



## Entrepreneurial Disposition in Brazilian University Students

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### Abstract

Higher education is universally recognized as a key pillar in the construction of new knowledge economies. The Brazilian university, in general, does not explore its potential to inspire and stimulate students' ambition and innovation. Is there any neglect in the willingness of young university entrepreneurs to promote economic development and consolidate knowledge transfer? This study aims to analyze how the entrepreneurial intention of Brazilian university students behaves. The field of investigation is the Junior Companies of the country, whose use of the Modeling of Structural Equations represents the method of investigation. The study met the statistical criteria for its validation, in addition to presenting a moderate adjustment index explaining 64.9% of the entrepreneurial intention with only one rejected hypothesis. The findings of this research suggest gaps in the performance of government and universities in promoting entrepreneurial education and have implications for entrepreneurship scholars, universities, and policy makers.

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## Entrepreneurial Disposition in Brazilian University Students

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### ABSTRACT

*Higher education is universally recognized as a key pillar in the construction of new knowledge economies. The Brazilian university, in general, does not explore its potential to inspire and stimulate students' ambition and innovation. Is there any neglect in the willingness of young university entrepreneurs to promote economic development and consolidate knowledge transfer? This study aims to analyze how the entrepreneurial intention of Brazilian university students behaves. The field of investigation is the Junior Companies of the country, whose use of the Modeling of Structural Equations represents the method of investigation. The study met the statistical criteria for its validation, in addition to presenting a moderate adjustment index explaining 64.9% of the entrepreneurial intention with only one rejected hypothesis. The findings of this research suggest gaps in the performance of government and universities in promoting entrepreneurial education and have implications for entrepreneurship scholars, universities, and policy makers.*

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## 1. Introduction

The ability to undertake has become as important as necessary in the face of transformations in the global economy. In Brazil, the fluctuation in the balance of formal employment, which has recently declined in three consecutive years (2014-2017), together with the considerable informal employment rate, which in large part contributes to a reduction in the unemployment rate in the country, but are a scenario in which entrepreneurship becomes a determining factor of employability for the individuals who complete the university.

This is all the more significant in considering that approximately two-thirds of the young population in developing countries are either unemployed or in low-quality jobs, or not working and not studying (ILO, 2017). This fact shows a waste of the economic potential of these countries and exacerbates social risks.

Thus, it's possible to perceive a demand in the preparation of the young person for the labor market through education, understanding as essential the demand for changes in the conjuncture of the Institutions of Higher Education (HEI), as a starting point of this trajectory, in order to promote and to arouse in the students the spirit, the motivation and the entrepreneurial formation in order that they become able to construct their own space in the work market, and instead of depend on the economic condition of the country, they start to contribute for that she present good results and reach global prospects.

Welch (2011, p. 331) points out that higher education "is universally recognized as a key pillar in the construction of the new knowledge economies of the 21st century," and that it has been increasingly challenged to demonstrate its contribution together with economic and social development by today's society, also known as the knowledge society (Audretsch, 2014; Etzkowitz, 2013).

Although around the world, several universities already recognize the role and power of entrepreneurship education on innovation and economic development of countries, in Brazil this scenario is still immature. As explored in the research conducted in 2016 by Endeavor and SEBRAE, which was attended by 2230 students and 680 professors from more than 70 HEIs from all regions of the country, the understanding is that the Brazilian university, in a way general, does not prove to be active in the market and the community, and does not exploit its potential to inspire and stimulate ambition and innovation in university entrepreneurs. For the study, the student's entrepreneurial profile is largely similar to that of the average Brazilian entrepreneur, demonstrating that the institution is not exerting transformative influence on the student or is not the main reason for it to have a disruptive profile.

Thus, the relevance of discussing the correlation between employability and academia is evident, given the lack of policies and strategies that contribute to the transformation of Brazilian universities into entrepreneurial ecosystems and, therefore, also serve as the engine of economic development in Brazil. region in which it operates. The challenge is to know how to promote the necessary skills and entrepreneurial skills in people, so that they can act in this scenario in which they become protagonists of activities and entrepreneurial actions (Souza, 2015).

In the light of this perspective, entrepreneurial intentions are fundamental to understanding entrepreneurship (Schlaegel & Koenig, 2014), since they correspond to the first step in the process of discovery, creating and exploiting opportunities (Kolvereid, 2016).

Some studies have been developed with a focus on entrepreneurial intent (Liñán & Fayolle, 2015; Schlaegel & Koenig, 2014; Souza, 2015) and other studies (Liñán, Rodríguez-Cohard & Rueda-Cantuche, 2011; Miranda, Chamorro-Mera & Rubio, 2017) employed and confirm the usefulness of Theory of Planned Behavior (TPB), developed by Ajzen (1991), which seeks to predict and explain the behavior of the individual in specific contexts.

However, despite this diversity of research, there is a shortage of studies that explore the entrepreneurial intention of Brazilian university students already involved in an initiative that is conducive to the development of entrepreneurial skills (Pennarola, Pistilli & Dawson, 2016), which is the case of Junior Company (EJ). Thus, this research aims to answer the following question: How do the factors of the TPB influence the formation of the entrepreneurial intention of the students linked to the Junior Company in Brazil?

Although there may be factors that imply intentions to undertake, there are provisions in Junior Enterprises (EJ) experienced as actual behavior that may be relevant to the foreshadowing in undertaking. That is, it is considered that entrepreneurial intentions can be seen as a willingness of university students to experiment or propose some effort in exercising or forming their own business plan. Thus, in this way, a new business emerges as well, and can be considered as a result of intentions whose entrepreneurship represents a planned and intentional behavior (Liñán & Chen, 2009).

Based on the evidence that universities foster academic university students for professional purposes, it's necessary to understand the intentions of these early potential entrepreneurs so that it may be possible to know what factors stimulate them to entrepreneurship. Hence the need to respond to the identified gap through the research problem.

