

# The Brazilian Portuguese adaptation of Protean Career Orientation Scale: invariance, correlates, and life/career stages

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#### Abstract

The protean career orientation is descriptive of workers who show self-directedness and values-driven behaviors toward professional advancement. Such characteristics have been highly demanded from professionals in the past decades, evidencing their identification and development relevance. Considering that identifying construct structure and invariance is critical for effective measurement and both theory-building and practice, this study aimed to adapt and obtain internal and external validity evidence of the Protean Career Measure to the Brazilian context. Participants were 558 professionals (67% women). Exploratory and confirmatory factor analyses resulted in a unidimensional model. They provided evidence of configural, metric, and scalar invariance between men and women. Also, they showed convergence between the protean career orientation and career models based on other characteristics (kaleidoscope, adaptability, and work engagement). Finally, results showed that the protean orientation tends to be higher, according to the participants' life/career stages' advancement. We discuss the application for research and interventions.

Keywords Psychometrics · Professional development · Protean career

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### Introduction

In response to new technological, labor, social, and economic designs, researchers developed a broad set of theories to support the investigation of professional development and career interventions. Many are focused on describing tendencies, using metaphors, and revealing the concern, in the career and organizational fields, with success, work engagement, and employability. Additionally, there is a clear emphasis on individuals' agency in pursuing their paths and making choices (Baruch et al., 2015). As a consequence, researchers developed theoretical models and corresponding measurement tools, such as those addressing: career adaptability (Career Adapt-Ability Scale—CAAS, Audibert & Teixeira, 2015; Baruch et al., 2015; Savickas & Porfeli, 2012); the Kaleidoscope Career Model (Kaleidoscope Career Parameter Scale, Bandeira et al., 2019; Baruch et al., 2015; Mainiero & Sullivan, 2005); the Boundariless Career Model (Boundaryless Career Attitudes Scale, Baruch et al., 2015; Briscoe et al., 2006; Oliveria et al., 2010), in addition to the Protean Career Model (Hall, 1996; Oliveira et al., 2009) and its updated version (Baruch, 2014; Baruch et al., 2015; Steiner et al., 2019).

Douglas Tim Hall introduced the term protean career orientation (PCO) in the 1970s (Hall, 2004). He posited that it is not adequate to restrict career development to an organizational context and its rules; it is particular of each individual and should, therefore, reveal his or her agency, decision management, professional transitions, and values orientation (Hall, 2004). According to Baruch (2014), even though the protean conception has existed for more than four decades, it still is one of the most innovative conceptions in contemporary career literature. He argues it captures changes in the labor system and professional development, especially regarding the shift from the organizational career management paradigm to a non-organizational or post-corporate model (individual career management).

The PCO concept proposition represented an effort to explain professional growth and development in the business world (Hall, 2004). However, evidence is that it can contribute to understanding different domains. Examples are training skills to face unemployment (Waters et al., 2014), the transition from school to college (Steiner et al., 2019), career planning during college (De Andrade et al., 2016), and reconciling work and family domains (Direnzo et al., 2015), in addition to several situations related to organizational contexts (Gubler et al., 2014; Hall et al., 2018; Holtschlag et al., 2020).

PCO was one of the first contemporary career metaphors (and models) proposed and empirically tested (Baruch et al., 2015; Gubler et al., 2014). It finds support on a paradigm associated with career psychological success and, therefore, can be understood based on the results of self-directedness (involving mobility), continuous learning, and the ability to reconcile life and work domains, in addition to a logic of progressive development throughout life (Briscoe et al., 2006; Hall, 1996). According to Briscoe et al., (2006), two components are central to the development of a protean career: the first is self-directedness, meaning an individual realizes that his/her attitudes, behaviors, and problems reflect his/ her own choices and individual locus of control; the second element is associated with values-driven behavior—that is, the individual pursues fulfilling personal values and interests.

#### Protean career scales

International literature reviews by Gubler et al. (2014) and Wiernik and Kostal (2019) show that the instrument most frequently used for protean career assessment, since its proposition, has been the Protean Career Attitudes Scale (PCAS) (Briscoe et al., 2006). It is a 13-item instrument designed to assess self-directedness and values orientation separately. Studies from different countries adapted this instrument, which has versions for the Brazilian professional context (Oliveira et al., 2009) and the Brazilian college context (Borges et al., 2015).

Gubler et al.'s (2014) literature review brings attention to the limitations that a protean career attitudes measure developed in 2006 offers to the empirical evaluation of the conceptual model based on professionals' behaviors in the contemporary work context. Considering such criticism and seeking to overcome the limitations of the PCAS, Baruch (2014) proposed a new version of the instrument intended to assess Protean attitudes, which contains new items and a unidimensional perspective: the Protean Career Measure (PCM).

