



The protean career orientation as predictor of career outcomes: Evaluation of incremental validity and mediation effects

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ABSTRACT

A protean career orientation is assumed to be beneficial for career development but researchers have only recently started to empirically evaluate the concept. Conducting two studies based on three independent samples of university students and working professionals in Germany, we address issues of concurrent validity, predictive incremental validity and mechanisms linking the protean orientation to career outcomes. The first study showed that in a sample of 104 German employees different measures of the protean career orientation all correlated highly, but not identically, to a range of work and career attitudes. Using bootstrapping analysis, a second study with a six-month prospective examination among 419 German university students and a cross-sectional analysis among 526 German employees showed that a protean career orientation predicts proactive career behaviors and career satisfaction beyond a proactive disposition and core self-evaluations, respectively. Moreover, the protean career orientation was a significant mediator of these two personality constructs on both career outcomes. Cumulatively, the studies enrich our understanding of how and when a protean career orientation is related to important career outcomes.

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Changes in the workplace over the past decades have spawned an increase in research investigating contemporary career types, which are characterized by increased self-directedness, flexibility, and the aim of subjective career success. However, the field of career studies suffers from fragmentation in terms of its theoretical underpinnings and conceptual frameworks, which poses a challenge to scholars in the field (Arnold & Cohen, 2008). One of the few widely accepted theoretical career concepts is the protean career, described as a flexible, self-directed, and values-driven form of career (Hall, 1996, 2004). This concept has been applied to improve our theoretical understanding of several key issues in management and organizational behavior, such as job design (Hall & Heras, 2010) and the transition to retirement (Hall & Kim, 2013).

However, our understanding of contemporary career concepts is hampered by the lack of rigorous studies evaluating emerging constructs (Gubler, Arnold, & Coombs, 2014). While the notion of the protean career is now almost 40 years old (Hall, 1976), the first empirical approaches to measuring the protean career orientation, a relatively stable career preference that values self-directedness and defines career success according to the person's personal values, are much more recent (Baruch, Bell, & Gray, 2005; Briscoe, Hall, & Frautsch DeMuth, 2006). While the concept gained substantial recognition and attracted significant research attention (Baruch, Szűcs, & Gunz, 2015; Lee, Felps, & Baruch, 2014), empirical investigations regarding this career orientation are still in the early stages. The need for further investigation is becoming particularly important in light of recent criticism of the

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developing notion of 'new careers', particularly due to the lack of rigorous empirical evaluation of theoretical concepts (Inkson, Gunz, Ganesh, & Roper, 2012). In fact, there are a number of substantive issues that have not been addressed in the current literature. First, in order to avoid redundancy and fragmentation within the scientific literature, it is pivotal to establish the incremental validity of new constructs beyond already established ones regarding their predictive utility for important outcomes. For example, it remains to be established whether a protean career orientation has an incremental effect on career outcomes beyond personality dispositions with established effects on career outcomes (e.g., proactivity, core self-evaluations; Ng, Eby, Sorensen, & Feldman, 2005). Second, even though the protean career orientation has been linked with a range of career outcomes (see Gubler et al., 2014 for a review), the function of a protean career orientation in conjunction with personality characteristics has not been adequately addressed.

To tackle these challenges and to enable an evaluation of the protean career concept, we conducted longitudinal and cross-sectional research based on samples of students and employees to (a) examine the incremental predictive utility of a protean career orientation, beyond that of specific personality dispositions (i.e., proactivity, core self-evaluations), to estimate career outcomes; and (b) assess if a protean career orientation mediates the effects of more distal personality traits on career outcomes. As such, this paper helps to establish the unique contributions of the relatively new protean career orientation construct beyond other established and theoretically related constructs and provides insight into how and why a protean career orientation affects career outcomes.

1. Incremental predictive validity of a protean career orientation beyond general dispositions

The first aim of this paper is to provide new insight into whether a protean career orientation possesses incremental validity regarding different career outcomes beyond established, more general dispositions. Specifically, we investigated proactivity and core self-evaluations (CSE). By extension, we also wanted to explore if a protean career orientation mediates the effects of more general dispositions on career outcomes. As career outcomes, we focused on engagement in proactive career behaviors and on career satisfaction.

