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Lusophone Entrepreneurship: Analysis of Entrepreneurial Behavioural Characteristics in Brazilian and Portuguese Universities

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Abstract: This study analyzes the entrepreneurial characteristics of students from public universities. The objective was to evaluate the presence of the characteristics of entrepreneurship pointed out by McClelland through a comparative analysis between two countries and through an analysis using structural models. Data collection was performed with the questionnaire prepared by David McClelland that assesses entrepreneurial behavioural characteristics through 55 preliminary questions. Data were collected from 329 respondents at universities in Brazil and Portugal during 2019. A quantitative analysis was performed using AMOS 26 software, and structural equation models were tested for the three groups under analysis. The analysis resulted in the validation of three measurement models (Portuguese (PT) and Brazilian (BR), PT, and BR), and it was observed that all dimensions were relevant and statistically significant in the set of PT and BR simultaneously and in the BR group. For the PT group, only the dimension "taking calculated risks", corresponding to H2, did not have statistical validity.

Keywords: entrepreneur; academics; entrepreneurial behavioural characteristics

JEL Classification: A22—undergraduate; L260—entrepreneurship

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1. Introduction

The authors recognize the stimuli provided by three anonymous reviewers of *Sustainability*. The remaining limitations are authors' exclusive ones.

Entrepreneurship and its protagonist, the entrepreneur, has been a recurring subject in academic research, as pointed out by Filion (1999) [1], who cited the growing number of researchers devoting themselves to the field of entrepreneurship, because of both the growth of new enterprises and the increasing participation in the gross domestic product (GDP) of micro-, small-, and medium-sized enterprises in different countries year by year. Another interesting factor of this theme is that entrepreneurship permeates various areas of knowledge, such as economics, administration, and psychology [2].

Although there has been a long period of maturity since Schumpeter, who is seen as creating one of the cornerstones of the concept, further research in the area of entrepreneurship is needed in order to broaden the current knowledge, which has led to a narrowing of knowledge generated in the area of entrepreneurship [3].

Entrepreneurship has been analyzed as being likely to be developed at any stage of people's lives. However, studies such as those by Ching and Kitahara (2017, p. 291) [4] show particular attention to the entrepreneurship of college students. Their results [4] demonstrated that young people are "[. . .] highly inclined towards entrepreneurship and in need of achievement". Other studies detailed in this paper highlight the relevance of an analysis of the propensity for entrepreneurial attitudes in samples of young

and university populations, not only as a promoter of the analysis of commitments to the ability to develop innovative solutions to emerging problems—the core concept of entrepreneurship—but also anticipating more significant challenges in planning and public policy. A number of studies published in 2019 have researched entrepreneurship in the academic environment [5–15]. These studies have increased academic interest in in-depth research of entrepreneurial behavioural characteristics (EBCs) in college students. As we detail in Section 3, comparative analyses involving samples from differentiated universities and other institutions of higher learning in various countries have also been encouraged, not only to gauge the common characteristics of this range of entrepreneurs, but also to leverage the distinctive dimensions. For this purpose, Brazilian and Portuguese university students were surveyed. In addition to the fact that the authors are from these countries, this sample selection is based on Filion's (1999) [1] point that entrepreneurial behaviour is a phenomenon with strong national and regional influence, based on the cultural needs and habits of a country.

Furthermore, Fontela, Guzmán, Pérez, and Santos (2006) [16] stated that personal entrepreneurial qualities are influenced by several environmental factors, including personal factors, represented by family, education, and professional experiences, and sociocultural factors, which are more global and present the entrepreneur with information and opportunities, and contribute to the evolution of attitudes and values. Researchers have often considered the university environment as a stimulating setting for the development of entrepreneurship. This was corroborated by Guerra and Grazziotin (2010) [17], who wrote that higher education institutions help promote an entrepreneurial culture.

One of the original points of this study is that it focuses on the entrepreneurial behavioural characteristics (EBCs) studied by David McClelland, comparing the results between Brazilian and Portuguese university students. Thus, we can clearly define our research question as follows: How are EBCs developed by university students, considering samples from Brazilian and Portuguese universities? The associated objective thus analyzes how EBCs develop in students, highlighting the most relevant dimensions and establishing a comparative analysis.

Therefore, we will focus on lusophone entrepreneurship. For lusophone entrepreneurship, we intend to identify the entrepreneurship activity across lusophone countries, although in this paper we only focus on Brazilian and Portuguese cases.

The article is divided into five sections. The second section presents the theoretical framework of the entrepreneur and the entrepreneurial behavioural characteristics. The third presents the methodological procedures used for the elaboration of this study. In the fourth section, the research findings are presented and discussed. Finally, the fifth section offers the conclusions of the study.

