THE RELATIONSHIP BETWEEN PERSONALITY TRAITS, CAREER ADAPTABILITY, AND GENDER: EVIDENCE OF PROFESSIONALS FROM BRAZILIAN TECHNOLOGY INCUBATORS

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ABSTRACT

Purpose: This study aimed to investigate the relationship between personality traits and career adaptability, verifying the existence of the influence of gender in professionals from technology incubators in southern Brazil.

Method: Through a quantitative study, the collection of primary data was carried out with a sample of 310 professionals from technology incubators in southern Brazil, where the relationships of the outlined hypotheses were evaluated through structural equation modeling.

Results: Through data analysis, it was verified the existence of relationships between the analyzed constructs, in which the strongest correlations were between the Agreeableness with Emotional Stability and Extraversion, Trust with Cooperation and Control with Concern dimensions.

Conclusion: Few studies have addressed the issue of career adaptability and personality traits in the technological environment, even more so when it comes to verifying the issue of gender difference in this space. In this sense, this study contributed to the interrelation of the approaches of career adaptability and personality traits, adding the relative gender to the field of technology since this environment is still strictly masculinized. From a practical point of view, it explains the importance of organizational policies that consolidate the amplitude of female participation and representation, especially in strategic positions in technology, raising reflections for managers about diversity and gender equity in an increasingly digital world.

Keywords: Gender, Technological Incubators, Personality Traits, Career Adaptability.

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A RELAÇÃO ENTRE TRAÇOS DE PERSONALIDADE, ADAPTABILIDADE DE CARREIRA E GÊNERO: EVIDÊNCIAS DE PROFISSIONAIS DE INCUBADORAS BRASILEIRAS DE TECNOLOGIA

RESUMO

Objetivo: Este estudo teve como objetivo investigar a relação entre traços de personalidade e adaptabilidade de carreira, verificando a existência da influência do gênero em profissionais de incubadoras de tecnologia no sul do Brasil.

Método: Por meio de um estudo quantitativo, a coleta de dados primários foi realizada com uma amostra de 310 profissionais de incubadoras de tecnologia do sul do Brasil, onde as relações das hipóteses delineadas foram avaliadas por meio de modelagem de equações estruturais.

Resultados: Por meio da análise dos dados, verificou-se a existência de relações entre os construtos analisados, em que as correlações mais fortes foram entre as dimensões Amabilidade com Estabilidade Emocional e Extroversão, Confiança com Cooperação e Controle com Preocupação.

Conclusão: Poucos estudos têm abordado a questão da adaptabilidade de carreira e traços de personalidade no ambiente tecnológico, ainda mais quando se trata de verificar a questão da diferença de gênero nesse espaço. Nesse sentido, este estudo contribuiu para a inter-relação das abordagens de adaptabilidade de carreira e traços de personalidade, agregando a relativa gênero ao campo da tecnologia visto que este ambiente ainda é estritamente masculinizado. Do ponto de vista prático, explicita a importância de políticas organizacionais que consolidem a amplitude da participação e representatividade feminina, especialmente em posições estratégicas em tecnologia, levantando reflexões para gestores sobre diversidade e equidade de gênero em um mundo cada vez mais digital.

Palavras-chave: Gênero, Incubadoras Tecnológicas, Traços de Personalidade, Adaptabilidade de Carreira.

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1 INTRODUCTION

Career adaptability is consolidated as a core construct of career-building theory (Savickas, 2002; Savickas et al., 2009; Savickas & Porfeli, 2012), it represents individuals’ psychosocial resources that help them adapt to environmental changes (Savickas, 2002).

Recent research has highlighted the importance of career adaptability to help individuals manage the numerous demands imposed by turbulent vocational environments (Johnston, 2018; Stead et al., 2021).

In the perception of Teixeira et al. (2012), individuals vary in their motivation to engage in adaptive behaviors, and it can be argued that personality traits influence adaptability to a certain extent. Motivational factors encourage women to adopt an entrepreneurial vision in their businesses, generating development opportunities for them (Kraja & Berberi, 2023). Thus, personality traits tend to be seen as a filter that helps the individual understand their environment, as well as triggering self-regulation processes, such as career adaptability, to adapt to the environment (Rossier et al., 2012).

