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Protean career orientation, vocational identity, and self-efficacy: an empirical clarification of their relationship

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Abstract

There is a large interest in how people can be more protean in their career development, exhibiting a self-directed striving for personally valued career outcomes. However, existing research on the protean career needs to better address issues of antecedents and outcomes as well as unique effects of a protean career orientation (PCO). We present two studies investigating how PCO is related to vocational identity clarity and occupational self-efficacy. Study 1 reports a one-year, three-wave cross-lagged study among 563 university students and established that PCO preceded changes in identity and self-efficacy – but not the other way around. A six-month longitudinal study of 202 employees, Study 2 showed that identity clarity and self-efficacy mediated the effects of PCO on career satisfaction and proactive career behaviors. PCO only possessed incremental predictive validity regarding proactive career behaviors. However, we could not confirm specific direct or mediated effects of PCO on job satisfaction. These results imply that PCO is closely related to vocational identity clarity and self-efficacy because it enhances these career attitudes. Moreover, identity and self-efficacy mediate some but not all of the effects of PCO on important career outcomes.

Introduction

Scholars in management, vocational, and organizational psychology have developed a strong interest in the notion of a protean career orientation (PCO), which describes an outlook in which the person, not the organization, is in charge of career development. Such individuals are flexible and learning-oriented in their careers and direct their careers according to personal values to achieve subjective career success (Hall, 1996). Because this orientation corresponds with the current dynamic, individualistic, and self-reliant career environment, PCO is generally assumed to be beneficial in terms of achieving subjective career success—a notion that is supported by emerging empirical research (e.g., Baruch, Grimland, & Vigoda-Gadot, 2014; Briscoe, Henagan, Burton, & Murphy, 2012; De Vos & Soens, 2008; Park, 2009).

One common theme in the literature on PCO is the notion that the ability to exhibit a protean career is closely related to factors such as identity clarity, self-efficacy, adaptability, or locus of control because they are presumed to allow people to develop a protean, self-reliant career (Gubler, Arnold, & Coombs, 2014; Hall, 2004; Waters, Hall, Wang, & Briscoe, 2015). However, the literature is inconsistent about whether these constructs are a feature of PCO or correlates, antecedents, or outcomes of PCO (Gubler et al., 2014). Unfortunately, most existing studies have not directly addressed this important issue. This gap is related to the underexplored question of the incremental validity of PCO regarding career outcomes beyond other established constructs (Gubler et al., 2014; Herrmann, Hirschi, & Baruch, 2015). Moreover, the relationships of PCO with other psychological variables would elucidate the underlying processes concerning why PCO is related to theoretically important career outcomes. In summary, despite widespread interest in the protean career, the present state of research is limited in terms of our understanding of the conceptual nature and functioning of this prominent career orientation (Gubler et al., 2014).

Addressing these issues, the present paper presents two studies that comprise samples in different career stages (i.e., university students

and working professionals). These studies (a) examine the empirical relationships and distinctness of PCO with two career attitudes conceptually closely related to PCO: vocational identity clarity and occupational self-efficacy; (b) address the issue of temporal precedence that links PCO, vocational identity clarity, and occupational self-efficacy in a cross-lagged design and three measurement points spanning one year; (c) examine whether vocational identity clarity and occupational self-efficacy mediate the effects of PCO on important career outcomes (i.e., engagement in proactive career behaviors, job satisfaction, and career satisfaction) with a six-month longitudinal study; and (d) investigate to what extent PCO has incremental effects on these career outcomes beyond vocational identity clarity and occupational self-efficacy.

Thus, this paper makes three key contributions. First, we theoretically and empirically clarify the relationships between PCO and two conceptually related attitudes (i.e., identity clarity and self-efficacy) by examining their temporal precedence. Second, we provide new empirical insights into the functioning of PCO in relation to identity clarity and self-efficacy by addressing the role of identity clarity and self-efficacy in our understanding of why PCO is related to important career outcomes. Third, we add knowledge regarding the incremental utility of PCO beyond related and established career attitudes to predict career outcomes.

PCO, Vocational Identity Clarity, and Occupational Self-Efficacy

Different conceptualizations of PCO exist regarding its definition and dimensionality (see Gubler et al., 2014, for a review). In accordance with other studies that used a unitary approach (e.g., DiRenzo, Greenhaus, & Weer, 2015; Hall, Kossek, Briscoe, Pichler, & Lee, 2013; Waters, Briscoe, Hall, & Wang, 2014), we herein consider PCO as a one-dimensional construct which can be defined as “an individual’s proclivity to enact a career focused on achieving subjective success through autonomous career management” (DiRenzo et al., 2015, p. 538).

Regardless of the specific conceptualization of PCO, is it generally presumed that a PCO is closely related to behavioral and attitudinal

variables (e.g., identity, self-efficacy, proactivity, locus of control, adaptability) that are considered critical in facilitating the development of a protean career (Hall, 2004; Waters et al., 2015). However, the specific conceptual and empirical relationships of such constructs with PCO have not been clearly identified in the literature. This presents major challenges and shortcoming in the protean career literature (Gubler et al., 2014). In this paper, we specifically focus on two variables that seem conceptually especially important in relation to PCO: Vocational identity clarity and occupational self-efficacy.

We conceptualize vocational identity clarity as representing the career meta-competency of identity in terms of self-awareness, as described by Hall (2004). We specifically adopt the personal identity perspective that is prevalent in the vocational literature. This approach sees identity as an individual's clear and stable perception of his/her work-related interests, skills, and values (Holland, Johnston, & Asama, 1993). A protean career is presumed to require a high level of self-awareness concerning the personal values that guide career development (Hall, 2004). This clear awareness of one's vocational identity can be seen as a meta-competency for developing a protean career because in times of frequent change and decreasing organizational guidelines for career development, people need a strong internal compass to guide and develop their careers (Hall, 1996). Existing empirical research has not directly investigated vocational identity clarity in relation to PCO, but it has confirmed that factors closely related to identity, such as career insight (De Vos & Soens, 2008), self-awareness (Verbruggen & Sels, 2008), career decidedness (Creed, Macpherson, & Hood, 2011), and behaviors related to identity awareness in terms of self-exploration (Briscoe et al., 2012) were positively related to PCO.

In addition to identity clarity, a sense of self-efficacy is presumed to be critical to develop a protean career (Waters et al., 2015). Self-efficacy is a pivotal variable for human agency in general (Bandura, 2001) and career development processes and outcomes in particular (Betz, 2007) because it motivates people to take action and facilitates energy, effort, and persistence in goal pursuit (Bandura, 2001). Self-efficacy is

also closely related to the meta-competency of adaptability that is deemed critical for a protean career because adaptability helps to adjust to new environments and should facilitate continuous learning (Hall, 2004; Waters et al., 2015). Adaptability is a multi-dimensional construct and has been conceptualized in different ways by different authors (Morrison & Hall, 2002; Rottinghaus, Buelow, Matyja, & Schneider, 2012; Savickas & Porfeli, 2012). However, across models, there is agreement that a sense of confidence is a key factor of adaptability (Hirschi, Herrmann, & Keller, 2015). While adaptability thus represents a much more general and ambiguous construct, by examining the more specific component of self-efficacy, our studies also allow drawing tentative conclusions about the relationship of PCO and the meta-competency of adaptability.