2. Theoretical Review

2.1. Entrepreneur and Entrepreneurship

The entrepreneur is one who creates something new and valuable, thereby taking financial and social risks, but also expecting to reap economic and social rewards [18]. The entrepreneur has a particular way of perceiving what is happening in a specific sector [19]. He or she, thus, accumulates knowledge, different attitudes, behaviours, ways of perceiving the world and himself or herself; develops activities that involve risk; and has the personal attributes that lead to the abilities to innovate, persevere, and live with uncertainty [20]. Moreover, entrepreneurship is a distinct characteristic of every individual who can learn to undertake lifelong learning, because it is a behaviour rather than a personality trait [21].

Pradhan and Nath (2012) [22] distinguished two dimensions that may characterize the entrepreneur, namely: the need for accomplishment, which had previously been studied by McClelland (1965) [23], and the locus of control, which is the perception of having control over life events. For McClelland (1972) [24], the entrepreneur's desire to accomplish something expresses a desire to overcome and differentiate oneself, and this often results

in economic activity. The behavioural insight that will be used in this study follows the work of David McClelland. For him, the entrepreneur often develops the EBC [25].

Although the entrepreneur is often seen as the "wandering knight" of capitalism, according to Schumpeter (1949) [3], entrepreneurship has emerged in the literature as a theme that increasingly involves studies of the entrepreneur profile and his/her endogenous characteristics, as well as reviews of the entrepreneurship and innovative solutions environment, as detailed below.

2.2. Entrepreneurial Behavioural Characteristics

The concept of entrepreneurial behavioural characteristics (EBCs) was developed by David McClelland (1961) [26]. They are organized as three major categories into which the 10 major characteristics are distributed, as shown in Table 1.

Table 1. Categories, characteristics, and attributes.

Categories	Characteristics	Attributes
Realization: Commitment to doing good work with creativity and intuition in order to achieve your goals and objectives in the best possible way; showing persistence, even in difficulties; assessing risks; and taking a balanced position.	Search for opportunity and initiative	Identify and act on new opportunities; this action can be done before being requested or forced to by the circumstances.
	Taking calculated risks	Deliberately assessing and calculating risks and taking measures to reduce risks or control results.
	Demand for quality and efficiency	Find ways to do things better, faster, or more effectively, thus seeking to carry out your actions in a way that meets or exceeds expected standards of excellence.
	Persistence	Acting repeatedly to meet a challenge or overcome an obstacle.
	Commitment	Make a personal sacrifice or spend more effort to carry out an activity; take personal responsibility for the performance necessary to achieve goals and objectives.
Planning: The characteristics of this category support realization, as to perform a better risk assessment there is a need to search for information, planning, and monitoring. That is, to make you think before taking any action.	Search of data	Dedicate yourself personally to obtaining the information necessary for your activity.
	Goal setting	Define short- and long-term goals that are clear and specific and, if necessary, revise.
	Planning and systematic monitoring	Plan by dividing large tasks into subtasks; constantly reviewing the plans, taking into account the results obtained and changing circumstances, and keeping records and using them to make decisions.
Power: Linked to personal needs, that is, to be able to carry out actions as you wish and, if necessary, to get employees and partnerships.	Persuasion	Using deliberate strategies to influence or persuade others, using key people as agents to achieve goals.
	Independence	Seeking autonomy in relation to the norms and controls of others, maintaining your point of view even in the face of opposition or initially discouraging results, and also expressing confidence in your own ability to complete a difficult task or face a challenge.

Sources: McClelland (1961, 1972) [24,26], Management Systems International (1990) [27].

The behavioural approach originated in the 1950s with McClelland's studies, and isolated the entrepreneur's psychological and cultural factors through quantitative methods [28]. With his studies on the theory of psychological motivation, McClelland (1961) [26] contributed to the understanding of entrepreneurship. EBCs contribute to the development of the entrepreneur as a dynamic social actor [29], even if the person was not born with such characteristics [30].

According to the literature review, the following research hypotheses are defined:

Hypothesis 1 (H1). *Search for opportunity (SOO) has a positive effect on entrepreneurial behavioural characteristics (EBCs).*

Hypothesis 2 (H2). *Taking calculated risks (TCR) has a positive effect on entrepreneurial behavioural characteristics (EBCs).*

Hypothesis 3 (H3). *Requirement of quality (EOQ) has a positive effect on entrepreneurial behavioural characteristics (EBCs).*

Hypothesis 4 (H4). *Persistence (PER) has a positive effect on entrepreneurial behavioural characteristics (EBCs).*

Hypothesis 5 (H5). *Commitment (COM) has a positive effect on entrepreneurial behavioural characteristics (EBCs).*

Hypothesis 6 (H6). *Search for data (SFD) has a positive effect on entrepreneurial behavioural characteristics (EBCs).*

Hypothesis 7 (H7). *Goal definition (GOD) has a positive effect on entrepreneurial behavioural characteristics (EBCs).*

Hypothesis 8 (H8). *Planning (PLA) has a positive effect on entrepreneurial behavioural characteristics (EBCs).*

Hypothesis 9 (H9). *Persuasion (PSU) has a positive effect on entrepreneurial behavioural characteristics (EBCs).*

Hypothesis 10 (H10). *Independence (IND) has a positive effect on entrepreneurial behavioural characteristics (EBCs).*

These hypotheses will make it possible to define the research model presented in Figure 1.

