

# Entrepreneurs' and Managers' Personality Measured by The Big Five Inventory

*A Personalidade de Empreendedores e Gerentes de Loja Medida via Teoria do Big Five*

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## Abstract

This research focuses on analyzing and comparing personality traits between mall store managers and entrepreneurs, using the scale from the Inventory of the Big Five Factors of the Big Five theory and evaluate the most evident skill of entrepreneurs and managers. In addition, we assess the sex role inside the entrepreneurial and managing behavior. In order to concluding, we utilize exploratory and confirmatory factor analysis. For evaluating the hypotheses, a multivariate analysis of variance (MANOVA) was performed. The results showed that there is evidence of differences between managers and entrepreneurs. Besides, it emphasizes the masculinity behavior inside the entrepreneurial ability as well as the femininity behavior in the managing feature. This final paper contributes to the theory of personality traits in different organizational environments, showing characteristics that belong to these two groups studied. The main theoretical contribution is the acceptance of the hypotheses related to entrepreneurial and managing behavior. In practice, we can use this tool to vocational tests and for hiring in companies.

**Keywords:** Agreeableness; Neuroticism; Conscientiousness; Openness to Experience; Extraversion.

## Resumo

*Esta pesquisa tem como foco descrever e comparar os traços de personalidade de gerentes de loja de centros comerciais e empreendedores, utilizando como instrumento de pesquisa a escala do inventário dos cinco grandes fatores de personalidade da teoria Big Five e avaliar quais traços são mais evidentes em empreendedores e gestores. Também foi avaliado o papel do sexo dentro do contexto empreendedor e gerencial. Foram utilizadas as técnicas exploratória e confirmatória de análise fatorial. Para se aferir a validade das hipóteses foi realizada uma análise de variância multivariada (MANOVA). Os resultados apontam evidências de diferenças entre gerentes e empreendedores em relação aos cinco traços de personalidade. Além disso, ressalta o caráter masculino do ato de empreender e o caráter feminino do aspecto gerencial. Este trabalho contribui para a teoria sobre traços de personalidade quando aplicada em diferentes ambientes organizacionais, evidenciando características que pertencem aos dois grupos estudados na pesquisa. A principal contribuição teórica é a aceitação das hipóteses que foram levantadas referente ao comportamento dos gerentes e empreendedores. No âmbito prático, pode-se utilizar o IGFP-5 reduzido para testes vocacionais e como forma de critério para contratação.*

**Palavras-chave:** Amabilidade; Neuroticismo; Conscienciosidade; Abertura à Experiência; Extroversão.

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## Introduction

Entrepreneurs are people closely related to the way they interpret what is happening in a given sector of the environment (FILION, 2000). They present, for example, common characteristics such as the presence of tenacity, imagination and objectivity; ability to tolerate ambiguity and uncertainty; propensity to make good use of resources and to expose themselves to moderate risks (BYGRAVE; ZACHARAKIS, 2010).

Thus, entrepreneurs considered to be successful have the values and culture of entrepreneurship acquired through contact with at least one entrepreneurial model during their youth (Thompson, 1999). Among other constitutive aspects, one can list business experience, differentiation, intuition and involvement. They can also be considered tireless workers, realistic dreamers (visionaries), leaders, able to work in a network in moderation (BYGRAVE; ZACHARAKIS, 2010). Sometimes, it is possible to point out the elaboration of a proper system of relations with the employees, associated with the people behavior around them control and the inclination to learn with their own standards (FILION, 2000).

Knowledge of a specific market or the development of a new product or new manufacturing process will lead entrepreneurs to get a view of something different and to market it (ADIZES, 2004). In addition, entrepreneurs not only define situations, but also imagine visions of what they want to achieve: the learning of self-knowledge and know-how that allows the future entrepreneur to acquire an entrepreneurial mental work structure (FILION, 2000). In the learning process of entrepreneurship students, the acquired learning pattern should inspire them to pursue continuous learning and make them more comfortable with the new entrepreneurial role they will play (Vinten, ALCOCK, 2004).

On the other hand, managers pursue their objectives using resources efficiently and effectively (MINER, 1990). They usually work within previously defined structures. Managers' professional lives depend on making better decisions in the context and work environment. Therefore, they must adapt to the changes, an aspect that differentiates them from the entrepreneurs who possess the resourcefulness to initiate these changes, defining the way the work will be structured and establishing a vision that identifies the resources to make them reality (KAISH, GILAD, 1991).

The scope of this article is to compare personality traits of store managers and entrepreneurs who own the stores in a particular shopping center in Rondônia through the inventory scale of the five great personality factors proposed by John, Donahue and Kentle (1991). When referring to the instrument, the acronym IGFP-5 will be used, defined by Andrade (2008).

The purpose of this comparison is to evaluate which traits are more evident in entrepreneurs and store managers, showing characteristics that belong to both groups studied in the research or that differentiate them. The main idea of the study is to show that IGFP-5 can be a very useful tool for HR managers wishing to use it in vocational or hiring tests, as has been done by Bhatti, Battour, Ismail and Sundram (2014), Lounsbury, Sundstrom, Gibson, Loveland and Drost (2016), Woods, Patterson, Koczwara and Sofat (2016), just to name a few.