PCO is conceptually closely related to a sense of agency in career development because having a protean career implies proactively managing one's career without depending on an organization to be responsible for one's professional development (Hall, 2004). Empirical studies have shown that PCO is linked to proactive behavior and a proactive disposition (i.e., proactivity; Creed et al., 2011; Herrmann et al., 2015), general adaptability (Verbruggen & Sels, 2008), diverse career self-management behaviors (De Vos & Soens, 2008), and career planning (DiRenzo et al., 2015), self-exploration, environmental exploration, and self-regulation (Creed et al., 2011). However, to the best of our knowledge, no research has directly investigated the relationship between PCO and self-efficacy.

Study 1: The Temporal Precedence of PCO, Vocational identity Clarity, and Occupational Self-Efficacy

Previous studies have already established that PCO is significantly correlated with different career attitudes that are closely related to identity clarity and occupational self-efficacy, such as identity awareness (assessed in terms of career self-exploration) (Briscoe et al., 2012), career insights (De Vos & Soens, 2008), self-awareness (Verbruggen & Sels, 2008), career decidedness (Creed et al., 2011), psychological capital, or employability (DiRenzo et al., 2015). However, the reasons for such correlations have not been examined in more detail and different

authors have made theoretically conflicting propositions. From a conceptual standpoint, some researchers have conceived of career attitudes such as identity and self-efficacy as enablers of a protean career and antecedents of PCO (Hall, 2002; Inkson, 2006; Waters et al., 2015). Others have suggested that these constructs might as well be a consequence of PCO rather than a precondition (Greenhaus, Callanan, & DiRenzo, 2008). Similarly, in empirical studies, some researchers (De Vos & Soens, 2008; DiRenzo et al., 2015) have argued that PCO will act as an antecedent to career self-management behaviors, career insights, psychological capital, or employability. Conversely, others (Creed et al., 2011; Verbruggen & Sels, 2008) have speculated that competencies for career management will act as antecedents of PCO. However, due to a reliance on cross-sectional designs or the lack of true longitudinal designs with several measurements of the same variables over time to assess lagged effects, none of these studies has been able to adequately address this issue empirically. Our study goes beyond previous findings by directly addressing this controversy and clarifying the temporal precedence linking PCO, vocational identity clarity, and occupational self-efficacy with a cross-lagged study across three measurement points. We thereby make an important contribution to the literature in helping to clarify in what way PCO is related to other career attitudes.

We specifically assumed that the positive relationships among PCO, identity clarity, and self-efficacy could be explained due to reciprocal influences of the constructs over time. PCO could promote a sense of identity because having a protean career means having a learning orientation and being more actively engaged in the lifelong processes of identity change and adaptation (Hall, 2004). Because PCO refers to a values-driven approach to career development, people with a strong PCO could be expected to be more motivated to engage in identity reflection and clarification of personal values that help them directing their career (Briscoe et al., 2012), thereby enhancing their vocational identity clarity. Moreover, because PCO also includes a self-directed career approach, people with high PCO can be expected to engage more in activities such as collecting information about

occupations or job opportunities and obtaining feedback on their career aspirations that can help to clarify their vocational identity. Hence, we propose:

Hypothesis 1a: PCO positively predicts vocational identity clarity.

On the other hand, possessing higher identity clarity should also facilitate the development of PCO. People with a clear sense of personal values, strengths, interests, and goals should be more inclined to pursue a values-driven career in order to implement their identity in the work role. Moreover, having a clear identity can stimulate a self-directed approach to career management because clear, self-congruent goals motivate action and personal initiative (Parker, Bindl, & Strauss, 2010). Also, people with a clear identity do not need to rely on other people or organizations to direct their careers because they know for themselves what they want to achieve and thus can take charge of their career in a self-directed manner. We thus propose:

Hypothesis 1b: Vocational identity clarity positively predicts PCO.

PCO should also enhance a sense of competence and agency in one's work and career development because it is related to better performance in one's job (Briscoe et al., 2012), more active coping with change (Briscoe et al., 2012), and an increased sense of employability (De Vos & Soens, 2008). Moreover, because people with a high PCO are self-directed and values-driven their career, they should create more opportunities to experience success, feel competent, and satisfied at work which can increase a sense of competence towards the work role (Hall, Mirvis, & Associates, 1996). Also, because people with high PCO self-direct their career, success experiences might be more readily attributed to personal effort and thereby enhance a sense of competence (Bandura, 2001). We propose:

Hypothesis 2a: PCO positively predicts occupational self-efficacy.

Likewise, a sense of competence concerning one's career should promote PCO because self-efficacy increases initiative, effort, and persistence in goal-directed behaviors (Bandura, 2001). It can thus enhance the motivation to take charge of one's career in a self-directed way. A sense of competence is thereby also closely related to subjective success and can trigger a

“success cycle” in which positive career experiences enhance a self-directed career orientation (Hall et al., 1996). Moreover, people who feel competent to master challenges in the work role might be more ready to direct their career according to their own values instead of relying on an organization. We hence propose:

Hypothesis 2b: Occupational self-efficacy positively predicts PCO.

Based on H1 and H2, we thus assume the following:

Hypothesis 3: There are reciprocal effects over time between PCO and (a) vocational identity clarity and (b) occupational self-efficacy.

To test these hypotheses, we used a three-wave, cross-lagged longitudinal design. We chose to sample university students in this study because this group of emerging adults is actively concerned with career development and career preparation in order to master the transition from the university to the workplace or to more specialized graduate degrees. At the same time, emerging adulthood is a period in which the development, clarification, and consolidation of personal interests, values, and life goals is particularly prevalent (Arnett, 2000). It thus provides an interesting career stage for investigating the development and temporal precedence of important career attitudes.

Method

Participants and procedure. We contacted 3,559 students across all majors at a German university by sending an email invitation containing a link to a web-based questionnaire, followed by reminder e-mails sent one and two weeks later to students who had not yet participated. As an incentive, participation in a lottery drawing was offered. This resulted in $n = 1,270$ participants (response rate 35.7%) who completed all three scales for this study; 61.6% female; age $M = 23.90$, $SD = 2.75$; and study semester $M = 4.11$, $SD = 2.35$. They represented 32 different majors, with the largest groups from management and entrepreneurship (19%), business administration (15%), and business psychology (12%). Participants were asked about their willingness to participate in follow-up surveys, and 900 (71%) indicated their interest. They were invited by email to complete an online questionnaire six months (T2) and 12 months (T3) later, with 416 (46%)

participating at T1 and T2, 341 (38%) participating at T1 and T3, and 191 (21%) participating at all three measurement points. A six-month period was selected because it corresponds with one university study semester and because, based on other research (e.g., Strauss, Griffin, & Parker, 2012) that used the same time lag to explore changes in career-related constructs, we expected the amount of time to be sufficient to capture meaningful change in our variables of interest. At each measurement point, a lottery drawing for five vouchers of EUR 60 each (approximately 65 USD) was offered as an incentive. PCO, identity, and self-efficacy were assessed at each measurement point.