The PCM, which is translated and adapted for the Brazilian context in this study, was initially based on the theoretical model proposed by Douglas T. Hall (Baruch, 2014). Later, Baruch (2014) added new items and conducted a process that involved the verification of face validity evidence (performed by scholars from the field of career management) and five empirical studies with samples from the USA, Europe (United Kingdom), Asia (Vietnam) and Oceania (New Zealand). The author conducted exploratory and confirmatory factor analyses, which evidenced that both the complete version (14 items) and a reduced version (seven items) of the instrument have strong face-, content-, construct- and discriminant-validity. Besides, they showed differential functioning between countries.

From a theoretical point of view, the PCM presents a new set of more appropriate items to assess the nature of the working relationships currently observed in the labor market and has a unidimensional structure—which integrates values-driven and self-directedness characteristics in the same instrument. Such features help the new measure overcome a difficulty observed by other authors (Chan et al., 2012) concerning the original PCAS' two-factorial structure, whose values-driven scale emerged as problematic in non-US samples. However, it is essential to note that the study by Baruch (2014) did not include participants from developing countries in Africa, Central, and South America. Therefore, despite the promising results, considering that culture tends to moderate relationships across various constructs and that attitudes are related to behaviors and practices, one should evaluate the meaning of being protean in different cultures.

### **Research goal**

This study aimed to adapt and validate the Protean Career Measure (PCM) for use in the Brazilian context. It also presented validity evidence (internal structure, concurrent, and incremental) and reliability (Omega and Cronbach) indicators. We believe it may contribute to research methods of relevance to the study of contemporary careers in Brazil and theoretical Development on Protean Career Orientation internationally. Once its authors designed PCO to be general and expected to fit across global labor markets (Baruch, 2014), it is vital to provide evidence on how it manifests in diverse contexts, such as in developing countries like Brazil.

Brazil is a large country with approximately 220 million inhabitants. Besides having one of the world's largest populations, it is a nation of great economic importance in agribusiness and environmental biodiversity (Brazilian Institute of Geography and Statistics [IBGE], 2021). However, Brazil suffers from social inequalities, informality, unemployment, and scarce State support (ILO, 2017). Unemployment rates in Brazil were at 14.2% in January 2021, when 39.1% of the population were informal workers, with an average monthly income of R\$ 2.521,00 (NHSS, 2021). These data support the idea that Brazilians have essentially discontinuous trajectories carried out informally and without paid employment (Ribeiro, 2017). They also lead to the questions: are career and professional development the same in a context of high uncertainty, social inequities, and countless barriers, as in developed countries? In addition to providing evidence of the construct/measure and exploring characteristics of protean orientation in Brazil's population, the present work advances the nomological understanding of other constructs. It also analyzes the protean orientation at different stages of life and career.

### Hypothesis

This study developed and tested six hypotheses to contribute to building an axiological network of the Protean Career Measure's (PCM) internal and external validity evidences. We present each of them below.

**Hypothesis 1 (H1)** Considering that a previous study by Baruch (2014) found an invariant unidimensional structure of the Protean Career Measure in the United States, the United Kingdom, Vietnam, and New Zealand, we expect to see a similar one-factor internal structure when adapting the PCM for the Brazilian context.

**Hypothesis 2 (H2)** Considering that previous studies presented positive evidence for the protean career's self-directedness and values-driven attitudes (Briscoe et al., 2006; Oliveira et al., 2009), as well as the perspective of the PCM in the making a theoretical synthesis of protean behaviors and attitudes nowadays (Baruch, 2014), we expect to find positive correlations between the Protean Career Attitudes Scale (PCAS) and the Brazilian version of the Protean Career Measure (PCM).

**Hypothesis 3 (H3)** One of the most knowledgeable contemporary career models is the Kaleidoscope Career Model. It considers the influence of an individual's context, beliefs, and values, among other aspects, on his/her career decisions throughout life (Bandeira et al., 2019; Sullivan & Baruch, 2009) based on parameters of authenticity (principles and values), balance (impact and consequences), and challenge (learning and challenges) (Bandeira et al., 2019). Because the Protean Career Measure (PCM) assesses both self-directedness and values-driven behaviors (Baruch, 2014), we expect to find a positive relationship between the Brazilian version of PCM and the three dimensions of the Kaleidoscope Career Model.

**Hypothesis 4 (H4)** Career adaptability is considered a state of readiness and the presence of resources necessary to deal with professional tasks and transitions (Ambiel, 2014). It comprises the control, curiosity, concern, and confidence domains (Audibert & Teixeira, 2015). There is evidence that career adaptability predicts positive life and work outcomes (Silva & De Andrade, 2019). Hence, we expect to find that protean orientation, characterized by internal locus control and self-directedness (Borges et al., 2015), as well as positive performance characteristics in the professional and personal domains (Baruch, 2014; Herrmann et al., 2015), will correlate positively with career adaptability.