According to Andrade (2008), the theory of the five big personality factors, the big five, was initially conceived by Allport (apud ANDRADE, 2008) who sought adjectives that could describe attributes of the human personality, summarized the variation of existing personality. Since then, the big five has come to be recognized as a tool in which it is possible to analyze the human personality in five dimensions (ARORA; RANGNEKAR, 2016; KAJONIUS; KAZEMI, 2016; MYSZKOWSKI; STORME; DAVILA; LUBART, 2015). They are: neuroticism or emotional instability (neuroticism); extraversion; kindness (agreeableness); conscientiousness; and openness to experience.

Neuroticism is the dimension that measures emotional instability: the greater the degree of neuroticism, the greater the vulnerability to stress, which leads the person to interpret simple and normal situations as threats, resulting in the development of bad feelings and a more reactive posture. Extroversion is the dimension that is characterized by positive emotions: individuals with a higher degree of extroversion like to be among people; being known, then, for being lively and energetic.

Kindness is the dimension that demonstrates how compassionate and cooperative an individual is: they tend to tend to rely more on people over individualistic analysis. Conscientiousness is the dimension that defines the individual who is focused on his goals and is characterized as organized, disciplined and meticulous. Openness to experience is

the dimension that defines someone who is open to new experiences: people who always have new interests, with a tendency for flexibility and curiosity.

The study seeks to be useful, as proposes a reduction in the quantity of items of the IGFP-5, which is a useful tool for vocational tests and also as a criterion for hiring and training personnel of HR departments (BHATTI et al., 2014 Lounsbury et al., 2016, Woods et al., 2016). The exploratory and confirmatory techniques of factorial analysis were used. In addition, a discussion is raised regarding the masculine character of the act of undertaking and the feminine character of the managerial aspect within the shopping centers.

Thus, in the next section, we seek to present the hypotheses guiding the research, contextualizing them within the theoretical framework that embodies this text. In the methodology and results section, the structural equations method was used to validate the IGFP-5 instrument, which was used to understand the behavior of proprietary entrepreneurs and store managers, as well as to present the results of MANOVA that was used for group validation. The last section shows the research findings, the limitations and insights for future work.

## Nuances Between Shoppings Centers Entrepreneurs and Store Managers

Before any comparison is made between the personality traits of entrepreneurs and managers, it is necessary to investigate what the specialized literature defines as belonging to each of these agents.

In this way, entrepreneurship is directly related to the development of a country, since it is a source of wealth generation and can improve the living conditions of the population (DRUCKER, 2008). From this point of view, one can affirm that there is a great importance of entrepreneurship for socioeconomic prosperity in a global context (BRANDSTÄTTER, 2011).

According to Gartner (2008), to understand the phenomenon of entrepreneurship, it is necessary to focus on the process by which new organizations are created. From this perspective, other issues in the field can be seen more clearly. However,

Brazil compared to other countries like the United States, is considered very bureaucratic, due to the greater difficulty to open a company: on average 3 months, while in the US is enough 4 days. According to the Brazilian Service of Support to Micro and Small Enterprises (SEBRAE) (2011), out of every 100 companies created in Brazil, 27 close the doors before even completing two years of activity. In Brazil, more than 1.2 million new formal enterprises are created annually. Of this total, more than 99% are micro and small enterprises and Individual Entrepreneurs (EI), responsible for more than half of the jobs with a formal contract.

For Bygrave and Zacharakis (2010), the concept of entrepreneurship can be understood as the act of creating something profitable from a need not yet supplied and that can generate jobs and income within the area of activity of the company. According to Daft (2009), "entrepreneurship is the process of starting a business of risk, organizing the necessary resources and assuming the associated risks and rewards" (p.197). Schumpeter (1961) described in his book "Capitalism, Socialism and Democracy" that innovative entrepreneurs move the economy in the long term, so that, from the momentum of innovation, there will be the "destruction" of companies already considered in the market. The innovative entrepreneur, characterized by Schumpeter (1961), is the one who has ambition, assume risks and is not only mobilized for monetary motivation. He also tries to create new horizons to be desired by all, transforming the economy into something in constant development.

Some possible examples of innovation would be the creation of a new product; of a new production or marketing method; of new markets; of a new source of raw materials or the creation of a new monopoly (Schumpeter, 1961). The IGFP-5, presented in Appendix 1, measures openness to new experiences, with items that measure creativity, imagination, invention, as well as aesthetic appreciation and a taste for the arts, music, and literature. Thus, we arrive at the first hypothesis of this research:

**H1:** Entrepreneurs have a higher personality trait score related to openness to new experiences than managers.

Opening a new business requires the entrepreneur to explore new ideas (BYGRAVE; ZACHARAKIS, 2010). So they use their creativity to solve problems by proposing an innovative approach to products, business methods or strategies.

