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2014

Uy, M. A., Chan, K.-Y., Sam, Y. L., Ho, M.-h. R., & Chernyshenko, O. S. (2014). Proactivity, adaptability and boundaryless career attitudes : the mediating role of entrepreneurial alertness. *Journal of vocational behavior*, 86, 115–123.

<https://hdl.handle.net/10356/106857>

<https://doi.org/10.1016/j.jvb.2014.11.005>

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Proactivity, Adaptability and Boundaryless Career Attitudes: The Mediating Role of Entrepreneurial Alertness

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Forthcoming: Journal of Vocational Behavior (accepted November 19, 2014)

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Abstract

We examined the role of entrepreneurialism in careers in the information society and global economy, bringing together key constructs in the fields of career studies and entrepreneurship. Specifically, our study involving a diverse group of 750 undergraduate students from Singapore showed that entrepreneurial alertness to opportunities partially mediates the relation of proactive personality to boundaryless career mindset and career adaptability, but not to self-directed or protean career attitudes. Findings are discussed in relation to the contribution of entrepreneurialism to careers research and the larger issues of workforce development.

Keywords: boundaryless, career adaptability, career attitudes, entrepreneurial alertness, proactive personality, protean

Introduction

Rapid globalization, technological changes, and market pressures have caused significant changes in the nature and organization of work and employment. This has resulted in a less conventional view of careers that are loosely tied to vocations and organizations, and to new paradigms for career development such as life construction (Duarte, 2009) and even life designing (Savickas et al., 2009). A new lexicon (Arthur & Rousseau, 1996) has also emerged to describe 21st century career attitudes and behaviors in terms of boundarylessness (DeFillippi & Arthur, 1994), self-directed or protean (Hall, 2002), and career metacompetencies (Hall & Moss, 1999) like career adaptability (Savickas, 1997). Recent studies suggest that workers who espouse these contemporary career attitudes and competencies may better adapt to the current work environment. Examining factors that shape such attitudes and competency are important for both theory and practice, because past studies have shown that they result in favorable outcomes such as career success (De Vos & Soens, 2008), organizational commitment (Briscoe & Finkelstein, 2009), employability (McArdle, Waters, Briscoe, & Hall, 2007), career satisfaction (Tolentino, Garcia, Restubog, Bordia, & Tang, 2013), job search effectiveness and reemployment quality (Koen, Klehe, Van Vianen, Zikic, & Nauta, 2010).

Along with this paradigm shift, scholars have also recognized the significance of entrepreneurialism in careers research. For example, elaborating on boundaryless careers, Arthur and Rousseau (1996) used the Silicon Valley, the hotbed of innovation and enterprise, to illustrate how people in that environment moved across boundaries of separate employers. They used expressions that echo entrepreneurialism such as drawing validation from outside the organization (instead of within the organization) which depicts entrepreneurial proclivity (Matsuno, Mentzer, & Ozsomer, 2002) and crafting one's career path without regard for structural constraints, which hints at Stevenson and Jarillo's (1990) definition of

entrepreneurship: “the pursuit of opportunities without regard for resources one currently controls” (p. 23). Moreover, Korotov and colleagues (2011) introduced the term “career entrepreneurship” as “the identification of unexploited opportunities and making of career investments in order to obtain a higher objective or subjective career reward” (p. 128). Career entrepreneurship involves acting entrepreneurially in navigating one’s career path that results in more opportunities. In becoming “*entrepreneurs* of their own career,” individuals build a portable repertoire of competencies to maintain and enhance their market value, and choose jobs fitting their personal goals as far as market conditions allow (Hoekstra, 2011).

Accordingly, scholars have argued for the crucial role of alertness to opportunities in the modern career research and practice (Arthur & Rousseau, 1996; Weick, 1996; Gunz, Evans, & Jalland, 2000). While career researchers have alluded to the significance of entrepreneurialism in understanding career constructs, empirical research is surprisingly lacking. In this study, we took a closer look at the relation between proactive personality and boundaryless career attitudes and adaptability, and propose alertness to opportunities (i.e., entrepreneurial alertness) as a mechanism that could account for the impact of proactive personality on career attitudes and adaptability. The value of examining entrepreneurial alertness is that it concerns the individual’s awareness, assessment and orientation toward uncertainties and changes in the external environment and context — beyond the within-person, internal issue of identity, which Hall suggested as the other meta-competency for boundaryless and/or protean careers (see also Hall & Moss, 1999). To date, however, entrepreneurial alertness have been mostly viewed and studied within the field of entrepreneurship. Integrating alertness to opportunities into the careers research would inform inquiry into understanding boundaryless career attitudes and career

adaptability, as well as identifying practical ways of developing these contemporary career development outcomes.

Boundaryless and protean career attitudes and career adaptability

Since the 1990s, the field of career development has undergone a paradigmatic change with “career adaptability fast replacing “career maturity” a central construct in both research and practice (Goodman, 1994; Savickas, 1997, 2005). If the focus of career development in the previous century was to help individuals to be more ready to decide on a job, occupation or vocation—a question of career maturity or readiness, today, the focus is shifting towards assessing and strengthening the individual’s psychosocial resources to manage occupational transitions, developmental tasks and work traumas (e.g., Weigl, Hornung, Parker, Petru, Glaser, & Angerer, 2010) and in helping individuals to think of their future careers in more boundaryless, self-directed ways which are deemed vital for career adaptability in an uncertain and changing job market (e.g., Savickas & Porfeli, 2012). In this paper, we focus on boundaryless and self-directed career attitudes and career adaptability as contemporary career development outcomes.