**Hypothesis 5 (H5)** Engaged individuals feel energized by their work, show concentration, and dedication, and have resources to perform their work tasks and face work challenges (Farina et al., 2019). Thus, considering that individuals with a protean career orientation are self-directed, have an internal locus of control, and take responsibility for their actions (Baruch, 2014; Borges et al., 2015), we expect that there will be a positive relationship between work engagement and the protean career orientation.

**Hypothesis 6 (H6)** Previous studies (Mainiero & Gibson, 2018; Sullivan et al., 2009) have used the Kaleidoscope Career Model to investigate whether individuals from different generations differ in their needs for authenticity, balance, and challenge. Results showed that those born between 1965 and 1983 had higher needs for authenticity and balance than those born between 1946 and 1964. The researchers found no difference in needs for challenge between both groups. They also found that participants with a higher educational level had higher needs for challenge (Sullivan et al., 2009). Considering these results and the definitions of authenticity (an alignment between an individual's internal values, his/her external behaviors, and the values of the employing organization), balance (the strive to reach an equilibrium between work and nonwork), and challenge (search for stimulating tasks and career advancement), we hypothesize that the PCM scores will differ according to participants' age groups, and the older the individuals, the greater the characteristics of protean orientation.

### Methods

We conducted this study in two stages: the first comprised the translation and adaptation process and the initial verification of the instrument's validity. The second consisted of identifying additional internal from two steps: (a) validity evidence using confirmatory factor analysis, analysis of invariance according to sex, and (b) external validity using concurrent psychological measures.

#### Participants

This study addressed a sample of 558 adult Brazilian professionals. Most participants were from the southeastern (N=398; 71%), followed by the southern (N=60; 15%) and the northern (N=35; 6.3%) regions. A total of 377 (67%) were women; most were between 21 and 29 years old (N=233; 42%), followed by 30–39-year-old individuals (N=223; 40%), and 40–49 year-olds (N=59; 10%). All the participants had completed higher education (N=457; 81%) or high school (N=111; 19%). Regarding marital status, most were single at the time of the study's period (N=311; 56%), though a portion of the sample was married (N=186; 33%).

The sample was divided into two groups to perform the analysis. The group participating in stage 1 was composed of 230 respondents. At this stage, we aimed to verify the instrument's internal validity of evidence. Stage 2 was intended to verify internal and external validity and, therefore, required a larger sample. Thus, the group participating in this stage was composed of 328 individuals.

#### **Adaptation process**

We adapted the Protean Career Measure (Baruch, 2014) to Brazil following technical guidelines for instrument adaptation across cultures (Borsa et al., 2012; ITC, 2017). Firstly we contacted the author of the original to request authorization to adapt the measure to Brazilian Portuguese. Unrelated to this study's authors, two experts independently translated the instrument's items after gaining his consent. One was an English teacher, and one was a college student from the career field with an English-language background). The purpose was to obtain a version that would be equivalent to the original measure. We asked a third expert to reconcile both versions, checking for the equivalence of expressions and the items' structures. After concluding this stage, we consulted the original instrument's author to clarify doubts, and we completed the pilot version (Table 1).

Our PCM version retained 14 items, which we included in a pilot study conducted with ten adult participants who were not part of the study's primary sample. They did not offer suggestions of further changes to the items' revision, so we used the pilot version to collect the other instruments.

Original item	Translated item						
1. For me, career success is how I am doing com- pared to my goals and values*	Para mim, sucesso na carreira é o quão bem estou me saindo, independente de isso significar ir contra meus objetivos e valores						
2. I navigate my own career, mostly according to my plans*	Eu conduzo minha própria carreira, geralmente de acordo com meus planos						
3. If I have to find a new job, it would be easy*	Se eu tiver que procurar por um novo emprego, isso seria fácil						
4. I am in charge of my own career*	Eu gerencio minha própria carreira						
5. I take responsibility for my own development*	Eu me responsabilizo por meu próprio desenvolvi- mento profissional						
6. Freedom and autonomy are driving forces in my career*	Liberdade e autonomia são forças que impulsionam minha carreira						
7. For me, career success means having flexibility in my job*	Para mim, ter sucesso na carreira significa ter flexi- bilidade em meu trabalho						
8. I consider a wide variety of possible career moves	Eu acredito que há uma grande variedade de pos- síveis mudanças na carreira						
9. Choosing between two career options, I'll prefer the one I haven't tried yet	Se tivesse que escolher entre duas opções de car- reira, optaria por aquela que não tivesse tentado ainda						
10. My focus is on enhancing my employability rather than just the tasks in a job	Meu foco é melhorar minha empregabilidade em vez de apenas realizar as tarefas em meu trabalho						
11. For me, career success means Having oppor- tunity to learn new skills	Para mim, sucesso de carreira significa: ter a oportu- nidade de aprender novas habilidades						
12. I often explore other work options, even when my current job goes well	Eu frequentemente pesquiso outras opções de trabalho, mesmo quando está tudo bem em meu trabalho atual						
13. If my current work does not support my val- ues, I'll try to change it	Se meu trabalho atual não favorece os meus valores, eu tentarei mudar de trabalho						
14. I make my career choices based primarily upon financial considerations. (R)	Baseio minhas escolhas de carreira principalmente em razões financeiras						

