

Career Adaptability, Perceptions of Professional Development and Employability: A Mediation Analysis

Luara Carvalho¹

Luciana Mourão¹

¹Universidade Salgado de Oliveira, Rio de Janeiro, Brasil

Abstract

The objective of this study was to test the mediating role that Perception of Professional Development has in the relationship between Career Adaptability and Perception of/Expectation of Employability among undergraduate students. A total of 1.105 students (57% of women) participated in the investigation, all from different undergraduate courses and institutions. The instruments used had evidence of validity, and data were analyzed through structural equation modeling. The results supported the research hypothesis and corroborate previous empirical studies. The model showed good fit for the data as to the hypothesized model ($X^2/df=0.65$; $CFI=0.94$; $TLI=0.94$; $RMSEA=0.05$; indirect effect=0.31). The confirmation of the mediating relationship contributes to the understanding of the processes related to Perception of/Expectation of Employability among undergraduate students. Impacts on the career planning of undergraduate students and subsidies for Higher Education management are some of the practical implications of this study.

Keywords: professional development; career adaptability; higher education; mediation analysis.

Adaptabilidade de Carreira, Percepções de Desenvolvimento Profissional e Empregabilidade: uma análise mediacional

Resumo

O objetivo deste estudo foi testar o papel mediador da Percepção de Desenvolvimento Profissional na relação entre Adaptabilidade de Carreira e Percepção/Expectativa de Empregabilidade dos universitários. Participaram da investigação 1.105 estudantes (57% mulheres), oriundos de diferentes cursos de graduação e instituições. Os instrumentos adotados contavam com evidências de validade e na análise de dados utilizamos a modelagem por equações estruturais. Os resultados deram suporte à hipótese de pesquisa e corroboram estudos empíricos anteriores. O modelo indicou bom ajuste dos dados ao modelo hipotetizado ($X^2/gf=0,65$; $CFI=0,94$; $TLI=0,94$; $RMSEA=0,05$; efeito indireto=0,31). A confirmação da relação mediadora contribuiu para o entendimento dos processos relativos à Percepção/Expectativa de Empregabilidade entre universitários. Impactos para o planejamento de carreira de universitários e subsídios para a gestão do Ensino Superior são algumas das implicações práticas do estudo.

Palavras-chave: desenvolvimento profissional; adaptabilidade de carreira; educação superior; análise mediacional.

Adaptabilidad de carrera, percepciones de desarrollo profesional y empleabilidad: un análisis mediacional

Resumen

El objetivo de este estudio fue probar el papel mediador de la percepción del desarrollo profesional en la relación entre la adaptabilidad a la carrera y la percepción/expectativa de empleabilidad de los estudiantes universitarios. El estudio incluyó 1.105 estudiantes (57% mujeres), provenientes de diferentes campos e instituciones. Los instrumentos adoptados tenían evidencias de validez y en el análisis de datos utilizamos el modelado de ecuaciones estructurales. Los resultados apoyaron la hipótesis de investigación y corroboran estudios empíricos previos. El modelo indicó un buen ajuste de los datos al modelo hipotético ($X^2/gf=0,65$; $CFI=0,94$; $TLI=0,94$; $RMSEA=0,05$; efecto indirecto=0,31). La confirmación de la relación mediadora contribuye a la comprensión de los procesos relacionados con la Percepção/Expectativa de Empleabilidad entre los estudiantes universitarios. Los impactos para la planificación de la carrera de los estudiantes universitarios y las subvenciones para la gestión de la Educación Superior son algunas de las implicaciones prácticas del estudio.

Palabras clave: desarrollo profesional; adaptabilidad de carrera; educación superior; análisis mediacional.

Brazilian Higher Education has expanded with the creation of new institutions, diversified admission processes, and funding strategies; however, the percentage of the population that holds a college degree in Brazil is still much lower than that of other countries in a similar economic situation (Heringer, 2018). In addition, the country has a high number of people who start and do

not complete their undergraduate studies (Inep, 2018). The factors that hinder this permanence include lack of professional guidance, adaptation issues and scarce information about the world of work (Peron, Bezerra, & Pereira, 2019).