Figure 1 follows the original proposal by McClelland (1961) [26]. According to the author, the 10 dimensions analyzed constitute a single entrepreneurial factor, which can be tested through procedures associated with exploratory factor analysis or confirmatory factor analysis. Unlike other studies, such as that by Daud, Abdullah, and Abu Hassan (2019) [31], which found two or more factors by synthesizing several variables observed in entrepreneurial individuals, McClelland's (1961) [26] original proposal, by suggesting the unity of factors, claimed that there is a certain homogeneity in the entrepreneurial profile, and that all dimensions under observation do not exhibit enough variability to constitute a larger number of factors. On the issue of factor uniqueness in factor analysis, relevant empirical works are those of Snedecor and Cochran (1989) [32].

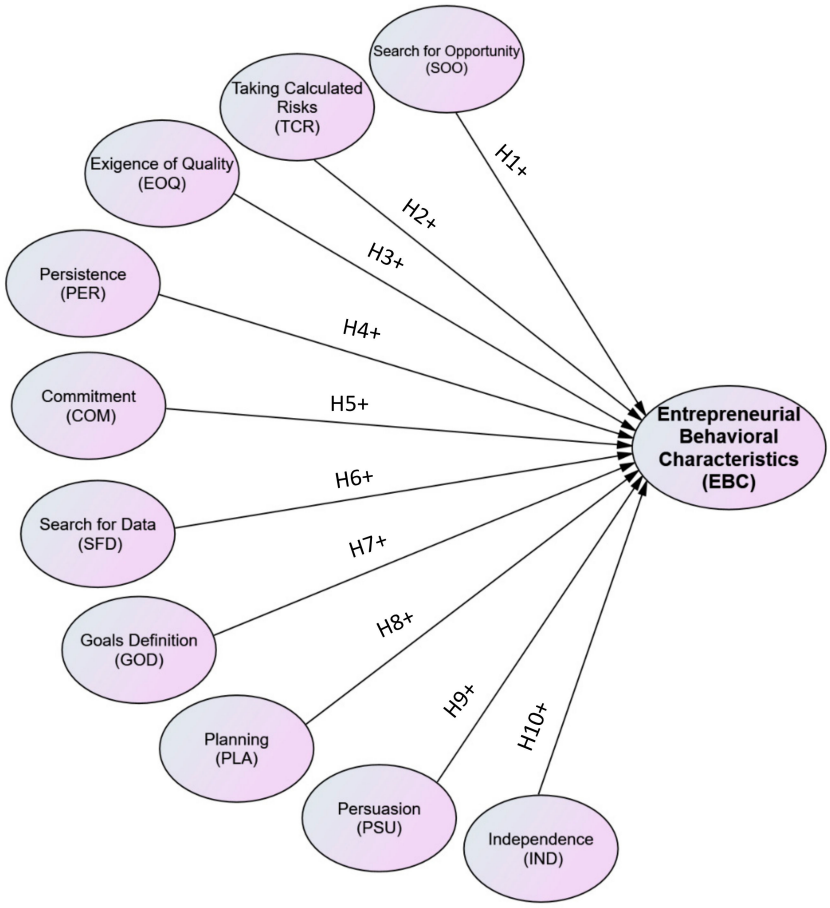

Figure 1. Research model.

2.3. Entrepreneurship of University Students

The issue of entrepreneurship in universities—most often triggered by professors and students—has ignited an interesting debate, as elucidated by authors with findings similar to those of Daud et al. (2019) [31] or Ajzen (1991) [33]. There is ample evidence that proves the weight of entrepreneurship seen in academia as an important source of entrepreneurship that the economy will welcome in the near future. College students will soon be in the job market, and will be engines of entrepreneurship in general. In addition, entrepreneurship does not appear only in the constitution of new companies, but it can present itself in already established companies (corporate entrepreneurship), in the collaborators/employees of public and private institutions (intrapreneurship), and in other for-profit institutions (social entrepreneurship, cultural, sports, academic, etc.). Thus, the study of entrepreneurship in the university environment reflects entrepreneurship actions in general [34].

The concept was developed as a unique opportunity to generate innovative solutions that transform market structures dominated by competitive differentiation factors or quasi-monopolies [21]. Other authors such as Dvorski et al. (2019) [7] reported that university entrepreneurship is likely to be more closely aligned to the original entrepreneurship ideals than other forms of entrepreneurship (such as those based on complex funding figures), because university students generally do not have the distinguishing characteristics of other innovative agents, thereby allowing them to compete and take risks with more exposure to success or failure.

Authors including Kurniawan, Yudoko, Basri, and Umbara (2019) [35] reported that entrepreneurship among college students represents an interesting source of future economic growth and an unavoidable engine of socioeconomic development. Even the list of high

number of endeavours is correlated with a higher future birth rate in the entrepreneurial undergraduate development economy.