Table 1	Original items of	the PCM in English and its fi	nal version in Portuguese

\*Items from the cross-cultural version

#### **Research instruments**

Using a data collection platform on the World Wide Web, we developed an online survey addressing sociodemographic information (sex, age, education, and marital status) and containing five psychological instruments. We describe each of them below:

- a. The translated version of the Protean Career Measure, which we adapted for use in the Brazilian context and whose final version is in Table 1.
- b. The version of the Protean Career Attitudes Scale (Briscoe et al., 2006) was adapted for the Brazilian context by Oliveira et al. (2009). It is a 13-item instrument that assesses self-directedness (e.g., "I am responsible for my own career";  $\alpha = .85$ ) and values-driven (e.g., "I direct my own career based on my priorities,

instead of those of my employee's";  $\alpha = .73$ ), rated on a five-point Likert scale (1 = "to a little or no extent" to 5 = "to a great extent").

- c. The version of the Kaleidoscope Career Parameter Scale (Sullivan & Baruch, 2009) was adapted for Brazil by Bandeira et al. (2019). The Brazilian version of this instrument has 19 items that assess authenticity (e.g., "If I could follow my dream in this exact moment, I would";  $\omega = .66$ ), balance (e.g., "My world does not make sense if I cannot spend time with my family";  $\omega = .78$ ); Challenge (e.g., "I am not concerned with having more responsibilities at work";  $\omega = .79$ ). Participants rated the items on a five-point Likert scale ranging from 1 = "It does not describe me" to 5 = "It describes me really well").
- d. The Career Adapt-Abilities Scale version adapted for Brazil (Audibert & Teixeira, 2015; Savickas & Porfeli, 2012). This 24-item scale assesses concern (e.g., "Prepare me for the future";  $\alpha = .78$ ), control (e.g., "Make my own decisions";  $\alpha = .89$ ), curiosity (e.g., "Explore the environment around me";  $\alpha = .87$ ); and confidence (e.g., "Overcome obstacles";  $\alpha = .83$ ). Participants rated the items using a five-point Likert scale ranging from 1 = "Not Strong" to 5 = "Strongest").
- e. Work Engagement Scale. An original unidimensional instrument with ten items assessing beliefs concerning having energy and being absorbed by work (Siqueira et al., 2014), (e.g., I feel energized while I work;  $\alpha = 0.78$ ). Participants rated the items on a five-point Likert scale (1 = "never" to 5 = "always").

#### **Data collection**

This study followed all ethical recommendations for researching with human beings proposed by Brazil's National Health Council. We recruited participants through a mixed system of presential invitations in companies (Wachelke et al., 2014). We presented the participants with the research objectives and an invitation to participate in the study (offline recruitment in companies). Having the e-mail contact of individuals interested in taking part in the survey, we sent them the link to access an electronic survey (online data collection in surveymonkey platform). The time to responded complete the study was approximately 20 min.

#### **Data analysis**

The first stage of the data analysis was performed using Factor 10.1 (Ferrando & Lorenzo-Seva, 2017) to inspect and treat missing and inconsistent data. The internal factor structure was verified using the Hull method (Comparative Fit Index) (Lorenzo-Seva et al., 2011), based on the Unweighted Least Squares (ULS) estimator and Promin rotation. The reliability of the resulting factors was verified using Cronbach's alpha and the Omega method (Trizano-Hermosilla & Alvarado, 2016).

Mplus was used in the second stage (Muthén & Muthén, 2011). Considering data to be categorical, we performed confirmatory factor analysis using weighted least squares means and variance adjusted (WLSMV) (hypothesy 1). Multigroup factor analysis was performed with the sex variable (man/woman), using the ML estimator (Damásio, 2013). The goodness-of-fit analysis included:  $\chi^2/gl$ , values less than 8.0

represent better goodness of fit (Byrne, 2016); Comparative Fit Index (CFI), and Tucker–Lewis Index (TLI) with values higher than .90; and Root-mean-square error of approximation (RMSEA) below .80 (Brown, 2015) (hypothesy 1). We tested the validity evidence of concurrent and incremental aspects of protean career (hypotheses 2, 3, 4, and 5) using Pearson's r correlation coefficient e Multiple Regression. To test the effect of age among the participants life-career stage (hypothesy 6), we performed a One Way Anova.