In this context, the objective of this work is to analyze how the entrepreneurial intention of Brazilian university students linked to EJ behaves through the Modeling of Structural Equations (MEE).

For this, a study was conducted with 445 EJ students in Brazil and the data collection instrument used is a questionnaire used by Souza (2015) based on Ajzen's TPB (1991) and adapted by Liñán & Chen (2009) with psychometric scale adjusted by Liñán, Urbano and Guerrero in 2011.

The main contribution of this study lies in the lack of academic decisions, which lack empirical evidence at the university level, regarding the entrepreneurial intentions of scholars through EJ, because they are prone to new business creation. In addition to evaluating the willingness to undertake, the present study also examines the behavioral effect of entrepreneurial intentions in the JE because it deals with real business gestation activities, capable of providing an understanding of possible influences of prospective factors in these intentions.

The article is structured as follows: a) first, there was a review of literature on intentionality and its determinants, and; b) the model of entrepreneurial intentions based on theory and behavior is presented; c) in the following section, the procedures and research methods are described; d) and, later, presenting the results of the hypothesis tests; e) Finally, the article concludes with discussions, implications, limitations and future research opportunities.

## 2 Theoretical background and hypotheses

In seeking to develop a general theory of entrepreneurship, Shane (2003) suggested that the discovery of opportunities depends on access to information and the characteristics of opportunity recognition (eg, intelligence).

According to the European Commission (2006, p. 4), "entrepreneurship refers to the individual's ability to turn ideas into action. It includes creativity, innovation and risk acceptance, as well as the ability to plan and manage projects to achieve goals. " Considering that university students act not only on creativity, but also an important prerequisite for entrepreneurship, there are also means of applying what they perceive in the university under the supervision of even teachers. With this, they are expected to become more confident in undertaking the moment their practices can be tracked and orchestrated by the educational institution through Junior Business (EJ).

In a meta-analytic review involving 73 studies, Bae et al., (2014) observed a significant, albeit small, correlation between entrepreneurial education and post-education entrepreneurial intentions, which is the case with the application of knowledge via EJ and what is expected of the students after this opportunity to undertake.

In this context, it is known that the motivation of the initial entrepreneurs can occur by necessity or opportunity. Regarding the object of this study, what is configured is the opportunity to undertake. GEM (2016) defines entrepreneurs by opportunity as capable of identifying a business opportunity or niche market, undertaking even having competing alternatives of employment and income. It was evidenced in their study that the proportion of entrepreneurs by opportunity in 2016 was higher in groups of countries driven by innovation, and that present higher levels of socioeconomic development. Brazil ranks in the efficiency-driven groups of countries, according to the Global Competitiveness Report (GDP per capita and the share of exports of primary goods), presenting the value of 57.4% for the Entrepreneurs by Opportunity, while innovation-driven countries such as Sweden and the United States had 89.0% and 87.5%, respectively. In addition, Brazil reached the 64th place in 2018, among 126 economies listed in the world ranking of innovation prepared by Cornell University, together with the business school Insead and the World Intellectual Property Organization.

However, it can still be inferred that there is a high index of entrepreneurs by necessity in Brazil, and this reflects in a significant part of the population that undertakes to survive, a reflection of the economic crisis and consequent high unemployment rate, develop businesses with low innovation and technology, generating a minimum of wealth and jobs. In a more robust view, it can be added as a reflex, the low level of schooling in the country, which does not contribute to the entrepreneurial formation and the proactive profile of these professionals.

However, there are several studies that advocate the importance of promoting entrepreneurship in order to stimulate economic development and job creation (Degen, 2009; Van Praag & Versloot, 2007). In particular, education for entrepreneurship has been considered as one of the main tools to increase the entrepreneurial attitudes of springs, and potential entrepreneurs (Potter, 2008; Liñán et al., 2011). In this regard, Etzkowitz (1983) used the term entrepreneurial university to define educational institutions that have become critical of regional economic development.

On the other hand, China, highlighted as a fast-growing economy, has given significant importance to entrepreneurship education. The Chinese government, starting in 2014, has adopted a strategic initiative in the country to stimulate entrepreneurship and innovation in order to promote economic growth in a continuous and sustainable way. As Chinese educational institutions, particularly universities, are the precursors to developing and implementing innovative systems (including changing teaching curricula for higher education), offering education for entrepreneurship (MyCOS, 2018). This action aimed to promote the entrepreneurial competence of young people and their attitude and intention to make choices for entrepreneurial career.

This has also been reported in some studies, where Fayolle & Liñán (2014) have pointed out that the results of empirical research reveal significant differences in attitudes and intention levels of students participating in entrepreneurship education programs and those who do not participate.

Understanding intentions, according to Salhi (2018), helps to understand the phenomena and behaviors associated with entrepreneurship, and in turn, behavior being a direct function of intention.

In the context of entrepreneurship, a new business arises over time and involves considerable planning, so it's exactly the type of planned behavior (Bird Model, 1988), for which the models of intention are adequate (Saeed et al., 2015). It's noteworthy that the intention to create new businesses proved to be a fundamental, long-term and frequently used construct in entrepreneurship research (Carr & Sequeira, 2007).

There is the theory of planned behavior proposed by Ajzen (1991), who in principle considers that all social or human behavior is motivated, controlled and planned. In this aspect, Salhi (2018), emphasizes that the behavior can be explained through the intention to adopt it, where any behavior requires some planning realized by an intention. Therefore, the creation of a company stems from the intention to adopt a planned behavior.

Several theoretical contributions support Ajzen (1991) theory of planned behavior, which in the face of other theoretical results have revealed that there is an entrepreneurial intention in predicting behavior (Ajzen 1991; Choo & Wong 2009; Pihie & Akmaliah 2009; Kim-Soon et al., 2013, Salhi, 2018). They emphasize intention as the main factor that explains the entrepreneurial behaviors in different contexts, which in the case under study, refers to the intention originated in EJ.