We retained students for the subsequent analyses who had participated at T1 and at least one additional wave (T2 and/or T3). Missing data were estimated with maximum likelihood estimation with robust standard errors (MLR) in *Mplus*. Research has shown that the listwise deletion of participants can bias results (Graham, 2009); therefore, our chosen procedure avoided deleting participants who did not participate in each wave. The final sample ($n = 563$) was 66% female; age $M = 23.70$, $SD = 2.79$; and study semester $M = 3.73$, $SD = 2.14$. The participants were enrolled in 25 different majors, with management and entrepreneurship (20%), business psychology (14%), business administration (14%), and environmental sciences (7%) constituting the largest groups. T-tests confirmed that the participants who completed the survey only at T1 did not differ significantly from the participants who also participated in at least one follow-up assessment on any of the assessed measures at T1.

Measures. The Cronbach's alpha estimates, means, standard deviations, and correlations between measures are reported in Table 1.

Protean career orientation. We used the German-language adaptation (Herrmann et al., 2015) of the scale by Baruch (2014), which measures PCO as a one-dimensional construct with seven items (e.g., “I am in charge of my own career”) and a seven-point Likert scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Several studies (e.g., Baruch, 2014; Herrmann et al., 2015) have supported the scale's construct

Table 1

Study 1: Means, Standards Deviations, Reliability, and Correlations

		<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9
T 1	1. Protean career orientation	37.10	4.79	(.68)	.32	.47	.52	.28	.44	.57	.30	.41
	2. Vocational identity clarity	24.07	6.24		(.88)	.47	.27	.72	.41	.29	.70	.39
	3. Occupational self-efficacy	25.50	3.99			(.79)	.42	.46	.72	.40	.39	.63
T 2	4. Protean career orientation	37.82	4.85				(.71)	.39	.48	.63	.34	.47
	5. Vocational identity clarity	24.07	6.29					(.89)	.49	.31	.77	.45
	6. Occupational self-efficacy	25.71	3.95						(.80)	.46	.47	.71
T 3	7. Protean career orientation	36.61	4.96							(.72)	.41	.48
	8. Vocational identity clarity	23.73	6.44								(.89)	.54
	9. Occupational self-efficacy	25.71	4.30									(.84)

Note. The entries in parentheses on the diagonal are the Cronbach's alpha reliability coefficients; T1 correlations, *N* = 563; T2 correlations, *N* = 412; T3 correlations, *N* = 341; T1-T2 correlations, *N* = 412; T1-T3 correlations, *N* = 341; T2-T3 correlations, *N* = 190; all correlations are significant (*p* < .001).

validity among employees and university students in terms of significant correlations with other measures of PCO, job satisfaction, career satisfaction, and proactive career behaviors.

Vocational identity clarity. We applied the German-language adaptation of the vocational identity scale (Holland, Daiger, & Power, 1980; Jörin, Stoll, Bergmann, & Eder, 2004) using seven inversely coded items (e.g., "I'm not sure yet which occupations I could perform successfully") and a five-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Research with the German-language version showed that the scale correlated significantly with measures of work engagement, perceived person-job fit, and career planning among German employees and university students (Hirschi, 2012; Hirschi & Herrmann, 2013). We inverted the item scoring prior to data analysis so that higher scores indicated higher identity clarity.

Occupational self-efficacy. We used the six-item (e.g., "Whatever comes my way in my job, I can usually handle it") German short version of the occupational self-efficacy scale, as developed and validated by Rigotti, Schyns, and Mohr (2008), with a six-point Likert scale ranging from 1 (*not at all true*) to 6 (*completely true*). Rigotti et al. (2008) provided evidence of construct validity among a large group of German employees with significant relationships with job satisfaction, organizational commitment, job performance, and job insecurity. (Hirschi & Herrmann, 2013) established significant correlations with career decidedness and proactive career behaviors among German university students.

Consideration of control variables. We considered gender, age, educational level (enrolled in bachelor or master level), and study major as potential control variables because previous research showed that these variables may be related to PCO (De Vos & Soens, 2008; Segers, Inceoglu, Vloeberghs, Bartram, & Henderickx, 2008). However, correlations between PCO and gender, age, and educational level were nonsignificant in our sample. PCO correlated negatively with majoring in business administration versus majoring in another subject ($r = .10, p < .05$), but vocational identity clarity or occupational self-efficacy were not

related to any major. Because we did not find a clear pattern of correlations between the potential control variables and our focal variables of interest, we decided to report the results without including control variables to maximize power and offer more interpretable results (Bernerth & Aguinis, 2016).

Results and Discussion

To test H1, H2, and H3, which postulated mutual effects among PCO, vocational identity clarity, and occupational self-efficacy, we conducted cross-lagged analyses (CLA). Prior to model testing, we established measurement invariance over time among our measures. Measurement invariance ensures that the measures assess the same construct at different points in time concerning factor structure and item functioning. To proceed with the CLA, demonstrating at least scalar invariance was necessary. Scalar invariance is confirmed when equivalent factor structures and equal factor loadings are observed across time points. All scales either fulfilled or exceeded this minimum requirement, which confirmed the suitability of the scales for the subsequent CLA (for more details on the applied procedure see Lance, Vandenberg, & Self, 2000). To assess different cross-lagged models, we performed comparisons between a series of nested models (Table 2).

First, we tested the baseline model (Model 1) with only autoregressive, not cross-lagged, effects between each measurement occasion. The latent variables at measurement point T1 and the disturbances of the constructs at measurement points T2 and T3 were correlated. Model 1 showed a satisfactory fit with the data (Table 2). Next, we tested a model containing cross-lagged pathways from vocational identity clarity and occupational self-efficacy to PCO (Model 2). We first assessed cross-lagged paths with a six-month time lag (Model 2a). Hence, the paths led from clarity and self-efficacy at T1 to PCO at T2 and from identity clarity and self-efficacy at T2 to PCO at T3. We also tested a model with a one-year time lag (Model 2b), which contained cross-lagged effects from identity clarity and self-efficacy at T1 to PCO at T3. Next, we tested a model that contained effects from PCO to identity clarity and self-efficacy (Model 3). As shown above, we tested a model with time lags of six months

Table 2

Study 1: Model Fit Indices of Different Lagged Models

Model	Model description	$SB-\chi^2$	df	CFI	TLI	RMSEA [90% CI]	SRMR
1	Autoregressive	2726.73***	1729	.91	.91	.03-.03	.09
2	Identity -> PCO and self-efficacy -> PCO						
2a	Six-months time lag	2719.60***	1725	.91	.91	.03-.03	.08
2b	One year time lag	2719.99***	1727	.91	.91	.03-.03	.08
3	PCO -> identity and PCO -> self-efficacy						
3a	Six-months time lag	2708.66***	1725	.92	.91	.03-.03	.08
3b	One year time lag	2716.69***	1727	.92	.91	.03-.03	.08
4	Fully cross-lagged						
4a	Six-months time lag	2703.21***	1721	.92	.91	.03-.03	.08
4b	One year time lag	2710.34***	1725	.92	.91	.03-.03	.08

Note. $N = 563$; PCO: protean career orientation; identity: vocational identity clarity; self-efficacy: occupational self-efficacy

*** $p < .001$.

(Model 3a), and one year (Model 3b). Finally, a fully cross-lagged model (Model 4) containing reciprocal effects between PCO and identity clarity and between PCO and self-efficacy was evaluated. Model 4a included a six-month time lag, whereas Model 4b included a one-year time lag.

