that there is a significant relation between the self-efficacy and the entrepreneurial potential of the students. In fact, students with higher self-efficacy show a higher entrepreneurial potential.

If we go deeper on this topic, we can understand that it is expected that a more proactive person, with greater resilience and determination to conquer his/her goals will be more focused on creating business and value to the economy and society. As Bandura (1997) showed, those with higher self-efficacy are more able to persist in carrying out a task, than those who have a low self-efficacy. Parreira et al., also stated that self-efficacy is linked with the motivation to learn or persistence, and that "it is an individual's self-perception that helps him/her in the decision to undertake or not" (2018, p. 344).

Regarding to our hypothesis 3, we found out that motivations based on family and societal realization, income, prestige and learning and development are positively related to students' entrepreneurial potential, contributing to it, meaning that the existence of these kinds of motivations will increase the entrepreneurial potential of a student, being the *Learning and Development* the most significant motivation for students. This is in accordance with what the literature says, since McClelland (1961) and Pereira (2001) found that the first motivation to undertake is the necessity of realization, with the drive for achievement being reflected in the ambitious people who start new organizations. The necessity of realization is also connected to the acquisition of knowledge, according to Parreira et al. (2011). In addition, students evaluated *Learning and Development*, with more than 4 in the scale of 5 (see table 2), followed by *Family and Societal Realization*, meaning that they give high importance to this type of motivations. Such finding is congruent with the literature, since it defends that one of the most valued motivations to undertake is the Family (Almeida & Teixeira, 2014; Mueller, 2006; Shanker & Astranchan, 1996; Silva, 2018). *Prestige* is also significant to students, motivating them to create a business, which can be explained by Cassar (2007) and Parreira et al. (2011)

that pointed the necessity to be accepted, recognized and to create status in the society as important influences to be an entrepreneur.

Our hypothesis 4 was also sustained since we found out that there is a relation between the existence of incentives and students' entrepreneurial potential. In this case, *Educational and Consulting* Incentives were the most significant ones in the entrepreneurial potential, which highlights the importance of the Entrepreneurship Teaching as Schoof (2006) and GEM (2009) explained. This also shows the importance of HEI to develop their capacity to *Prepare and Support Entrepreneurs*, as previously discussed because we can conclude from the results that students value the importance of Universities to work as students' consultants, helping them to start a business and advising them. *Financial and Governmental* Incentives are also significant, which shows that students value startups financing and innovation support, being motives that they take into account when deciding to be entrepreneurs and creating a business.

Finally, our hypothesis 5 referred to the relation between the existence of resources and opportunities to undertake and the students' entrepreneurial potential, which is also sustained by our results. Thus, our findings allow us to say that the existence of more resources and opportunities to undertake will increase the entrepreneurial potential of a student, highlighting the *Business Stability*, the factor that showed the biggest relation with the entrepreneurial potential. In fact, Gartner (1975), Pereira (2001) and Bygrave (2003) draw our attention to characteristics related to the business stability, as the most important to take into consideration: the availability of resources, the existence of qualified labor force, the accessibility to suppliers, the market and the clients, the governmental influences, the buying power and the conditions of the implementation zone of the business. However, by seeing the result of *Business Opportunities*, we can see

that it does not have any impact on Entrepreneurial Potential. This result can be explained by the lack of preparation that Universities give to students, for the business world, resulting in them not perceiving business opportunities – once again related to the 4th factor of HEInnovate, above-mentioned, calling the attention to the urge necessity of HEI to support students.

Conclusion

The present investigation showed that better academic preparation in terms of Entrepreneurship, high self-efficacy, the existence of motivations, incentives and opportunities and resources to undertake increases the entrepreneurial potential of the students. This way, it is possible to identify the areas that need to be improved, and what is necessary to increase the entrepreneurship.

The study helped to evaluate student's Entrepreneurial Potential, permitting to develop incentive programs, students' knowledge and competencies necessaries to undertake. It could also help HEI to develop initiatives in order to create innovation and business with value for the society, the students and for the academy.