#### Results

#### Stage 1: exploratory of internal structure

Two exploratory factor analyses (EFA) were initially performed. The first had the 14-item matrix translated and adapted for Brazil, and the second with the 7-item short version replicated across different countries (Table 1). Data from both matrices were factored in and presented a significant Bartlett's test (1,025.3 for p < 0.000 and 383.00 for p < .000). The instrument's internal structure recommended by the Hull method indicated a one-factor solution, convergent with the PCM's one-dimension model (Baruch, 2014). Items with factor loadings equal to or greater than .40 remained. The items resulting from the PCM's Brazilian version from the EFA are presented in Table 2.

The second column of Table 2 indicates if the items were present on Baruchs' (2014) short version of PCM. The third column presents the factor loadings of only eight of the 14 original items that remained in the final Brazilian version of the PCM. The fourth column contains the factor loadings of items that loaded above .40. This information is absent for six items: Para mim, sucesso na carreira é o quão bem estou me saindo, independente de isso significar ir contra meus objetivos e valores [For me, career success is how I am doing compared to my goals and values], Se eu tiver que procurar por um novo emprego, isso seria fácil [If I have to find a new job, it would be easy.], Eu acredito que há uma grande variedade de possíveis mudanças na carreira [I consider a wide variety of possible career moves.], Se tivesse que escolher entre duas opções de carreira, optaria por aquela que não tivesse tentado ainda [Choosing between two career options, I'll prefer the one I haven't tried yet.], Se meu trabalho atual não favorece os meus valores, eu tentarei mudar de trabalho [If my current work does not support my values, I'll try to change it.] and Baseio minhas escolhas de carreira principalmente em razões financeiras [I make my career choices based primarily upon financial considerations.]. As a result o the processes described above, we obtained a final short version of the Brazilian PCM that was similar to the one found by Baruch, except for excluding items 1 and 3, which had factor loadings below 0.40.

We present the factorial loadings of the cross-cultural and the short versions of the measure, respectively, in the third and fourth columns of Table 2. The values are consistent with those observed in Baruch's original study (2014). The variance explained by the remaining items was 28% in the complete version and 57% in the brief version. The instrument's reliability ranged from regular to good, while the

Table 2         Factor structure of the Brazilian version of the Protean Career Measure			
Items	Version		
	Baruch's (2014) short version?	Complete	Short version
<ol> <li>I navigate my own career, mostly according 14gain plans [Eu conduzo minha própria carreira, geralmente de acordo com meus planos]</li> </ol>	Yes	.54	89.
4. I am in charge of my own career [Eu gerencio minha própria carreira]	Yes	.54	.80
<ol><li>I take responsibility for my own development [Eu me responsabilizo por meu próprio desenvolvimento profissional]</li></ol>	Yes	.62	.71
<ol> <li>Freedom and autonomy are driving forces in my career [Liberdade e autonomia são forças que impulsionam minha carreira]</li> </ol>	Yes	.66	LL.
7. For me, career success means having flexibility in my job [Para mim, ter sucesso na carreira significa ter flexibilidade em meu trabalho]	Yes	.53	.40
10. My focus is on enhancing my employability rather than just the tasks in a job [Meu foco é melhorar minha empregabilidade em vez de apenas realizar as tarefas em meu trabalho]	No	.45	
11. For me, career success means Having opportunity to learn new skills [Para mim, sucesso de carreira significa: ter a oportunidade de aprender novas habilidades]	No	.60	
12. I often explore other work options, even when my current job goes well [Eu frequentemente pesquiso outras opções de trabalho, mesmo quando está tudo bem em meu trabalho atual]	No	.44	
KMO test		.73	.80
Total variance		28%	57%
Total items		8	5
Omega reliability		.72	.77
Alpha reliability		.70	.76
Items with factor loadings below 0.40 are presented			

short version with five items presented higher indicators, that is, Alpha=.76 and Omega=.77.

#### Stage 2: confirmatory and invariance tests

In the second stage of this study, we intended to verify the goodness of fit of the instrument's Brazilian version's two structures using confirmatory factor analysis. Thus, we tested four models: Model 1 (instrument with 14 items), Model 2 (the 8-item version that resulted from the EFA), and Model 3 (short version with five items). Additionally, we tested two re-specified models (M2 and M3). Table 3 presents the goodness of fit and configural, metric, and scalar invariance of Model 3'.

