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Factors Influencing Adaptation from University to Employment in Portugal and Brazil

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Abstract

The career adaptation model helps to explain the process of transitioning from university to employment among college students. This study sought to test the invariance of the model for gender and for Portuguese and Brazilian cultural contexts. Participants included 638 students (69% women, 66.1% Brazilian), aged 18 to 56 ($M = 23.78$, $SD = 20.33$). Individuals' adaptability resources, adapting responses and adaptation results were considered and assessed. Multigroup path analysis results indicated invariance of the model only for contexts, indicating that the adaptation process, in university to employment transition, is equivalent in Portugal and Brazil, guiding career interventions in both contexts.

Keywords: career adaptation, higher education, university-employment transition, cultural context, gender

Factors Influencing Adaptation from University to Employment in Portugal and Brazil

The fourth industrial revolution characterized by the accelerating automation of work and digitization has shifted the employment paradigm (European Commission 2019; Hirshi 2018; World Economic Forum 2018). As the labor market got increasingly global and demanding, organizations were challenged to increase their flexibility and competitiveness (Hirshi 2018; Nagy, Froidevaux & Hirshi 2018). Different social, political and individual concerns emerged from this work paradigm shift (Ferreira, Haase, Santos, Rabaça, Figueiredo, Hemami et al. 2019; World Economic Forum 2018). For example, worldwide unemployment rates are unstable. From 2017 to 2018 there was a decrease of 4.2 million unemployed people, which corresponds to a 0.2% drop. This rate remained unchanged in 2019, although in numerical terms this means an increase of 185.8 million in 2018 to 187.7 million unemployed people in 2019 (International Labour Organization 2020). Portugal and Brazil follow this unstable pattern (International Labour Organization 2020). For example, Portugal presented an unemployment rate of 6.8% in the first quarter of 2019, which dropped to 6.7% by the end of the year. This rate remained stable in the first quarter of 2020, corresponding to 348.1 thousands of unemployed people (National Institute of Statistics 2020). Brazil presented an unemployment rate of 12.7% in the first quarter of 2019, which dropped to 11% by the end of the year. In the first quarter of 2020, this rate increased again to 11.9%, which corresponds to 12.9 millions of unemployed people (Brazilian Institute of Geography and Statistics 2020). Simultaneously, vulnerable employment conditions around the world present a continuous growth rate of 45% across the years of 2017 to 2019 with a maintenance forecast for 2020 and 2021 years (International Labour Organization 2020). However, it is important to highlight that this rate corresponds to a gradual increase from 1449.9 million people in 2017 to 1469.1 million people in 2019 (International Labour Organization 2020). This set of economic and social situations that characterize the current labor market scenario, affect the society and particularly college students (Ferreira et al. 2019; Shin 2019).

In addition to unemployment and precariousness of the working world, gender inequalities anchored on the traditionality of gender roles still remain. Although women are an active part of the workforce since the first and second world wars, their story in the labor market has been marked by unequal conditions, treatment and recognition compared to men. Despite political efforts to overcome this situation, gender asymmetries in women's careers are still noticeable (Albrecht, Bronson, Thoursie & Vroman 2018; Baptist, Fecher, Dolejs, Yoder, Schmidt, Couch et al. 2017; Coelho 2015; Medeiros, Aguiar & Barham 2017). World statistics suggest that women work more hours, but still hold a lower income than men (Albrecht et al. 2018; International Labour Organization 2018). Furthermore, women continue to have more domestic responsibilities (e.g., childcare

1 planning grocery shopping) when compared to men. When analyzing Portugal and Brazil, this pattern is also
2 found. Not only do women have lower wages than man, but there is also a gender asymmetrical distribution
3 among different jobs and professional status (Brazilian Institute of Geography and Statistics 2019; Strategy and
4 Planning Office 2019). For example, both in Portugal and Brazil, women continue to hold fewer political
5 positions than men (Brazilian Institute of Geography and Statistics 2019; Strategy and Planning Office 2019).
6 This inequality seems to have an impact on women's life roles management and, consequently, on life and work
7 satisfaction (Baptist et al. 2017; Gouveia 2017).