Managers, on the other hand, have a greater emphasis on following established rules and procedures to coordinate managerial activity (KAISH; GILAD, 1991; MINER, 1990). Even in fast changing organizational environments, the managerial role is susceptible to focus on the control of strategies developed at a higher level of organizational control (ALCADIPANI; CRUBELATTE, 2003; LAWRENCE; LORSCH, 1967; ZHAO; SEIBERT, 2006).

According to Malach-Pines, Sadeh, Dvir, and Yofe-Yanai (2002), psychoanalytic research about managers tends not to mention entrepreneurs, while research on entrepreneurs tends not to mention managers. However, its set of characteristics suggests a significant number of points of comparison. Among them it is the relation with the father, a figure described as being absent for both. When it comes to specificity, however, the parents of entrepreneurs are rejecting, unpredictable, and distant.

On the other hand, managers' parents are described as successful managers, who are absent due to their highly demanding careers, linked "predominantly to material and external aspects such as income, wealth, prestige and status" (ITUASSU, TONELLI, 2012, pp. 217). This difference may be fundamental to the psychological development of proprietary managers or not (RIBEIRO, 2009; ROBBINS, 2005). The results of the study by Malach-Pines et al. (2002) suggest that fathers can play a very different role for managers and entrepreneurs: a positive identification figure for managers and a negative identification figure for entrepreneurs.

The results also show that entrepreneurs have a greater identification with their work and a greater sense of existential significance when compared to managers. This aspect may manifest in personality traits, such as a greater tendency of entrepreneurs to challenge an authority or a greater propensity to make decisions that involve risks and greater initiative (RIBEIRO, 2009; ROBBINS, 2005). In this way, the trait of kindness measures how much the professional is kind to others in order to cooperate with all, having the capacity to forgive. On the other hand, a "nice" professional does not tend to start the discussions and does not tend to be rude. Thus, the second hypothesis can be described:

**H<sub>2</sub>:** Entrepreneurs have lower scores on personality traits related to kindness than managers.

Entrepreneurs are expected to behave more individualistically, since they often operate with less access to legal protection and with little financial margins due to limited resources (BYGRAVE; ZACHARAKIS, 2010; ZHAO; SEIBERT, 2006; They are even more susceptible than managers to the serious consequences of their decisions. It happens even in the context of small negotiations, as managers ultimately anticipate their decisions, anchored in experiences already experienced (Scott and Bruck, 1987). In addition, organizations managers that have little kindness eventually suffer reprisals from colleagues and supervisors (HOFSTEDE, 1998). This suggests that there may be less negative repercussions associated with the individualistic behavior of entrepreneurs (ZHAO, SEIBERT, 2006).

Kaish and Gilad (1991) analyzed the characteristics of entrepreneurs and managers in terms of business opportunities. From scales that measure since alertness to opportunities in the environment, to the sources of information and to the source of the interviewees' suggestions, it has been shown that entrepreneurs use more non-verbal and non-traditional sources of communication. It is observed that they need to be more communicative and risk-prone. On the other hand, managers would be more inclined to make use of immediate sources of communication, for example, reading books, reports or balance sheets, responding better to economic stimuli than entrepreneurs (KAIS, GILAD, 1991, MINER, 1990). In this way, the third hypothesis is arrived at:

**H<sub>3</sub>:** Entrepreneurs are more extroverted than managers.

Although extroversion may be a valuable feature for managerial work, it is expected to be more related to entrepreneurs (ALCADIPANI; CRUBELATTE, 2003). Entrepreneurs should interact with a large number of people - investors, partners, employees, and customers: they often perform as sellers in order to persuade an investor to support their idea or, in the case of a client, to who buys your product or service (BYGRAVE; ZACHARAKIS, 2010). The lack of human resources at the beginning of a business causes entrepreneurs to spend considerable time in interpersonal relationships

with their partners and employees (A. Zacharakis, personal communication, July 16, 2013). Venture seems to require more direct contact with external and internal factors than managing it (ZHAO, SEIBERT, 2006). The same items that refer to the trait of extroversion in IGFP-5 (Appendix 1), for example, energy, communication ability, not to express what you feel, to be sociable and to generate a lot of enthusiasm indicate the characteristics necessary for a good interpersonal relationship.

However, managers, by definition, work within an organization that has pre-established procedures and practices (CHIAVENATO, 2011; CLEGG; KORNBERGER; PITSIS, 2011). Entrepreneurs, on the other hand, work in a relatively unstructured environment, where responsibility for various aspects of a business prevails, and greater emotional control is required (BYGRAVE; ZACHARAKIS, 2010). They have more hours of work than managers and often do not separate work from personal life, typical characteristic of managers (ZHAO, SEIBERT, 2006). This means that entrepreneurs are people who get tense and nervous more easily than managers. However, they need to remain calm and not change easily as well as know how to control stress. Thus, as the items referring to the neuroticism trait in GFP-5, as shown in Appendix 1, are presented inversely, that is, the smaller this trait the greater the neuroticism, then it is suggested that:

**H<sub>4</sub>:** Entrepreneurs have a lower score in personality traits related to neuroticism than managers.

According to Zhao and Seibert (2006), the entrepreneur's role is probably more difficult and stressful than most traditional jobs. Entrepreneurs assume a great personal responsibility for both success and failure of their business (BYGRAVE; ZACHARAKIS, 2010). There is a heavy personal workload, critical decision making with few precedents as a guide, as well as considerable financial situations at risk (JUDGE; BONO; ILIES; GERHARDT, 2002).