The results show that the 14-item model obtained the worst goodness-of-fit indicators (TLI and CFI). Models 2 and 3, in turn, obtained near acceptable items, which required a modification analysis and re-specification of items (M2' e10–e11, e10–e12; M3' e7–e6). As a result, the re-specified models met the goodness-of-fit criteria. In addition to acceptable goodness-of-fit indicators, Model 3' presented configural, metric, and scalar invariance between men and women, corroborating Hypothesis 1.

#### Stage 3: concurrent and incremental evidence of validity

Table 4 presented descriptive and correlation analyses conducted with the Brazilian short version of the PCM. We found significant correlations between the PMC and the self-directedness (r=.60; p<.001) and the values-driven (r=.24; p<.001) dimensions of the Protean Career Attitudes Scale, which corroborates Hypothesis 2. The Brazilian version of the PCM was also related to the authenticity dimension (r=.46; p<.001) of the Kaleidoscope Career Model, corroborating only partially Hypothesis 3. PCM was also related to the concern (r=.28; p<.001), control

Models	$X^2/gl$	RMSEA (90% IC)		CFI		
M1	6.60	.13[.12–.14]		.73	.77	
M2	9.20	.15 [.13–.18]		.82	.87	
M2′	4.90	.11 [.08–.13]		.92	.94	
M3	8.60	.15 [.11–.19]		.96		
M3′	4.75	.10 [.06–.15]		.96	.98	
Multigroups models ac	cording to sex					
Type of invariance	$X^2/gl$	RMSEA (90% IC)	TLI	CFI	<i>p</i> -value*	
Configural invariance	3.37	.12 [.07–.17]	.88	.95	.00	
Metric invariance	2.33	.09 [.04–.13]	.93	.96	.00	
Scalar invariance 1.81		.07 [.02–.11]	.95	.95 .96		

 Table 3 Goodness of fit of the Brazilian version of the Protean Career Measure

\*p < .001

Measure	М	SD	1	2	3	4	5	6	7	8	9	10	11
1. PCO	5.36	1.08	_										
2; SD	3.52	.82	.60**	-									
3. VD	3.52	.69	.23**	.25**	_								
4. Ad. Conc.	3.27	.88	.28**	.40**	.12	-							
5. Ad. Cont.	3.94	.80	.25**	.25	.14	.50**	_						
6. Ad. Curi.	3.64	.89	.29**	.27*	.13	.55**	.67**	-					
7. Ad. Conf.	4.16	.68	.04	.21	.14	.41**	.45**	.55**	-				
8. Kl. Alt.	4.06	.77	.45**	.21	.34**	-	_	_	_	_			
9. Kl. Bal.	3.74	.75	.00	.13	03	-	_	_	_	.19	-		
10 kl. Cha.	3.44	.82	.23	.28*	.28*	-	-	-	-	.12	.17	_	
11. W. Eng.	3.97	.91	.42**	.17	.17	.12	.34	.16	.43*	.09	05	.29	_

Table 4 Summary of means, standard deviations and bivariate correlations

1. PCO (Protean Career Orientation), 2. SD (Self-Directedness), 3. VD (Values-Driven), 4. Ad. Conc. (Adaptability Concern), 5. Ad. Cont. (Adaptability Control), 6. Ad. Curi. (Adaptability Curiosity), 7. Ad. Conf. (Adaptability Confidence), 8. Kl. Alt. (Kaleidoscope Authenticity), 9. Kl. Bal. (Kaleidoscope Balance), 10 Kl. Cha. (Kaleidoscope Challenge), and 11. W. Eng. (Worg Engagement)

(r=.26; p<.001), and curiosity (r=.29; p<.001) dimensions of the career adaptability scale, confirming partially Hypothesis 4. Finally, we found positive correlations between work engagement and the protean orientation (r=.43; p<.001), corroborating Hypothesis 5. No significant correlations were found between the balance (r=.00; p=.99) and challenge parameters (r=.22; p=.08) of the kaleidoscope career or with the confidence dimension of the career adaptability scale (r=.04; p=.65).

To test of incremental validity, we conducted regression analyses. Results showed that the PCM explained significant variance in the general scores of: (a) Work Engagement ( $R^2$ =.18; B=.42,  $\Delta F$ [1.123]=27.20, p<.01), (b) Career Adaptability ( $R^2$ =.08; B=.28,  $\Delta F$ [1.117]=10,32, p<.02), and (c) Kaleidoscope Career ( $R^2$ =.12; B=.34,  $\Delta F$ [1.59]=7.97, p<.01).

In sum, these results confirm the concurrent and incremental validity of the Brazilian Portuguese version of the protean orientation scale (Baruch, 2014). The protean career orientation was correlated with career adaptability and kaleidoscope career and work engagement, evidencing the incremental validity between the variables of the study.