8 In such an unstable and unequal working world, new challenges and demands are posed to individuals,
9 which seems to affect career decision-making and transitions, viewed as anxiogenic processes namely among
10 college students (Hirshi 2018; Ferreira et al. 2019; Organization for Economic Co-operation and Development
11 2018; Shin 2019). The unpredictability of the current labor market landscape, where a vertical career path is
12 replaced for a more flexible, implies that individuals are capable of managing their career customizing their
13 responses according to the circumstances and personal preferences (De Vos & Van der Heijden 2017; Nagy et al.
14 2018; Wilhelm & Hirshi 2019). More specifically, college students need to acquire adaptability resources to
15 sustain their flexibility and adjustment to increasingly demanding work environments. Therefore, they will be
16 capable to achieve career success and life satisfaction (Akkarmans, Paradniké, Van der Heijden & De Vos 2018;
17 Cabras & Mondo 2017). Beyond these challenges, individuals may also struggle to confront their work
18 expectations with the unequal gender attitudes and opportunities that prevail in the labor market (Albrecht et al.
19 2018; International Labour Organization 2018). Stereotypes of male-dominated and women-dominated jobs have
20 been shown to influence youths' perceptions of career barriers and self-efficacy, and consequently, the career
21 decision-making process (e.g., Coelho 2015; Corell 2001; Gnilka & Novakovic 2017; Tellhed, Bäckström, &
22 Björklund 2017). Hence, the anticipation of entering a course or job dominated by the opposite sex may
23 constitute a source of anxiety in the career decision-making and transitioning processes of college students.

24 Within this social scenery, the career adaptation model (Savickas 2005) has become a useful framework
25 to understand individuals' adaptation to career transitions, among which the university-employment one.
26 Transitions are commonplace in career, which can be conceived of a process of active and subjective
27 construction, sustained by one's memories and influencing both present experiences and future ambitions
28 (Ambiel 2014; Savickas 2005). The career adaptation model can be operationalized through four inter-related
29 dimensions: adaptive readiness, adaptability resources, adapting responses and adaptation results (Savickas &
30 Porfeli 2012). Individuals presenting volition to change (adaptive readiness) and the resources needed to cope

1 with such a change (adaptability resources) are more likely to engage in behaviors that facilitate their adaptation
2 (adapting responses) and, as a consequence, are more likely to be well adjusted to the transition and the
3 employment setting (adaptation results) (e.g., Akkarmans et al. 2018; Rudolph, Lavigne & Zacher 2017;
4 Savickas & Porfeli 2012).

5 Focusing on each dimension of the career adaptation process, adaptive readiness can be defined as a
6 personality feature and flexible disposition to overcome career transitions (Savickas & Porfeli 2012). To
7 operationalize this dimension, measures of work engagement (Gomes 2017; Pinheiro, 2017), self-esteem, future
8 orientation (Rudolph et al. 2017) and five-trait personality factors (Perera & McIlveen 2017) have been used in
9 previous research. Perera and McIlveen (2017) identified different adaptive readiness profiles, which in turn
10 sustained variations in adapting responses and adaptation results. These authors also found that college students
11 presenting high flexibility, willingness to overcome career tasks and persistence tend to demonstrate high
12 concern levels, adequation of study strategies and academic satisfaction. Adaptive readiness seems, therefore, to
13 be a necessary but insufficient antecedent of adapting responses and adaptation results (Savickas & Porfeli
14 2012). Hence, a number of studies have alternatively highlighted adaptability resources (e.g., Cabras & Mondo,
15 2017; De Vos & Van der Heijden 2017; Johnston 2018; Koen, Klehe & Van Vianen 2012).

16 Adaptability resources can be defined as a “psychosocial construct that denotes an individual’s
17 readiness and resources for coping with current and imminent vocational development tasks, occupational
18 transitions, and personal traumas” (Savickas 2005 p.51). Adaptability resources can be conceived as a
19 multidimensional construct composed by the four C’s – concern, control, curiosity and confidence (Savickas
20 2005; Savickas & Porfeli 2012). Career concern consists of thinking of and planning for the future; control
21 includes one’s effort, persistency and self-management when adapting to environmental challenges; curiosity
22 consists of the exploration of the self in various contexts and life roles; and confidence relates to the anticipation
23 of ways to overcome potential barriers and to be successful (Savickas 2005; Savickas & Porfeli 2012). Within
24 the career literature for college students, adaptability resources have been commonly measured by these four C’s
25 (e.g., Guan, Deng, Sun, Wang, Cai, Ye et al. 2013; Hirschi, Herrmann & Keller 2015). However, it is important
26 to note that a fifth dimension, cooperation, has been considered in more recent studies (Einarsdóttir,
27 Vilhjálmsdóttir, Smáradóttir & Kjartansdóttir 2015; Johnston 2018; Nye, Leong, Prasad, Gardner & Tien 2018).
28 There are also dimensions with similar definitions but adjusted to other populations, such as high school students
29 (Johnston 2018). Moreover, there are authors (e.g., Hirshi 2009) that relied on different career theories to assess
30 a variety of indicators (e.g., career choice readiness, confidence) of adaptability resources. In a study with