1.1. Protean career orientation, proactivity, and proactive career behaviors

Proactive career behaviors (e.g., networking, planning, exploration) have gained increased attention in the career success literature (Fuller & Marler, 2009). We expect that a protean career orientation is positively related to active engagement in proactive career behaviors because people with a protean orientation are more motivated to self-direct their careers according to their values (Hall, 1996). For example, positive relationships have been found between a protean career orientation and a general disposition to be proactive (i.e., proactivity; Creed, Macpherson, & Hood, 2011) among a sample of university students as well as between a protean career orientation and career planning and career exploration among students and employees (Creed et al., 2011; De Vos & Soens, 2008). Similarly, research has established that a proactive disposition is meaningfully related to a variety of proactive behaviors, including career behaviors (Fuller & Marler, 2009). However, extant research has not established whether a protean career orientation is incrementally predictive of proactive career behaviors beyond a proactive personality disposition, the general tendency to enact environmental change.

Establishing incremental validity is important to avoid dispersion in the literature by adding a new construct without added value. Specifically, because the importance of different personality dispositions, such as proactivity, for work and career outcomes is well-established and because they are usually also meaningfully related to career attitudes (Fuller & Marler, 2009; Ng et al., 2005; Thomas, Whitman, & Viswesvaran, 2010), this issue must be addressed by examining the incremental predictive validity of a protean career orientation for proactive career behaviors beyond the established importance of a proactive disposition.

Moreover, based on the assumption that career-specific attitudes mediate the effects of general dispositions on career outcomes, it is possible that a protean career orientation mediates the effects of a proactive disposition on one's tendency to exhibit proactive career behaviors. By investigating mediation effects, we address the need to provide a clearer picture of the motivational processes by which personality dispositions affect work and career outcomes (Barrick & Mount, 2005). We can assume that a protean career orientation is one such motivational factor that can explain why more context-independent and stable personality dispositions, such as proactivity, are related to career outcomes. However, previous research has not investigated this possibility. In light of the previous discussion, we propose the following hypotheses:

Hypothesis 1. There is a positive relationship between a protean career orientation and (a) a proactive disposition, and (b) the engagement in proactive career behaviors.

Hypothesis 2. A protean career orientation is predictive of proactive career behaviors beyond a proactive disposition.

Hypothesis 3. A protean career orientation partially mediates the effects of a proactive disposition on proactive career behaviors.

1.2. Protean career orientation, CSE, and career satisfaction

Because a protean career orientation implies guiding one's career according to one's own values to achieve subjective career success, it is generally assumed that a protean career orientation is positively related to career satisfaction (Hall, 2004; Hall & Mirvis, 1996). Supporting this assumption, empirical studies have repeatedly found a positive relationship between a protean orientation and subjective evaluations of career success, such as career satisfaction (e.g., Baruch & Quick, 2007; De Vos & Soens, 2008).

However, extant research does not contain investigations into whether a protean career orientation is related to career satisfaction beyond the effects of important personality dispositions such as CSE, defined as the “basic, fundamental appraisal of one’s worthiness, effectiveness, and capability as a person” (Judge, Erez, Bono, & Thoresen, 2003, p. 304). CSE might be highly relevant for career management because people with high CSE are assumed to be more ambitious and confident in their career and more actively engaged in self-initiated career planning as well as exploration and job searching (Judge & Kammeyer-Mueller, 2011), contributing to a self-directed career orientation. Moreover, high CSE are related to choosing and pursuing self-concordant work goals (Judge, Bono, Erez, & Locke, 2005), which might contribute to a values-driven approach to career management. Previous research has established a positive relationship between a protean career orientation and self-efficacy beliefs, a subcomponent of CSE (Baruch et al., 2005). Thus, we first wanted to determine if there is support for a positive relationship between CSE and a protean career orientation.

Based on the notion that CSE represent the dispositional core of job satisfaction, research has repeatedly confirmed a significant relationship between CSE and a range of job attitudes and objective and subjective career success (Judge & Kammeyer-Mueller, 2011). Because of the theoretical connections between a protean career orientation, career satisfaction, and CSE, we secondly aimed to extend previous research and investigated the incremental predictive validity of a protean career orientation beyond CSE when explaining career satisfaction. Finally, we investigated to what extent a protean career orientation mediates the relationship between CSE and career satisfaction to increase our knowledge of whether and how career orientations mediate the effects of more general personality dispositions on career outcomes, as previous studies have not examined such mediating effects. To summarize, we assumed that:

Hypothesis 4. There is a positive relationship between a protean career orientation and (a) CSE and (b) career satisfaction.

Hypothesis 5. A protean career orientation predicts career satisfaction beyond the effects of CSE.

Hypothesis 6. A protean career orientation partially mediates the relationship between CSE and career satisfaction.