### Stage 4: life-career stage and protean orientation

To understand how the protean orientation expresses throughout the different lifecareer stages, we analyzed variance (Anova) among three age grooups. Figure 1 shows the protean orientation scores according to three groups: individuals with up to 29 years (group A), aging between 30 and 39 years (group B), and aging between 40 and 60 years (group C).



Figure 1 Protean orientation in life-career stages

The results show that the protean orientation is different according to the participants' age group, being the older, more protean. The differences observed were significant between participants in groups A (up to 29 years old) and participants in groups B and C (30–39 and 40–60 years old) (F(2)=4.06; p<.05;  $N^2=.02$ ).

#### Discussion

This study aimed to adapt and validate the Protean Career Measure (PCM) for use in the Brazilian context. It also presented validity evidence (internal structure, concurrent and incremental) and reliability (Omega and Cronbach) indicators. To achieve this objective, we followed consensual international methodological and technical guidelines (Borsa et al., 2012; ITC, 2017). As a result, we obtained a unifactorial version of the PCM composed of eight Brazilian Portuguese items and showing the same onde factor theoretical structure of the instrument adaptations for other countries (the United States, the United Kingdom, New Zealand, and Vietnam). Also, we provided a short version of the cross-cultural instrument (5 items), which presented configural, metric, and scalar invariance indicators between men and women. Both versions had reliability indicators above 0.70 (Alpha and Omega).

As for external evidence (evidence of concurrent validity), this study contributed to expanding the nomological network of the Protean Career Orientation by presenting its correlations with other constructs in the fields of career development and organizational psychology as well as correlations with the self-directedness and values-driven dimensions of the Protean Career Attitudes Scale (Oliveira et al., 2009), corroborating Hypothesis 2. Specifically, a strong correlation was found between the Brazilian version of the PCM and the selfdirectedness dimension of the PCAS (r > 0.60), revealing its ability to assess how much individuals take responsibility for events related to their careers. Baruch et al. (2015) observed a long-lasting trend in human resources management and designing theoretical models to understand contemporary careers refers to the individuals (and not the organizations) becoming more concerned with developing agency and autonomy to build their careers.

Results also showed that the PCM had a moderate correlation with the authenticity dimension but did not correlate to the balance and challenge dimensions of the Kaleidoscope Career Model (Sullivan & Baruch, 2009), supporting partially Hypothesis 3. Authenticity refers to a purpose-oriented search for personal, spiritual, and professional growth, attaining dreams, and differential action (Bandeira et al., 2019), combining elements similar to self-directedness values-driven dimensions proposed by Hall (2004). A lack of correlation with the remaining dimensions indicates that the constructs and their respective measures are independent, suggesting that both need to be further investigated. Note that the challenge dimension refers to how individuals deal with challenges encountered in their careers, without mentioning organizations or the individual's autonomy concerning organizations. The balance dimension refers to the relevance of work and family roles when making decisions. It is essential to this model once it proposes that assessing the family role must be a criterion to determine attitudes and career-related behaviors (Bandeira et al., 2019).

Our career adaptability results show a weak correlation between the dimensions of concern, control, and curiosity and the PCM, also, the lack of relationship between PCM and confidence, partially corroborating Hypothesis 4. The literature describes career adaptability as a meta-competence that facilitates career development in information societies (Farsen et al., 2017). It is a characteristic of individuals who are ready and have a repertoire of resources to deal with job tasks and career transitions (Ambiel, 2014). The relationship between career adaptability and protean orientation suggests that self-directedness, control, and values-driven behavior, among others, are essential resources to deal with professional demands. More specifically, it indicates that self-directed and values-driven individuals should be concerned with their prospects (concern), understand they are responsible for their (control), and realize that there are different alternatives to choose from (curiosity). This set of characteristics, however, is not sufficient to fully explain or produce career adaptability.

Regarding the moderating relationship found between work engagement and protean orientation corroborates Hypothesis 5. Engagement, characterized as a psychological orientation to invest and direct energy towards working activities (Farina et al., 2019), appeared to be associated with the protean characteristic of taking responsibility for one's professional development (Baruch, 2014; Borges et al., 2015). Note that existing literature shows a positive relationship between work engagement and autonomy in performing work tasks (Schaufeli, 2012). Even though engagement is not synonymous with self-directedness, one can say that contemporary work relations and post-corporate career models, as in the case of protean career, are characterized by higher levels of autonomy and self-directedness (dos Santos Magnan et al., 2020; Oliveira & Gomes, 2014). Hence, it makes sense to find a poor relationship with engagement, increasing with greater autonomy levels.