1 German college students and resorting Savickas four C's, Hirschi and Valero (2015) suggested individual
2 variability in the four C's. The authors identified five profiles of adaptability resources, ranging from extremely
3 low to extremely high resources. In the first half of the study, Hirshi and Valero (2015) found the following
4 profiles: low adaptability (cases with considerably below-average adaptability scores on all four adaptability
5 subscales); below-average adaptability (cases with below-average values for all subscales); average adaptability
6 (cases with values near to the standardized mean for all subscales); helpless-passive adaptability (cases with
7 mean levels for confidence and concern, and low levels for curiosity and control); and high adaptability (cases
8 with highest values in all subscales). In the second half of the study, Hirshi and Valero (2015) also found five
9 profiles, but slightly different from the previous ones: very low adaptability (cases with the lowest values in all
10 the four subscales); low adaptability (cases with low values in all subscales, but higher than the former); below
11 average adaptability (cases with values slightly below the standardized mean); above-average adaptability (cases
12 with values slightly above mean); and high adaptability (cases with the highest values for all subscales). Such
13 profiles seem to impact both adapting responses and results. Hirshi and Valero (2015) concluded that students
14 with more adaptability resources exhibit more adaptative behaviors (e.g., exploration) and attitudes (e.g., self-
15 efficacy).

16 Adapting responses can be conceived of change-oriented attitudes and behaviors (Hirschi et al. 2015).
17 Measures of career exploration, planning, decision-making, locus of control, social support and self-efficacy
18 expectations have been used to assess adapting responses (e.g., Fugate, Kinicki & Ashforth 2004; Hirschi et al.
19 2015). Evidence has suggested that employable individuals are characterized by an internal locus of control,
20 favorable general self-efficacy expectations, optimism, openness to new experiences, career identity featured by
21 concrete and realistic aspirations and goals, as well as social networking (Fugate et al. 2004). These
22 characteristics seem to facilitate individuals' adaptation to the societal challenges. For example, adapting
23 responses have been shown to positively correlate with confidence and self-efficacy to respond to external
24 demands, which in turn sustains one's satisfaction, commitment to look for a job, adaptive coping with
25 unemployment and work adjustment (Fugate et al. 2004; Author 2014).

26 As for the adaptation results, these consist of attaining a person-environment fit or a harmony between
27 personal needs/goals/characteristics and environmental opportunities/barriers (Guan et al. 2013; Savickas &
28 Porfeli 2012). To assess the adaptation results, measures focused on consequences of psychological adjustment,
29 such as career attainment, turnover intentions, engagement, career success, commitment and satisfaction, have
30 been used (Hirshi et al. 2015; Kristof 1996; Rudolph et al. 2017). Still, antecedents of psychological adjustment,

1 such as job search behaviors, organizational recruitment and selection procedures should also be considered
2 (Kristof 1996). For example, employability can be conceived of another indicator sustaining the evaluation of
3 adaptation results (Rudolph et al. 2017). In this regard, employability has been usually defined as one's ability to
4 search for and maintain a job (Rothwell, Jewell & Hardie 2009). However, such a definition seems to undervalue
5 the competences that individuals should develop to be better prepared to and to be more adaptable in the labor
6 market (Harvey 2001). Calls to acknowledge self-perceived employability have emerged, thus highlighting one's
7 awareness of personal features and work demands (Kristof 1996; Palma 2013). Individuals' self-perceived
8 ability to attain a sustainable job that is aligned with their needs and competencies (Rothwell, Herbert &
9 Rothwell, 2008) is important to prevent the creation of unrealistic expectations of the labor market (Guan et al.
10 2013; Author 2014). Previous studies with college students have suggested that those attaining higher
11 adaptability results tended to perceive themselves as being more adjusted to college, which in turn sustained their
12 favorable job search self-efficacy expectations and increased their opportunities of getting employed (Guan et al.
13 2013; Palma 2013; Szollosi 2019).