However, as Bizarria et al. (2019) [9] reported, the success rate and even the application of the diversity of experiences in the context of university entrepreneurship are optimized only with a combination of specific factors. First, the initiative perspective focused on the action of the university entrepreneur should be addressed in order for it to survive. Second, the importance of short-term returns must be acknowledged; that is, social recognition, positive cash flow, profitable opportunities, and innovation or entrepreneurship awards cannot be ruled out. Third, university entrepreneurship is not a generalization of instruments, processes, resources, or challenges. Instead, it thrives on the variety of possibilities in the very diversity of entrepreneurship, the developing areas, and the resources themselves (human, material, financial, and organizational). Daud et al. (2019) [31] explained how university entrepreneurship in the field of engineering cannot follow the dominant lines of university entrepreneurship in management or administration, just as university entrepreneurship in itself must have development paths that are differentiated from finance.

In this section, we address the criticisms of Sá and Holt (2019) [36], among others. In this set of criticisms, university entrepreneurship is seen, above all, as a "soft-skills academy" rather than a rehearsal for entrepreneurial or industrial innovation behaviours. Given the unique characteristics of undergraduates, university entrepreneurship in this context is generally perceived as lacking the experience that older and more mature entrepreneurs possess. Authors such as Sá and Holt (2019) [36] stress the importance of university entrepreneurship as a necessary model for the sustained practice of entrepreneurship, but they generally do not place high expectations on the scope of its socioeconomic value.

2.4. Comparative Entrepreneurship and an Analysis of EBCs in Higher-Education Students from Brazil and Portugal

Differences in entrepreneurial economies have already led to detailed studies, such as those of McClelland (1972) [24]. Over the years, the dynamics themselves have developed differently from country to country, as noted by Felix, Aparicio, and Urbano (2020) [37], who mention several indicators.

Comparisons between academies or between countries regarding academic differentiation in terms of entrepreneurship indicators are scarcer. The studies by Brancher et al. (2012) [29] represent some of the exceptions in the literature. We consider this to be a gap in the literature that should be addressed. We offer three main reasons to justify this study. First, as Brancher et al. (2012) [29] pointed out, what happens in the academic environment in terms of entrepreneurship has significant consequences on the entrepreneurship, innovation, and management skills of organizations in the immediate future. Therefore, understanding comparative entrepreneurship is an essential step for effectively designing public policies in the sector. Second, the ability to perceive the sustainability of numbers in relation to entrepreneurial initiatives and agents assists in understanding each academy or university system as a generator of entrepreneurship. Third, as Hahn et al. (2019) [8] pointed out, the comparability between university hubs is methodologically more correct than between national economic systems in the field of entrepreneurship.

However, if we emphasize the comparative needs of academies in the field of entrepreneurship, we also emphasize the relevance of bringing this exercise to Brazilian and Portuguese academies. There are several reasons for this at the present time.

First, the universe of Brazilian and Portuguese academies is the lusophone, with an intensification of flows (teachers, students, co-authored articles, patents, etc.) in the last decade. Clearly, the scale of the initiatives and the diversity of the university education profile in Brazil is much broader than in Portugal, based on the formative network and complexity of Brazilian figures (such as federal, state, municipal, and private universities) compared with Portuguese (concentrated in public and private universities), in addition to technical or polytechnic institutes on both sides of the Atlantic. Other elements also sharply differentiate and motivate a more detailed analysis.

The generation dynamics of start-ups and their associated development, a sector associated with university entrepreneurship as pointed out by Boava (2006) [2], are also significantly distinct between Brazil and Portugal.

In Brazil in 2019, a total of 53.4 million Brazilians were estimated to be in charge of some entrepreneurial activity, involved in the creation of a new enterprise, consolidating a new business, or making efforts to maintain an already established enterprise. With regard to initial entrepreneurship, which is considered to be projects younger than 42 months (3.5 years), the country reached 23.3% [34]. The study also points out that Brazil resumed its growth in initial entrepreneurship after a fall registered between 2016 and 2018.

As for the profile of Brazilian entrepreneurs, it appears that in the initial entrepreneurs, there is minimal difference between women and men—the most active are aged between 25 and 44 years old and have completed higher education. In established entrepreneurs, with enterprises over 42 months old, men are the majority, aged between 45 and 54 years old, and who have an incomplete elementary education [34].

Entrepreneurship in Portugal is essentially based on an ecosystem close to that advocated by researchers [38], in which there is a set of interconnected entrepreneurs who control entrepreneurial organizations (firms) and collaborate with the public (universities and the public sector) and private institutions (banks, organizations). Several studies have identified the main barriers that entrepreneurs face in Portugal, which are: (1) lack of access to networks and business contacts [39], (2) psychological and cultural limitations in accessing the entrepreneurial activity [40], (3) low level of self-efficacy and corporate ambition [41], (4) lack of capital to finance start-up and business growth [42], (5) lack of transparency and predictability of the legislative and regulatory environment [43], (6) reduced number of entrepreneurship education programs [44], (7) lack of high growth companies [45], (8) lack of programs of "procurement" by the public administration aimed at start-ups [46], (9) residual number of success cases within the entrepreneurship ecosystem [47], and (10) lack of involvement of large companies in the entrepreneurship ecosystem [48].