2. Overview of the studies

The notion of a protean career is not restricted to any particular career stage or age (Hall & Mirvis, 1996). However, most existing research on the protean career orientation has not simultaneously investigated samples from different career phases. To address this issue, we conducted research based on samples of employees and students. Investigating the same research questions and measures across different samples is highly relevant for making inferences about the generalizability of the research findings. Where appropriate, we compared the results between the groups to establish potential boundary conditions of our results.

In our research, we measured the protean career orientation with the newly introduced scale by Baruch (2014). This is the first attempt to our knowledge to apply the protean career orientation scale by Baruch in a German context. Thus, before evaluating the research aims and hypotheses outlined above, we conducted a study among a unique sample of employees to establish the concurrent and discriminant validity of the herein applied measure of a protean career orientation. Specifically, we wanted to empirically evaluate the relationship of the herein used measure to different work and career attitude outcomes and to the most frequently used scale for assessing the protean career attitude (Gubler et al., 2014): the 14-item measure from Briscoe et al. (2006) which consists of two sub-dimensions, namely values-driven and self-directed career attitudes. In contrast, the measure of the protean career used herein is based on an unitary approach to the protean career (Baruch, 2014). This approach is based on the assumption that being self-directed according to one’s own values can be seen as one dimension (Hall, 2004). This one-dimensional approach is sometimes also applied by research (Hall, Kossek, Briscoe, Pichler, & Lee, 2013; Waters, Briscoe, Hall, & Wang, 2014) using the protean scale from Briscoe et al. (2006).

Following this examination of scale validity, we examined with a six-month longitudinal study among a sample of university students and a cross-sectional design among a sample of employees the issues of incremental predictive validity in relation to students’ as well as employees’ proactive dispositions and career management behaviors, and to employees’ CSE and career satisfaction, respectively. We also assess mediating effects of the protean career orientation between dispositions and career outcomes.

3. Study 1: Concurrent and incremental validity of the protean career orientation scale

In both studies, we measured the protean career orientation with the newly introduced scale by Baruch (2014). As support for concurrent validity, we expected significant correlations between the protean career orientation scale by Baruch (2014) with self-directed and values-driven protean career attitudes as assessed with the scale from Briscoe et al. (2006). In addition, we wanted to establish the concurrent validity of the protean career orientation measure with regard to different work and career attitude outcomes. Because people with a protean career orientation actively manage their career in accordance with their own values, they should be more active in career planning and more likely to achieve various forms of subjective career success (Hall, 1996). In support, previous research showed that a protean career orientation is positively related to career and job satisfaction (Baruch, 2014; Baruch & Quick, 2007; Baruch et al., 2005; De Vos & Soens, 2008) as well as to work engagement (De Vos & Segers, 2013), and career planning (Creed et al., 2011). Based on these findings, we expected to confirm the concurrent validity of the herein used protean career orientation measure by finding significant and positive correlations with (a) career satisfaction, (b) job satisfaction, (c) work engagement, and (d) career planning. In addition, we wanted to establish incremental validity by showing that the herein used protean measure by Baruch (2014) explains variance

in career satisfaction, job satisfaction, work engagement, and career planning that is at least as high as the variance explained by the self-directed and values-driven protean career attitudes measures from [Briscoe et al. \(2006\)](#).

3.1. Materials and method

3.1.1. Participants and procedure

We recruited via email invitation a sample of university alumni from four German universities ($N = 416$) with a response rate of 25% ($N = 104$), of whom 65% were female, with a mean age of $M = 28.5$ ($SD = 4.6$) years. Participation in a lottery drawing offering two prizes of 450€ each was offered. Most of the participants had received either a Bachelor's degree (34%) or a Master's degree (63%). They were employed in many different sectors, with the largest groups working in business administration (23%), education (15%), engineering/informatics (10%), and marketing and advertising (10%).

3.1.2. Measures

Means, standard deviations, reliability estimates, and correlations between measures are reported in [Table 1](#).

3.1.2.1. Protean career orientation. The protean career orientation was assessed with the seven-item scale by [Baruch \(2014\)](#) with each item being rated along a seven-point Likert scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). In a series of studies with four samples of British and Chinese employees and business students, [Baruch \(2014\)](#) reported alpha reliability coefficients ranging between .74 and .84 and showed positive correlations between the protean career orientation scale and job satisfaction, self-rated performance, skills, and voluntary turnover. To arrive at a German-language version of the scale, the first two authors, both of whom are native German speakers fluent in English and psychologists intimately familiar with the construct assessed by the scales, independently translated the protean career orientation scale that had originally been developed and validated in English ([Baruch, 2014; Baruch & Quick, 2007; Baruch et al., 2005](#)). This was followed by a reconciliation meeting during which differences in translations were discussed and after which a final translated version of each item was agreed upon. This procedure was chosen because it ensures authenticity, connotation and comprehensibility, which are frequently compromised when incorporating a back-translation approach ([van de Vijver & Leung, 1997](#)).