For Fayolle & Liñán (2014), three main models serve as a guide for understanding the development of entrepreneurial intentions: Bird Model (1988), Shapero & Sokol's Entrepreneurial Event Model (1982), and Theory of Ajzen Planned Behavior (TPB) (1991). However, TPB is more structured (Liñán et al., 2011), and has become the dominant model of attitude-behavior relations, corresponding to the most influential model to date (Schlaegel & Koenig, 2014; Fayolle, 2015).

Regarding this model, Ajzen (1991, 181) already advocated that: "Intentions are taken to capture the motivational factors that influence behavior and are indications of how people are willing to try, how much effort they are planning to engage in in order to perform the behavior".

In summary, in TPB the behavior of a person is immediately determined by the intention to execute (or not) this behavior (Miranda, Chamorro-Mera & Rubio, 2017) which, for Ajzen (2002) is guided by behavioral, normative and control beliefs. Therefore, the formation of Entrepreneurial Intent (IE) to perform a behavior is determined by three independent variables: Personal Attitude (AP), Subjective Norms



(NS), and Perceived Behavioral Control (CP), in which the relationship between these three elements and EI grow proportionately, which in turn predict behavior (Ajzen, 1991).

Given the relevance identified in the literature, this article intends to apply the model used by Souza (2015), for being adapted and considering what the dominant attitude-behavior model advocates, based on the TPB discussed by Liñán & Chen (2009). psychometric scale adjusted by Liñán, Urbano & Guerrero in 2011. The following are the factors that will be investigated as explanatory variables of IE.

### *2.1 The influence of Personal Attitude (AP) on entrepreneurial intent:*

By AP, the degree to which the individual holds a personal assessment of entrepreneurship, including affective and evaluative considerations (Liñán & Chen, 2009), in synthesis refers to the individual's impression of being an entrepreneur.

For Schlaegel & Koenig (2014), an increase in this attitude must have a positive influence on the individual's desire to carry out the behaviors related to the founding of the company itself and achieve the goal of becoming an entrepreneur. People dedicate effort and time to entrepreneurship if they perceive that this activity is positive and professionally stimulating, or if they are aware of the marketing potential of their research (Goethner, Obschonka & Silbereisen, 2012).

Therefore, it's understood that positive attitudes towards entrepreneurship will positively affect the personal attractiveness of starting the business itself. Thus, the following hypothesis is postulated:

*H1: Personal Attitude will have a positive and significant relationship with the entrepreneurial intention.*

### *2.2 The influence of Perceived Behavior Control (CCP) on entrepreneurial intent:*

The variable CP is seen as the perception of the ease or difficulty of starting a business and its capacity to undertake (Ajzen 2002; Liñán & Chen, 2009; Saeed et al., 2015), similar to the concepts of perceived viability (Shapero & Sokol, 1982) and Bandura (1997) self-efficacy, insofar as they are concerned with the perceived ability to perform behavior (Ajzen, 2002). In general, literature tends to agree that perceptions of control are positively related to the intention to become an entrepreneur (Schlaegel & Koenig, 2014).

Considering that entrepreneurial intentions still depend on the personal convenience of entrepreneurship (personal attitude), from the perceived social acceptance of entrepreneurship to a normative reference group (social norms), there is therefore concern about the perceived viability of becoming an entrepreneur (perceived behavioral control). The latter being theorized in the TPB to influence behavior, expressing that a person's intention can only lead to real behavior if he feels able to perform the behavior in question. Therefore, perceived behavioral control plays a dual role in the TPB model, shaping intentions and interacting with them to affect behavior together.

Associated with this fact, it has been that the experimental learning emphasizes the transformation of the experience in knowledge, that in the case in study, the students count on the opportunity to learn doing, under the context of the education for the entrepreneurship, since they are in a university that has EJ. In turn, it attributes experiential learning, which includes a wide range of experiences for students, enabling them to experience the real world through entrepreneurial activities, promoting business and working with real entrepreneurs to assist their business ventures. In this aspect, there is the perception of control and intention to become entrepreneurial on the part of the students in the EJ. With this, students are expected to become more creative and innovative in their thinking and problem solving applications, leading to

perceived behavior in a positive way (Ajzen, 1991; Maes, Leroy & Sels, 2014; Bandera, Collins & Passerini, 2018; Canziani & Welsh, 2019). These discussions lead to the following hypothesis:

*H2: The Perceived Behavior control will have a positive and significant relationship with the entrepreneurial intention.*

### *2.3 The influence of Subjective Norms (NS) on entrepreneurial intention:*

NS refers to the social pressure exerted on the individual to become or not entrepreneur, coming from his social circle. The values and norms maintained by these individuals and this social pressure directly influence their intention (Ajzen, 1991).

An individual's perception of positive expectations about starting a venture of his own will encourage him to form favorable perceptions of the behaviors necessary to achieve the goal of becoming an entrepreneur, and consequently negative expectations will create unfavorable perceptions of the suitability of these behaviors.

However, there are effects of social pressure that must also be considered as perceptions of entrepreneurship, and it is necessary to decipher problems and contemplate them in the business plan, including in occasions where it involves education for entrepreneurship, as is the case of incubators where it's also the ability to transform perceptions into actions (Chen et al., 2018). Even if this effect may be opportune, it's still necessary to consider, according to Krueger, Reilly & Carsrud (2000) the "subjective norms" of the planned behavior, so that even if the perception of behavior and its planning is desirable and opportune, it is necessary to consider as a premise to its fulfillment (or violation) existential social norms, capable even of increase or decrease the expected satisfaction under a given business to undertake.

Other studies in academic entrepreneurship also considered that the social environment exerts influence on the entrepreneurial intention of the individual (Bercovitz & Feldman, 2008; Obschonka et al., 2015). Therefore, we hypothesize that:

*H3: The Subjective Norms will have a positive and significant relation with the entrepreneurial intention.*

### *2.4 The Influence of Subjective Norms on Personal Attitude and Control of Perceived Behavior*

Few studies that analyze the correlation between NS and PA and between NS and CP are found. The highlights are for Liñán (2008), Liñán & Chen (2009) and Souza (2015), which are used as reference to the model applied here.