Regarding entrepreneurship education, there is an academic need for greater transversality of educational programs and more innovative learning methodologies [44]. In this sense, public authorities, especially those related to employment and education, should actively promote entrepreneurial education to increase the entrepreneurial spirit, confidence, initiative, and self-esteem of the future generations of successful entrepreneurs [39]. These possible success cases would make entrepreneurship education programs more interesting, dynamic, and able to increase society's wealth and well-being. They could also increase large companies' involvement if the mentioned barriers are lowered, reducing the efficiency problems related to the implementation of such programs [49].

3. Methods

3.1. Data Collection Tools

In order to collect data, a survey questionnaire was constructed (please see the Appendix A) and distributed both online and in-person. This survey used McClelland's (1972) [24] perspective with a sample of university students. Data were collected through a standard closed questionnaire with 55 items scored using a Likert-type scale. Scores were computed based on each respondent's level of EBCs with a specific definition, as in Table 2.

Questions 11, 22, 33, 44, and 55 correspond to the correction factor, used to prevent even unconscious answers from being overly favourable. The correction factor is used only if the sum of the score of the questions of each characteristic is equal to or higher than 20 points. In this case, all EBCs should be corrected by subtracting the corresponding points [50].

Table 2. Computation of entrepreneurial behavioural characteristics (EBCs).

Entrepreneurial Behavior Characteristics	Score's Computation
Search for opportunity	Q1 + Q12 + Q23 − Q34 + Q45 + 6
Persistence	Q2 + Q13 + Q24 − Q35 + Q46 + 6
Commitment	Q3 + Q14 + Q25 + Q36 − Q47 + 6
Exigence of Quality	Q4 + Q15 + Q26 + Q37 + Q48 + 0
Taking calculated risks	Q5 + Q16 + Q27 − Q38 + Q49 + 6
Goals' definition	Q6 − Q17 + Q28 + Q39 + Q50 + 6
Search for data	Q7 + Q18 − Q29 + Q40 + Q51 + 6
Planning	Q8 + Q19 + Q30 − Q41 + Q52 + 6
Persuasion	Q9 − Q20 + Q31 + Q42 + Q53 + 6
Independence	Q10 − Q21 + Q32 + Q43 + Q54 + 6
Correction Factor	Q11 − Q22 − Q33 − Q44 + Q55 + 18

There are several negative questions, in which the score must be subtracted from the final result of the sum of the questions related to that characteristic, and six points should be added at the end of the sum (see the computation for "search for opportunity" or for "persistence," for examples). The maximum score for each characteristic is 25 points; when the total is equal to or greater than 15 points, it is claimed that the individual has developed that characteristic. To be considered a successful entrepreneur, one must have developed all 10 characteristics [50].

McClelland (1972) [24] pointed out that, as the questions of the instrument are subjective, they reflect the moment the respondent is in. The data analysis was based on exploratory factor analysis, using the main component method and Varimax rotation with SPSS 26 software, and confirmatory factor analysis, using structural equation modelling (SEM) with Amos 26 software.

3.2. Participants and Procedures

The respondents were undergraduate students from public universities in Brazil and Portugal. In Brazil, the university selected (the Federal University of the Southern Frontier) is located in the south of the country, and offers nine undergraduate degree programs in different areas. In total, the surveyed programs accounted for 1653 students in 2019. The students surveyed were from bachelor's degree programs in agronomy, environmental and sanitary engineering, and architecture and urbanism.

In Portugal, students from two universities in the north of the country (the University of Minho and the University of Trás-os-Montes and Alto Douro) were surveyed, with a total of 153 students and an average age of 21 years old (Appendix A). The students surveyed at the University of Minho numbered 72, representing the economics bachelor's degree, the master's in economics, and the master's in social economy. The students surveyed at the University of Trás-os-Monte and Alto Douro numbered 81, and represented the economics bachelor's degree and management bachelor's degree.

The final sample comprised of 329 students—176 Brazilians and 153 Portuguese students. Table 3 summarizes the sample information.

Table 3. Identification of population and sample.

Sample	Nationality	Gender		Age (Mean)
176	Brazilian	80 women	96 men	23 years
153	Portuguese	92 women	61 men	21 years
329	Brazilian and Portuguese	172 women	157 men	22 years

In addition, as well as the distributed form and the descriptive statistics in relation to the total sample and each sub-sample, there were also statistical differences between the answers given to the 55 questions by Brazilian and Portuguese students.

Considering the entire sample, the highest means were in Questions 14 (4.4043) and 6 (4.3556), the first being part of the issues related to commitment characteristics and the second to setting goals. The lowest means were from Questions 17 (1.4468) and 29 (2.4863), related to the characteristics information search and goal setting, respectively.