Finally, the results indicated that older professionals had higher protean career orientation scores, which corroborates hypothesis 6. The findings are consistent with those of Sullivan et al. (2009) and Mainiero and Gibson (2018). They found that as professionals advance in their career stages, they develop higher levels of autonomy. We observed a similar situation in the Brazilian sample regarding protean career orientation, which indicates greater career self-management and a focus on values, characteristics that are related to autonomy. The increase in scores on these variables may occur because, over time, professionals tend to acquire and diversify the set of skills and experiences of professional development and, in some cases, make more significant investments in education to create the conditions to work with aspects that meet personal and professional values.

As the results show, the Protean Career Measure's Brazilian version is a short instrument with good validity indicators. The study found an empirical association of the PCM with self-directedness, values-drivenness, autonomy, concern, control and curiosity, and work engagement. Thus, we can argue that the PCM is a relevant tool for professional practice and research addressing individual professional development and career variables.

#### **Research implications**

The results presented in this study have important implications for the protean career theory. Our first contribution introduces two versions of PCM (a 8-item scale and a short, five-item scale) with strong evidence of reliability and validity that will contribute to test the presence and expression of the protean career orientation in quantitative studies in countries that use the Portuguese language. Researchers and practitioners can use these instruments to assess and monitor individuals' protean career orientation. Considering that space in questionnaires is becoming an important issue, we believe a short measure to be an attractive option to design shorter surveys (Kemper et al., 2019), thus influencing response rate in academic studies and building a more comprehensive nomological network of the protean career orientation.

A second implication for research is that our results indicate that, although some protean career orientation characteristics seem to be universal, cultural differences must be considered when investigating the phenomenon in a context different from the Anglo-Saxon labor market environment. This finding is in line with a current and relevant debate proposed by researchers in vocational psychology on the configuration of work in the global south countries. According to Ribeiro (2020), the international literature in the field has focused, in a more intense way, on investigating work through employment, thus not including coexisting forms of work, such as informal or unregulated work, the predominant reality in developing countries. In this sense, it becomes especially relevant to consider the psychosocial dimension when investigating individuals' career attitudes and orientation and rethink their conceptualization from an alternative perspective: that of the most vulnerable work contexts in the global South.

### Practical implications

A protean career orientation measure could provide relevant insights on career planning, counseling, and management of individuals inside and outside the organizations. Its results help identify if individuals should be consulted rather than being told about possible career moves. It is reasonable to think that protean professionals would prefer to take initiatives and decide on their particular training needs and would need creative challenges to stay within an organization (Baruch, 2014).

Therefore, career consultants, managers, and organizations that can identify such characteristics in their clients or collaborators are better able to develop policies and practices capable of generating better experiences for workers and greater chances of retaining their best talents. Some possible actions based on the identification of protean individuals are (1) to encourage workers to create individual development plans that make it possible to achieve personal goals and those related to their career development; (2) to invite workers to be involved in organizational decisions that are compatible with their work positions and seniority level; (3) to maintain an open dialogue about expectations and possibilities for career development within the organization; and (4) to stimulate and value innovative proposals made by workers in carrying out their work activities.

In contrast, when individuals with few protean characteristics are identified, career consultants and organizations can assist them in developing this characteristic through actions such as (1) setting specific career goals that align with their and the organization's values; (2) identifying concrete actions they can take to achieve these goals; and (3) encouraging individuals to propose organizational initiatives that bring them closer to their values (e.g., participate in diversity committees, or become involved in sustainability actions). According to Wiernik and Kostal (2019), guided support for adopting self-directed career behavior might boost individuals' proactivity and self-efficacy.

### Limitations of the study and directions for future studies

Despite the promising results, this study has limitations. The first refers to the sample's characteristics; that is, the participants did not reveal demographic differences at a national level or sociodemographic differences in education and occupational orientation. Therefore, further studies are needed to make advancements in seeking validity evidence for specific populations, such as retired individuals and college students, and occupations that demand higher levels of protean orientation, such as those in business and technology.

Secondly, like numerous studies on the organizational sciences, ours used a single survey measurement and a cross-sectional design. Future research might overcome such limitations by adopting multi-method, longitudinal research designs to study career outcomes, especially those related to age differences, because they may be a significant factor influencing results.

## **Final considerations**

In addition to presenting an instrument with good psychometric characteristics, our study results show that the protean orientation is related to other work and career variables. Thus, it indicates the importance of vocational and career counselors helping their clients reflect upon their role in directing their careers. The application of the Protean Career Measure (*PCM*), both in individual processes within a clinical setting and those conducted within organizations, is expected to support the search for information regarding the clients' current or desired work contexts. The reason for this is that different contexts allow the existence of varying levels of autonomy and flexibility. In this sense, more important than encouraging self-directedness and values-driven behaviors is to understand the extent to which these are relevant for individuals and accepted by organizations. In other words, a vocational and career counselor's role is to help clients find a balance between one's freedom and limitations within an organization and one's ability to be independent to make his/her own choices.

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