Given this scenario, the interest of researchers in the professional and career development of undergraduate

students has grown (Almeida & Teixeira, 2018; Bates, Rixon, Carbone, & Pilgrim, 2019; Carvalho & Mourão, 2021; Knabem, Ribeiro, & Duarte, 2018). The concept of professional development is very close to that of career development, and both encompass objective and subjective aspects (Mourão & Monteiro, 2018). This association between such concepts is supported by the Career Construction Theory, which provides the theoretical basis of the present study (Savickas, 2013). According to said theory, career is no longer seen as a sequence of jobs or promotions throughout life, but as a constructive, personal and social process concerning the meanings attributed to professional choices, involving work-related experiences and expectations. Thus, current career models begin to value, more strongly, reflections on Career Adaptability resources and on one's individual perception of their own development, in a broadened view of behavioral skills for insertion in the world of work (Savickas, 2013).

Career Adaptability is a central concept in the Career Construction Theory and has taken a prominent place in national and international scientific production (Johnston, 2018). It is defined as a psychosocial construct that denotes readiness and resources for one to deal with tasks related to professional choices, in a set of four dimensions. The first dimension is Concern, related to search for guidance for the future. The second one is Control, related to decision making and career self-management. The third one is Curiosity and refers to the exploration of new possibilities and experiences. The last dimension is Confidence, which is about the expectation of success and facing challenges (Savickas, 2013). In this sense, Career Adaptability, as well as Perception of Professional Development, are not necessarily associated with vertical progressions or with holding positions, but with skills developed during training, personal experiences and professional practice (Mourão & Monteiro, 2018).

In this logic, the Perception of Professional Development is understood as an intentional and continuous process of acquisition and improvement of knowledge, skills and attitudes, with identity and performance transformations throughout the career (Mourão & Fernandes, 2020; Mourão & Monteiro, 2018). In the university context, professional development presupposes a continuous growth process, with opportunities for self-learning, be they derived from formal or informal actions. Still in this context, development planning requires the setting of goals, often related to the world of work, as well as strategies for the acquisition of skills

that allow a better handling of the challenges found in the market (Carvalho & Mourão, 2021). In this way, the Perception of Professional Development among undergraduate students would be associated with their academic experiences and the learning resulting from the latter, as well as with reflections on the demands of the world of work and, consequently, with the Perception of or Expectations about Employability (Carvalho & Mourão, 2021; Donald, Ashleigh, & Baruch, 2018).

In the present study, the Perception of/Expectation about Employability is associated with the beliefs one has of their own preparation to enter the job market and the actions developed in this direction (Peixoto, Janissek, & Aguiar, 2015). However, Perception of/Expectation of Employability differs from the Employability construct itself, since the latter depends not only on individual investments, but also on the quality of educational training and the socioeconomic and political context in which work organizations belong (Donald et al., 2018; Peixoto et al., 2015).

With regard to the evidence found in empirical studies with undergraduate students, some investigations highlight the predictive power of Career Adaptability and its association with variables related to Perception of Professional Development and Perception of/Expectation of Employability (Hirschi, Herrmann, & Keller, 2015; Rudolph, Lavigne, & Zacher, 2017). In the mediation study conducted by Ladeira, Oliveira, Melo-Silva and Taveira (2019), career adaptability predicted 0.45 ($p < 0.01$) of college students' career development (adaptive responses) and 0.36 ($p < 0.01$) of perception of employability.