Linán & Chen (2009) obtained among the results of their study that the main influence of the NS was exerted through its effects in the AP and CP, obtaining significant paths for the respective hypotheses tested. There may be reasons to consider that NS have an effect on PA and PC. When individuals realize that the people whom they consider relevant would approve of their decision to become entrepreneurs, they would be more attracted and would feel more capable of accomplishing it satisfactorily. Therefore, the last hypothesis arises:

*H4: Subjective Norms will have a positive and significant relationship with Personal Attitude.*

*H5: Subjective Norms will have a positive and significant relationship with Perceived Behavioral Control.*



### 3 Method

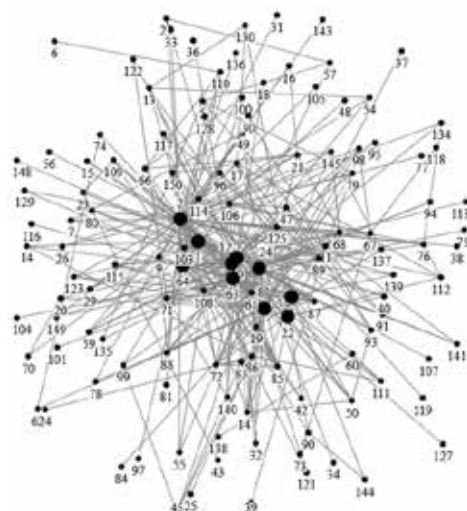
In order to reach variability and representativeness, the IE analysis has as object the population of the students that compose the Junior Companies because they are considered motivated to undertake. In this analysis, a quantitative approach is taken by virtue of the measurement and statistical analysis of population data. It is defined as a descriptive study for describing characteristics of a given population (Collis & Hussey, 2014) and explanatory, for attempting to establish relationships among variables, using standard methods of data collection and analysis. By using questionnaires, this work is configured as a survey.

The Web of Science, Science Direct and Scopus databases were searched for credibility, quality and quantity of publications and citations, directing research in three different combinations of keywords: "Entrepreneurial Intention", "Academic Entrepreneurship" and "Entrepreneurial Intent". The survey allowed to delimit and deepen under the object of the IE study, whose empirical focus is the Brazilian university students. The collection of articles in the databases did not limit a specific period, although the preference for readings and analyzes of the most cited and current articles was adopted. Only journal articles were considered, since they were recognized as a validated knowledge (Podsakoff et al., 2005).

From this, 268 articles were obtained, and after reading the abstracts, those that have a scope aligned with the object of the study remained, totaling 150. Thus, it was possible to elaborate a network of authors (Graph 1), relating the citations of each article which reflect the interconnection between the researchers and the conjunctions between the scientific conceptions (Kraus et al., 2014), therefore, his analysis reveals the central names that denote recognition in academia.

Graph 1: Network of

authors



Source: Authors.

Access to the population of Brazilian university students was made through contact with federations and / or electronic pages of the JS and also in the Brazilian Confederation of Junior Enterprises (Brazil Júnior). In September 2018, 651 EJs were mapped representing the population of this research. The data collection process was performed through the survey monkey platform and sent by e-mail to the members of these 651 EJ and requested distribution among the other members. The sample of students who answered consolidated in 445.

The applied questionnaire is composed of two blocks, with Block 1 responsible for raising the "Profile of the Respondents" and Block 2 "Measures of Elements of the Model of Intent", where it has 20 objective assertions that address the analysis variables, according to the adaptation of the questionnaire of Liñán (2008). The adopted version consisted of the first part of the data collection instrument, which refers to the psychometric scale used in the perspective of the TPB, with a free translation initially applied by Souza (2015). In the questionnaire was used a seven-point Likert scale that seeks to obtain students' perceptions regarding the latent variables of the model.

It's worth noting that in the data tabulation, the acquiescence bias was considered, which is the proposal of the modified version developed by Liñán (2008) and Liñán, Urbano & Guerrero (2011), in which some items were redrawn.

The method of quantitative approach employed is based on the Modeling of Structural Equations (MEE) used to test the hypotheses of causality between the variables. Based on the theoretical approaches and assumptions raised, four primary constructs that influence EJ entrepreneurship are indicated: i) AP, ii) CCP, iii) IE, iv) NS.

SmartPLS software, version 3.2.8 was used for the modeling application. The MEE was used to estimate the relationships between the constructs and their unobserved latent indicators. Finally, the structural model is adjusted and verified by adjusting the fit.

Regarding the characterization of the sample, it was considered that the minimum number of observations is between five and ten respondents for each variable (Hair et al., 2014). For the applied questionnaire composed of 20 assertions, the sample obtained from 445 students is 4.45 times larger than the minimum required, and is therefore satisfactory.

In addition to a brief descriptive analysis of the data, the PLS-SEM (or, PLS-MEE), which is a non-parametric statistical method, is not required to be distributed normally. Hair et al. (2014) emphasize that it is important to analyze how distant the "normal" data are, since they may prove problematic in the assessment of significance if they are extremely "non-normal". For this analysis Hair et al. (2014), use asymmetry and kurtosis, which in terms of reference values, the authors evaluate that both kurtosis and asymmetry should have results between -1 and +1. As for Maroco (2014), absolute values of asymmetry <2 and kurtosis <7 do not indicate a violation of normality. When analyzing the data obtained through the SmartPLS, it is observed that the highest and lowest values for the asymmetry were -0.01 and -1.68, respectively, whereas for kurtosis the results in the same order were 2.44 and -1.19. In order to avoid extremely non-normal data that could distort the results of the multivariate analysis, it was decided to eliminate the variable P\_5 (Figure 1), because it presents a kurtosis value greater than 2.

From the defined descriptive parameterizations, therefore, a multivariate analysis was used using the Structural Equation Modeling (MEE) method.