3.1.2.2. Self-directed and values-driven career attitudes. We used an existing German translation ([Gasteiger, 2007](#)) of the protean orientation scale by [Briscoe et al. \(2006\)](#) with 14 items assessing self-directed (eight items, e.g., "I am responsible for my success or failure in my career") and values-driven career attitudes (six items, e.g., "I navigate my own career, based on my personal priorities, as opposed to my employer's priorities"). Answers are provided on a five-point Likert scale from 1 (*to little or no extent*) to 5 (*to a great extent*). As done in previous studies ([Hall et al., 2013](#)), we also calculated a *total protean score* as the sum of all 14 items.

3.1.2.3. Career satisfaction. We used the German version ([Abele & Spurk, 2009](#)) of the career satisfaction scale by [Greenhaus, Parasuraman, and Wormley \(1990\)](#) consisting of five items (e.g., "I am satisfied with the progress I have made towards meeting my overall career goals") with a five-point Likert scale ranging from 1 (*not at all*) to 5 (*completely*).

3.1.2.4. Job satisfaction. We measured job satisfaction with a German translation ([Hirschi, Freund, & Herrmann, 2014](#)) of the brief index (four items, e.g., "I find real enjoyment in my job") of affective job satisfaction developed and validated by [Thompson and Phua \(2012\)](#). The measure uses a five-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*).

Table 1

Summary of bivariate correlations, means, standard deviations, and Cronbach's alphas; Study 1.

Measure	Correlations and reliability coefficients								Descriptive statistics	
	1	2	3	4	5	6	7	8	M	SD
1. Protean career orientation	(.77)	.70***	.30***	.61***	.35***	.33**	.44***	.55***	38.14	5.55
2. Self-directed attitude		(.75)	.38***	.85***	.29**	.21*	.35***	.44***	32.53	3.84
3. Values-driven attitude			(.70)	.81***	.11	.27**	.24*	.13	21.10	3.46
4. Total protean score				(.79)	.25*	.29**	.36***	.35***	53.62	6.06
5. Career satisfaction					(.81)	.50***	.55***	.19	18.56	3.43
6. Job satisfaction						(.88)	.80***	.18	14.03	3.56
7. Work engagement							(.95)	.35***	42.40	10.25
8. Career planning								(.82)	21.57	4.25

Note. $N = 104$. The "Protean career orientation" refers to the measure by [Baruch \(2014\)](#). "Self-directed attitude", "Values-driven attitude" and "Total protean score" refer to the values from the scale by [Briscoe et al. \(2006\)](#). Entries in parentheses in diagonal are the Cronbach's alpha reliability coefficients.

* $p < .05$.

** $p < .05$.

*** $p < .001$.

3.1.2.5. Work engagement. The German-language, nine-item (e.g., “At my work, I feel that I am bursting with energy”) short version of the Utrecht Work Engagement Scale (UWES; *Schaufeli, Bakker, & Salanova, 2006*) was employed. Answers were provided on a seven-point Likert scale ranging from 0 (*never*) to 6 (*always*).

3.1.2.6. Career planning. Planning was assessed with the German-language six-item (e.g., “I have a strategy for reaching my career goals”) career planning scale proposed by *Abele and Wiese (2008)*, adopted from a scale proposed by *Gould (1979)* with a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*).

3.2. Results and discussion

Table 1 shows that the protean career orientation measure by *Baruch (2014)* correlated significantly with career satisfaction, job satisfaction, work engagement, and career planning, confirming the scales' concurrent validity. The German-language version of the measure by *Baruch (2014)* also correlated significantly with the self-directed and values-driven career attitudes scales by *Briscoe et al. (2006)*, further supporting the concurrent validity of the scale. Table 1 shows that the correlations of the herein used protean scale by *Baruch (2014)* with all criterion variables were at least as high as those obtained by either the self-directed, values-driven or the 14-item total protean scale by *Briscoe et al. (2006)*. To provide a test of incremental validity, we conducted hierarchical regression analyses and found that, beyond the combined variance explained by the self-directed and values-driven protean attitudes scales, the protean career orientation measure explained significant variance in (a) career satisfaction ($R^2 = .13$; $\Delta R^2 = .04$, $\Delta F[1,100] = 5.00$, $p < .05$), (b) job satisfaction ($R^2 = .15$, $\Delta R^2 = .06$, $\Delta F[1,100] = 7.25$, $p < .01$), (c) work engagement ($R^2 = .21$, $\Delta R^2 = .07$, $\Delta F[1,100] = 8.85$, $p < .01$), and (d) career planning ($R^2 = .31$, $\Delta R^2 = .12$, $\Delta F[1,100] = 17.12$, $p < .001$). We also calculated if the two subscales of the protean scale by *Briscoe et al. (2006)* combined explained significant variance in any of the criterion variables beyond the protean orientation measure from *Baruch (2014)*. This was not the case. In sum, these results confirm the construct and incremental validity of the German-language version of the protean orientation scale by *Baruch (2014)* in that this measure is highly correlated with the internationally most frequently applied self-directed and values-driven career attitudes scales by *Briscoe et al. (2006)*. We could further demonstrate that in our sample the herein used scale from *Baruch (2014)* showed incremental validity regarding the examined work and career attitudes beyond by these two other protean scales.