Because the autoregressive model is nested within the other models, we then conducted $SB-\chi^2$ difference tests to compare whether the models containing cross-lagged effects provided a significantly better fit than more parsimonious models did. Between models with the six-month time lag, Model 3a (effects from PCO to identity clarity and self-efficacy) provided a significantly ($p < .01$) better fit than did the autoregressive baseline Model 1, whereas Model 2a (effects from identity clarity and self-efficacy to PCO) did not show a better fit than baseline Model 1. This finding indicates that PCO had effects on identity clarity and self-efficacy but that identity clarity and self-efficacy did not have effects on PCO. Next, we compared the model fit of Model 3a with that of the fully cross-lagged Model 4a. The results indicated that the fully cross-lagged did not significantly improve the fit over Model 3a. The best-fitting model (3a) is shown in Figure 1. Significant paths led from PCO at T1 to identity clarity at T2 and from PCO at T2 to self-efficacy at T3.

Among models with a one-year time lag, the $SB-\chi^2$ difference tests showed that both lagged Models 2b ($p < .05$) and 3b ($p < .01$) displayed a significantly better fit than did baseline Model 1. The subsequent comparison showed that model fit improved significantly in the fully cross-lagged Model 4b (shown in Figure 1) over Models 2b ($p < .01$) and 3b ($p < .05$), which indicated reciprocal effects between PCO and identity clarity and self-efficacy. However, significant paths were only found leading from PCO at T1 to identity clarity and self-efficacy at T3; significant paths from identity clarity or self-efficacy to PCO were not found. To test the stability of our results, we also conducted the same analyses with the one-year time-lag models and a more restricted sample consisting only of participants who completed the survey at T1 and T3 ($n = 341$). The results did not meaningfully change compared with the findings obtained from the larger sample. In summary, our results obtained with both six-month and

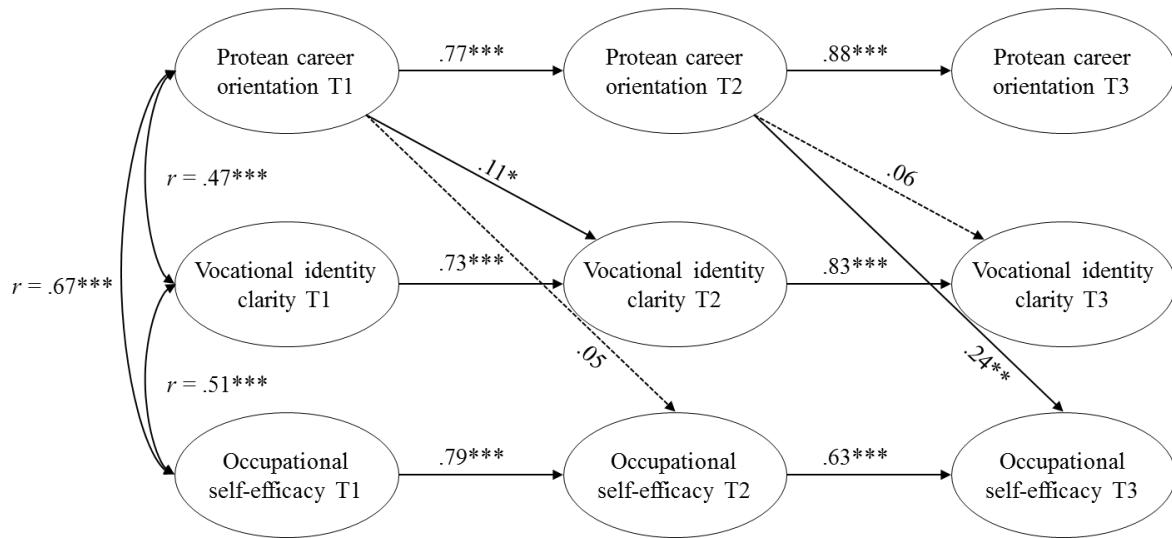
one-year time lags suggest that PCO predicts vocational identity clarity and occupational self-efficacy. However, we did not find clear support for effects in the other direction (i.e., identity and self-efficacy on PCO), which supports H1a and H2a but refutes H1b, H2b, and H3.

Study 2: The Indirect Effects of PCO on Proactive Career Behaviors, Job Satisfaction, and Career Satisfaction

Based on the findings from Study 1, that is, that PCO temporarily precedes changes in vocational identity clarity and occupational self-efficacy, the second study aimed to investigate whether the effects of PCO on important career outcomes were partially mediated by identity clarity and self-efficacy. This investigation helps to better understand the functioning of PCO in relation with identity clarity and self-efficacy. In addition, this study makes a more general contribution to the literature by addressing the important and contested questions of (a) *why* PCO can result in positive career outcomes and (b) the incremental utility of PCO beyond closely related and established career attitudes in explaining career outcomes (Gubler et al., 2014). In an attempt to advance existing research on this issue, we specifically explored the outcomes of engagement in proactive career behaviors, job satisfaction, and career satisfaction.

PCO is generally assumed to predict proactive career behaviors, such as career planning, exploration, or networking. This is because PCO implies a desire to self-direct one's career according to one's own values and goals (Hall, 2004). People with high PCO have a self-directed approach to career development and they should thus be more inclined to proactively engage diverse career behaviors in order to realize their career goals, such as positioning behaviors, networking, career planning, and collecting information about job opportunities. Moreover, people with high PCO are presumed to be learning orientated (Hall, 2004), which should also promote more active engagement in career behaviors that help to expand knowledge and networks, such as career exploration and networking. Finally, because PCO entails a values-driven approach to career development, PCO should be positively related to proactive career behaviors in terms of identity-reflection and self-exploration in order to clarify the values