14 Previous research has indicated that the career adaptation dimensions, although different from each
15 other, are inter-related (Hirschi et al. 2015). Among college students, evidence of direct and positive relations
16 between adaptive readiness and adaptability resources (Gomes 2017; Rudolph et al. 2017), adaptability resources
17 and adapting responses (Akkarmans & Tims, 2017; Gomes 2017; Rudolph et al. 2017), adapting responses and
18 adaptation results (Akkarmans & Tims, 2017; Gomes 2017; Pinheiro 2017), as well as adaptability resources and
19 adaptation results has been found (Akkarmans & Tims, 2017; Bento 2013; Cabras & Mondo 2017; Authors
20 2019; Rudolph et al. 2017). Adaptability resources and perceived employability have been also shown to
21 facilitate graduates' job search (Akkarmans & Tims 2017; Bento 2013; Palma 2013). Relations between
22 adaptability resources and adapting responses, particularly career exploration, planning, self-efficacy and
23 decision-making have also been investigated (Hirschi et al. 2015). In addition, adapting responses seem to play a
24 partial mediator role in the relation among adaptability resources and adapting responses (Authors 2019).
25 Moreover, Rudolph et al. (2017) meta-analysis about Savickas career construction model of adaptation
26 highlighted the role of sociodemographic variables in career adaptation. Among sociodemographic variables,
27 qualifications have been found to positively correlate with adaptability resources and, when coupled with
28 economic policies, to impact the university-employment transition (Ng & Feldman 2007). Additionally,
29 controversial findings have been found for gender. There is evidence of women presenting more adaptability
30 resources and higher career self-efficacy expectations than men (Palma 2013), but also evidence indicating no

1 Educational Research Anísio Teixeira 2018). Participants' age ranged from 18 to 56 years old ($M = 23.78$, $SD =$
2 20.33). All were studying in their countries of origin. Based on General-Directorate for Higher Education (2020),
3 participants were studying in the fields of law, social sciences and services ($n = 277$, 43.4%); health ($n = 133$,
4 20.8%); technology ($n = 105$, 16.5%); sciences ($n = 30$, 4.7%); economy, management and accountability ($n =$
5 21, 3.3%); educational sciences and teaching training ($n = 21$, 3.3%); physical education, sports and performing
6 arts ($n = 20$, 3.1%); agriculture and natural resources ($n = 18$, 2.8%); architecture, art and design ($n = 7$, 1.1%);
7 humanities, secretariat and translation ($n = 6$, 0.9%). Average college grades were calculated by converting
8 Brazilian grades into Portuguese grades, in order to present consistent values for both countries. Therefore,
9 grades were calculated by the $C = 2C_{\text{grade}}$ formula, being C the Portuguese scale ranging from zero to 20, and
10 C_{grade} the Brazilian scale ranging from zero to 10 (Portuguese Dispatch 212 October 31st, 2008). At the time of
11 this study, participants presented average college grades higher than 18 values ($n = 31$, 4.9%), from 15 to 18
12 values ($n = 290$, 45.5%), from 12 to 15 ($n = 242$, 37.9%), and from 10 to 12 values ($n = 34$, 5.3%).

13 When comparing the cultural contexts, it is important to notice that the age range among Brazilian
14 students was wider (18 to 56 years old) than Portuguese students. (19 to 36 years old). The former students also
15 presented more variability of courses ($n = 10$) than the latter ($n = 7$). In both contexts, there was a greater number
16 of participants studying in the fields of law, social sciences and services, and a smaller number of students
17 attending courses in the fields of architecture, arts and design. Both Portuguese and Brazilian participants
18 presented a greater concentration of average college grades over 15.

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20 **Measures**

21 A sociodemographic questionnaire was used to collect information about gender, age, nationality,
22 ethnicity, school year, study fields and college grades average.

23 Career Adapt-Abilities Scale – International version 2.0 (Savickas & Porfeli 2012; adapted to Portugal
24 by Duarte, Soares, Fraga, Rafael, Lima, Paredes et al. 2012; adapted to Brazil by Teixeira, Bargassi, Lassance,
25 Magalhães & Duarte 2012) was used to assess the career adaptability resources. The measure was validated in 13
26 countries, among which Portugal and Brazil. It includes 24 items answered in a five-point Likert-type scale,
27 ranging from 1 (*little*) to 5 (*very much*). The items are equally distributed across four dimensions: concern (e.g.,
28 “Thinking about what my future will be like”, $\alpha = .89$), curiosity (e.g., “Exploring my surroundings”, $\alpha = .88$),
29 confidence (e.g., “Overcoming obstacles”, $\alpha = .89$), and control (e.g., “Taking responsibility for my actions”, α
30 = .84). Evidence of good internal consistency reliability was found in the original version ($.74 < \alpha < .92$). Good

1 reliability estimates were also found in the Portuguese ($.69 < \alpha < .90$) (Duarte et al. 2012) and Brazilian versions
2 ($.76 < \alpha < .91$) (Teixeira et al. 2012). Estimates of internal consistency reliability ranging from .84 to .94 were
3 found in the sample recruited for this study.