In the theoretical or reflective model considered in this research, the systematic evaluation of SEM results and partial least squares involves, according to Hair et al. (2014), the analysis of the measurement and structural model. The main indexes that evaluate the quality of the models suggested by Hair et al., (2014) are presented in Table 1 with their respective reference values.

Table 1: Statistical Parameters

Parameters	Reference Values
Cronbach Alpha	> 0,60
Compound Reliability	Between 0,70 a 0,90
AVE	> 0,50
Discriminating Validity	Cross loads should have higher external loads in their respective constructs than in the others. The square roots of the AVEs should be larger than the correlations of the constructs (Criterion of Fornell and Larcker).
VIF	<5
R <sup>2</sup>	Between 0 e 1
T value	>1,96 (to level of significance = 5%)
P value	< 0,05
f <sup>2</sup>	The f <sup>2</sup> values indicate a small (0.02), medium (0.15) or large (0.35) effect.
Q <sup>2</sup>	The Q <sup>2</sup> values indicate a small (0.02), medium (0.15) or large (0.35) effect.

Source: Adapted - Hair et al. (2014).

Before starting with the measurement model, it was necessary to perform a recoding of the responses obtained for the variables that were inverted in the questionnaire in order to reduce the tendency of respondents to agree with the statements. Following the importation of the data into the SmartPLS, the measurement model was constructed based on the theoretical model adopted (Figure 1).

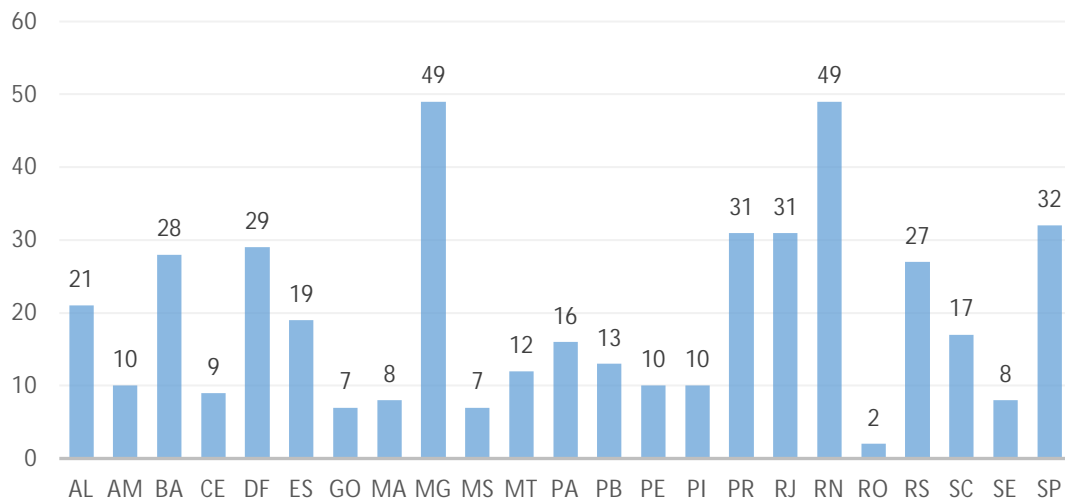
For Maroco (2014), the measurement model defines how the constructs or latent variables are operationalized by observed or manifest variables. In the theoretical model, the direction of the arrows is of the construct for the variables, indicating the assumption that the construct is responsible for the measurement of the indicators (Hair et al., 2014).

## 4 Results, Analysis and Discussion

Analyzing the profile of the respondents, they have to be aged between 18 and 35 years, with the highest concentration of them between 20 and 22 years (65.1%); 13.3% reported having between 18 and 19 years, and the remaining 21.6% between 23 and 35 years. They are distributed among 114 different HEIs and 317 EJs in various regions of the country, according to Graph 2.

Regarding the gender, 52.8% are male, 46.3% are female, and 0.9% are non-female. A reasonably superior representation of men is observed, which is a characteristic of the entrepreneurial profile in Brazil.

The sample is made up of students from 22 states and the Federal District, according to Graph 2. The only missing states correspond to Acre, Tocantins, Amapá and Roraima, the latter two of which were recently confederated to Brazil Júnior, and therefore, the Junior Firm Movement in these states is in a developmental stage. Acre and Tocantins also have low representativity, with one and three EJ mapped, respectively.

**Graph 2:** Distribution of the Sample by State

Source: Authors.

Analyzing the result of the Average Extracted Variances (AVE), it can be seen in Table 1 that the value was less than 0.5 for the CCP construct, demanding the adjustment. In order to reach the reference value, external loads less than 0.7 were considered as the exclusion parameter until reaching the AVE limit (> 0.5).

According to Hair et al. (2014), indicators with external loads between 0.40 and 0.70 should be considered for scale removal only when the exclusion of the indicator leads to an increase in WC or stroke. Thus, the variable P\_16 (Figure 1) that had the least external load (0.516) was taken. The values for the indicators of quality and convergent validity are presented in Table 1.

**Table 1:** Criteria related to quality and convergent validity

Construct	Cronbach Alpha	Compound Reliability	AVE
AP	0,839	0,886	0,609
CCP	0,687	0,807	0,512
IE	0,849	0,888	0,571
NS	0,731	0,846	0,649

Source: Authors.

When convergent validity is reached, the reliability of the internal consistency should be analyzed by Cronbach Alpha (CA), which provides an estimate of the reliability based on the intercorrelations of the variables of the observed indicators. Considering that values of AC above 0.60 and 0.70 are considered in exploratory research, it is observed that this criterion was also met.

Next, it is observed that the Composite Reliability is also within the reference limit. In relation to the criterion of Discriminant Validity (DV) by the method of Fornell and Larcker. For Fornell and Larcker (1981), the DV examines whether the observable variables of a construct relate to other constructs in the model. The results showed, in Table 2, the lack of DV for the IE construct.