Model 3a



Model 4b

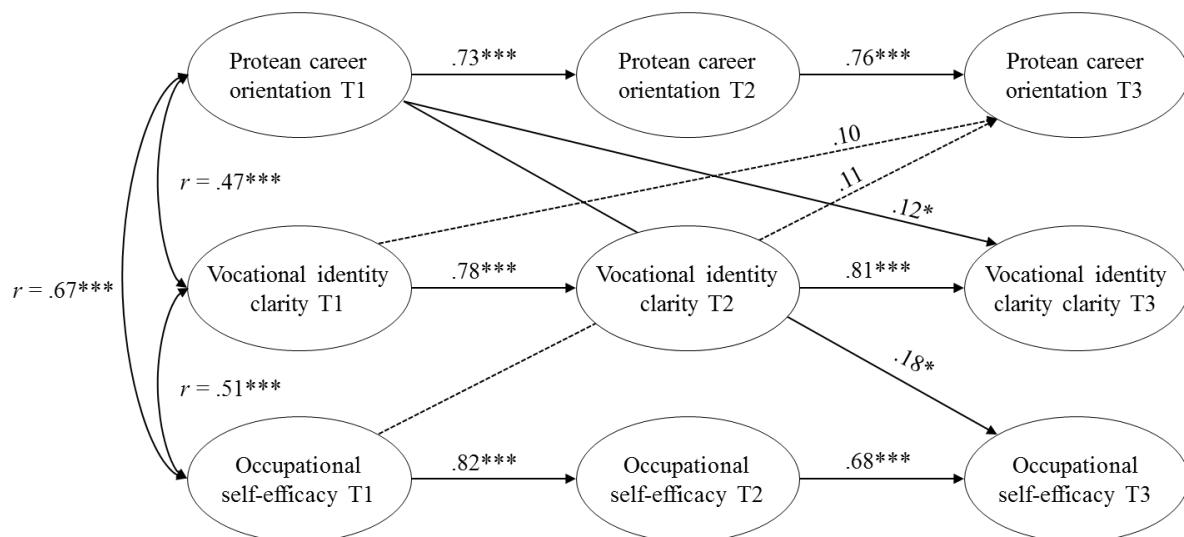


Figure 1. Best-fitting models (Study 1; $N = 563$): Model 3a with a 6-month time lag (above) and Model 4b with a 12-month time lag (below). Solid paths indicate significant effects and dashed paths indicate nonsignificant effects. The correlations between the three constructs at T2 and T3 were significant at $p < .001$, but they are not shown. Each latent construct is represented by the respective items on the scale (not shown in figure). * $p < .05$; ** $p < .01$; *** $p < .001$.

that should direct the career. In support of this premise, previous research has found positive relationships between PCO and different career management behaviors, including increased career planning, identity exploration, and job search activities (Briscoe et al., 2012; Creed et al., 2011; De Vos & Soens, 2008; DiRenzo et al., 2015; Herrmann et al., 2015; Waters et al., 2014; Waters et al., 2015).

PCO is also postulated to be a facilitator to achieve subjective career success. This is because people with high PCO are assumed to know what they want from their careers and have the adaptability and self-awareness to achieve their subjectively aspired career values (Waters et al., 2015). Hence, high PCO should be positively related to being self-directed and taking personal initiative to achieve personally valued career goals. Moreover, because people with high PCO are values-driven, they should more likely achieve career goals that correspond to their values and thereby achieve success according to their own standards (Hall, 2004). Empirical research (e.g., Baruch, 2014; Baruch et al., 2014; Briscoe et al., 2012; De Vos & Soens, 2008; Herrmann et al., 2015; Park, 2009; Verbruggen & Sels, 2008; Volmer & Spurk, 2011) broadly supports a positive correlation between PCO and career satisfaction.

Considerably fewer studies have examined the relationship between PCO and job satisfaction. Most studies report a positive relationship (Baruch, Humbert, & Wilson, 2016; Baruch, Wordsworth, Mills, & Wright, 2016; Cerdin & Le Pargneux, 2014) but some also found that PCO predicted a decline in job satisfaction over time (Supeli & Creed, 2016). In contrast to career satisfaction, job satisfaction refers to the current work experience and not an overall assessment of one's working experiences over one's entire career. However, it is plausible that PCO is generally positively related to job satisfaction because people with high PCO are values-driven and thus more likely to select jobs that correspond to their values and thereby experience a better person-job fit. Moreover, because they are self-directed, they might more likely obtain their aspired jobs by being more active in networking or job search. Also, because of their self-directedness, people with high PCO might more likely quit an unsatisfying job in

favor of a more satisfying one instead of staying passively stuck in an unsatisfying position.

However, the reasons for the observed generally positive association between PCO, proactive career behaviors, and satisfaction with job and career remain underexamined. For example, while a high PCO might generally facilitate positive career outcomes, it needs to be further established by what processes this occurs. Such knowledge is important to better understand *why* PCO can have positive effects for career development. Previous cross-sectional studies have examined several variables as possible mediators linking PCO with career satisfaction, including identity awareness and active coping (Briscoe et al., 2012), career self-management behaviors and career insights (De Vos & Soens, 2008), professional vitality (Baruch et al., 2014), and organizational commitment and employees' met expectations (Grimland, Vigoda-Gadot, & Baruch, 2012). In addition, (DiRenzo et al., 2015) examined career planning, human capital, social capital, and psychological capital as mediators between PCO and employability in a longitudinal study. However, more research is needed that goes beyond these mediators and outcomes to provide a more comprehensive examination of why and how PCO is related to different career outcomes and to what extent PCO has unique validity in explaining outcomes beyond other related constructs (Gubler et al., 2014; Waters et al., 2015). In the present study, we extend previous studies and proposed that increased vocational identity clarity and occupational self-efficacy can partially explain the relationships among PCO and proactive career behaviors, job satisfaction, and career satisfaction and investigated this claim in a longitudinal study.

Regarding the outcome of proactive career behaviors, a clear vocational identity provides purpose and direction in one's career. It should thus promote taking charge of one's career by means of proactive career behaviors (Hirschi, Lee, Porfeli, & Vondracek, 2013). This is in accordance with goal setting research showing that clear and self-congruent goals lead to more effort and persistence in goal pursuit (Locke & Latham, 2002). Likewise, self-efficacy represents an important source of proactive motivation and human agency (Bandura, 2001). Many studies have confirmed that a sense of

efficacy promotes action and persistence in goal pursuit (Locke & Latham, 2002). We can hence expect that occupational self-efficacy facilitates the engagement in proactive career behaviors. Empirical studies have confirmed a positive relationship between vocational identity and occupational self-efficacy and career management behaviors (Hirschi et al., 2013; Rogers & Creed, 2011). Based on the findings from Study 1 regarding the positive predictive relationship between PCO and vocational identity clarity and occupational self-efficacy, we thus proposed the following:

Hypothesis 1: There is a positive indirect effect of PCO on proactive career behaviors through (a) higher vocational identity clarity and (b) stronger occupational self-efficacy.