In the study conducted by Guan et al. (2013), also with a mediation model, career adaptability showed high correlation with employability ($r = 0.80$; $p < 0.01$) and with self-efficacy for job search ($r = 0.61$; $p < 0.01$). In the investigation carried out by Gamboa, Paixão and Palma (2015), career adaptability presented moderate correlation with perception of employability ($r = 0.40$; $p < 0.01$), and high correlation with the dimensions of self-efficacy for the transition (ranging from $r = 0.47$; $p < 0.01$ to $r = 0.50$; $p < 0.01$). In the research developed by Almeida and Teixeira (2018), the dimensions of career adaptability showed high correlations (from 0.54 to 0.59; $p < 0.01$) with the development and well-being of undergraduate students.

The research conducted by Carvalho and Mourão (2021), in its turn, evidenced that perception of professional development is positively and highly correlated with perception of employability ($r = 0.75$; $p < 0.01$).

Thus, according to the authors, in the university context, perception of professional development is related to the expectation of finding a job. In this sense, in addition to developing the professional skills necessary for the market, undergraduate students will need to develop a set of competences that help them face the challenges they will encounter in the world of work and adapt to their requirements (Ladeira et al., 2019).

Undergraduate students seeking professional development need, in their turn, a proactive attitude of adaptability and academic experiences that bring them closer to professional practice (Knabem et al., 2018; Monteiro & Almeida, 2015; Travassos, Mourão, & Valentini, 2020). Some of these experiences are aligned with the driving factors of professional development found by Mourão and Fernandes (2020). Other studies have found significant correlations between these academic experiences and career adaptability (Ambiel, Hernández, & Martins, 2016), as well as between the experiences and perception of Employability (Lamas, Ambiel, & Silva, 2014).

In addition to these correlation studies, qualitative research with undergraduate students also associates variables related to adaptability, professional development and perception of employability (Bates et al., 2019; Donald et al., 2018). Thus, the technical knowledge and commitment of a person to growing professionally contribute to attitudes aimed at the future professional and to engagement in career-planning tasks during higher education (Bates et al., 2019). Similarly, the perception of employability of undergraduate students is associated with benefits derived from Higher Education, and these individuals perceive a gradual advancement in their professional development (Donald et al., 2018).

Given these results, we infer that Perception of Professional Development can also behave as a possible mediating variable for the relationship between Career Adaptability and Perception of/Expectation of Employability. Although an investigation into the mediating role of Perception of Professional Development fills a gap in the literature on this topic (Monteiro & Mourão, 2017), the presented literature review supports the relationship between the investigated constructs.

Thus, the objective of this study was to test the mediating role of Perception of Professional Development in the relationship between Career Adaptability and Perception of/Expectation of Employability among undergraduate students. To this end, we established as research hypothesis that Perception of Professional Development positively mediates the relationship

between Career Adaptability and Perception of/Expectation of Employability (Carvalho & Mourão, 2021; Gamboa et al., 2015; Guan et al., 2013; Ladeira et al., 2019). As an assumption for the mediation model, the correlations between Career Adaptability (independent variable) and Perception of/Expectation of Employability (dependent variable), as well as with Perception of Professional Development (mediating variable) were previously tested. The relationship between Perception of Professional Development (mediating variable) and Perception of/Expectation of Employability (dependent variable) was tested as well.

Method

Participants

Using a convenience sample, this study had the participation of 1.105 undergraduate students (57% women) with an average age of 26 years old ($SD = 6.9$), mostly single (83%). The inclusion criterion was to be enrolled in the final three periods of the course; 70% of the sample was attending the last year. The participating students were from public (43%) and private (57%) Higher Education Institutions (HEIs) located in the five Brazilian regions, with the largest portion being in the Southeast (77%), while the rest was subdivided into the Northeast (9%), South (8%), Midwest (5%) and North (3%). The researched courses were: Agrarian Sciences and Exact and Earth Sciences (10%), Biological Sciences and Health Sciences (14%), Human Sciences (22%), Applied Social Sciences (28%) and Engineering (26%).