**Table 2:** DV - Criterion of Fornell and Larcker

	<b>AP</b>	<b>CCP</b>	<b>IE</b>	<b>NS</b>
<b>AP</b>	<b>0,780</b>			
<b>CCP</b>	0,408	<b>0,716</b>		
<b>IE</b>	<b>0,805</b>	0,521	<b>0,756</b>	
<b>NS</b>	0,349	0,373	0,325	<b>0,806</b>

**Source:** Authors.

Therefore, it is necessary to make an adjustment, excluding variables following the parameter of the smallest difference in the cross factorial loads. Thus, P\_19 (Figure 1) presented the smallest difference (0.069) between the constructs, and therefore was excluded from the model.

After this withdrawal, new values were obtained superior to the correlations of the constructs with other latent variables, according to the criteria of Fornell and Larcker.

In order to complete the DV and verify if the measurement model is adjusted, it was observed that cross loads are having higher factor loads in their respective constructs. Following Hair et al. (2014), since the model is considered to be reliable and valid, one should proceed with the analysis of the structural model. Before starting the analysis of the structural model, Hair et al. (2014) point out that it is necessary to evaluate collinearity (VIF), since the path coefficients can be biased if the estimate involves significant levels of collinearity between the predictor constructs. All variables presented VIF values lower than limit 5, therefore, it is understood that the criterion was met.

The first analysis related to the structural model is related to the path coefficients, which represent the hypothetical relationships between the constructs and have standardized values between -1 and + 1, so that values close to +1 represent strong positive relations and vice versa for negative values (Hair et al., 2014). Considering Table 3, it is observed that the relationship is stronger positively between the AP and IE (0.670), whereas between NS and IE the correlation is non-existent (-0.001).

**Table 3:** Test Result for Significance of Path Coefficients

	<b>Original Coefficient</b>	<b>Test t</b>	<b>p value</b>
<b>AP -&gt; IE</b>	0,670	243,108	0,0000
<b>CCP -&gt; IE</b>	0,256	73,055	0,0000
<b>NS -&gt; AP</b>	0,351	84,763	0,0000
<b>NS-&gt; CCP</b>	0,373	81,160	0,0000
<b>NS -&gt; IE</b>	<b>-0,001</b>	<b>0,0372</b>	<b>0,9703</b>

**Source:** Authors.

In addition to the size of the coefficient, it's pertinent to interpret its total effects, that is, the intensity with which the exogenous NS construct ultimately influences the target variable IE through the AP and CCP mediator constructs. The total effect of NS on IE was 0.330, higher than the direct effect of CCP (0.256) and lower than that of AP (0.670).

Also regarding Table 3, the statistical significance of the path coefficient can be verified from Test  $t$ , where all coefficients are statistically significant at the 5% level, except for the correlation between NS-IE ( $t = 0.0372$ ). We can also use  $p$ -value for significance analysis, which shows that all correlations are significant, except for the relation between NS-IE ( $p > 0.05$ ), and, therefore, this hypothesis should be rejected, confirming what had already been found in the analysis of Test  $t$ .

In this study, we evaluated the effects of the exogenous latent variables on the endogenous latent variable (Hair et al., 2014), which corresponds to a measure of predictive accuracy and represents the combined effects of exogenous latent variables. The values of  $R^2$  and  $R^2$  adjusted for AP (0.124, 0.122), CCP (0.139; 0.137) and IE (0.654; 0.641), suggesting a small, moderate and large effect, respectively, were obtained.

In relation to the effect size or utility indicator for the model construction ( $f^2$ ), this measure corresponds to another way of evaluating the effect of altering  $R^2$  (Garson, 2016), and allows to analyze the relevance of the constructs in the explanation of the selected endogenous latent constructs. Table 4 presents the values of  $f^2$ , where it is verified that the construct with the greatest explanatory power was the AP ( $f^2 = 1.017$ ), suggesting a very relevant value in the size of the effect on the latent variable IE.

**Table 4:  $f^2$**

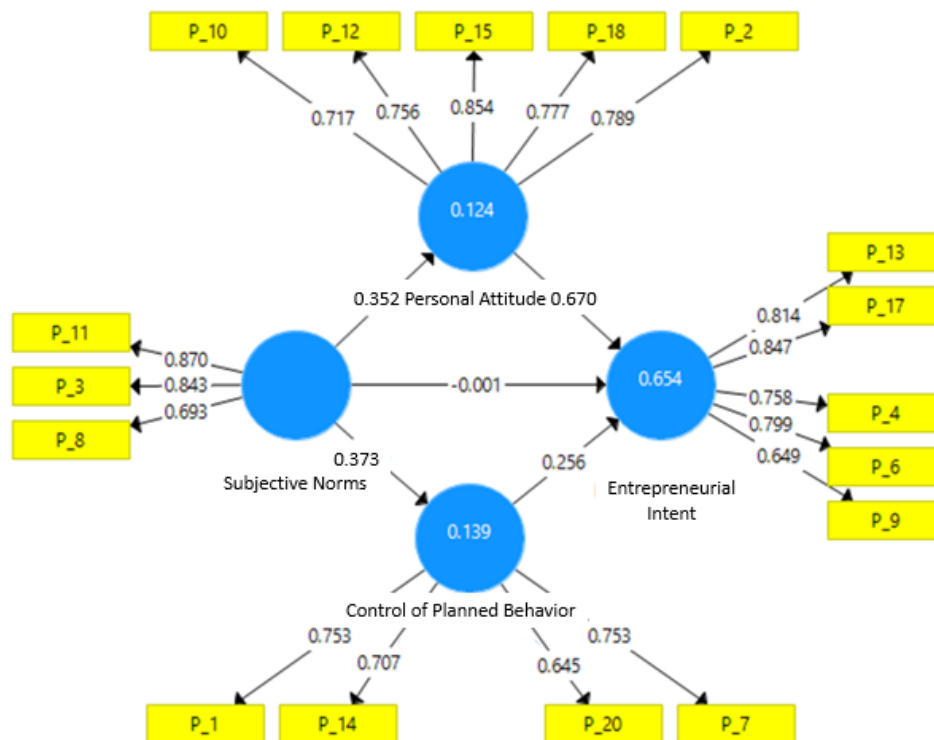
	AP	CCP	IE	NS
AP			<b>1,017</b>	
CCP			0,146	
IE				
NS	0,141	<b>0,162</b>	0	

**Source:** Authors.

Finally, in relation to  $Q^2$ , Hair et al. (2014) and Garson (2016) point out that there are two versions of  $Q^2$ , redundancy and commonality, so that while redundancy is calculated only for endogenous variables, commonality is calculated for all constructs and indicators. In addition, the commonality coefficients are higher than those of redundancy, and their calculation is performed without the knowledge of the path model, based only on the construct scores. However, the redundancy calculation is based on both the structural model and the data prediction path model estimates, and therefore, this analysis is more appropriate and recommended for the PLS-SEM approach (Hair et al. 2014).