Risk propensity should have positive effects on the intention to open a company and negative effects on its performance, being a good indicator of intentions but irrelevant in performance (A. Zacharakis, personal communication, July 16, 2013). The analysis on risk propensity shows that entrepreneurs are more risk-prone than managers (BYGRAVE; ZACHARAKIS, 2010). Successful entrepreneurs also have high scores on motivation for

achievement, characterized by hope of success, rather than fear of failure (BRANDSTÄTTER, 2011).

In motivation, this is a very characteristic feature in entrepreneurs who opened their own business when compared to managers (KAISH; GILAD, 1991; MINER, 1990): for entrepreneurs to found their own company alone is an achievement that brings motivation (BRANDSTÄTTER, 2011). In the end, it is expected that

**H5:** Entrepreneurs have a higher score in personality trait related to conscientiousness than managers.

Managers working within a stable organization are likely to have their responsibilities, goals, and work monitored by pre-existing organizational systems (CIAGAT, 2011; CLEGG et al., 2011). Entrepreneurs, on the other hand, operate in a less controlled environment and work alone to be aware of their goals and responsibilities (DRUCKER, 2008). Zhao and Seibert (2006) reinforce that investors and other potential partners select people they believe to be more trustworthy and motivated, such as those who develop detailed plans and strategies and demonstrate the tendency to fulfill their commitments from the beginning of the negotiations (LITTUNEN; NIITTYKANGAS, 2010). In IGFP-5, conscientiousness is measured by items that measure how close, detailed, efficient the professional is, making plans and following them to the letter and insisting on completing assignments.

Brandstätter (2011) has revealed the importance of measuring personality traits in order to differentiate entrepreneurs from managers, as well as authors such as Arora and Rangnekar (2016), Kajonius and Kazemi (2016), Myszkowski et al. (2015) and Santos et al. (2016). Characteristics such as the will to innovate, proactive personality, self-efficacy, tolerance to stress, autonomy, locus of internal control were correlated with business creation and business success (BYGRAVE; ZACHARAKIS, 2010; LITTUNEN; NIITTYKANGAS, 2010).

In trying to measure what defines an entrepreneur, little has been related to the mental part and the way it affects the characteristics that influence entrepreneurial actions and business success, in fact, of that leader (JUDGE et al., 2002). The characteristics (will to innovate, proactive personality, self-efficacy, tolerance to stress, autonomy, locus of

internal control) are seen as mental causes and originated from cognitive processes (A. Zacharakis, personal communication, July 16, 2013). Considering this point, studies are usually based on descriptions of how people reason, feel, and act in different situations of experience and action (Thompson, 1999).

Nevertheless, Hofstede (1997), Migliore (2011) or Bajwa, Shahzad and Aslam (2017) point out that there are certain functions of agent with more masculine characteristics and others with more feminine characteristics. Not in the strict sense of concepts, but in the sense of the role that these functions play within a culture. Although these studies are not new, they are fundamental to understanding the personality traits within the

## Methodology

Based on the quantitative nature of the methodological approach, basal validation techniques were used both for the questionnaire and for the possible differentiation of the groups (HAIR; ANDERSON; TATHAM; BLACK, 2005; TABACHNICK; FIDELL, 2013), formed by entrepreneurs and managers. Moreover, the very epistemological ambiguity of the two concepts required that the groups were constructed so that there is no intersection between them, since managers can be entrepreneurs as well as the opposite may occur.

In this way, the concept of a manager was constructed in this research with the choice of store managers from a commercial center in Rondônia and the entrepreneur agent referred to the store's owner, inside the same commercial center. This distinction had to be applied to make the two groups as disjoint as possible.

Thus, the structural equation technique was used for the validation and adaptation of the instrument looking forward the questionnaire optimization and the multivariate analysis of variance (MANOVA) to detect similarities and differences between the two groups for the five major personality traits. Statistica 12 software (exploratory factorial analysis and MANOVA), SPSS AMOS module (structural equation modeling and Cronbach alphas calculation) and Microsoft Excel (discriminant validation) were used.

Zambaldi, Da Costa and Ponchio (2014) show that the validity of a psychometric instrument within a cultural environment different from that for which the instrument was conceived should not be assumed a priori. Nevertheless, Andrade (2008) validated the IGFP-5 for the Portuguese language, using a sample composed mostly of students (79%). This fact corroborates the need for a new validation of the instrument, since the context in which it was applied is different from that for which it has already been validated. Given this point, there is a concern with the use of questionnaires that have been constructed in foreign languages. That happens because some translated adjectives may cause multiple interpretations, since many English adjectives have different meanings from their Portuguese equivalents. This is a central point of the methodology, considering that the research on entrepreneurship is almost exclusively based on questionnaires developed in cultures other than Brazilian.