4 Career Development Scale for College Students (Authors 2019; adapted to Portugal by Author 2019)
5 was used to assess the career adapting responses. It includes 31 items answered in a five-point Likert-type,
6 ranging scale ranging from 1 (*totally false about me*) to 5 (*totally true about me*). The items are organized in five
7 dimensions: career identity (six items, e.g., “I feel satisfied and relaxed with my professional choice”, $\alpha = .83$);
8 in-breadth career exploration (six items, e.g., “I constantly monitor the abilities I need to acquire to attain my
9 professional goals”, $\alpha = .82$); professional self-efficacy (nine items, “I consider myself a well-prepared
10 professional in the area I work or at which I intend to work”, $\alpha = .84$); locus of control (five items, “Getting a
11 good position in my profession depends on events beyond my control”, $\alpha = .81$); career decision (five items, e.g.,
12 “I believe I have a realistic professional project”, $\alpha = .86$). Items four, five, six, 11, 12, 13, 14, 15, 16, 18, 21 and
13 24 are inverted, whereby their recodification is required to compute total scores. Good estimates of internal
14 consistency reliability were found in the original Brazilian version ($.65 < \alpha < .91$) (Authors 2019). The
15 Portuguese version also presented good reliability estimates ($.81 < \alpha < .90$) (Author 2019).

16 Self-Perceived Employability Scale (Rothwell et al. 2008; adapted to Portugal by Gamboa, Paixão &
17 Palma 2014; adapted to Brazil by Authors 2019) was used to assess the career adaptation results. It includes 16
18 items answered in a five-point Likert-type scale, ranging from 1 (*totally disagree*) to 5 (*totally agree*). It should
19 be noted that for internal employability (e.g., “The skills and abilities I possess are what employers are looking
20 for”, $\alpha = .73$) and for external employability (e.g., “Employers specifically target this university in order to
21 recruit individuals from my course”, $\alpha = .75$), only three and six items were considered, respectively. The
22 original version of the measure presented good reliability estimates ($.66 < \alpha < .76$) (Rothwell et al. 2008), which
23 were similarly found in the Portuguese ($.73 < \alpha < .80$) (Gamboa et al. 2014) and Brazilian versions ($.73 < \alpha <$
24 $.82$) (Authors 2019). Good reliability estimates were also obtained in the current sample ($.73 < \alpha < .76$).

25 **Procedures**

26 This study was approved by the Ethical Committee for Research in Social and Human Sciences and by
27 the Ethical Committee for Research, respectively in Portugal and Brazil. Approvals from 23 Portuguese and 2
28 Brazilian higher education institutions were obtained. Data was collected by Portuguese and Brazilian
29 researchers, from the north to the south of the countries. While in Portugal, data was exclusively collected
30 online, in Brazil, data was collected partially online and partially in paper and pencil. In both countries, the

1 online measures were introduced by higher education course coordinators and by other teachers to control for the
2 participants' access to the protocol. After four months, measures were no longer available online for data
3 collection.

4 The data collection protocol included an initial consent form. Having been informed on the purpose of
5 the study, the voluntary participation and the confidentiality inherent to data analyses and scientific
6 dissemination, the college students decided whether or not to collaborate. Upon their consent, items soliciting
7 sociodemographic information were presented, followed by the Career Adapt-Abilities Scale, the Career
8 Development for College Students, and the Self-Perceived Employability Scale. Participants took approximately
9 30 minutes to complete the data collection protocol.

10 **Data Analyses**

11 Data was analyzed with the Statistical Package for the Social Sciences (IBM SPSS), version 25.0 for
12 Mac and the Analysis of Moment Structures (AMOS), version 25.0 for Windows. Structural equation modelling
13 was employed in data analyses. As evidence of multivariate non-normality of sampling distribution was found
14 through the Mardia's coefficient, the Maximum Likelihood estimation method with bootstrapping was used
15 (Gilson, Bryant, Bei, Komiti, Jackson & Judd 2013; Authors 2018). Outliers for the complete sample and for
16 each separate group (i.e., genders; cultural contexts) were identified using the Mahalanobis' Distance. On the
17 one hand, three outliers were found in the gender groups – two in the group of women, and one in the group of
18 men. On the other hand, four outliers were found in the cultural context groups – one in the group of Portuguese
19 participants, and three in the group of Brazilian participants. Analyses were run with and without outliers to
20 control for their bias (Authors 2013). As there were differences in the findings with and without outliers, results
21 without outliers were preferred.