With the obtained data, it can be seen that the endogenous factor IE (0.3667) has a high degree of predictive relevance, whereas there is a small to medium effect for the constructs AP (0.0682) and CCP (0.0647). Thus, it can be said that all constructs have  $Q^2 > 0$ , providing support for the predictive relevance of the model in relation to latent endogenous variables. Figure 1 summarizes the adjusted measurement and structural model.



**Figure 1: Measurement Model and Structural Adjustment**

Source: Authors.

The H1, H2, H4 and H5 hypotheses were accepted for validation, whereas H3 was rejected because it did not reach statistically significant coefficients, presenting values  $t < 1.96$  and  $p > 0.05$  to a significance level of 5%.

In detailing the analysis for each hypothesis, in Figure 1 it's possible to visualize, in relation to H1, that the AP presents positive relation (0.670) and significant in IE, implying the greatest effect among the constructs of the model, and this explains 12.4% of its variance thanks to the contribution of NS. Therefore, it is understood that the students evaluate in a positive way the decision to become an entrepreneur. The low percentage indicates that the scenario for entrepreneurship requires greater strengthening, either through universities or through public policies, so that this attitude can be amplified and consequently there is a positive influence on the individual's desire to perform behaviors related to foundation of the company itself and achieve the goal of becoming an entrepreneur.

In this context, Krueger, Reilly & Carsrud (2000) point out that policy makers benefit from the understanding that government initiatives will affect business creation only if such policies are perceived in a way that influences attitudes or intentions. In other words, it is noted that robust empirical support argues that the promotion of entrepreneurial intentions requires the promotion of perceptions of feasibility and convenience.

The validation of this hypothesis corroborates with several studies that applied the TPB for IE analysis, such as Línán & Chen (2009) with university students in Spain and Taiwan (with explained variance of 19.2%); for Moriano et al. (2012) with students from Germany, India, Iran, Poland, Spain and the Netherlands; and also for Karimi et al. (2016) with students from six Iranian universities.

As far as H2 is concerned, it can be observed that it reached a positive effect (0.256) in the EI and significant ( $t = 73,055$  and  $p = 0,0$ ), and the adjusted model explains in 13.9% the variance of the CCP construct also influenced by NS, which indicates that there is entrepreneurial behavior in students. However, this percentage indicates that there is still space to be effectively worked out, the training and the necessary knowledge to the students to start their own business, which can be achieved through disciplines and programs that provide theoretical background and possibility to put in practice this knowledge, bringing students closer to the real world.

In light of this perspective, Segal, Schoenfeld & Borgia (2007) argue that entrepreneurship education can play a significant role in the development of entrepreneurial self-efficacy by applying appropriate educational activities and teaching methods. In addition, Saks & Gaglio (2002) point out that the identification of opportunities can and should be taught, and it is even recommended to be a central theme in programs aimed at training future entrepreneurs.

In addition, self-efficacy can be built and strengthened in four ways: experience of mastery or repeated performance, vicarious experience, verbal persuasion, and judgments of one's own physiological states such as arousal and anxiety (Bandura, 1997).

This finding is also shared by Liñán & Chen (2009) in which CCP was the most relevant predictor (0.579) in IE of Taiwanese students (with explained variance of 15.4%) and by Iranian students studied by Karimi et al. (2016). While Moriano et al. (2012) found similar results to this research in the sense that in all cultures analyzed, AP was the strongest predictor of IE followed by CCP.

It should be noted that this difference in research can be explained by the fact that in Brazil only about 38.8% of the universities offer programs or initiatives focused on entrepreneurship, according to research conducted by Endeavor and Sebrae in 2016, which reflects the fact of which only 57.4% of Brazilians undertake by opportunity (GEM, 2016), making Brazil far from the countries driven by innovation.

As for H3, it was observed that with the results obtained, it was not possible to support this hypothesis, which showed an effect of approximately zero ( $-0,0001$ ) in the IE, and values  $t < 1.96$  (0.0372) and  $p > 0.05$  (0.9703) for a significance level of 5%, and was therefore not statistically significant. In view of this, it is understood that the social pressure perceived in carrying out or not an entrepreneurial behavior for the students who are part of EJ in Brazil does not influence the intention to undertake.

In the literature this finding is consistent with results from several studies. For example, Liñán & Chen (2009) and Maresch et al. (2016) with Austrian students of sciences and engineering distributed in 23 IES. In this context, Armitage & Connor (2001) also point out that the NS construct is generally considered a weak predictor of intentions.

Complementarily, Moriano et al. (2012) identified that NS appeared to be the least important predictor of IE among students in all cultures and the only predictor. On the other hand, Karimi et al. (2016) found positive and significant effect of NS on IE.

As justification for not supporting the H3 hypothesis, Krueger, Reilly & Carsrud (2000) and Maresch et al. (2016) emphasize that the generally weak influence of NS may be related to the idea that in individual thinking it can be confused with other attitudes (because NS is positively correlated to both act and perceived viability). Similarly, Armitage & Connor (2001) attribute this effect in part to a combination of precarious indicators and the need to expand the normative component.