For Da Costa (2011), validation of the questionnaire is an indispensable part of the measurement process, focusing on data as a way of generating "measures" that clarify the nature and specificities of the phenomenon initially observed, so poorly elaborated measurement can impact on errors in knowledge generation, making it inconsistent. It is noteworthy that some items of the original instrument are constructed in reverse order and, prior to the analysis of the results, were placed in direct order. Thus, as preliminary analysis, a descriptive validation of scale was implemented, using Cronbach's alphas, presented in Table 1, and an exploratory factorial analysis (AFE), in order to assess the presence of the five major personality traits.

With the varimax rotation the presence of three of the constructs was clear: openness, kindness and neuroticism. The last two presented all negative charges, which implies a sample composed of non-loving individuals with emotional control (not neurotic).

**Table 1** – Reliability via Cronbach’s alpha.

Constructs	Original instrument		Great	
	Nº of itens	Alfa	Nº of itens	Alfa
Opening	10	0,83	6	0,88
Kindness	9	0,69	6	0,74
Extroversion	8	0,75	7	0,75
Neuroticism	8	0,85	6	0,88
Conscientiousness	9	0,65	6	0,75
Total of itens	44	-	31	-

**Source:** Elaborated by the authors.

In order to better describe the other traits that did not appear, another AFE, now with biquartimax rotation, was performed, which has the power to group, in a single factor, correlated constructs (HAIR et al., 2005; LATTIN). This second analysis, in addition to reinforcing the aspects assessed in the first analysis, identified that some items referring to conscientiousness and extraversion that were grouped in the same factor of non-neuroticism, indicating that these traits could present some structure of significant correlation, later, in the confirmatory analysis.

With the exception of the extraversion trait, the items eliminated to achieve optimal reliability were items that presented low factorial loads (openness and neuroticism) or cross loads (kindness and conscientiousness). This procedure, which appears in Table 1, when applied in the confirmatory analysis, implies constructs with good or optimal reliability (DA COSTA, 2011).

**Results Analysis**

The sample used for the application of IGFP-5 scale was initially composed of 207 individuals. Two questionnaires were excluded because they were incomplete, representing a total of less than 5%. Three respondents scored all the answers in only one (totally agree) alternative for the entire questionnaire, while two other respondents only scored "neither agree nor disagree" for the entire questionnaire, and were also excluded. Thus, the final sample consisted of 200 elements.



**Table 2** – Sociodemographic summary of 200 respondents.

Variable	Category	Score	Relative Freq.
Sex vs manager function			
	Maneger women	73	36,5%
	Manager men	27	13,5%
	Entrepreneur women	23	11,5%
	Entrepreneur men	77	38,5%
Age			
	20 to 29 years old	52	26,0%
	30 to 39 years old	95	47,5%
	40 to 49 years old	39	19,5%
	Above 50 years old	14	7,0%
Number of colaboraters above responsibility			
	Until 15	130	65,0%
	Above 15	70	35,0%

**Source:** Elaborated by the authors.

Table 2 presents the sociodemographic data of the respondents. It can be noticed that there was balance on the total of managers and entrepreneurs, with predominance of people between the ages of 30 and 39 years. Regarding gender, the results are in agreement with the studies of Peñaloza, Diogenes and Souza (2008), since the managers sample was composed by a majority of females, while the sample of entrepreneurs by males. Hence, it can be inferred that there is a greater propensity of men to be entrepreneurs and of women in management positions, since the chi-square test indicated a relationship between the agent's function and sex ( $p$ -value  $< 0.001$ ).