Instruments

We designed a protocol for this research with sociodemographic data to characterize the sample, besides three scales with initial evidence of validity in Brazilian samples and good reliability indexes in the original study (measured by Cronbach's Alpha) to measure the investigated constructs. The central information of the three scales used in the study are presented below.

Career Adapt-Abilities Scale, translated and adapted by Audibert and Teixeira (2015), with good indexes of total reliability ($\alpha = 0.94$). The scale is composed of 24 items subdivided into four dimensions, which will be described using the Alpha (α) of the original study, and an item as example: Concern ($\alpha = 0.88$; e.g.: "I think about how my future will be"); Control ($\alpha = 0.83$; e.g.: "I make decisions on my own"); Curiosity

($a = 0.89$; e.g.: “I am curious about new opportunities”); and Confidence ($a = 0.89$; e.g.: “I am careful to do things well”). The response scale was of the Likert type, with 1 meaning “I have developed little or nothing of it”, and 5 meaning “I have developed it extremely well”.

Scale for Current Perception of Professional Development, built by Mourão, Porto and Puentes-Palácios (2014), with good reliability indexes in its short version with four items ($a = 0.82$; e.g.: “With my current knowledge, I can satisfactorily carry out activities aimed at my field”). The items were answered on a Likert agreement scale ranging from 1 (Strongly disagree) to 5 (Strongly agree).

Employability Self-Perception Scale, designed by Peixoto et al. (2015) to measure undergraduate students’ expectations about employability in their field of training. We chose to investigate only the Acquisition dimension (new job), which has six items ($a = 0.77$; e.g.: “I feel that I have important knowledge and skills for the job market”), since it is common for college students to have no employment relationship yet, which does not allow adding the Maintenance dimension (current job). This scale has evidence of validity for the university population (Carvalho & Mourão, 2021), and its items were answered using the same Likert scale described for the previous instrument.

Procedures

The present study was approved by a Research Ethics Committee and complied with all expected ethical principles, such as the confidentiality of individual information, as well as the right to voluntary participation and to withdrawal from continuing in the research. All participants authorized the inclusion of their data by signing the Free and Informed Consent Form (FICF). Collection was carried out online by means of the snowball technique, with the instruments being made available through e-mail and social networks, as well as and in person, at the HEIs that had previously authorized data collection. The average completion time was 15 minutes.

Data Analysis

Initially, the database was cleaned with an analysis of possible incorrect values and missing data (Tabachnick & Fidell, 2013). Then, descriptive and exploratory analyses were run, including normality tests and an analysis of the degree of reliability of the scales by Cronbach’s Alpha. To test the model, structural

equation modeling was adopted, which allows analyzing explanatory correlations, simultaneously, between multiple latent or observed variables (Hair, Black, Babin, Anderson, & Tatham, 2009).

As a preliminary step, confirmatory factor analyses were performed, and a matrix of bivariate correlations was built for the Perception of Professional Development, Career Adaptability, and Perception of/Expectation of Employability variables, considering the total scores of each one, and following the parameter of Miles and Shevlin (2001), which classify correlations as low (0.10 to 0.29), moderate (0.30 to 0.49) and high (above 0.50). It is worth noting that the correlation coefficients themselves are a measure of the effect size, and that Pearson’s correlation, just as Cohen’s d , is a standardized measure (Espírito Santo & Daniel, 2017).

The weighted least square mean and variance adjusted (WLSMV) estimation method was used, and the indirect-effect parameters in the mediation analysis were extracted through Bootstrap (500 resamples). After the model was specified and estimated, its fit was evaluated by means of the following goodness-of-fit indexes: chi-square ratio divided by degrees of freedom (χ^2/df) < 5.0; Comparative Fit Index (CFI) > 0.95; Tucker-Lewis Index (TLI) > 0.90; Root-Mean-Square Error of Approximation (RMSEA) < 0.06; and Standardized Root Mean Square Residual (SRMR) < 0.08 (Kline, 2011). The analyses were run with the aid of R.