Another relevant factor may be due to the fact that the young public is characterized by making career decisions based more on personal (attitudes and self-efficacy) rather than social (NS) considerations or it's still possible to have cultural differences in importance of NS in economic activity (Krueger, Reilly & Carsrud, 2000).

For Liñán & Chen (2009), the main influence of the NS would be exerted through its effects on the PA and the CCP. This is confirmed by hypotheses 4 and 5 below.

Regarding H4, it has a positive effect (0.352) and significant ( $t = 84,763$  and  $p = 0,0$ ) at a significance level of 5%. Thus, in Figure 1 it can be noticed that the NS present positive and significant relation in the AP, contributing to the variance of this one.

Likewise, H5 presented a positive (0.373) and significant ( $t = 81.160$  and  $p = 0.0$ ) effect at a significance level of 5%. In this approach, it can be seen in Figure 1 that the made of NS in the CCP corresponds to the second largest in the model.

In view of this, it's observed that although the NS are not significant for IE, they explain the AP and CCP constructs with 0.352 and 0.373, respectively. Thus, the three constructs explain 65.4% of the variance in IE, which is a robust result when compared to other studies, such as Autio et al. (2001), who analyzed IE from Linköping University students in Sweden, Finland University of Technology in Finland and Universities of Colorado and Stanford in the United States, reaching the respective variances: 21.4%, 30.1%, 24, 1% and 35.3%. More expressive results were found later by Liñán & Chen (2009), who obtained 55.5% and Souza (2015) with 57.3%.

## 5 Final Considerations

This work had as objective to analyze how the entrepreneurial intention of Brazilian university students linked to the junior company behaves, through the modeling of structural equations.

The adopted model is based on the Theory of Planned Behavior and was adapted from Liñán & Chen (2009), which made it possible to form the constructs Personal Attitude, Subjective Norms, Control of Perceived Behavior and Entrepreneurial Intent, and its variables were measured from of the collection instrument made up of the first part of the Entrepreneurial Intention Questionnaire. The sample reached 445 valid answers of students distributed in 22 Brazilian states beyond the Federal District.

Observance of the ESM assumptions indicated the exclusion of the variables P\_5, P\_16 and P\_19. However, the exclusion of these items did not invalidate the model, which was confirmed with 4 constructs and 17 variables. Thus, it was concluded that the measurement and structural model accepted the criteria required for psychometric properties, with positive and significant relationships and that the model was able to explain 12.4% of the AP variance, 13.9% CCP and 65, 4% of EI, reaching, therefore, satisfactory and robust results, superior to the findings of previous researches.

As for the hypotheses delineated, we have that H1, H2, H4 and H5 were confirmed, while H3 was rejected because it did not reach statistically significant coefficients. It was possible to infer that the hypothesis H1 presents the greatest effect and significance in the promotion of IE, and this corresponds to the most explained variable, with  $R^2$  of 0.654 and  $Q^2$  of 0.3676. It is important to highlight the low influence of NS that did not demonstrate direct correlation with IE, as well as findings from previous research.

It's also observed that the target public of the research has a strong enthusiasm to be an entrepreneur, considering it as an alternative for the future, although they do not yet feel totally competent, which can be a reflection of the low effectiveness in the entrepreneurial formation.

Thus, it's possible for IE's research in line with academic entrepreneurship to contribute to the development of more effective educational initiatives aimed at the development and exploitation of the skills of Brazilian university students and, consequently, of society. In partnership with the government, the universities are constantly encouraged in all areas, in order to walk in line with what literature has argued about IE, which plays a very relevant role in the decision to start a new business (Liñán & Chen, 2009).

In this sense, the path of the entrepreneurial university presents itself as an almost inevitable route for the countries that seek development and a more entrepreneurial culture, and consequently a growth in the economy. As in North America, where most of the 3.1 millionaires are entrepreneurs who have won by their own efforts, and in Brazil, due to the existing social inequalities, one sees an arduous and necessary walk (Dornelas et al. 2014).

Therefore, as a practical and academic consequence, it is noted that this research contributed to obtain a knowledge not yet explored of this population, since the research instrument used had national coverage, and thus, it was possible to obtain data that represent a population in the country.

In addition, an empirical demonstration of IE's prediction was obtained through the TPB model in the population of students who are part of an entrepreneurial initiative (Empresa Júnior), contributing to the construction of a representative picture of the Brazilian scenario with studies in other countries. Bearing in mind, however, entrepreneurship education is fast-growing and corresponds to a rising subject in universities around the world, and "its supposed benefits have received much praise from researchers and educators" (Karimi et al., 2016).

In view of this discursive tonic, it is suggested as future work the deepening of the study of the application of the MEE with a focus on new constructs aimed at evaluating the impact of education for entrepreneurship in Brazilian universities, considering also the cultural difference, based on the comparative analysis between students who study in HE with a more advanced entrepreneurial profile versus students of HEI who have beginner or non-existent entrepreneurial education. In addition, the relevance of multi-group analysis with students directly involved in entrepreneurial activities and of potential in technological innovations is highlighted, seeking to evaluate possible significant differences in IE between the different programs, so that from this, institutions and government have a foundation in directing efforts towards initiatives that have the greatest effect on the development of EI.

Finally, there is a gap in assessing the impact of entrepreneurship education on the ability of students to identify real business opportunities. Something that can be investigated through longitudinal studies with alumni who followed their entrepreneurial career and their involvement during the university period in programs focused on entrepreneurship.

Regarding the limitations of this research, it is pointed out that it does not cover all the Brazilian states, as well as the smaller scope of data collection in the North region and in some Northeastern states, which could imply different results in view of the cultural difference between the regions. This is also explained by the fact that the Junior Firm Movement is more recent in the North, and soon there are fewer students engaged in this initiative or with little sensitivity in the participation of research in correlated subjects. The

achievement of an equivalent quantity by region and within the minimum limit necessary for the application of the MEE technique would also provide a Multi-Group Analysis in order to identify possible cultural and social influences in the same population.

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