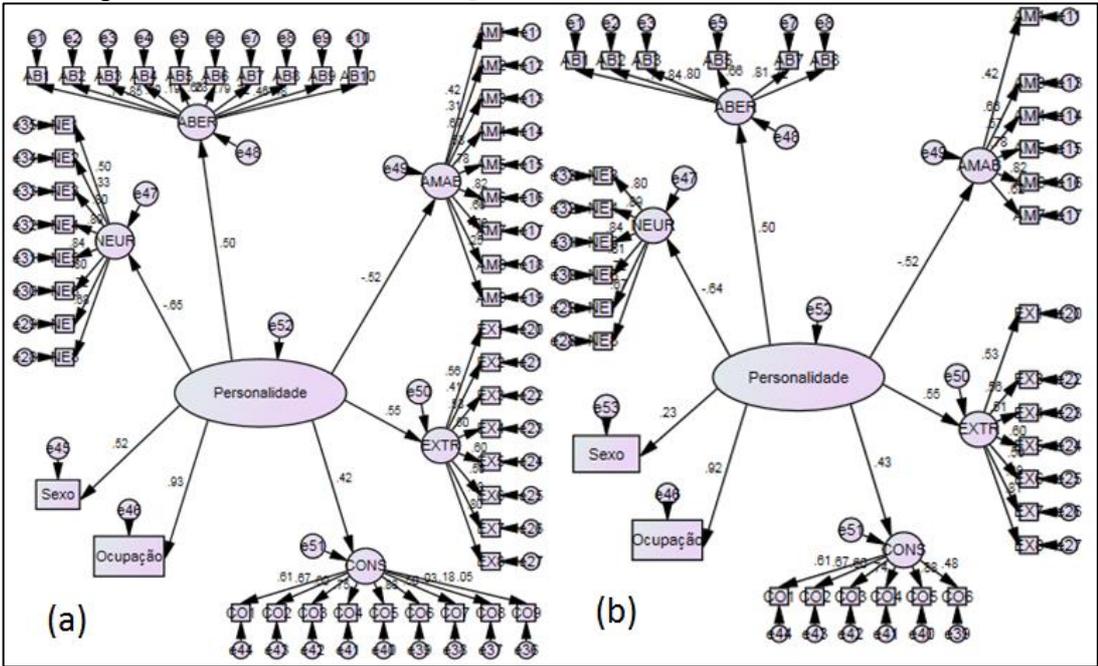
Thus, it can be said that entrepreneurs are more connected to the search for greater remuneration, recognition and challenges, which is in line with the hypotheses raised in the study that entrepreneurs are more open to experience, less loving and rational, since they are characteristics related to masculinity, according to Hofstede (1997), Migliore (2011) and Bajwa et al. (2017), while managers would be more concerned with having good working relationships, living in a climate of cooperation, and seeking the security of their jobs, characteristics that are listed as female.

Figure 1 (a) shows the complete model that was calibrated and Figure 1 (b), the final model validated. Note that the variable sex greatly decreases its contribution, however, could not be excluded, indicating that the inferred results contained in the descriptive step were confirmed.

The other correlations between the constructs and the second-order construct, which was defined as entrepreneurial personality, confirmed the evaluation carried out in the AFE, in which neuroticism and kindness are traits contrary to the entrepreneurial personality, while openness to new experiences, extraversion and conscientiousness are traits directly related to the entrepreneurial personality.

On the other hand, not all factorial loads of the five traits suggested convergent validity in the complete model (Figure 1 (a)), since they did not present values above the limit of 0.40. All items that presented cross loads also had value of non-significant CR statistic ( $p\text{-value} > 0.05$ ). In particular, the items that presented low loads in the AFE, also presented it in the confirmatory analysis and had to be eliminated. In Appendix 1, it is presented a caption that serves to better understand the codes in Figure 1 versus the inventory items and the personality traits in which they are contained.

Figure 1 – Models of structural equation.



Source: Elaborated by the authors.

According to Hair et al. (2005), the validation procedure is to prove that the model presented in Figure 1 (a), more general, is valid and then to use a simpler concurrent model (Figure 1 (b)) and that proves to be as plausible as the more general model. However, due to the lack of convergent validity within the traits, the scale purification process was used, using the insights obtained from the analysis of Cronbach's alphas and AFE (CHURCHILL, 1979).

Thus, the model of the purified structural equation is shown in Figure 1 (b). Convergent validity was detected in it, since all factorial loads are higher than 0.40 (DA COSTA, 2011). In addition, Table 3 presents a matrix in which the main diagonal shows the variances extracted from the five personality traits and the other values refer to the shared variances between the constructs. Thus, according to Fornell and Larcker (1981), it has been shown that the purified model also has discriminant validity, since all the variances extracted are greater than the shared variances.

**Table 3** – Extracted variances and shared variances.

	CONS	NEUR	EXTR	AMAB	ABER
CONS	0,65				
NEUR	0,35	1,20			
EXTR	0,42	0,53	0,75		
AMAB	0,15	0,32	0,27	0,83	
ABER	0,42	0,30	0,41	0,16	1,04

Source: Elaborated by the authors.

On the other hand, the adjustment quality measures showed that it is possible to obtain another concurrent model (HAIR et al., 2005), as shown in Figure 1 (b), since these coefficients are below the values considered good. In general, these indices are improved as covariance between errors is added through the analysis of the modification indexes presented by AMOS (BYRNE, 2010); however, it was not in the scope of this research to find such a model.

The structural equation model itself was able to present the solutions related to the hypotheses of this research, since the entrepreneurial personality is strongly correlated (0.92) with the entrepreneurial respondents and already shows that they have a

smaller trait related to neuroticism and kindness and higher scores regarding conscientiousness, openness and extraversion. However, multivariate analysis of variance was performed in order to be clear of what was exposed. Table 4 presents the average traits for managers and entrepreneurs and the p-values obtained by the Bonferroni comparisons (LATTIN et al., 2011).

The averages for the traces were obtained only with the items that remained in the analysis. It is observed that, in Table 4, the lowest averages were recorded for the trait referring to neuroticism. This means that both functions require people who are not tense or nervous easily. In addition to being calm, do not easily change and know how to control stress. The negative sign, observed in the models of Figures 1 (a) and (b), indicates that the lower the score for this trait, the greater the neuroticism. Furthermore, in Figure 1 (b), the estimated coefficient of neuroticism is the most negative among the five personality traits.