4. Study 2: Establishing incremental predictive validity of a protean career orientation in predicting career outcomes above and beyond more general dispositions

In Study 2, we wanted to test the above proposed *Hypotheses 1 to 6* and establish the incremental predictive validity of a protean career orientation in predicting career outcomes beyond more general personality dispositions for two independent samples of students and employees respectively. Moreover, we wanted to test the proposed mediating effects of a protean career orientation in this regard.

4.1. Materials and method

4.1.1. Participants and procedure

For the *student sample*, students in their second and third years of study at a German university (approx. $N = 3500$) were invited via email to participate in a study on career development. We received a response rate of approximately 35%, which is well within the typical range found in behavioral science (*Baruch & Holtom, 2008*). As an incentive for completing the questionnaire, participants were told that they could enter a lottery drawing for two prizes of 450€ each. The resulting sample of $N = 1224$ students was 63% female, with a mean age of $M = 23.9$ years ($SD = 2.7$). The 1224 students who completed the questionnaire were invited to take part in a follow-up study and to provide their email to the study investigators for this purpose. The 887 students who agreed to

Table 2

Summary of bivariate correlations, means, standard deviations, and Cronbach's alphas among employees and students; Study 2.

Measure	Correlations ^a and reliability coefficients					Employee sample ($N = 526$)		Student sample ($N = 419$)	
	1	2	3	4 ^b	5 ^b	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
1. Proactive disposition	(.79/.84)	.34	.49	.49	.42	26.58	3.72	25.41	3.80
2. Proactive career behaviors	.37	(.86/.91)	.35	.21	.29	30.66	7.58	27.97	7.74
3. Protean career orientation	.45	.32	(.67/.80)	.44	.45	37.77	5.64	37.18	4.73
4. Core self-evaluations ^b	–	–	–	(–/.85)	.48	45.26	6.46	–	–
5. Career satisfaction ^b	–	–	–	–	(–/.88)	18.02	3.80	–	–

Note. Entries in parentheses in diagonal are the Cronbach's alpha reliability coefficients (*left: student sample/right: employee sample*). Correlations based on the student sample (proactive disposition and protean career orientation at T1 and proactive career behaviors at T2) are displayed in *italics* in the lower-left triangle. Correlations based on the employee sample are displayed in the upper-right triangle.

^a All correlations $p < .001$.

^b These constructs were only assessed in the employee sample.

participate were contacted again six months later. We achieved a response rate of 47% ($n = 419$) in this second wave of data collection, which is above the norm in behavioral sciences (Baruch & Holtom, 2008). Of the 419 students who participated, 4% were female, with a mean age of $M = 23.6$ ($SD = 2.7$) years, semester of study $M = 3.8$ ($SD = 2.1$) at T1. Respondents were enrolled in a range of different majors, most commonly management and entrepreneurship (19%), business psychology (15%), business administration (14%), cultural studies (8%), and environmental science (7%). The 419 respondents who completed both waves of data collection were compared to the 805 respondents who participated only in the first wave. No significant differences were found for any of the assessed variables. The students completed the protean orientation and proactivity measures at T1 and the career engagement measure at T2.

For the *sample of employees*, university alumni from three German universities were contacted via email ($N = 927$) and invited to complete the online questionnaire. Those who had not yet responded received two reminder emails, each one week apart. This strategy resulted in a final response rate of 57% ($N = 526$ participants). Participation in a lottery drawing with several prizes ranging from 25€ to 380€ and a total value of 880€ was offered as an incentive. The sample was 59% female, with a mean age of $M = 28.7$ ($SD = 5.2$). The majority of the sample had received a Master's degree or equivalent (59%) and about a third (31%) had obtained a Bachelor's degree. Participants were employed in many different industry sectors, with the largest groups working in business administration (20%), engineering (16%), education (12%), marketing and advertising (8%), and information technologies (7%). Participants completed the protean orientation, proactivity, CSE, career engagement, and career satisfaction measures.