For technology incubators, they are large organizations with high levels of technology that introduce other companies with deficits or outdated technology, develop, or add technology, which often leads to improving, recovering, and developing companies in re-establishment (Ali & Nazmi, 2021). In this context, it is pivotal to promote the participation and entrepreneurship of both genders in university incubators (Amezcua et al., 2019).
Given the above, the following research questions were formulated: Is there a relationship between career adaptability and personality traits for professionals at technological incubators in southern Brazil? Does gender influence the relationship between career adaptability and personality traits for professionals from technological incubators in southern Brazil? Having said this, this study aimed to investigate the relationship between personality traits and career adaptability by verifying the existence of the influence of gender on professionals from technological incubators in southern Brazil. Research related to this one has been found, albeit the studies have focused on other institutions, such as Çöp et al. (2020) hotel chain in Istanbul. Furthermore, Jahng and Kim (2021) in college students in South Korea.

Although the relationship between career adaptability and personality traits has already been the subject of research, there is still a need to better understand gender issues in mostly male environments, as is the case in the technology sector (Hirschi et al., 2015). The justification for the study is based on the need to understand the existence of relationships in the various dimensions involving personality traits. Therefore, this study contributes to expanding the field of research in theoretical terms regarding the constructs of career adaptability, personality traits, gender and technology. From the point of view of the practical contribution, it is possible to guide managers so that they can carry out their strategic planning based on gender aspirations from the perspective of career adaptability and personality traits, culminating in an improvement in the individual performance of each professional (Vainionpää et al., 2022; Knestis et al., 2022).

2 THEORETICAL FRAMEWORK

This research seeks to improve the study on career adaptability and its measurement through personality traits, as well as the influences they cause on individuals, in the context in which they are inserted. Then, the constructs of personality traits and career adaptability will be explained.

2.1 Personality Traits and Career Adaptability

Given the constant changes in the work context and the uncertainties in careers, it has been necessary for employees to develop the ability of career adaptability (Parola & Marcionati, 2021). Jahng and Kim (2021) reported that career adaptability is the employee’s ability to cope with these changes in a way that promotes intelligent career decisions.

In 2013, Savickas refined the definition, stating that it is a psychosocial construct that highlights a person’s agility and resources to cope with potential and current tasks of professional development, job changes, and personal traumas (Savickas, 2013). For Delle and Searle (2022), career adaptability is when individuals anticipate, organize, and perform tasks independently to best adapt to their work environment.

Therefore, one way to identify and measure career adaptability is through personality traits (Rudolph et al., 2017). Personality traits are innate strengths or preferences that lead an individual to an increased interest in certain areas and subjects (Hurtado Rúa et al., 2019); it assists the individual in understanding their environment as well as triggering self-regulatory processes, such as career adaptability to adapt to the environment (Rossier et al., 2012).

In summary, this directly reflects career adaptability and adaptive responses for individuals seeking quality employment that fits their profiles and allows them to advance their careers (Delle & Searle, 2022). Given this context and the studies by Boo et al. (2021) and Pires et al. (2021) the following research hypotheses were developed.

H1 - Conscientiousness relates to cooperation;
H2 - Conscientiousness relates to control;
H3 - Conscientiousness relates to trust;
H4 - Amiability relates to cooperation;
H5 - Emotional stability relates to concern;
H6 - Emotional stability relates to cooperation;
H7 - Emotional stability relates to control;
H8 - Extraversion relates to cooperation;
H9 - Extraversion relates to curiosity;
H10 - Extraversion relates to trust;
H11 - Openness to experience relates to concern;
H12 - Openness to experience relates to control.

Therefore, it is important to study and differentiate the type of investment and venture for both genders (Welter, 2020). It is necessary for society to recognize the fundamental role that women-owned businesses play in the country's economic expansion, as well as to increase gender diversity in order to promote an atmosphere of innovation (Rani & Sundaram, 2023). As elucidated by Lukianets-Shakhova et al. (2023), the gender policy in certain countries remains significantly distant from ensuring parity between men and women, thereby engendering inherent risks of compromised quality and diminished efficiency in the execution of pertinent managerial decisions. A deficiency is observed in the approach of these publications regarding gender analysis in a comparative framework aimed at contextualizing and examining the representation of men and women in executive positions (Molinete, Barcellos & Salles, 2017).