**Table 4 – MANOVA mean personality trait and results.**

Trait	Manager	Entrepreneur	Value-p	Diference	Conclusion
Opening	3,29	3,96	0,00	<	H1: accepted
Kindness	4,04	3,29	0,00	>	H2: accepted
Extroversion	3,61	4,40	0,00	<	H3: accepted
Neuroticism	2,97	1,75	0,00	>	H4: accepted
Conscientiousness	3,88	4,35	0,00	<	H5: accepted

**Source:** Elaborated by the authors.

On the other hand, Table 4 shows that the highest averages appear in the trait referring to extroversion, which indicate that the agents studied in this article, on average, require energy, conversation, communication, assertion and sociability. Characteristics of transforming leaders (BROWN; MOSHAVI, 2005; PIETERSE; KNIPPENBERG; SCHIPPERS; STAM, 2010). In Figure 1 (b), the estimated coefficient of extraversion is the most positive among the five personality traits. These two first results of the multivariate analysis of variance (MANOVA) are in complete agreement with the results obtained with the confirmatory factorial analysis (AFC).

More than that, it was verified that the average between the items referring to openness to new experiences was higher for the entrepreneurs (p-value  $<0.001$ ) than for the managers, corroborating with the first hypothesis (H<sub>1</sub>) that states that entrepreneurs are more creative, imaginative and inventive. In addition, they value aesthetics and a taste for the arts. They are then able to use their creativity to solve problems by proposing an innovative approach to products, business methods or strategies.

The second hypothesis (H<sub>2</sub>) was also accepted (p-value  $<0.001$ ). It says managers are kinder, on average, than entrepreneurs. Which means they are more cooperative professionals with their peers, being able to forgive mistakes and resume projects by establishing new guidelines. This means that entrepreneurs are more likely to start discussions and be rude. This impacts considerably on a entrepreneurs more individualistic behavior, which makes them more susceptible than the managers to suffer with the consequences of their decisions and that is in agreement with the works of Zhao and Seibert (2006) and Bygrave and Zacharakis (2010).

In relation to the extraversion, Table 4 shows that entrepreneurs are, on average, more energy-filled, talkative, communicative, not afraid to express what they feel and generate enthusiasm around those who surround them, since the third hypothesis (H<sub>3</sub>) was accepted (p-value  $<0.001$ ). This implies more interaction with several people and greater interest in interpersonal relationships, what reinforces the idea that undertaking is an action with greater contact with external and internal factors in relation to management (A. Zacharakis, personal communication, July 16, 2013).

The fourth hypothesis (H<sub>4</sub>) also accepts (p-value  $<0.001$ ), revealing the entrepreneur's greater neuroticism towards the manager. This shows a entrepreneurs more tense and nervous temperament, which indicates the need to keep calm and not easily change as well as know how to control the stress (JUDGE et al 2002, KAISH, GILAD 1991, MINER, nineteen ninety).

Finally, the fifth hypothesis (H<sub>5</sub>) allows to conclude that, on average, entrepreneurs are more conscientious than managers. This shows that entrepreneurs are more meticulous, detail-oriented, efficient professionals who make plans and follow them to the letter. In addition, they insist on finishing their tasks. This result is in line with the work of Chiavenato (2011); Clegg et al. (2011), as well as the results of Drucker (2008),

Zhao and Seibert (2006) and Littunen and Niittykangas, (2010) who believe that entrepreneurs are more reliable and motivated people.

In sum, the hypotheses H<sub>1</sub>, H<sub>2</sub>, H<sub>3</sub>, H<sub>4</sub> and H<sub>5</sub> were all accepted. According to that which was seen in the structural model and according to the review that was carried out from the literature.

## Conclusion, Limitations and Final Considerations

The main objective of this research was to evaluate the personality traits of managers and entrepreneurs in organizational environment in order to show characteristics that belonged to both groups studied in the research or that differentiated them through the inventory scale of the five major personality factors (IGF- 5) of the Big Five theory. It shows that this research tool can be useful for HR managers who wish to use it in vocational tests or hiring tests, in the same way as Bhatti et al. (2014), Lounsbury et al. (2016) or Woods et al. (2016).

Thus, as the main theoretical contribution, we accept the hypotheses that were raised in specialized literature regarding managers and entrepreneurs behavior that clearly shows the main differences of the two categories, even if it is a particular sample of store managers and entrepreneurs. As a practical contribution, this study partially confirms the use of IGFP-5 scale as an instrument to measure personality traits of owners and managers, provided that the exclusions of cross-linked or non-convergent items are applied. With these modifications, it is possible to use it in vocational tests and also as criterion of hiring, according to the characteristics necessary for the position. Thus, the IGPF-5 is an important instrument to characterize individuals and groups.