For example, in terms of what the Universities need to develop, and taking into consideration the results obtained in our first hypothesis (see Table 4), the Organizational Capacity should be increased. For that, we suggest Universities to invest in staff development to support its entrepreneurial agenda, and to give incentives and rewards to staff who actively support the entrepreneurial agenda, for example.

Another important characteristic that should be worked is the self-efficacy, since it showed to be highly related to the entrepreneurial potential. As explained before, someone's self-efficacy changes as new information and experiences are acquired by the

individual. This way, we suggest not only Universities, but also State, to create opportunities and experiences to students in order for them to work on their self-efficacy. Competencies relevant to work on, regarding self-efficacy, is the determination and persistence to follow goals, the capacity to deal with unexpected situations, solving problems, staying calm and creating solutions.

After our findings we stress the importance of entrepreneurship and the importance of developing programs that support it, as long as motivate the individuals to become entrepreneurs. In times of crisis as the one we are living, and since entrepreneurship as such a big impact on economy – as stressed before – it is really important that entrepreneurship start to be more valued and increases.

We consider that the companies and the governments can also acquire better results by taking into consideration our study, in order to understand how the new labor force is, what motivates this new generation of workers and what can be done to improve it and to provider better conditions.

It is important to point out that this research also presents limitations, which must be taken into account.

For instance, using a sample only from students in Portuguese HEI can imply issues regarding generalizability of results, not letting us say if these results would have been the same throughout different countries where there is a different culture from the European one.

Likewise, using questionnaires as the instrument to collect data may have led to bias, implying a distortion in the accuracy of responses, since participants could also have felt inclined to answer according to what they thought that was expected from them.

Moreover, the use of a questionnaire only with multiple choice questions, in a *likert* scale, could make us lost the opportunity of obtaining more enriching and important information that could have been got with open-ended questions. On the other hand, using a long questionnaire could also be a limitation, since participants could not feel concentrated enough. However, this can be seen as a favorable point since our study is part of a great dimension project, which helped collecting data to different studies, about several interrelated variables, and gave the most complete result possible.

Finally, the study was developed only in the HEI students' perspective, which can be pointed as another limitation, since Universities' staff and top leaders can have a different vision of how Entrepreneurship is being developed, and how students are taking advantages of it.

These limitations should be considered for future researches in order to bring other insights and discoveries as well as improving the knowledge about Entrepreneurship. This way, we think that would be a good idea to expand horizons and extend the sample to HEI of other cultures, as the American, for instance. In order to have better results and to fill the limitations we also suggest to use different instruments to collect data – interviews and a questionnaire with open questions.

Finally, for a better picture on the current topic, another good thing to take into account in future researches is to see what top leaders of Higher Education Institutions have to say about this, if they consider their Institutions are innovative, and if their opinion is aligned with students' opinion.

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Appendix

Applied Questionnaire

Motivações Empreendedoras dos Estudantes

Este inquérito surge na sequência de uma investigação realizada acerca do impacto das atividades empreendedoras desenvolvidas através do concurso Poliempreende-*Project Innovation Networking* na atitude e comportamento empreendedor dos estudantes. A adaptação do instrumento a esta investigação foi possível por cortesia da coordenação do PIN. Assim, solicita-se a sua colaboração que deverá ocorrer de forma consciente e responsável. Será garantido o anonimato e a confidencialidade das respostas.

Grupo I

Escreva as 5 primeiras palavras ou expressões que lhe vêm à mente ao ler o termo "Empreendedorismo":

1.

2.

3.

4.

5.

Grupo II

ACERCA DA SUA VIDA PROFISSIONAL:

1. Tem atividade profissional?

◯ Não
◯ Sim, por conta de outrem
◯ Sim, por conta própria

2. Se já trabalha por conta de outrem, gostaria de ser trabalhador por conta própria (autónomo)?

◯ Não
◯ Sim

3. Considera-se capaz de criar uma empresa?

◯ Não
◯ Sim

4. Já teve alguma ideia de negócio?

◯ Não
◯ Sim

5. Qual a origem da ideia? (escolha a/as opções que considera adequada(s))

◯ Resultado de investigação
◯ Necessidade de mercado

6. Qual é o mercado(s) a que se destina a sua ideia? *(escolha a/as opções que considera adequada(s))*

◯ Nacional
◯ Internacional

7. Qual é a atividade na qual a sua ideia/produto se insere? *(escolha a/as opções que considera adequada(s))*

◯ Serviços
◯ Comércio
◯ Agricultura/Pecuária
◯ Indústria
◯ Outros

8. Já implementou a sua ideia de negócio?

◯ Não ◯ Sim

Grupo III

Criação do Negócio, Ideia e Meio Envolvente

De entre as seguintes afirmações classifique cada uma quanto ao grau de importância para criar ou vir a criar uma empresa/negócio, usando a escala: *1 = Pouco importante / 5 = Muito importante

	1	2	3	4	5
1. Desenvolver uma ideia para um produto/negócio	○	○	○	○	○
2. Elevar a minha posição na sociedade	○	○	○	○	○
3. Ter mais influência na minha comunidade	○	○	○	○	○
4. Ser respeitado pelos meus amigos	○	○	○	○	○
5. Conseguir realizar algo e ser reconhecido por isso	○	○	○	○	○
6. Contribuir para o bem-estar dos meus familiares	○	○	○	○	○
7. Contribuir para a sociedade onde vivo	○	○	○	○	○
8. Dar segurança à minha família	○	○	○	○	○
9. Fazer sentido para a minha vida	○	○	○	○	○
10. Como um meio para reduzir a carga fiscal	○	○	○	○	○
11. Aceitar um desafio	○	○	○	○	○
12. Desejo de ter proveitos elevados	○	○	○	○	○
13. Ser inovador e estar a par das tecnologias	○	○	○	○	○
14. Continuar a aprender	○	○	○	○	○
15. Dar maior flexibilidade a mim e à minha família	○	○	○	○	○
16. Ter acesso a lucros indiretos tais como isenções fiscais	○	○	○	○	○
17. Existir disponibilidade de capital de familiares e/ou amigos	○	○	○	○	○

Grupo IV

De entre as seguintes afirmações classifique os fatores do meio envolvente quanto ao grau de importância para criar ou vir a criar uma empresa/negócio, usando a escala: *1 = Pouco influentes / 5 = Muito influentes

	1	2	3	4	5
1. Disponibilidade de mão-de-obra especializada	○	○	○	○	○
2. Disponibilidade de gestores	○	○	○	○	○
3. Disponibilidade de mão-de-obra especializada em novas tecnologias	○	○	○	○	○
4. Disponibilidade de fornecedores	○	○	○	○	○
5. Disponibilidade de máquinas e equipamentos de mercado	○	○	○	○	○
6. Disponibilidade de capital nas Instituições financeiras	○	○	○	○	○
7. Disponibilidade de capital por parte de clientes e fornecedores	○	○	○	○	○
8. Existência de clientes interessados no produto/serviço	○	○	○	○	○
9. Clientes de fácil acesso	○	○	○	○	○
10. Expansão da economia local	○	○	○	○	○
11. Existência de grandes incentivos para encorajar o início do negócio	○	○	○	○	○
12. Existência no mercado de produtos/similares mas não iguais	○	○	○	○	○
13. Clientes na sua maioria locais	○	○	○	○	○
14. Facilidade para identificar o cliente tipo (característico)	○	○	○	○	○
15. As vendas do setor pretendido serem estáveis	○	○	○	○	○
16. Tecnologia no setor pretendido ser estável	○	○	○	○	○
17. Existir um grande número de negócios na área onde vivo	○	○	○	○	○
18. Existir um grande número de negócios no setor pretendido	○	○	○	○	○
19. Existir um grande número de negócios falidos na área onde vivo	○	○	○	○	○
20. Existir um grande número de negócios falidos no setor pretendido	○	○	○	○	○
21. Existir incerteza política no país	○	○	○	○	○
22. As margens de lucro no setor pretendido serem estáveis	○	○	○	○	○

Grupo V

De entre as seguintes afirmações classifique o grau de importância que atribui aos serviços de apoio para criar ou vir a criar uma empresa/negócio, usando a escala: *1 = Pouco importante / 5 = Muito importante