22 Having verified the statistical assumptions for structural equation modeling, two steps were taken. First,
23 confirmatory factor analyses (CFA) were conducted to test the goodness-of-fit of the measurement models to the
24 data. Two measurement models were considered for each measure – one measurement model included first-order
25 factors, whereas another measurement model added a second-order factor. Having identified each measure's best
26 fitting measurement model, its metric invariance for genders and contexts was examined with multigroup CFA.
27 Second, path analyses (PA) were carried out to investigate the goodness-of-fit of the career adaptation structural
28 model to the data. Two structural models were tested in alignment with the literature review (e.g., Gomes 2017;
29 Authors 2019; Rudolph et al. 2017) (Figure 2). The first model, herein defined as Model 1, relied on the
30 hypothesized direct relations between the constructs and was assumed as the theory-based most desirable one.

1 The second model, defined as Model 2, constituted an alternative structural model and considered the mediator
2 role of the adapting responses in the relation between adaptability resources and adaptation results, thus
3 including both direct and indirect paths (Cheung & Lau 2007; Marôco 2010). The invariance of structural
4 weights for genders and contexts were also tested using multigroup PA. A factor loading and a regression weight
5 was fixed to 1 to respectively test the measurement and the structural models (Lent, Lopez, Lopez & Sheu 2008;
6 Marôco 2010).

7 < Insert Figure 2.>

8 Model fit was evaluated taking into account the Bollen-Stine chi-square goodness-of-fit test with 500
9 bootstrap samples, and a confidence interval of 95% (Gilson et al. 2013). The Goodness of Fit Index (GFI), the
10 Comparative Fit Index (CFI) and the Root Mean Square Error of Approximation (RMSEA) were also
11 considered. GFI and CFI values higher than .90 as well as RMSEA values from .05 to .10 were deemed
12 indicative of good fit (Marôco 2010; Tabanick & Fidell 2013). The Akaike Information Criterion (AIC) was also
13 considered to sustain the comparative appreciation of the measurement models and the structural models. Lower
14 AIC values were indicative of better fit (Authors 2018). The invariance for genders and contexts considered the
15 difference (Δ) from the unconstrained to the metric parameters in multigroup CFA and from the unconstrained to
16 the structural weight parameters in multigroup PA. Metric and structural weight invariance were evaluated
17 according to the Δ CFI, with Δ CFI < .01 indicating invariance for groups (Cheung & Rensvold 2002).

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Results

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The CFA results suggested that the measurement models presented a good fit to the data. For all
measures, the fit of the first-order measurement models to the data was similar to the fit of the hierarchical
measurement models. The hierarchical measurement models were preferred, according to literature supporting
their advantages (e.g., Rothwell et al. 2008; Savickas & Porfeli 2012). A good fit of the hierarchical
measurement models inherent to the Career Adapt-Abilities Scale (AIC = 989.38; GFI = .89; CFI = .93; RMSEA
= .07), Career Development Scale for College Students (AIC = 1762.12; GFI = .82; CFI = .86; RMSEA = .07),
and Self-Perceived Employability Scale (AIC = 219.83; GFI = .94; CFI = .90; RMSEA = .10) was found.
Bollen-Stine chi-square goodness-of-fit test was significant for all measurement models ($p < .01$). The
multigroup CFA additionally indicated metric invariance for genders and contexts. These results were, therefore,
favorable to proceed with the PA (Marôco 2010). Each dimension of the structural model was represented by the
measurement models second-order factors, calculated by the respective scale total sum of the items.

1 model – adaptability resources, adapting responses, and adaptation results – with college students,
2 acknowledging both women and men as well as Portuguese and Brazilian contexts. Results globally offered
3 empirical support to the career adaptation model, thus adding evidence that supports its relevance in career
4 theory and research (Hirshi et al. 2015; Rudolph et al. 2017; Savickas 2005). As structural invariance was found
5 for contexts only, H1 was partially supported and specific group variations in the relations among the variables
6 need to be acknowledged.