Results

As a preliminary step in the analysis of structural equations, Table 1 presents descriptive statistics (mean and standard deviation), Cronbach’s alpha and the matrix of bivariate correlations between the variables included in the model. All scales showed good reliability indexes. We chose to use the total scores of the measures, considering that two of them (Perception of Professional Development and Perception of/Expectation of Employability) are single-factor, and that the third one (Career Adaptability) presents highly correlated dimensions (ranging from 0.60 to 0.72). In this sense, we also took into account, in the subsequent analyses, the total score of the Career Adaptability variable.

The results pointed to moderate correlations between Career Adaptability and Perception of/Expectation of Employability ($r = 0.39$; $p < 0.05$), as well as between Career Adaptability and Perception of

Professional Development ($r = 0.32$; $p < 0.05$). High-magnitude correlations were found between Perception of Professional Development and Perception of/Expectation of Employability ($r = 0.66$; $p < 0.05$), as shown in Table 1.

After this step, we checked the assumptions for the mediation model, in which the independent variable is a predictor of the mediating variable, and the latter, in its turn, predicts the dependent variable, in such a way that when the mediator is present in the regression equation, it reduces the magnitude of the relationship between the first two (Valentini, Mourão, & Franco, 2018). The results showed significant and positive correlations ($\beta = 0.49$; $p < 0.001$) between Career Adaptability (independent variable) and Perception of/Expectation of Employability (dependent variable), as well as between Career Adaptability and the Perception of Professional Development mediating variable ($\beta = 0.40$ and $p < 0.001$). There were also positive and significant associations between the Perception of Professional Development mediator and the Perception of/Expectation of Employability dependent variable ($\beta = 0.79$ and $p < 0.001$).

Having tested the assumptions, we checked the effect of Career Adaptability on Perception of/Expectation of Employability, with the presence of Perception of Professional Development. The results

showed positive and significant associations, but they were low in magnitude ($\beta = 0.17$ and $p < 0.001$). Considering that, in the presence of the mediating variable, the effects of the independent variable on the dependent one were reduced, but remained significant, it can be stated that we obtained a complementary mediation, in which the mediated effect and the direct effect exist and point to the same direction (Valentini et al., 2018). Thus, it is possible to infer that the Perception of Professional Development mediated such relationship, attesting to the research hypothesis.

Table 2 displays the indirect effect, which corresponds to the magnitude of the mediation (0.31). It also includes the total effect, which is the direct effect plus the indirect effect (0.48), and, finally, the proportion of the mediation effect, which reveals the mediation percentage, which, in this case, was 0.65. Thus, with the indirect effect of mediation alternating the process of the phenomenon, 35% of the impact of the independent variable remained, which directly influences the dependent variable.

Therefore, the final model also showed good fit indexes, which were, respectively, $X^2(8.950) = 5.868.4$; $X^2/df = 0.65$; CFI = 0.94; TLI = 0.94; RMSEA = 0.05 (0.049-0.050); SRMR = 0.04. Figure 1 shows the graphic representation of the mediation model with the standardized parameters of the tested correlations.

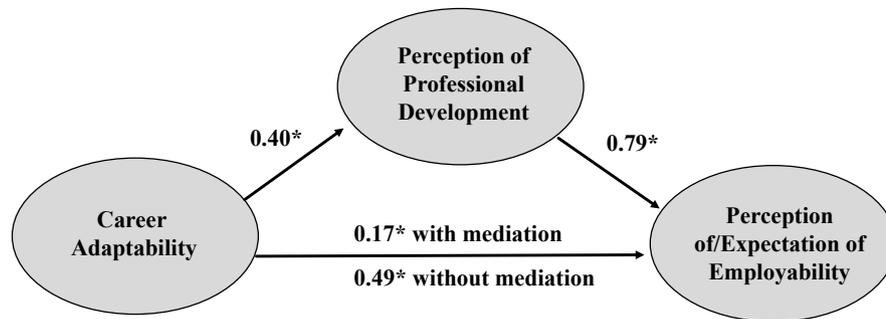
Table 1. Descriptive statistics and Pearson's correlation of the investigated constructs