The meanings that constructs have at certain moments may change over the years, due to breakdown of paradigms and behavioral changes in societies (Da Costa, 2011). Of the 44 initial items, 13 items were excluded in the purification process. For the "Kindness" factor the items "It is generally reliable", "Sometimes it is cold and distant" and "It is helpful and help others" are excluded. For the factor "Conscientiousness" the items "Tends to be disorganized", "Tends to be lazy" and "It may be somewhat careless" have been excluded. For the "Extroversion" factor, the "It is reserved" item has been

deleted. For the factor "Opening to new Experiences" the items "Has few artistic interests", "Values artistic, aesthetic", "Prefers routine work" and "Is sophisticated in arts, music or literature" excluded. For the "Neuroticism" factor, the items "Worried about everything" and "It is depressing, sad" were excluded. According to Da Costa (2011), seven items were written in reverse order and the inversion of the items, while at the same time it should be a tool to capture the attention of the respondent, ends up presenting fictitious results that can lead to the exclusion of items.

Another contribution of the proposed model is that the variables, sex and agent function, were considered relevant for the entrepreneurial personality. It has been shown that females have a lower propensity to undertake. Finally, this study presented evidence that entrepreneurs when compared to managers differ in the factors of "kindness," "conscientiousness," "extroversion," "openness to new experiences," and "neuroticism."

The analyzes suggest that the scale used demonstrated evidence of its validity to measure personality traits in different cultures and socioeconomic environments. Finally, all hypotheses about the differences between managers and entrepreneurs, proposed by Zhao and Seibert (2006), were confirmed. It is concluded that (1) entrepreneurs are more open to new experiences, (2) they are more extroverted, (3) they have greater emotional stability, (4) they have greater self-discipline to achieve their goals, and managers. Therefore, there is evidence of differences between managers and entrepreneurs regarding personality traits.

The first limitation for this research was related to the "Tends to be lazy" variable of the "conscientiousness" construct: Among the 200 respondents, 154 responded to the "Totally Disagree" alternative. A probable hypothesis is that the word "lazy" is commonly used as a pejorative term in the Brazilian environment, so this rejection appeared. The second limitation was with the application of the variable "It is generally reliable" from the construct "kindness": Among 200 respondents, 161 answered the "totally agree" alternative. One likely hypothesis is that in Brazilian environment people are uncomfortable with the possibility of being judged as "unreliable".

The third limitation is related to managers and entrepreneurs gender. Although the results are consistent with what is observed in literature, a good part of the female sample was selected in a commercial center, where the managers were usually female.

As the study suggests, there is evidence that scale is appropriate for different cultures, since the necessary adaptations are made. For future studies, samples may be collected from various regions or extended to the study of personality traits for other functions within a company.

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Apêndice 1 – Dicionário do Inventário dos Cinco Grandes Fatores de Personalidade – IGFP-5

<b>Código</b>	<b>Itens do IGFP-5</b>
<b>Abertura à experiência</b>	
AB1	Tem uma imaginação fértil
AB2	Gosta de refletir, brincar com as ideias
AB3	É inventivo, criativo
AB4	Tem poucos interesses artísticos (*)
AB5	É curioso, sobre muitas coisas diferentes
AB6	Valoriza o artístico, o estético
AB7	É engenhoso, alguém que gosta de analisar profundamente as coisas
AB8	É original, tem sempre novas ideias
AB9	É sofisticado em artes, música ou literatura
AB10	Prefere trabalho rotineiro (*)
<b>Amabilidade</b>	
AM1	Tende a ser crítico com os outros (*)
AM2	Às vezes é frio e distante (*)
AM3	Começa discussões, disputa com os outros (*)
AM4	É, às vezes, rude (grosseiro) com os outros (*)
AM5	É amável, tem consideração pelos outros
AM6	Gosta de cooperar com os outros
AM7	Tem capacidade de perdoar, perdoa fácil
AM8	É geralmente confiável
AM9	É prestativo e ajuda os outros
<b>Extroversão</b>	
EX1	Tende a ser quieto, calado (*)
EX2	É reservado (*)
EX3	É, às vezes, tímido, inibido (*)
EX4	É cheio de energia
EX5	É conversador, comunicativo
EX6	É assertivo, não teme expressar o que sente
EX7	É sociável, extrovertido
EX8	Gera muito entusiasmo
<b>Conscienciosidade</b>	
CO1	Insiste até terminar a tarefa ou o trabalho
CO2	É minucioso, detalhista no trabalho
CO3	É um trabalhador de confiança
CO4	Faz planos e segue à risca
CO5	Faz as coisas com eficiência
CO6	É facilmente distraído (*)
CO7	Tende a ser desorganizado (*)
CO8	Tende a ser preguiçoso (*)
CO9	Pode ser um tanto descuidado (*)
<b>Neuroticismo</b>	
NE1	É depressivo, triste
NE2	Preocupa-se muito com tudo
NE3	Fica tenso com frequência
NE4	Fica nervoso facilmente
NE5	É temperamental, muda de humor facilmente
NE6	Mantém-se calmo nas situações tensas (*)
NE7	É emocionalmente estável, não se altera facilmente (*)
NE8	É relaxado, controla bem o estresse (*)
(*) Itens escritos intencionalmente com sentido inverso	