Regarding the outcomes of job and career satisfaction, a clear identity should help a person focus on his/her interests, work preferences, and skills, thus potentially enhancing the likelihood of success in one's job or career. The perception of success and the ability to utilize one's skills and perform work in accordance with one's core values and interests can thus increase a person's satisfaction with his/her job and career progress. Moreover, a feeling of efficacy concerning workplace and career challenges should increase a person's satisfaction with his/her job and career because a sense of competence and control are crucial for satisfaction and well-being (Ryan & Deci, 2001). Also, based on goal setting theory research (Locke & Latham, 2002), we can expect that identity clarity and self-efficacy make the attainment of goals more likely because they promote increased effort and persistence in goal pursuit. Goal achievement is in turn a precursor to satisfaction (Locke & Latham, 2002). In support of this premise, empirical studies have confirmed that vocational identity clarity and occupational self-efficacy are positively related to job and career satisfaction (Abele & Spurk, 2009; Goldman, Masterson, Locke, Groth, & Jensen, 2002; Rigotti et al., 2008).

Hypothesis 2: There is a positive indirect effect of PCO on job satisfaction through (a) higher vocational identity clarity and (b) stronger occupational self-efficacy.

Hypothesis 3: There is a positive indirect effect of PCO on career satisfaction through (a)

higher vocational identity clarity and (b) stronger occupational self-efficacy.

Finally, we wanted to explore if PCO predicts career outcomes beyond the career attitudes of identity clarity and self-efficacy. Based on the results of Study 1, which confirmed that PCO, vocational identity clarity, and occupational self-efficacy are moderately correlated, we expected that PCO would make a unique contribution to explain variance in career outcomes and that its effects would only be partially mediated by identity clarity and self-efficacy.

Hypothesis 4: PCO explains unique variance in (a) proactive career behaviors, (b) job satisfaction, and (c) career satisfaction beyond vocational identity clarity and occupational self-efficacy.

Method

Participants and procedure. We contacted university alumni ($N = 1,490$) by sending an email invitation containing a link to an online questionnaire, followed by one reminder email a week later; we achieved a final response rate of 39%, $n = 581$. The participants were invited again six months later, resulting in a final sample of $n = 202$ participants who completed the questionnaires on both measurement occasions (35% follow-up response rate); 55% female; and age $M = 30.67$; $SD = 6.37$; 25% had a bachelor's degree, 68% had a Master's degree, and 5% had a doctoral degree. They worked in a wide range of industry sectors, with 21% in engineering, 15% in business management, 15% in education, and 8% in computer science. The measures of PCO, vocational identity clarity, and occupational self-efficacy were assessed at T1. The outcome measures for engagement in proactive career behaviors, job satisfaction, and career satisfaction were assessed at T2.

Measures. The measures of PCO, vocational identity clarity, and occupational self-efficacy were the same as those in Study 1. All applied scales used a five-point Likert scale response format. Table 3 shows the Cronbach's alpha estimates, means, standard deviations, and correlations between all measures.

Proactive career behaviors. We used the nine-item German career engagement scale (Hirschi, Freund, & Herrmann, 2014) to assess

Table 3

Study 2: Means, Standards Deviations, Reliability, and Correlations

		<i>M</i>	<i>SD</i>	1	2	3	4	5	6
T 1	1. Protean career orientation	37.88	5.84	(.76)	.20*	.46***	.29**	.18*	.23**
	2. Vocational identity	27.10	6.46		(.91)	.47***	.19*	.24*	.36***
	3. Occupational self-efficacy	27.51	4.30			(.86)	.25**	.24*	.38***
T 2	4. Proactive career behaviors	30.56	7.86				(.89)	.24**	.16*
	5. Job satisfaction	34.69	6.22					(.81)	.65***
	6. Career satisfaction	18.55	3.67						(.84)

Note. *N* = 202; the entries in parentheses on the diagonal are the Cronbach's alpha reliability coefficients; * *p* < .05; ** *p* < .01; *** *p* < .001.

the extent to which someone had been engaged in a range of career management behaviors over the last six months (e.g., career planning, self-exploration and environmental exploration, networking, positioning behavior, and voluntary training; “Over the past six months, to what extent have you undertaken things to achieve your career goals?”). Previous research that had used the scale provided support for its construct validity, showing significant positive relationships with career decidedness, career exploration, networking, and job satisfaction among different samples (Hirschi et al., 2014).

Job satisfaction. The respondents indicated their satisfaction with their current job with seven German-language items that tapped into working conditions, possibilities for professional advancement, organizational leadership, work colleagues, work content, supervisors, and income (e.g.,

“How satisfied are you with the organizational leadership in your organization?”) (Neuberger & Allerbeck, 1978).

Career satisfaction. We used a German translation (Abele & Spurk, 2009) of the career satisfaction scale designed by Greenhaus, Parasuraman, and Wormley (1990). The scale consists of five items (e.g., “I am satisfied with the progress I have made towards meeting my overall career goals”). Abele and Spurk (2009) report support for the scale’s unidimensionality and construct validity in terms of significant correlations with salary and occupational status among employees in Germany.

Consideration of control variables. We considered gender, age, educational level, industries, and job tenure as control variables. However, bivariate correlations revealed that none of the control variables showed significant correlations with PCO. We therefore decided to report the results

without including control variables to maximize power and offer more interpretable results (Bernerth & Aguinis, 2016).

Results and Discussion

The correlations between the assessed constructs were significant and moderate to high (Table 3). Replicating the findings from Study 1, PCO correlated positively and moderately with vocational identity clarity and occupational self-efficacy. In addition, PCO significantly correlated with all the criterion variables assessed at T2: proactive career behaviors, job satisfaction, and career satisfaction. To test the proposed multiple-mediation model (H1, H2, and H3), we conducted a multiple-mediation analysis with a bootstrapping approach in *Mplus*, as described by Preacher and Hayes (2008); we used 5,000 bootstrapping samples. To account for shared variance among the three criterion variables and to avoid an inflated Type I error due to several separate analyses, we included all three criterion variables in one model, allowing them to correlate freely.

Table 4 shows the point estimates and 95% confidence intervals for each indirect effect. An indirect effect of PCO (through vocational identity and occupational self-efficacy) on proactive career behaviors could not be confirmed, which refuted H1. However, a significant specific direct effect of PCO on proactive career behaviors was found, confirming the unique effect of PCO on the outcome beyond vocational identity clarity and occupational self-efficacy. There were no significant specific direct, indirect, or total indirect effects of PCO on job satisfaction, which refuted H2. Finally, the results showed significant indirect effects of PCO on career satisfaction through vocational identity clarity and occupational self-efficacy, which supported H3a and H3b. Examining the pairwise contrasts of vocational identity clarity and occupational self-efficacy showed no significant difference between the indirect effects. We did not find a specific direct effect between PCO and career satisfaction, once the effects of vocational identity clarity and occupational self-efficacy were considered. Regarding H4, the results indicate that PCO explains unique variance only in proactive career behaviors but not in job satisfaction or career satisfaction beyond

vocational identity clarity and occupational self-efficacy, supporting H4a but refuting H4b and H4c.

General Discussion

Although the notion of protean careers has become widespread in recent years, there is still a need for further theoretical and empirical refinement to respond to recent criticism in the literature on *new careers*, including claims about the lack of rigorous empirical evaluation of new constructs (Rodrigues & Guest, 2010). As such, we addressed some of the major challenges involved in introducing new constructs (e.g., PCO) into the literature: establishing and clarifying the construct's relationship to existing constructs and examining questions of its distinctness, temporal precedence in relation to other constructs, predictive incremental validity, and underlying mechanisms of functioning.