	1	2	3	4	5
1. Serviços legais ou institucionais de baixo custo	○	○	○	○	○
2. Serviços de consultadoria de baixo custo	○	○	○	○	○
3. Cursos de formação para empresários	○	○	○	○	○
4. Informação atualizada no mercado	○	○	○	○	○
5. Programas de formação especializados	○	○	○	○	○
6. Serviços de aconselhamento	○	○	○	○	○
7. Empréstimos com taxas de juro acessíveis	○	○	○	○	○
8. Subsídios governamentais para a indústria	○	○	○	○	○
9. Subsídios governamentais para a saúde	○	○	○	○	○
10. Subsídios para a instalação e arranque	○	○	○	○	○
11. Garantias de empréstimo	○	○	○	○	○
12. Capital público de risco	○	○	○	○	○
13. Subsídios para apoio de novos produtos e processos	○	○	○	○	○
14. Organismos de apoio às empresas locais	○	○	○	○	○
15. Serviços de contabilidade de baixo custo	○	○	○	○	○

Grupo VI

Todas as pessoas têm uma ideia de como são. A seguir estão apresentados diversos atributos, possíveis de o/a descreverem como a pessoa que é. Leia cada questão e responda verdadeira, espontânea e rapidamente a cada uma delas. Ao responder considere, sobretudo, a sua maneira de ser habitual, e não o seu estado de espírito de momento. Preencha a opção que melhor se adeque às suas características.

	1	2	3	4	5
1. Consigo resolver os problemas difíceis se for persistente	○	○	○	○	○
2. Se alguém se opuser, consigo encontrar os meios e as formas de alcançar o que quero	○	○	○	○	○
3. Para mim é fácil agarrar-me às minhas intenções e atingir os meus objetivos	○	○	○	○	○
4. Estou confiante que poderia lidar eficientemente com acontecimentos inesperados	○	○	○	○	○
5. Graças aos meus recursos, sei como lidar com situações imprevistas	○	○	○	○	○
6. Consigo resolver a maioria dos problemas se investir o esforço necessário	○	○	○	○	○
7. Perante dificuldades consigo manter a calma porque confio nas minhas capacidades	○	○	○	○	○
8. Quando confrontado com um problema, consigo geralmente pensar numa solução	○	○	○	○	○
9. Consigo geralmente lidar com tudo aquilo que me surge pelo caminho	○	○	○	○	○

Grupo VII

Acerca do Empreendedorismo.

1. O seu curso tem ou teve conteúdos de empreendedorismo?

○ Não
○ Sim

2. Se sim:

○ Não frequentou
○ Frequentou
○ Deseja frequentar

3. Caso tenha frequentado, indique o tipo:

○ Unidade Curricular
○ Módulo
○ Disperso noutra Unidade Curricular

4. Já ouviu falar do Concurso Poliempreende na sua escola?

○ Não
○ Sim

5. Se sim, já participou?

○ Não, e não considero participar
○

Não, mas considero vir a participar
○ Sim, apenas nas ações de divulgação e/ou oficinas
○ Sim, com projeto no concurso regional

Grupo VIII

A sua perspetiva perante o Empreendedorismo. Avalie cada afirmação abaixo de acordo com a maneira como NORMALMENTE se sente, usando a escala: **1 = Discordo totalmente / 5 = Concordo totalmente.**