Based on these arguments, the following hypothesis can be elaborated:
H13(a1) - Gender influences the relationships of personality inventory dimensions with career adaptability dimensions

3 METHODOLOGY

The population of this study was composed of 310 individuals linked to companies at technological incubators in southern Brazil and collected utilizing e-mails; the questionnaires were made available with the Google Forms platform. Thus, data were collected from August to October 2021, thereby justifying this period and reaching a significant sample for the model proposal and data analysis. The present study was approved by a research ethics committee, receiving registration number no. 056822 and CAAE no. 52863421.3.0000.5346.

The personality traits was collected using the Ten Item Personality Inventory (TIPI) developed by Gosling et al. (2003), which was adapted, translated, and validated by Carvalho and Primi (2011). This scale is composed of 10 questions divided into five traits: Extraversion (EXTR), Amiability (AMA), Conscientiousness (CONS), Emotional Stability (ESEM), and Openness to Experiences (OEX).

For the collection regarding Career Adaptability, the instrument of Savickas and Porfeli (2012) was used, which comprises four dimensions: Concern (CON), Control (CONT), Curiosity (CUR), and Confidence (CONF). However, an additional dimension called Cooperation (COOP) was included, which was taken from Savickas (2009) scale, resulting in five dimensions.

Descriptive statistics were first used to demonstrate the sociodemographic data for data analysis. To analyze the outlined hypotheses, the partial least squares structural equation modeling method was employed (Hair et al., 2017; Hair et al., 2014), as well as multigroup analysis (MGA) (Nguyen-Phuoc et al., 2021).
3.1 Initial Analyses of Mental Health and Sociodemographic Data

As for the data on the sociodemographic profile of the 310 respondents, most respondents were male (204 technology professionals; 65.81%), whereas 106 respondents were women (34.19%). Regarding the age range, there was a predominance between 31- and 40-year-old individuals (109 respondents; 35.16%). Regarding marital status, most of the respondents were married (157; 50.65%). Regarding education, graduates which represent the majority of the sample (34.84%).

3.2 Hypothesis Analysis of the Relationship Between Personality Traits and Career Adaptability

Some indicators were eliminated due to low factor loading as they did not meet the measurement model assumptions by low factor loading (λ < 0.6) and non-compliant average extracted variance (AVE < 0.5). As for the discriminant validity of the model, the values for Cronbach’s alpha (a) and composite reliability (rc) ranged from 0.707 to 0.782, and the values of rc ranged from 0.717 to 0.813. The mean extracted variance (MEV) values ranged from 0.502 to 0.650 (Hair et al., 2014).

The discriminant validity of the model was evaluated using the Heterotrait-Monotrait Ratio (HTMT) criterion, as it is the most efficient criterion among the ones proposed by Hair et al. (2017), given that it consists of an estimate of the true correlation between the latent variables (LVs) (Henseler et al., 2015; Dias Lopes et al., 2020). Through the bootstrapping method for 5000 subsamples for the upper limit of the HTMT, the values ranged from 0.224 (Concern x Extraversion) to 0.989 (Trust x Openness to Experiences), thus revealing that none of the LV values (HTMT)97.5% reached the critical value (i.e., equal to 1.0) (Dias Lopes et al., 2020).

In order to evaluate the structural model, the following criteria will be used: variance inflation factor (VIF), the coefficient of explanation (R²), and the predictive relevance (Q²). That being said, preliminarily, multicollinearity was analyzed among the dimensions, which is calculated using the VIF between the exogenous LVs and the endogenous LVs, which according to Hair et al. (2017), VIF values must be lower than 5, avoiding high standard errors as a result of high R values² (Nevit and Hancock, 2001). The values found for the VIF ranged from 1000 (EXTR x CUR) to 1.198 (AMA x CONF), so they did not reach critical collinearity values.