The notion of the protean career is closely intertwined with other constructs such as identity, self-efficacy, proactivity, locus of control, or adaptability (Gubler et al., 2014; Hall, 2004; Waters et al., 2014). However, also due to inconsistent conceptualizations of PCO in the literature, how PCO relates to such constructs has been theoretically ambiguous and inadequately empirically tested. Our results shed new light on this issue by specifically investigating the theoretical and empirical relationship between PCO and two related key constructs: Vocational identity clarity and occupational self-efficacy. Both our studies support theoretical analyses (Greenhaus et al., 2008; Gubler et al., 2014; Inkson, 2006) that these constructs are not features of PCO because they are only moderately correlated. Our finding implies that a person with a PCO does not necessarily—albeit is more likely to—have a clear vision of where he/she wants to proceed in his/her career (i.e., high vocational identity clarity) or possess a strong sense of agency concerning his/her ability to manage work- and career-related challenges (i.e., strong occupational self-efficacy). Future research could more closely investigate the characteristics that distinguish people who combine PCO with identity clarity and self-efficacy from those who have a strong PCO but lack the latter two attributes.

Table 4

Study 2: Direct and Indirect Effects of Protean Career Orientation on Proactive Career Behaviors, Job Satisfaction, and Career Satisfaction, Mediated by Vocational Identity Clarity and Occupational Self-Efficacy

	Point estimate	Product of coefficients		BC 95% CI	
		SE	p	Lower	Upper
<i>Proactive career behaviors</i>					
Specific direct effects					
PCO -> career behaviors	0.32	0.15	0.03	0.05	0.63 [†]
Identity -> career behaviors	0.12	0.11	0.31	-0.10	0.34
Self-efficacy -> career behaviors	0.17	0.23	0.46	-0.27	0.61
Specific indirect effects					
Through identity	0.03	0.03	0.40	-0.02	0.11
Through self-efficacy	0.06	0.08	0.48	-0.10	0.22
Total indirect effect	0.08	0.07	0.25	-0.05	0.23
<i>Job satisfaction</i>					
Specific direct effect					
PCO -> job satisfaction	0.09	0.11	0.39	-0.12	0.31
Identity -> job satisfaction	0.16	0.11	0.14	-0.07	0.36
Self-efficacy -> job satisfaction	0.18	0.18	0.32	-0.20	0.52
Specific indirect effects					
Vocational identity	0.04	0.03	0.25	-0.01	0.11
Occupational self-efficacy	0.06	0.07	0.34	-0.07	0.19
Total indirect effect	0.10	0.06	0.12	-0.02	0.23

Table 4 (Continued)

	Point estimate	Product of coefficients		BC 95% CI	
		SE	<i>p</i>	Lower	Upper
<i>Career satisfaction</i>					
Specific direct effect					
PCO -> career satisfaction	0.09	0.11	0.52	-0.07	0.20
Identity -> career satisfaction	0.13	0.11	0.03	0.01	0.25 [†]
Self-efficacy -> career satisfaction	0.20	0.10	0.05	0.01	0.41 [†]
Specific indirect effects					
Vocational identity	0.03	0.02	0.13	0.00	0.08 [†]
Occupational self-efficacy	0.07	0.04	0.06	0.01	0.16 [†]
Total indirect effect	0.10	0.04	0.01	0.04	0.18 [†]

Note. *N* = 202; *PCO* = Protean career orientations; *BC* = bias corrected; bootstrap samples = 5,000.

† 95% CI does not include zero.

Study 1 specifically addressed the controversy in the existing literature whether PCO is a correlate, outcome, or predictor of important career attitudes (Greenhaus et al., 2008; Gubler et al., 2014). Investigating the development of PCO in relation to two pivotal career attitudes (i.e., identity clarity and self-efficacy) with a cross-lagged design, our study makes an important and unique contribution to the literature that goes beyond reporting significant relationships between PCO and career attitudes. Specifically, our study allowed to examine the currently insufficiently addressed question of temporal precedence linking PCO and closely related constructs. For this purpose, we sampled university students who were in a developmentally critical period, in which personality traits, work values, and occupational interests are becoming stabilized and crystallized (Arnett, 2000). As our study suggests, the significant relationship between PCO and vocational identity clarity and self-efficacy can be explained by how PCO temporarily predicts the other two constructs. However, we could not confirm that identity and self-efficacy also prospectively predict PCO. Our results hence support the view that that PCO acts as a facilitator in developing other career attitudes,

rather than the other way around. Because vocational identity clarity and occupational self-efficacy are closely related to the meta-competencies of identity and adaptability, our study also provides important insights into the hitherto contested relationship between PCO and these two meta-competencies (Gubler et al., 2014). Our results would suggest that PCO is more likely an enabler than a consequence of career meta-competencies.

Our results specifically imply that PCO surfaces early among non-working students and that this orientation, in turn, contributes to the development of other career attitudes during the college years. Our results imply that the desire to self-direct a career to pursue subjective success (i.e., PCO) motivates students to clarify their personal skills, preferences, and interests in the career domain, which eventually increases their vocational identity clarity. This finding supports those of Briscoe et al. (2012) about the positive correlation between PCO and identity clarity behaviors (i.e., career self-exploration). Our study advances these findings by using a different conceptualization of identity clarity and by linking PCO to identity clarity using a cross-lagged design. Moreover, PCO seems to enhance one's feeling of confidence in mastering work-

related challenges. This finding might be explained by the relationship between PCO and more active coping with change (Briscoe et al., 2012) and an increased sense of employability (De Vos & Soens, 2008). Another possibility is that students with stronger PCOs develop more self-congruent and autonomous career goals. Such an intrinsic goal orientation could then enhance feelings of competence and self-esteem (Vonk & Smit, 2012). Apart from empirical investigations into such underlying mechanisms, future research is needed to more closely investigate how PCO emerges and which factors contribute to its development, possibly even before students attend college.

A longitudinal study among young professionals, Study 2 further enhanced our understanding of the combined and incremental effects of PCO, vocational identity clarity, and occupational self-efficacy in the working context. As such, this study makes a contribution to the still contested questions regarding by which processes a PCO can lead to positive career outcomes and the extent to which PCO can explain career outcomes beyond related and established constructs (Gubler et al., 2014).

Our study showed that identity and self-efficacy mediate some, though not all, of the effects of PCO on important career outcomes. Specifically, we confirmed the importance of PCO as a predictor of proactive career behaviors, as has been found with a different sample of employees in Germany (Herrmann et al., 2015). Given the increased importance of proactivity in the current work and career context (Thomas, Whitman, & Viswesvaran, 2010), this is an important finding that supports the relevance of PCO in the current career environment. Importantly, our results go beyond previous findings and show that PCO has incremental predictive utility for career behaviors, independent of vocational identity clarity and occupational self-efficacy. This finding provides support for the additional value of investigating PCO above career attitudes that have already been established.