	1	2	3	4	5
1. É fundamental delinear por escrito os objetivos de um negócio.	○	○	○	○	○
2. Gosto de pensar que sou uma pessoa criativa.	○	○	○	○	○
3. Nunca terei a certeza se o negócio terá sucesso.	○	○	○	○	○
4. Quero que o meu negócio cresça e se torne forte.	○	○	○	○	○
5. A coisa mais importante que farei será o planeamento do meu negócio.	○	○	○	○	○
6. Gosto de abordar as situações de uma perspetiva analítica.	○	○	○	○	○
7. Não vou descansar até que o meu negócio seja o melhor.	○	○	○	○	○
8. O planeamento deve ser feito por escrito para ser eficaz.	○	○	○	○	○
9. Penso que irei passar provavelmente demasiado tempo de volta do negócio.	○	○	○	○	○
10. Costumo deixar a cabeça controlar o coração.	○	○	○	○	○
11. Uma das coisas mais importantes na minha vida será o meu negócio.	○	○	○	○	○
12. Sou responsável por pensar e planear o negócio.	○	○	○	○	○
13. As pessoas que trabalharem para mim terão de trabalhar arduamente.	○	○	○	○	○
14. Se gerir o meu negócio se tornar demasiado simples, iniciarei outro negócio.	○	○	○	○	○
15. Considero-me uma pessoa imaginativa.	○	○	○	○	○
16. O desafio de ser bem-sucedido é tão importante quanto o dinheiro.	○	○	○	○	○
17. Estou sempre à procura de novas maneiras de fazer as coisas.	○	○	○	○	○
18. Penso que é importante ser lógico.	○	○	○	○	○
19. Gosto mais do desafio da invenção do que de qualquer outra coisa.	○	○	○	○	○

20. Vou passar tanto tempo a planear como a gerir o meu negócio.	○	○	○	○	○
21. Nada é rotineiro na gestão de um negócio.	○	○	○	○	○
22. Prefiro pessoas imaginativas.	○	○	○	○	○
23. Em alguns aspetos seremos melhores do que a concorrência.	○	○	○	○	○
24. Os meus objetivos pessoais vão girar em torno do negócio.	○	○	○	○	○
25. Gosto da ideia de tentar superar a concorrência.	○	○	○	○	○
26. Se quisermos superar a concorrência, teremos de correr alguns riscos.	○	○	○	○	○
27. Pedir um empréstimo é apenas mais uma decisão empresarial.	○	○	○	○	○
28. A qualidade e o serviço não são suficientes. Teremos de ter uma boa imagem.	○	○	○	○	○
29. As pessoas consideram-me uma pessoa trabalhadora.	○	○	○	○	○
30. Se quisermos que o negócio cresça, temos de assumir alguns riscos.	○	○	○	○	○
31. Penso que não vou perder grande coisa se optar por não trabalhar por conta de outrem.	○	○	○	○	○
32. Estou preocupado com os direitos das pessoas que irão trabalhar para mim.	○	○	○	○	○
33. É mais importante ver as várias possibilidades numa situação.	○	○	○	○	○

Grupo IX

Como é a minha Universidade. Avalie cada afirmação abaixo de acordo com a avaliação que faz do grau de empreendedorismo da sua Universidade, usando a escala: **1 = Discordo totalmente a 5 = Concordo totalmente**

	1	2	3	4	5
1. O empreendedorismo é uma parte importante da estratégia da minha Universidade.	○	○	○	○	○
2. Existe um alto compromisso na implementação da agenda empreendedora.	○	○	○	○	○
3. Existe um modelo de coordenação e integração de atividades empreendedoras em toda a Universidade.	○	○	○	○	○
4. A Universidade encoraja e apoia as suas faculdades e unidades a atuarem de forma empreendedora.	○	○	○	○	○
5. A Universidade é um motor do empreendedorismo e da inovação no desenvolvimento regional, social e comunitário.	○	○	○	○	○
6. Os objetivos empresariais são apoiados por uma vasta gama de fontes de financiamento e investimento sustentáveis.	○	○	○	○	○