As for the R² values evaluated by the bootstrapping method for 5000 subsamples, Dias Lopes et al. (2020) ranked the R² value as: 2% ≤ R² ≤ 7.5% (weak effect); 7.6% ≤ R² ≤ 19% (moderate effect); and R² > 19 % (strong effect). For the proposed model, all dimensions were significant (p < 0.05). Curiosity presented the lowest R² coefficient (3.6%) and Trust the highest R² one (18.2%). As for predictive relevance, Henseler and Chin (2010) reported that the values cannot be greater than zero; according to Dias Lopes et al. (2020), values of 0.01 ≤ Q² ≤ 0.075 represent a weak degree, 0.075 < Q² ≤ 0.25 indicate a moderate degree, and values of Q² > 0.25 demonstrate a strong degree. By analyzing the results of the model accuracy, we noted that all dimensions presented Q² values above 0, therefore with good prediction. Finally, Table 1 lists the evaluation of the structural coefficients (hypothesis confirmation).
As shown in Table 1, the 12 proposed hypotheses were confirmed. Therefore, to achieve the objective due to the relationships between Career Adaptability and personality traits, the MGA method was applied, which aims to shed more light on statistically significant differences between two groups (male and female) in the relationships between personality inventory dimensions and career adaptability dimensions (H13(a-i)). Before performing the MGA, the measurement invariance of composite models (MICOM) was tested by assessing the configural invariance and compositional invariance and checking if the means and variances were equal (Henseler et al., 2015). All three techniques were confirmed; therefore, the comparison between groups can be applied, being the minimum requirement to assess the significant difference between both groups using MGA (Hair Jr. et al., 2017). Table 2 presents the results of the comparative analysis, including Henseler’s MGA (non-parametric method) and the permutation test (PT).

4 RESULTS AND DISCUSSION

Given the analyses performed, it can be inferred that H1 - Conscientiousness relates to cooperation was accepted, as shown in Table 1. This result corroborates Carbone et al. (2019), who evidenced that conscientiousness is positively correlated with cooperation among adults, impacting the skills and relationships among members of the corporate environment. Furthermore, Schunk and Wagner (2021) designed a study to analyze compliance with newly introduced social norms from individual behavior, and a significant correlation between conscientiousness and high cooperation was evidenced among women who sanction norm deviations less forcefully than men.
H2 - Conscientiousness relates to control was accepted, corroborating the findings of Akay and Karabulut (2020), who reported a positive association between conscientiousness and control when examining the relationship between personality traits and positional concerns of individuals. Similarly, Schneider and Saeed (2021) statistically examined the personality factors that affect the subjective likelihood of adolescent entrepreneurs and found a positive influence on the personality traits of conscientiousness and control. Furthermore, being female only has a significant impact on the average probability of being self-employed.

H3 - Conscientiousness relates to trust was also accepted. Xu (2020) investigated 232 North American individuals on personality traits and ambiguity management in career decision making and found that conscientiousness relates positively to confidence. When examining the role of the Big Five personality traits in the job exploration process of young Latinos, Sui et al. (2021) observed a positive relationship between conscientiousness and career confidence, job beliefs, and better conviction in the job search process.

For H4 - Amiability relates to cooperation, we observed that it was accepted, corroborating the findings of Lefevor and Fowers (2016), who investigated helping behavior and personality traits in 121 undergraduate students. Their results showed a significant relationship between friendliness and cooperation, and these two elements significantly predicted helping behavior among students.

With regard to H5 - Emotional stability relates to concern, the results lead this hypothesis to be accepted. In the study conducted by Soh et al. (2016), the authors showed that emotional stability is a relevant predictor of well-being at work, indicating significant correlations positively grounded with emotional stability and concern. Furthermore, Pagnini et al. (2020) established interesting reflections that corroborate the findings of this study, in which being aware of coherent information in the context of the COVID-19 pandemic led to emotional stability, thus evidencing a positive correlation between concern and emotional stability.

For H6 - Emotional stability relates to cooperation, it was also accepted as it showed a significant explanatory load, as demonstrated in Table 1. Onuki and Xiao (2020) examined values and personality traits as personal determinants in volunteering in Japan and found that emotional stability was moderately associated with cooperation.

H7 - Emotional stability relates to control was accepted according to the analyses. This result is in agreement with Li et al. (2021), as the authors, when testing several hypotheses, exposed the convergence and positive correlation between emotional stability and control in the personality traits of individuals experiencing various job transitions in the work environment.

H8 - Extraversion relates to cooperation was accepted according to the analyses performed. Borges et al. (2019) reported that higher levels of extraversion can, in some cases, lead to greater sharing of tacit knowledge. Additionally, Grimpe et al. (2021) reinforced that extraversion can also influence the effect of cooperation in a competition. Individuals with higher extraversion levels tend to like people and work in groups, evidencing cooperation among members; those with lower levels are rather shy and avoid social interactions. Thus, the relationship between extraversion and cooperation is positive and statistically significant.