4.1.2. Measures

Means, standard deviations, reliability estimates, and correlations between measures are reported in Table 2.

4.1.2.1. *Protean career orientation*. The same measure as described in Study 1 was used.

4.1.2.2. *Proactivity*. We measured participants' self-reported proactive disposition using the German-language seven-item (e.g., "I actively attack problems.") personal initiative questionnaire developed by Frese, Fay, Hilburger, and Leng (1997), which uses a five-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*).

4.1.2.3. *Core self-evaluations (CSE)*. CSE among employees were assessed with the 12-item German-language version of the CSE scale by Judge et al. (2003) and Stumpp et al. (2009). The scale uses a five-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*).

4.1.2.4. *Career engagement*. The degree of engagement in proactive career behaviors was assessed using the German-language career engagement scale (Hirschi et al., 2014). This tool contains nine items that measure the general degree to which someone has engaged in different career management behaviors (e.g., career planning, career exploration, networking, positioning behavior, voluntary training) within the last six months. It uses a five-point Likert scale ranging from 1 (*not much*) to 5 (*a great deal*).

4.1.2.5. *Career satisfaction*. The same measure as described in Study 1 was used.

4.2. Results and discussion

4.2.1. Protean career orientation and proactivity in career management

To test Hypotheses 1, 2, and 3 among students, we used participants' responses on proactive disposition and protean career orientation at T1 while using their proactive career behaviors at T2. Such temporal separation can reduce the potential inflation caused by common method bias (MacKenzie & Podsakoff, 2012). First, we provided evidence that the independent variable, the mediator, and the dependent variable are not representative of the same latent construct (Fiedler, Schott, & Meiser, 2011). For this purpose, we applied Confirmatory Factor Analysis (CFA) to compare a one-factor model where all items of the three constructs loaded onto a single factor with a three-factor model where each of the three constructs was specified as a latent variable indicated by its respective items. We obtained a very poor fit for the one-factor model ($S-B\chi^2 = 907.10$; $df = 227$; $CFI = .74$; $RMSEA = .08$ [90% CI: .08, .09]; $SRMR = .10$). The model fit of the three-factor model was acceptable ($S-B\chi^2 = 309.32$; $df = 224$; $CFI = .97$; $RMSEA = .03$ [90% CI: .02, .04]; $SRMR = .04$). The proposed three-factor model also displayed a significantly better model fit than a one-factor model (SB -corrected $\Delta\chi^2 = 672.35$, $df = 3$; $p < .001$), supporting the assumption of distinct constructs.

Similarly, before testing Hypotheses 1, 2, and 3 among employees, we applied CFA to establish that proactive disposition, protean career orientation, and proactive career behaviors are three distinct constructs (Fiedler et al., 2011). Among employees, the model fit of the one-factor model was poor as well ($S-B\chi^2 = 2166.45$; $df = 227$; $CFI = .63$; $RMSEA = .13$ [90% CI: .12, .13]; $SRMR = .14$). The model fit of the three-factor model was close to acceptable ($S-B\chi^2 = 928.35$; $df = 224$; $CFI = .87$; $RMSEA = .08$ [90% CI: .07, .08]; $SRMR = .06$). The assumption of distinct constructs was supported as the three-factor model displayed a significantly better model fit than the one-factor model (SB -corrected $\Delta\chi^2 = 843.94$, $df = 3$; $p < .001$).

When testing the mediation models, each construct was specified as a latent variable indicated by its respective items. As recommended by previous researchers (Preacher, Rucker, & Hayes, 2007; Shrout & Bolger, 2002), we applied a bootstrapping technique with 5000 bootstrapping samples using an Mplus syntax for mediation provided by Preacher and colleagues (Preacher, Zyphur, & Zhang, 2010). Using this procedure, the indirect effect, its 95% confidence intervals, and the standard errors were computed. A path was significant if zero was not included in the confidence interval (Shrout & Bolger, 2002). The results revealed support for all three

hypotheses among students as well as employees. First, within both samples, the bivariate correlations between the three variables were positive and highly significant ($p < .001$), ranging from .21 to .49 (see Table 2). This confirms Hypothesis 1 which proposed positive relationships between a protean career orientation, a proactive disposition, and the engagement in proactive career behaviors. Second, among students as well as employees, Hypothesis 2 was confirmed. In both samples, a protean career orientation was found to be a significant predictor of proactive career behaviors beyond a proactive disposition (students: $\beta = .18, p < .001$; employees: $\beta = .34, p < .05$). Finally, a significant indirect effect was obtained in the mediation model for both samples. This confirms that a protean career orientation mediates the relationship between a proactive disposition and proactive career behaviors among students as well as employees (see Table 3).