7. A Universidade tem capacidades e uma cultura que permitem construir novas relações e sinergias em toda a instituição.	○	○	○	○	○
8. A Universidade está disposta a contratar e recrutar indivíduos com atitudes, comportamentos e experiências empreendedoras.	○	○	○	○	○
9. A Universidade investe no desenvolvimento dos seus colaboradores para apoiar o empreendedorismo.	○	○	○	○	○
10. São concedidos incentivos e recompensas aos colaboradores que apoiem ativamente a agenda empreendedora.	○	○	○	○	○
11. A Universidade oferece diversas oportunidades de aprendizagem formal para desenvolver competências empreendedoras.	○	○	○	○	○
12. A Universidade oferece diversas oportunidades e experiências de aprendizagem informal para estimular o desenvolvimento de competências empreendedoras.	○	○	○	○	○
13. A Universidade valida os resultados da aprendizagem empreendedora que impulsionam a conceção e concretização de um currículo empreendedor.	○	○	○	○	○
14. A Universidade concebe e disponibiliza o currículo aos seus parceiros.	○	○	○	○	○
15. Os resultados da investigação em empreendedorismo são integrados nas novas propostas de educação em empreendedorismo.	○	○	○	○	○
16. A Universidade sensibiliza para o valor do empreendedorismo.	○	○	○	○	○
17. A Universidade apoia os seus alunos e colaboradores para passarem da geração de ideias para a criação de empresas.	○	○	○	○	○
18. É oferecida formação para apoiar alunos e colaboradores a iniciarem e desenvolverem um negócio.	○	○	○	○	○
19. É oferecido apoio, *mentoring* e outras formas de desenvolvimento pessoal por indivíduos experientes da academia ou indústria.	○	○	○	○	○
20. A Universidade facilita o acesso a financiamento aos seus empreendedores.	○	○	○	○	○
21. A Universidade oferece ou facilita o acesso ao desenvolvimento de negócios.	○	○	○	○	○
22. A Universidade está empenhada na colaboração e no intercâmbio de conhecimentos com a indústria, o setor público e a sociedade.	○	○	○	○	○
23. A Universidade demonstra um envolvimento ativo em parcerias e relações com uma vasta gama de partes interessadas.	○	○	○	○	○
24. A Universidade tem fortes ligações com parques científicos e outras iniciativas externas.	○	○	○	○	○
25. A Universidade proporciona oportunidades para que os colaboradores e estudantes participem em atividades inovadoras com o ambiente empresarial/externo.	○	○	○	○	○
26. A Universidade integra atividades de investigação, educação e indústria para explorar novos conhecimentos.	○	○	○	○	○
27. A internacionalização é parte integrante da agenda empreendedora da Universidade.	○	○	○	○	○
28. A Universidade apoia explicitamente a mobilidade internacional dos seus colaboradores e dos seus estudantes.	○	○	○	○	○
29. A Universidade procura e atrai colaboradores internacionais e empreendedores.	○	○	○	○	○
30. As perspetivas internacionais estão refletidas na abordagem do ensino da Universidade.	○	○	○	○	○

31. A dimensão internacional reflete-se na abordagem da Universidade em matéria de investigação.	○	○	○	○	○
32. A Universidade avalia regularmente o impacto da sua agenda empreendedora.	○	○	○	○	○
33. A Universidade avalia regularmente a forma como os seus colaboradores e os recursos vão ao encontro da sua agenda empreendedora.	○	○	○	○	○
34. A Universidade avalia regularmente o ensino e a aprendizagem no que respeita ao empreendedorismo em toda a instituição.	○	○	○	○	○
35. A Universidade avalia regularmente o impacto do apoio ao arranque de negócios.	○	○	○	○	○
36. A Universidade avalia regularmente a colaboração e o intercâmbio de conhecimentos.	○	○	○	○	○
37. A Universidade avalia regularmente as atividades internacionais da instituição em relação à sua agenda empreendedora.	○	○	○	○	○

Grupo X

Informações Gerais

1. Género: ○ Feminino ○ Masculino	**2. Idade:** _____ anos	**3. Estado Civil:** ○ Solteiro(a)/Divorciado(a)/Viúvo(a) ○ Casado(a)/União de Facto
4. Tem empresários na família? ○ Não ○ Sim	**5. Se sim, quem?** ○ Pais ○ Irmãos ○ Outro: _____	**6. Nacionalidade:** _____
7. Já realizou algum programa de mobilidade (Ex: Erasmus)? ○ Não ○ Sim	**8. Universidade em que estuda atualmente:** _____	**9. Tipologia do Curso:** ○ Licenciatura ○ Mestrado Integrado ○ Mestrado ○ Doutoramento
10. Nome do Curso: _____ _____	**11. Ano do Curso** ○ 1º Ano ○ 2º Ano ○ 3º Ano ○ 4º Ano ○ 5º Ano	12. **Condição perante o Ensino:** ○ Estudante ○ Trabalhador-Estudante