As for H9, Extraversion is related to curiosity, it was accepted according to the analyses performed. This finding is in line with studies conducted by Ye et al. (2015) with 294 Chinese first-year undergraduate students in Hong Kong, where satisfaction with university life, the five major personality traits, and human values were measured, resulting in positive correlations between the variables curiosity and extraversion.
For H10 - Extraversion relates to trust, a positive relationship was found between the variables extraversion and confidence, and this hypothesis was accepted. In line with the above explanation, Sander and De La Fuente (2020) evaluated the personality and academic confidence of 1398 psychology students from Spanish universities, arriving at the conclusion of positive correlations between the personality traits of students as openness, conscientiousness, extraversion, and friendliness to academic confidence, while neuroticism was negatively correlated with confidence.

Regarding hypothesis H11 - Openness to experience is related to concern; according to the analyses performed, was accepted. This result is consistent with Forgeard et al. (2022), who used a 12-month longitudinal case-control design to test whether an increase in openness to new experiences occurs after major stressors; it provided robust evidence that openness to experience is related to concern. Corroborating the above is the study by Kroska et al. (2020), who examined demographic characteristics, pandemic-related adversity, and psychological flexibility in relation to general and peritraumatic distress in United States citizens in 2020; these authors clarify that higher pandemic-related adversity, less openness to experience, and lower behavioral awareness were correlated with distress/concern.

For H12 - Openness to experience relates to control, this hypothesis was accepted. In this regard, it is worth mentioning that the research conducted by Ivcevic and Brackett (2015), who identified the correlations between openness to experience, emotional control ability, and creativity indicated by peers among 223 American high school students, arriving at the finding of a positive link between emotional control ability and openness to new experiences.

With respect to H13(a) - Gender influences the relationships of the personality inventory dimensions with the dimensions of career adaptability (Table 2), there were no significant differences between the specific path coefficients between genders, leading to the rejection of this hypothesis. Furthermore, in studies such as by Mondo et al. (2021) regarding gender, the results on career adaptability are conflicting and often considered inconclusive. However, in research with student samples, women showed higher levels of career adaptability than men, specifically concerning personal and emotional adaptability. Still, the gender difference is noticeable in career counselors and educators, singularly for developing the confidence, personality, and self-esteem critical for promoting career adaptability, as evidenced by Joanne Chan and Chan (2021). Proactiveness, for instance, indirectly develops career resources through enhancing proactive personality for men and enhancing the perception of future self-employment for women.

Nevertheless, the findings of this study demonstrate that gender does not influence relationships for the researched public (individuals linked to companies in technological incubators) in southern Brazil, which is in line with the study of Maggiori et al. (2013), in which there was no association between gender and career adaptability.

5 CONCLUSION

This study aimed to investigate the relationship between personality traits and career adaptability, verifying the existence of the influence of gender in professionals from technological incubators in southern Brazil.

From the contextualization carried out and obtaining the data and their respective analyses, it is implied that among the twelve hypotheses of the research arising from the literature that intended to measure the relationship between the dimensions of personality traits and career adaptability, they were confirmed. As for the gender issue, the multigroup analysis method was applied, demonstrating the absence of gender influence relative to the dimensions of career adaptability and personality traits for the public surveyed.
The refutation of the relationship between gender and the other dimensions (career adaptability and personality traits) was confirmed by Henseler's multigroup analysis and permutation test, since the p-value was shown to be greater than 0.05 and no significant differences were shown between the gender coefficients.

From a theoretical point of view, the relevance of this study is in the contribution it presents to empirical works, in the interrelation of the approaches of career adaptability and personality traits, adding the relative gender to the field of technology since this environment is still strictly masculinized. From a practical point of view, it explains the importance of organizational policies that consolidate the amplitude of female participation and representation, especially in strategic positions in technology, raising reflections for managers about diversity and gender equity in an increasingly digital world.

The completion of a research study allows researchers to evaluate possible limitations. Hence, a limitation is access to the research locus to be disseminated and stimulate the broad participation of professionals, which was not possible due to the health protocols in force during the data collection period. To overcome these limits, future research could include more participants, expand to other states in Brazil, and add other variables and data collection techniques such as interviews, observations, and other possibilities.

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