The finding also suggests that mechanisms other than increased identity clarity and self-efficacy might be at work in explaining why PCO motivates employees to be more proactive in their career development. We assume that the development of self-congruent goals can also play an important role here

because research has shown that goal self-congruence is linked to engagement in proactive career behaviors (Hirschi et al., 2013). It is moreover possible that proactive career behaviors are not (just) an outcome but also a predictor of vocational identity clarity and occupational self-efficacy. For example, proactive behaviors such as self-reflection and career exploration or increasing knowledge and networks could enhance identity clarity and self-efficacy. Future research should assess mutual effects between proactive career behaviors and career attitudes to shed more light on this issue.

One of the most frequent career outcomes theoretically and empirically associated with PCO is subjective career success (De Vos & Soens, 2008; Hall et al., 1996). Our study confirms previous research (e.g., Briscoe et al., 2012; De Vos & Soens, 2008; Park, 2009) indicating that PCO is positively related to career satisfaction. However, our results go beyond extant studies and more closely indicate how this relationship can be explained. As shown, the effect of PCO on career satisfaction is fully mediated by increased vocational identity clarity and occupational self-efficacy. This finding helps explain why PCO leads to subjective career success and generally enriches our theoretical understanding of why specific career orientations potentially promote subjective success (Rodrigues, Guest, & Budjanovcanin, 2013). As our study implies, an enhanced sense of identity clarity and self-efficacy might be critical in this regard. Of course, these findings do not imply that identity clarity and self-efficacy are the only important mediators. One additional possible reason that PCO is related to subjective career success is that an orientation toward self-direction and subjective career success enhances one's likelihood of using core personal strengths at work, which leads to a more positive evaluation of one's career experiences (Harzer & Ruch, 2012). Future research investigating such possibilities and other mediating mechanisms is warranted.

Finally, in line with previous studies (e.g., Baruch, 2014; Herrmann et al., 2015), we found a significant correlation between PCO and job satisfaction. However, we did not find support for our assumption that the effects of PCO on job satisfaction are mediated by vocational identity clarity and occupational self-efficacy. Extending previous studies, our results

show that the specific direct and indirect effects of PCO on job satisfaction are not significant when vocational identity and self-efficacy are considered. This finding has important implications to better understand how PCO might be differently related to job vs. career satisfaction. Our results suggest that the positive effects of PCO on job satisfaction might be more indirect and largely due to the relationships of PCO with other variables. Because job satisfaction refers to the current working experience, job satisfaction is strongly influenced by diverse factors such as work context and person-job fit, in addition to career attitudes and orientations. This necessarily limits the potential direct effect of PCO on job satisfaction.

In contrast, our results suggest that PCO seems to exert stronger direct effects on the general evaluation of one's career than on the evaluation of one's current job. This is likely because career satisfaction is based on a more global evaluation of working experiences over time and is less dependent on specific, current situational factors. As such, due to criterion-fidelity the attitudinal variable of PCO is likely to have a stronger direct effect on a global career evaluation than that on a specific job evaluation.

More research is now needed concerning whether, how, and why PCO may be important in explaining attitudinal organizational variables, such as job satisfaction, turnover intentions, or work engagement. Future research could specifically address the boundary conditions when PCO is more or less likely to result in favorable career outcomes. Such studies could help to better understand under what circumstances people with a high PCO might not be able to realize its generally beneficial effects, for example, why an employee with high PCO might fail to realize his or her aspired career values.

Limitations and Future Research

First, our studies are somewhat limited because we relied exclusively on self-reported data. The applied longitudinal assessments significantly diminish the possibility of common method bias. However, investigating the relationships of PCO to archival (e.g., promotions, turnover) and other-referred (e.g., job performance) outcome measures could be informative and enrich our understanding of the

functioning of this career orientation. Second, the cross-lagged effects found in Study 1 suggest that PCO temporarily precedes vocational identity clarity and self-efficacy. However, the effects were relatively small and not entirely consistent across different time lags, possibly because the investigated constructs showed relatively high temporal stability over the assessed time span. Although we intentionally sampled a group in which changes in career attitudes are highly likely (i.e., emerging adults at college), obtaining large effects concerning changes and influences among career attitudes seems difficult. The student sample also limits the generalizability of the results to working populations. Moreover, it is possible that the obtained results are spurious because of the fact that the assessed student sample lacked significant work experience. Work experience in general and major work transitions in particular (e.g., from unemployment to reemployment; Waters et al. 2014) may potentially provide a context that leads to different development patterns of PCO, identity clarity, and self-efficacy from those observed in our study of university students.

Future research might also examine how more stable factors (e.g., personality traits, social environment, and family background) might affect career orientations and attitudes and investigate potential changes and effects over several years. Moreover, even with a cross-lagged design, no strict causal inferences are possible because the observed variables are not truly endogenous and because the factors that influence their relationship might be missing from the model. Experimental approaches will be needed, for example, by systematically changing PCO, identity clarity, and/or self-efficacy through career interventions, to provide a true test of causality (Antonakis, Bendahan, Jacquart, & Lalive, 2010).

Also, more research is needed concerning other variables that that might explain the functioning of PCO in relation to important career and organizational outcomes. Specifically, intrinsic and self-congruent goals, work adaptability, or job crafting might be important. Finally, our study explored PCO from a unitary approach. Future research needs to determine if different effects can be observed when distinguishing between the self-directed

and values-driven career attitudes that underlie a PCO.

Practice Implications and Conclusions

Despite these limitations and open research questions, the present studies provided important new insights into how PCO is related to other pivotal career attitudes and how and why it is related to critical career outcomes. We could show that students and employees who hold the conviction that they are autonomously managing their career in order to achieve subjective success (i.e., hold a protean career orientation) show increased vocational identity clarity and occupational self-efficacy. Moreover, identity clarity and self-efficacy are mechanisms through which a protean career orientation is related to increased career satisfaction and proactive career behaviors. Our studies thus help clarify some of the conceptual disparity regarding the nature of PCO and its correlates, antecedents, and outcomes. As the presented studies suggest, PCO should be regarded as closely related to, though conceptually distinct from, the related constructs of identity clarity and self-efficacy. PCO seems to enable these attitudes, which helps explain some of its effects on career outcomes. We believe that these insights will considerably enrich future theoretical and empirical research on career development and career success in general and the protean career in particular.

For practice, there are no evaluation studies to our knowledge of interventions that could effectively change a protean career orientation. Hence, for practitioners working as career counselors or human resource professionals, our studies suggests that it would be fruitful to more directly focusing on increasing vocational identity clarity and occupational self-efficacy, as these two attitudes act as proximal mediators of the positive effects of a PCO, according to our studies. Such interventions could include self-reflections about interests, values, and career preferences to augment identity clarity. To increase self-efficacy, planning and monitoring skill-enhancing learning experiences, providing role models and mentors, and identifying resources and past success experiences could be suitable intervention components.

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