7 First, career adaptability resources and adapting responses were positively and statistically significantly
8 associated in both sexes and contexts, thus supporting H2. Portuguese and Brazilian women and men attending
9 their last school year in higher education and presenting high adaptability resources seemed to more likely
10 demonstrate adapting attitudes and behaviors while transiting to employment, which is consistent with previous
11 studies (e.g., Cabras & Mondo, 2017; Gomes 2017; Authors 2019; Rudolph et al. 2017). As adaptability
12 resources are malleable and developed throughout the lifespan (Koen et al. 2012), these results can be useful to
13 sustain interventions aimed at fostering career planning and exploration, career confidence and career self-
14 management as veins to facilitate college students' transition from higher education to employment.

15 Second, positive and statistically significant associations among adapting responses and adaptation
16 results were found in all groups. These results support H3 and are consistent with literature suggesting that
17 college students presenting attitudes and behaviors oriented to change (Hirshi et al. 2015) tend to be more
18 optimistic about the future and about their ability to attain a satisfying job (e.g., Akkarmans & Tims, 2017;
19 Rothwell et al. 2008). However, variations in the strength of the relations for contexts besides statistical
20 significance should be acknowledged. A weaker relation was found for Portuguese students compared to
21 Brazilian students. This might suggest that Portuguese college students could benefit from career interventions
22 that empower their adapting responses and stimulate their reflexivity on the impact of such responses to their
23 personal life and the society.

24 Third, the relation between adaptability resources and adaptation results were positive in all groups and
25 offered empirical support to H4. Still, variations in the strength of the relations were noticeable for groups as
26 well. While a moderate relation was found in Brazil, a weak relation was found in Portugal, women and men.
27 Additionally, while the majority of the relations were statistically significant, a marginally statistical significance
28 level was found in the Portuguese context. This might be tied with the additional results suggesting a full
29 mediator effect of adapting responses in the association between adaptability resources and adaptation results in
30 the Portuguese context. Such an effect might suggest the importance of stimulating college students' confidence

1 to engage in adapting responses and, thus, facilitate their attainment of personal- and social-desirable adaptive
2 results. On the one hand, these results are globally consistent with the ones obtained by Rudolph et al. (2017),
3 although the authors did not use a measure of self-perceived employability as done here. On the other hand, a
4 partial mediator effect of adapting responses has been found in Brazil (Authors 2019). This seems consistent
5 with the findings from our study suggesting a full mediator effect of adapting responses in Portugal but not in
6 Brazil, as well as stronger relations between adaptability resources and adaptation results in Brazil compared to
7 Portugal.

8 Overall, our findings suggest that both Portuguese and Brazilian college students with more adaptability
9 resources are more likely to present attitudes and behaviors favorable to change and, in turn, to develop positive
10 prospects toward the future and their transition to employment. This view is in line with previous studies (e.g.,
11 Akkarmans & Tims, 2017; Gomes 2017; Rudolph et al. 2017) and may suggest a need to offer a variety of career
12 activities to higher education students (e.g., job fairs, job shadowing, career education activities infused into the
13 curricula) designed to foster career readiness and career self-management skills useful for different labor market
14 contexts (Organisation for Economic Co-operation and Development 2018). College students from different
15 training domains may also present different job prospects, which may influence their external employability
16 perceptions. For instance, in 2020, according to Pordata (<https://www.pordata.pt>) and DGEEC
17 (<https://www.dgeec.mec.pt/np4/dgeec/>), medicine and engineering were amongst the higher education programs
18 in Portugal with the most recruitment and employability rates, while some programs of architecture and
19 multimedia communication were among the poorest ones. In Brazil, courses such as administration, law,
20 accounting, statistics and engineering are amongst those with the highest employability rate (Brazilian Institute
21 of Geography and Statistics 2019). These aspects can be considered in higher education career interventions
22 activities, offering students opportunities to be better informed about general and specific labor market realities,
23 and to cope with negative beliefs of employment outlook, that may, in turn, affect their perceived employability.
24 Still, the fit of the structural models was weak for all groups. The replication of this study with broader samples
25 of Portuguese and Brazilian college students would be useful to deepen these results. Moreover, international
26 discussions among scholars and career practitioners could be useful to revise the theoretical model and to
27 acknowledge its contextual particularities. It is also noteworthy that structural invariance was found for contexts,
28 but not for genders. This might suggest that although the career adaptation model can be useful in Portuguese
29 and Brazilian settings, gender differences need to be taken into consideration. Gender asymmetries are still
30 common in the labor market (Baptist et al. 2017; Coelho 2015; Corell 2001; International Labour Organization,

1 2018) and might impact women's and men's development of career adaptability resources, effectiveness of
2 adapting responses and attainment of desirable adaptation results. Evidence from Portugal and Brazil indicate
3 that although women are increasingly active in the labor market and hold high educational levels (National
4 Institute of Studies and Educational Research Anísio Teixeira 2018; Pordata 2018), they still perceive
5 themselves as less competent than men (e.g., Corell 2001; Telled et al. 2017) and feel less confident than men
6 about their ability to attain a high professional position and/or to fulfill career goals (Coelho 2015). The
7 challenges faced by women in their career paths seem, therefore, to indicate that policy efforts are still needed to
8 foster gender equity and that career interventions are important to stimulate women's career adaptability
9 resources.