In the group of Brazilian students, the highest mean was from Question 6 (4.4886) related to the commitment characteristic, and the lowest mean was from Question 17 (1.3352), related to the goal setting characteristic. These were in agreement with those of the total sample. These results differed for the Portuguese students. The highest mean in this group was from Question 5 (4.6601) concerning the calculated risk-taking characteristic, and the lowest was from Question 29 (2.5098), related to the information-seeking characteristic. It is also clear that the standard deviation of the responses of the sample of Portuguese students was lower than that of the Brazilian students.

3.3. Confirmatory Factorial Analysis (CFA)

To perform the CFA, we tested a model that, first, included all dimensions; if the dimensions got a loading factor lower than 0.5, they were removed for statistical consistency in terms of variable adjustment [51]. The analysis of the research model that was proposed resorted to confirmatory factor analysis (CFA), using a structural equation model (SEM) and SPSS/AMOS 26 software [52]. The mediation model was tested (for validity and reliability of the measures) in accordance with the literature, and several research hypotheses were tested to determine the meaning of loadings and coefficients of each path [53,54].

Table 4 shows the model's convergence statistics, which present sufficient validity and reliability. The sample size met the criteria for the structural equation analysis, which suggests that there should be a minimum of five interviewees for each variable of the model [55,56]. Hair et al. (2010) [55] corroborated this threshold, but proposed more complex models with less indicators for construction and larger samples. According to the sources mentioned earlier, it is fair to say that the sample collected was sufficiently representative to be used in a structural equation model. The structural equation model that was presented enabled a multivariate analysis, which allowed for the testing of more complex models than the traditional linear regression model [57].

Table 4. Quality index of the adjustment of the models tested.

Adjustment Index	Model Tested PT + BR	Model Tested PT	Model Tested BR
χ^2 Satorra Bentler	117.849	51.640	91.659
df	35	35	35
p-value	$p < 0.001$	$p < 0.001$	$p < 0.001$
$\frac{\chi 2}{df}$ Satorra Bentler	3.367	1.475	2.619
RMSEA	0.065	0.056	0.096
SRMR	0.0495	0.0490	0.0595
NFI	0.895	0.893	0.805
GFI	0.839	0.899	0.809
AGFI	0.785	0.895	0.885
CFI	0.905	0.914	0.847

4. Results

4.1. Total Sample

In Table 5, a summary of the hypotheses that were tested is presented, considering the best research model as well as the results that were obtained.

Table 5. Research hypotheses and statistical results—Portuguese (PT) + Brazilian (BR) model.

Hypotheses	Relation	Regression Coefficient	Standard Error	T	*p*-Value	Result
H1	SOO→EA	0.341	0.290	4.420	<0.001	Supported
H2	TCR→EA	0.140	0.293	2.172	<0.05	Supported
H3	EOQ→EA	0.389	0.221	4.790	<0.001	Supported
H4	PER→EA	0.673	0.259	6.074	<0.001	Supported
H5	COM→EA	0.434	0.210	5.086	<0.001	Supported
H6	SFD→EA	0.608	0.294	5.883	<0.001	Supported
H7	GOD→EA	0.736	0.350	6.216	<0.001	Supported
H8	PLA→EA	0.499	0.255	5.435	<0.001	Supported
H9	PSU→EA	0.552	0.224	5.675	<0.001	Supported
H10	IND→EA	0.536	0.267	2.899	<0.001	Supported

First, all of the dimensions were statistically significant in the tested research model. The structural results point to all dimensions having a direct positive and statistically significant influence on EA, validating all research hypotheses proposed (Figure 1) [23,24,58]. We observed the following estimates: SOO ($\beta = 0.341$, $p < 0.001$), PER ($\beta = 0.673$, $p < 0.001$), GOD ($\beta = 0.736$, $p < 0.001$), PLA ($\beta = 0.499$, $p < 0.001$), PSU ($\beta = 0.552$, $p < 0.001$), COM ($\beta = 0.434$, $p < 0.001$), EOQ ($\beta = 0.389$, $p < 0.001$), TCR ($\beta = 0.140$, $p < 0.05$), SFD ($\beta = 0.608$, $p < 0.001$), and IND ($\beta = 0.536$, $p < 0.001$).

The results that were obtained also allowed for concluding that all dimensions that affected students' entrepreneurship attributes were relevant and statistically robust. It should be noted that the TCR dimension had an impact on EAs, but with a smaller statistical significance.

We recognize that the GOD, PER, and SFD dimensions proved to be the most pertinent dimensions concerning the increase of EAs.

Our results suggest that most of the variance of the dependent variables was accounted for in our estimation. In general, most of the variables were highly correlated, strongly affecting the EAs.

4.2. Portuguese Sample

In Table 6, a summary of the hypotheses that were tested with the Portuguese student sample is presented. Analyzing these data, we can conclude that the regression coefficients related to our 10 hypotheses are as follows: SOO ($\beta = 0.266$, $p < 0.05$), PER ($\beta = 0.465$, $p < 0.001$), GOD ($\beta = 0.552$, $p < 0.001$), PLA ($\beta = 0.499$, $p < 0.001$), PSU ($\beta = 0.434$, $p < 0.001$), COM ($\beta = 0.453$, $p < 0.001$), EOQ ($\beta = 0.319$, $p < 0.001$), TCR ($\beta = 0.052$, $p > 0.05$), SFD ($\beta = 0.715$, $p < 0.001$), and IND ($\beta = 0.347$, $p < 0.001$).