The results confirm that a protean career orientation positively predicts engagement in proactive career behaviors among university students as well as employees. Advancing extant research, our study provides support for the assumption that a protean career orientation partially mediates the effects of more basic personal dispositions on career outcomes, specifically between proactivity and proactive career behaviors. We have also shown that a protean career orientation possesses incremental validity in predicting proactive career management behaviors beyond the general disposition for proactivity.

4.2.2. Protean career orientation, CSE, and career satisfaction

The same procedures were applied to test Hypotheses 4 to 6 regarding the relationships among CSE, protean career orientation, and career satisfaction among employees. Thus, we first used CFA to establish that CSE, protean career orientation, and career satisfaction are three distinct constructs (Fiedler et al., 2011). For this purpose we specified a one-factor model where all items of the three constructs loaded onto a single factor and then a three-factor model where each of the three constructs was specified as a latent variable indicated by its respective items. The model fit of the one-factor model was very poor ($S-B\chi^2 = 1989.18; df = 249; CFI = .63; RMSEA = .12$ [90% CI: .11, .12]; SRMR = .10), while the model fit of the three-factor model was close to acceptable ($S-B\chi^2 = 1151.38; df = 246; CFI = .81; RMSEA = .08$ [90% CI: .08, .09]; SRMR = .07). A comparison of the model fit of both models demonstrated that the three examined constructs are distinct (SB-corrected $\Delta\chi^2 = 653.18, df = 3; p < .001$). All three hypotheses were confirmed (see Tables 2 and 3). First, the three constructs were found to be positively and highly correlated among employees (all $p < .001$), ranging from .44 to .48. This confirmed Hypothesis 4 suggesting positive correlations between CSE, a protean career orientation, and career satisfaction. Second, a protean career orientation predicted career satisfaction beyond CSE ($\beta = .27, p < .05$), confirming Hypothesis 5. Third, we found support for Hypothesis 6: a protean career orientation mediated the relationship between CSE and career satisfaction among employees.

These results advance existing research by showing that CSE are positively related to a protean career orientation. This finding further confirms the notion that CSE are important in the current career environment because they promote a self-directed and values-driven orientation to work. Moreover, the incremental validity of a protean career orientation for predicting career satisfaction above CSE supports the added value of a protean career orientation to explain subjective career success beyond personality dispositions. Finally, we showed that a protean career orientation partially mediates the relationship between CSE and career satisfaction, and thus, provide new evidence for how the relationship between CSE and career outcomes can be explained.

5. General discussion

The general aim of the present paper was to provide a rigorous empirical evaluation of the predictive utility for career outcomes of one of the most prominent new career constructs: the protean career orientation. Towards this goal, we addressed several issues: The incremental predictive utility of a protean career orientation, beyond specific personality dispositions (i.e., proactivity, core self-

Table 3

Unstandardized direct and indirect effects obtained in the mediation bootstrap analyses among employees and students; Study 2.

	Point estimate	S.E.	BC bootstrapping 95% CI		Point estimate	S.E.	BC bootstrapping 95% CI	
			Low	High			Low	High
			Employee sample (N = 526)				Student sample (N = 419)	
<i>Specific direct and indirect effects of a proactive disposition on proactive career behaviors mediated by a protean career orientation</i>								
Proactive disposition → proactive career behaviors	0.34*	0.15	0.05	0.65 [†]	0.59***	0.16	0.27	0.92 [†]
Proactive disposition → protean career orientation	0.77***	0.10	0.57	0.98 [†]	0.53***	0.10	0.35	0.74 [†]
Protean career orientation → proactive career behaviors	0.51***	0.14	0.27	0.79 [†]	0.36*	0.19	0.03	0.77 [†]
Indirect effect	0.39***	0.10	0.22	0.62 [†]	0.19*	0.10	0.02	0.41 [†]
<i>Specific direct and indirect effects of core self-evaluations on career satisfaction mediated by a protean career orientation</i>								
Core self-evaluations → career satisfaction	0.56***	0.11	0.35	0.78 [†]				
Core self-evaluations → protean career orientation	0.72***	0.10	0.55	0.93 [†]				
Protean career orientation → career satisfaction	0.31*	0.13	0.11	0.59 [†]				
Indirect effect	0.22**	0.08	0.08	0.39 [†]				

Note: BC = Bias-corrected; [†]95% CI that does not include zero. Among employees, all variables were assessed at T1. Among students, proactive disposition and protean career orientation were assessed at T1 and proactive career behaviors at T2.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

evaluations), to estimate career outcomes and the functioning of a protean career orientation as a mediator between more distal personality traits and career outcomes.