10 **Limitations and Directions for Future Research**

11 Despite the contributions of this study, four main limitations need to be acknowledged. First, the
12 distribution of participants for genders was reflective of a higher frequency of women attending higher education
13 than men both in Portugal and Brazil (National Institute of Studies and Educational Research Anísio Teixeira
14 2018; Pordata 2018). Nonetheless, future studies should recruit broader samples and attempt to balance the
15 distribution of women and men to better sustain statistical data analyses for genders, particularly structural
16 equation modelling (Schumacker & Lomax 2010). Moreover, although this study did not separate Portuguese
17 from Brazilian women and men due to the required distribution of participants per groups to conduct structural
18 equation modelling (Schumacker & Lomax 2010), future studies could do so. Such research would be useful to
19 deepen the study of idiosyncrasies and contextual particularities in the career adaptation model.

20 Second, participants in this study presented a broad age range. Although this is commonplace in higher
21 education, it could have compromised the interpretation of the results. As the literature suggests that problem-
22 solving skills increase with age (Bento 2013; Savickas & Porfeli 2012), it might also be the case that age impacts
23 career adaptation, given individuals' life experiences and continuous reconstruction of meaning assigned to
24 career paths (Savickas 2005). Future research could address this issue by recruiting an age-homogeneous sample
25 or by considering age groups in analytic plans.

26 Third, the structural models tested in this study included the main dimensions of the career adaptation
27 model for parsimony. However, each of these dimensions are inclusive of other constructs, such as career
28 concern (Savickas & Porfeli 2012) and college students' self-perceived external employability (Rothwell et al.
29 2008). Although those constructs were acknowledged in CFA and tested to address its relevance as indicators of
30 adaptability resources, adapting responses and adaptation results, their inclusion in the structural models could

1 have offered a more detailed understanding of the career adaptation model. For example, taking the association
2 between adaptability resources and adaptation results into account, there is evidence suggesting a strong relation
3 between career concern and self-perceived internal employability (Palma 2013). Regarding the association
4 among adapting responses and adaptation results, there is also evidence indicating a non-significant relation
5 between locus of control and self-perceived internal employability (Pineiro 2017). Hence, future studies could
6 deepen the relations among the first-order constructs. This would help clarify structural relations and sustain a
7 more deepen understanding of the career adaptation model.

8 Fourth, this study did not cover adaptive readiness, due to the need to improve the assessment of such a
9 dimension in both Portugal and Brazil. Further studies could focus on offering valid and reliable measures of
10 adaptive readiness in these countries to support an examination of the complete career adaptation model. Having
11 assured the psychometrically-sound measurement of adaptive readiness, this study could be further replicated
12 with the addition of adaptive readiness and the complete examination of structural invariance for genders and
13 contexts.

14 **Conclusion**

15 This study supported the relations between the dimensions conceived in the career adaptation model
16 (Savickas 2005). Additional research is still needed to continue adding empirical evidence to the model and to
17 address its individual and contextual particularities. For example, future studies on the career adaptation model
18 with college students could investigate other factors (e.g., academic achievement, socioeconomic status) that
19 seem to impact each of the model's dimensions (Palma 2013; Rothwell et al. 2008) and can, therefore, impact
20 the structural model as well. A continuous investment in cross-cultural studies would also be recommended to
21 understand the career processes in various cultures and to better respond to the needs of an increasingly diverse
22 clientele.

23 As for implications to career interventions, this study highlights the centrality of the university-
24 employment transition and the need to support college students in this challenging transition. The career
25 adaptation model constitutes a promising framework to sustain more systematic career interventions in higher
26 education to foster both Portuguese and Brazilian individuals' adaptability resources, which in turn are linked to
27 adapting responses and adaptation results. Still, awareness to sociodemographic differences, particularly gender
28 differences, need to be considered by career practitioners in higher education.

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