Table 6. Research hypotheses and statistical results—PT model.

Hypotheses	Relation	Regression Coefficient	Standard Error	T	*p*-Value	Result
H1	SOO→EA	0.266	0.165	2.365	<0.05	Supported
H2	TCR→EA	0.052	0.462	0.556	>0.05	Not Supported
H3	EOQ→EA	0.319	0.169	2.663	<0.05	Supported
H4	PER→EA	0.465	0.145	3.219	<0.001	Supported
H5	COM→EA	0.453	0.174	3.187	<0.001	Supported
H6	SFD→EA	0.715	0.195	3.659	<0.001	Supported
H7	GOD→EA	0.552	0.199	3.431	<0.001	Supported
H8	PLA→EA	0.650	0.175	3.589	<0.001	Supported
H9	PSU→EA	0.434	0.163	3.129	<0.001	Supported
H10	IND→EA	0.347	0.105	2.009	<0.001	Supported

Furthermore, all of the dimensions were statistically significant in the tested research model, except for the TCR dimension. The structural results point to all dimensions having a direct positive and statistically significant influence on EAs, validating all research hypotheses proposed, except H2.

Several studies by Portuguese authors found results close to those presented here [59–61].

4.3. Brazilian Sample

Table 7 shows a summary of the hypotheses that were tested with the Brazilian student sample. Analyzing these data, we conclude that the regression coefficients related to our 10 hypotheses tested with the Brazilian sub-sample are as follows: SOO ($\beta = 0.521$, $p < 0.001$), PER ($\beta = 0.538$, $p < 0.001$), GOD ($\beta = 0.721$, $p < 0.001$), PLA ($\beta = 0.516$, $p < 0.001$), PSU ($\beta = 0.630$, $p < 0.001$), COM ($\beta = 0.468$, $p < 0.001$), EOQ ($\beta = 0.423$, $p < 0.001$), TCR ($\beta = 0.405$, $p < 0.001$), SFD ($\beta = 0.659$, $p < 0.001$), and IND ($\beta = 0.147$, $p < 0.001$).

Table 7. Research hypotheses and statistical results—BR model.

Hypotheses	Relation	Regression Coefficient	Standard Error	T	*p*-Value	Result
H1	SOO→EA	0.521	0.181	4.023	<0.001	Supported
H2	TCR→EA	0.405	0.167	3.568	<0.001	Supported
H3	EOQ→EA	0.423	0.220	3.651	<0.001	Supported
H4	PER→EA	0.538	0.146	4.076	<0.001	Supported
H5	COM→EA	0.468	0.184	3.838	<0.001	Supported
H6	SFD→EA	0.659	0.215	4.372	<0.001	Supported
H7	GOD→EA	0.721	0.227	4.480	<0.001	Supported
H8	PLA→EA	0.516	0.223	4.007	<0.001	Supported
H9	PSU→EA	0.630	0.173	4.313	<0.001	Supported
H10	IND→EA	0.147	0.005	1.009	<0.001	Supported

Contrary to the Portuguese students, in the Brazilian sample, all the dimensions were statistically significant in the research model tested. The structural results point to all dimensions having a direct positive and statistically significant influence on EA, validating all research hypotheses proposed.

These results were also found by Ching and Kitahara (2017) [4] in a study conducted with Brazilian academics.

4.4. Discussion

This work is a pioneering work in the analysis of entrepreneurship of a university nature, comparing the reality in Brazilian and Portuguese universities.

Overall, our results made it possible to recognize the validation of the entrepreneurial attributes that McClelland pointed out more than fifty years ago [40]. This perception is relevant, because, in addition to bringing the McClelland model to the current questionnaires in the area of entrepreneurship, it also allows for exploring the evidence obtained through a pertinent comparison between different realities, namely between countries.

Our results generally validated the totality of the attributes identified by McClelland. However, in a very stimulating way, they also allowed for showing that there are differences that deserve to be explored in future works. For example, the sample of Portuguese university students is more risk-averse than the sample of Brazilian university students. It is intended that future investigations in the area should seek reasons for this discrepancy, seeking to test the surrounding socio-economic realities as well as institutional reasons for this difference in results. In addition, the Brazilian sample greatly valued the dimensions GOD (goals) and SFD (search for data).

5. Conclusions, Implications, and Further Challenges

Entrepreneurship has become one of the most frequently studied academic fields in the last two decades. In areas as diverse as management, engineering, and social work,

entrepreneurship has emerged as both a curricular unit and as a subject area for disciplinary research at most universities.

If this dispersion is a fact, then the molds in which entrepreneurial characteristics have been developed have also differed. To this end, the different realities that students and teachers live in their contexts of teaching and learning can help to explain it.