Variables	M	SD	Alpha	1	2	3
Career Adaptability	3.76	0.65	0.95	-	0.32*	0.39*
Perception of Professional Development	3.91	0.68	0.80		-	0.66*
Perception of/Expectation of Employability	3.77	0.61	0.77			-

Notes. M = Mean/SD = Standard deviation; Alpha = Cronbach's Alpha; * $p < 0.05$.

Table 2. Mediating effect of Perception of Professional Development in the relationship between Career Adaptability and Perception of/Expectation of Employability

Models	Effect	Error	Z	p	Inferior CI	Superior CI	Standardized
Indirect effect	0.63	0.08	7.87	0.001	0.48	0.79	0.31
Total effect	0.97	0.09	9.99	0.001	0.78	1.16	0.48
Mediation proportion	0.65	0.05	11.81	0.001	0.54	0.76	0.65



Note. * $p < 0.001$

Figure 1. Mediation model for Perception of Professional Development in the relationship between Career Adaptability and Perception of/Expectation of Employability.

Discussion

The objective of this study was to test the mediating role of Perception of Professional Development in the relationship between Career Adaptability and Perception of/Expectation of Employability among undergraduate students. The results supported the research hypothesis, confirming the theoretical expectations of other studies with college students (Carvalho & Mourão, 2021; Gamboa et al., 2015; Guan et al., 2013; Ladeira et al., 2019).

The positive association between Career Adaptability and Perception of/Expectation of Employability of undergraduate students corroborated with previous investigations that have identified this relationship. The studies conducted by Gamboa et al. (2015) and Guan et al. (2013) pointed out that students with higher levels of Career Adaptability also report greater confidence in solving tasks related to search for professional opportunities and insertion in the job market. This result is in line with the relationship that Peixoto et al. (2015) describe between individual beliefs and actions developed in the transition to the world of work. Thus, broadening Career Adaptability resources for undergraduate students positively influences their search for knowledge, skills, abilities and other characteristics that the labor market values.

The positive association between Career Adaptability and Perception of Professional Development is supported by the Career Construction Theory, the constructs of which have as a central element a set of attitudes and behaviors that favor one's work journey (Mourão & Monteiro, 2018; Savickas, 2013). In the same vein, the study developed by Ladeira et al. (2019) highlighted that Adaptability is associated with

Adaptive Responses operationalized by Career Development, such as planning, decision and exploration, which would lead to the achievement of good professional outcomes. This result is aligned with some of the driving factors of Professional Development found by Mourão and Fernandes (2020).

The direct and high-magnitude relationship between Perception of Professional Development and Perception of/Expectation of Employability found in the present study, in its turn, is supported by a previous research that has also investigated these constructs in the university context (Carvalho & Mourão, 2021). Thus, the Perception of Professional Development of those in Higher Education is related to the expectation of finding a job in their field of training. This result confirms that training-related experiences can also be considered as drivers of the Perception of Professional Development (Mourão & Fernandes, 2020), being positively associated with the Perception of/Expectation of Employability (Lamas et al., 2014).

Having considered these correlations already identified in previous studies and confirmed in the present one, the contribution of this research consisted of identifying that Perception of Professional Development mediates the relationship between Career Adaptability and Perception of/Expectation of Employability among undergraduate students. The confirmation of this mediation relationship indicates that Career Adaptability will have a greater influence on Perception of/Expectation of Employability, when this relationship goes through a Perception of Professional Development. Therefore, concern about the future, career control, curiosity to explore possibilities, and confidence to face challenges lead undergraduate students to perceive greater Professional Development,

which, in its turn, has a positive influence on their Perception of/Expectation of Employability.