Our first study among German employees showed positive correlations between a protean career orientation and career satisfaction, job satisfaction, work engagement, and career planning. This replicates similar findings obtained by Baruch (2014) with the same scale as well as studies with other protean orientation scales (e.g., Creed et al., 2011; De Vos & Segers, 2013; De Vos & Soens, 2008). However, these findings are noteworthy because they are the first instance to our knowledge where the concurrent validity of different measures of the protean career orientation was confirmed. We showed that both examined protean scales were highly related and correlated with attitudinal work and career outcomes in the same way. Our findings are also notable because our studies were conducted in a Germanic cultural context, in contrast to the dominant focus on samples from Anglo cultures in published research. In Germanic cultures, cultural values and practices such as power distance or uncertainty avoidance are different from those found in many Anglo cultures (House & Global Leadership & Organizational Behavior Effectiveness Research Program, 2004) and such cultural differences which might moderate the effects of a protean orientation on career outcomes.

Study 2 also made several key theoretical contributions. First, we showed the incremental predictive utility of a protean career orientation for engagement in proactive career behaviors and career satisfaction beyond specific personality dispositions. This shows that the protean career orientation can provide added value to the literature, and it helps to explain career outcomes beyond already established constructs. Specifically, given the established predictive validity of personality characteristics on work and career outcomes as well as the significant relationships between personality characteristics and career attitudes (Fuller & Marler, 2009; Judge & Kammeyer-Mueller, 2011; Ng et al., 2005; Thomas et al., 2010), these findings provide important support for the added value of a protean career orientation in understanding individual differences in proactive career behaviors and subjective career success.

Second, we showed that a protean orientation partially mediates the effects of a proactive disposition on proactive career behaviors and of CSE on career satisfaction. These findings support the general notion of social cognitive career theory (Lent et al., 1994) that specific career attitudes (such as the protean career orientation) might mediate the effects of more general traits on more specific work and career outcomes. As our results suggest, a protean career orientation can be considered a motivational factor that helps to clarify the process by which specific personality dispositions are related to work and career outcomes (Barrick & Mount, 2005). These findings hence advance extant research, which had previously not assessed the mediating role of contemporary career orientations in relation to specific personality dispositions such as a proactive disposition and CSE.

5.1. Limitations

While we sampled university students as well as employees, all came from an early career stage, university-educated German population. This relative homogeneity may have impacted the generalizability of our findings. Therefore, future studies of the protean career orientation should use an expanded range of populations from different countries and educational levels as well as career phases (e.g., mid- and late-career) to address this potential limitation. Second, when testing the mediations in Study 2, we did not examine alternative models. While we tested models that were based on sound theoretical reasoning and previous empirical research, there may be other models that explain the relationships between the variables as well. Third, we addressed the relationships of a protean career orientation with several personality characteristics, and work and career attitudes. However, even though we applied prospective analyses in Study 2, our results are not suitable to make causal claims regarding the effects of a protean career orientation on these outcomes, because our research design cannot rule out the effects of endogeneity. To what extent personality dispositions such as CSE and proactivity predict the development of a protean career orientation remains to be established. Furthermore, it remains to be explored how a protean career orientation may actually influence individuals' career choices and career paths beyond mere work and career attitudes. Our study provides an important starting point for such lines of inquiry.

5.2. Implications for practice

The studies presented herein suggest that a protean career orientation is an important individual difference variable across career stages and is positively related to different favorable work and career outcomes. These findings suggest that it might be beneficial to develop career interventions that can help people to strengthen a protean career orientation. Based on the positive link between proactivity and the protean orientation, one possibility is to conceive of and provide workshops that focus on identifying one's own core values and engaging in proactive career planning. Organizations could further foster a protean orientation by promoting a self-directed and values-driven approach to career management through internal job postings and offers for voluntary training and career development programs. Also, job redesigns to provide more challenging and autonomous work conditions (Hall & Heras, 2010) could be used to promote career experiences and learning opportunities that strengthen a protean career orientation. Because the protean career orientation was linked with CSE in our study, providing people with a sense of accomplishment and mastery in their careers could further foster a self-directed approach to career management and augment a protean orientation. This might be achieved by focusing on success experiences and internal, stable attribution of past success.

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