This work tested the presence of the entrepreneurial behavioural characteristics model developed by McClelland in Portuguese and Brazilian universities. It achieved promising results. These results validated the McClelland model in the observed samples, as well as the presence of a single factor identified by structural equation analysis.

Thus, there are two main implications. The first implication concerns the validation of the model. Although the McClelland model is 50 years old, validating the presence of entrepreneurial behavioural characteristics in the samples identified here reveals not only how the McClelland model provides a stimulating methodological framework for discussion in the academic context, but also for the design of entrepreneurship-promoting policies among academic communities and other groups of entrepreneurs. The second implication, concerning the presence of a factor, shows how the studied samples, despite the differences of nationality, curriculum matrices, and surrounding contexts, reveal a certain homogeneity in terms of answers to the 55 items addressed in the distributed questionnaire. This implication reveals that there is a latent dimension that unites entrepreneurs, thus, offering additional research motivations and extending the study of entrepreneurial behavior to areas such as psychology, sociology, and anthropology.

Regarding subsequent challenges, three are emerging. First, we will extend this analytical effort to other actors of the observation academies, namely teachers and administrators. Second, we intend to include other academic institutions (including other lusophone countries) for a more robust McClelland model validation test. Finally, through a longitudinal analysis, we intend to examine whether respondents maintain the response structure after the completion of the study cycle, as well as after a period of professional experience.

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Appendix A McClelland Questionnaire for the Entrepreneur Profile Self-Assessment of Entrepreneurial Behavior Characteristics (EBCs)

This questionnaire consists of 55 brief statements. Read each statement carefully and decide which one best describes you (consider who you are today and not how you would like to be). Be honest with yourself. Some statements may be similar, but none are exactly the same. Please designate a numerical classification for all statements.

Select the number that corresponds to the statement that best describes you:
1 = Never/2 = Rarely/3 = Sometimes/4 = Usually/5 = Always

	Question
1	I strive to accomplish the things that must be done.
2	When I come across a difficult problem, it takes me a long time to find the solution.
3	I finish my work on time.
4	I hate myself when things are not done properly.
5	I prefer situations where I can control to the maximum the final result.
6	I like to think about the future.
7	When I begin a new task or project, I gather as much information as possible before proceeding.
8	I plan a big project by dividing it into simpler tasks.
9	I can get others to support my recommendations.
10	I have confidence that I can be successful in any activity that I propose to perform.
11	No matter who I speak with, I always listen closely.
12	I do the things that must be done without others having to ask me.
13	I insist several times to get other people to do what I want.
14	I am faithful to the promises I make.
15	My work income is better than that of other people I work with.
16	I get involved with something new only after I have done my best to ensure its success.
17	I find it a waste of time to worry about what I will do with my life.
18	I seek advice from people who are experts in the field in which I am working.
19	I carefully consider the advantages and disadvantages of different alternatives before I undertake a task.
20	I do not waste much time thinking about how I can influence other people.
21	I change the way people think if others strongly disagree with my views.
22	I hate myself when I cannot get what I want.
23	I like challenges and new opportunities.
24	When something stands between what I'm trying to do, I persist in my task.
25	If necessary, I do not mind doing the work of others to meet a deadline.
26	I hate myself when I waste time.
27	I consider my chances of success or failure before I start acting.
28	The more specific my expectations are in relation to what I want to achieve in life, the greater my chances of success.
29	I make decisions without wasting time looking for information.
30	I try to take into account all the problems that may present themselves and anticipate what I would do if they happen.
31	I count on influential people to reach my goals.

	Question
32	When I am performing something difficult and challenging, I have confidence in your success.
33	I've had failures in the past.
34	I prefer to perform tasks that I master perfectly and in which I feel safe.
35	When I encounter serious difficulties, I quickly move on to other activities.
36	When I am doing a job for someone else, I make a special effort to be satisfied with the work.
37	I'm never really satisfied with the way things are done; I always think there is a better way to do them.
38	I perform risky tasks.
39	I count on a clear plan of life.
40	When I do a project for someone, I ask many questions to make sure I understand what they want.
41	I face problems as they arise instead of wasting time anticipating them..
42	To reach my goals, I look for solutions that benefit everyone involved in a problem.
43	The work I do is excellent.
44	On some occasions, I have taken advantage of other people.
45	I venture to do new and different things.
46	I have different ways of overcoming obstacles that prevent me from achieving my goals.
47	My family and personal life are more important to me than the dates for deliveries of self-determined works.
48	I find the fastest way to finish work, both at home and at work.
49	I do things that people consider risky.
50	I care as much about meeting my weekly goals as my annual goals.
51	I count on various sources of information when seeking help in the execution of tasks and projects.
52	If one method for dealing with a problem does not work, I turn to another.
53	I can get people with firm beliefs and opinions to change their way of thinking.
54	I remain firm in my decisions, even when other people are strongly opposed.
55	When I do not know something, I do not hesitate to admit it.

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