This result presents a set of implications and also allows discussing some findings from previous studies. In the case of the research conducted by Bates et al. (2019), academic engagement had a supposed relationship with Perception of/Expectation of Employability; however, in the light of the findings of the present research, it is possible to question whether this relationship would not be greater when undergraduate students perceive that they are developing professionally. A similar reasoning is valid for other research results, such as those reported by Donald et al. (2018), in which personal factors were also related to Perception of/Expectation of Employability, and it is possible to question whether Perception of Professional Development would mediate these associations as well.

Thus, the results of this study gain relevance especially when we consider the new outlines present in the Career Construction Theory, which requires an active attitude on the part of workers in the sense of being the agents of their own professional journey (Savickas, 2013). In this logic, for undergraduate students to make sense out of their experiences, it is fundamental to understand how the dynamic of their development takes place. The central conclusion of this study is that Career Adaptability has a direct relationship with Perception of/Expectation of Employability, but it also has an indirect relationship with this construct, having Perception of Professional Development as mediator.

Considering that Career Adaptability and Perception of Professional Development are central psychosocial resources for the construction of undergraduate students' careers, we can present a set of contributions to different social actors. HEI educators and managers can use these results to develop educational policies and academic activities that allow expanding both Career Adaptability and Professional Development. Professional advisors and undergraduate students can invest in Career Adaptability resources by planning future tasks towards insertion in the job market (concern) and taking greater responsibility for the management of their career (control), broadening vocational exploration behaviors (curiosity) and setting professional goals, despite obstacles in the world of work (confidence). Moreover, students can come up with strategies for improving their Perception of Professional Development and Perception of/Expectation of Employability.

From the viewpoint of the hypothesized model, the investigation into mediating variables can enrich the understanding of specific paths capable of deepening knowledge of the dynamic involving the correlations between psychological variables (Valentini et al., 2018). This way, researchers in the field can use the results of this empirical model of mediation to move forward in the explanatory studies of the relational processes of Career Adaptability, Perception of Professional Development and Perception of/Expectation of Employability.

As limitations of the study, it is necessary to consider that, although the data collection covered different fields of training and Brazilian regions, the sample was composed by convenience and, therefore, generalizations are not possible. Another limitation is the fact that it was a cross-sectional research, which presents greater bias risks. Future studies could adopt a longitudinal design and/or intervention in professional and career guidance in order to test possible causal relationships in the variables of the hypothesized model.

Despite its limitations, the present research brings theoretical and practical contributions, which were presented herein. Thus, we hope that it will encourage new investigations into the researched variables, and that it will generate practical implications for different social actors in the sense of contributing to the professional development and employability of Brazilian undergraduate students.

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About the authors:

Luará Carvalho é Psicóloga, Mestre e Doutoranda em Psicologia pela Universidade Salgado de Oliveira, Niterói. Participante do Aprimora - Núcleo de Estudos em Trajetória e Desenvolvimento Profissional. Orientadora Profissional e de Carreira e Coordenadora do Curso de Graduação em Psicologia da Universidade Salgado de Oliveira, São Gonçalo. ORCID: <http://orcid.org/0000-0003-3852-3133>
E-mail: luaracarvalhomotta@gmail.com

Luciana Mourão é Doutora em Psicologia pela Universidade de Brasília e Professora no Programa de Pós-Graduação em Psicologia da Universidade Salgado de Oliveira, Niterói. Coordenadora do Aprimora - Núcleo de Estudos em Trajetória e Desenvolvimento Profissional. Professora visitante do Programa de Pós-Graduação em Psicologia Social da Universidade do Estado do Rio de Janeiro. ORCID: <https://orcid.org/0000-0002-8230-3763>
E-mail: mourao.luciana@gmail.com

Contact:

Universidade Salgado de Oliveira, Mestrado em Psicologia
 Rua Marechal Deodoro, 217, 2º andar, Centro
 Niterói-RJ, Brasil
 CEP: 24030-060