A boundaryless career attitude includes a boundaryless mindset (i.e., people’s psychological mobility) and organizational mobility preference (i.e., people’s physical mobility). A person with boundaryless career mindset tends to transcend organizational boundaries, which involves going beyond a single employer and a traditional career arrangement (cf. Sullivan & Arthur, 2006). Such persons enjoy working on projects with people across many organizations and feel enthusiastic about engaging in new experiences and situations outside the organization. Organizational mobility preference reflects an attitude to conduct actual moves between different occupations, jobs, and organizations, such that those with high organizational mobility preference choose to work in several different organizations and cross organizational boundaries

by taking employment in another company (DeFillippi & Arthur, 1994; Sullivan & Arthur, 2006).

In comparison, protean career attitude involves independence in managing one's career and self-directed career behavior (Briscoe, Hall, & DeMuth, 2006). Hall (2002, 2004) suggested that protean careers are highly self-directed, flexible, adaptive, and changeable. People with protean career attitudes are values-driven as they shape their careers according to their own internal values and beliefs (in contrast to organizational values and beliefs; Briscoe & Hall, 2006). Briscoe and colleagues (2006) developed measures for boundaryless and protean career attitudes, arguing that boundaryless and self-directed protean career attitudes are related yet theoretically different constructs. However, studies that tease apart the distinction between boundaryless and self-directed protean career attitudes are surprisingly limited, to the extent that some scholars even use them interchangeably (e.g., Harrison, 2006; Inkson, 2006). In this study, we address this gap by proposing different hypotheses for the two career attitudes, as we will explain more in the later sections.

Another contemporary career construct beyond attitudes is career adaptability. Career adaptability is distinguished from adaptivity traits like proactive personality, and is defined as “attitudes, competencies, and behaviors that individuals use in fitting themselves to work that suits them” (Savickas, 2005, p. 45) and “enables the individual to prepare for current and anticipated occupational changes” (Tolentino, Garcia, Restubog, Bordia, & Tang, 2013, p. 411). Savickas and Porfeli (2012) conceptualized career adaptability as a multidimensional construct comprising four self-regulatory elements: concern (involvement in preparing for one's future career), control (ownership and responsibility to influence one's career), curiosity (exploring possible selves and opportunities), and confidence (active career pursuit and anticipation of success in the midst of challenges). Taken together, these career-relevant attitudes (i.e.,

boundaryless and protean career attitudes) and psychosocial resources (i.e., career adaptability) have been identified as critical for individuals to acquire if they wish to survive the digital revolution and thrive in the work context of the global economy.

Proactive personality: A common antecedent in careers and entrepreneurship research

Proactive personality captures a behavioral tendency toward enacting, or changing, one's environment (Bateman & Crant, 1993). Proactive individuals are those who are unconstrained by situational forces, identify opportunities and act on them, show initiative, take action to influence their environments, and persevere until meaningful change occurs; while non-proactive individuals are passive and reactive: they fail to identify, let alone seize, opportunities to change things, and prefer to adapt to rather than change circumstances (Bateman & Crant, 1993).

Past studies have established the link between proactive personality and key career constructs. Seibert and colleagues (2001) asserted that proactive individuals “select, create, and influence work situations that increase the likelihood of career success” (p. 847). Proactive personality has been shown to positively predict objective and subjective career success (Erdogan & Bauer, 2005; Fuller & Marler, 2009; Ng, Eby, Sorensen, & Feldman, 2005). Briscoe et al. (2006) also found a positive link between proactive personality and boundaryless and protean career attitudes. Hinging on the career construction theory which states that “individuals can enact change to improve their current circumstances” (Crant, 2000, p. 41), Tolentino et al. (2014) found that proactive personality predicted career adaptability.

Interestingly, proactive personality has also fared prominently in entrepreneurship research. Crant (1996) reported a positive correlation between proactive personality and intentions to own a business ($r = .48$), with proactivity explaining an additional 17% of the variance in entrepreneurial intentions after controlling for gender, education, and family background. Becherer and Maurer (1999) reported positive links between company presidents'

proactive personality and changes in company sales. They also showed that proactivity related to starting rather than buying or inheriting a business, and with the number of businesses started. Kickul and Gundry (2002) examined business owners' personality, strategic orientation, and innovation, and found that proactive personality related positively with three types of innovations: innovative targeting processes, innovative organizational systems, and innovative boundary supports.

In sum, proactive personality has received considerable attention in both fields of career studies and entrepreneurship, yet little effort has been made to learn from each field. We propose that ideas from the entrepreneurship field can help articulate the mechanism through which proactive personality impacts boundaryless career attitudes and career adaptability. Specifically, in addressing why and how people differ in their boundaryless and protean career attitudes as well as their career adaptability levels, we argue that integrating the entrepreneurial cognition perspective (in the form of entrepreneurial alertness to opportunities) into our theorizing could offer critical insights on the links between entrepreneurship and career constructs.

Entrepreneurial alertness as mediator

Entrepreneurial alertness was conceptualized by Kirzner (1973, 1997) who suggested that entrepreneurs are more alert to new opportunities and use information differently. Alert individuals are characterized as —having the antenna “that permits recognition of gaps with limited clues”, and includes elements of creativity and imagination (Tang, Kacmar, & Busenitz, 2012, p. 78). Kaish and Gilad (1991) regarded alert individuals as having the unique preparedness and readiness to discover opportunities. Alertness is critical in recognizing opportunities, as it helps people “identify new solutions to market and customer needs in existing information, and to imagine new products and services that do not currently exist” (Baron & Ensley, 2006, p. 1331). The element that is entrepreneurial in human action is in the alertness to information rather than its

possession (Kirzner, 1973). People who are high in entrepreneurial alertness tend to search for and notice changes in the environment and to adjust their existing mental framework that does not match with the current information available (Gaglio & Katz, 2001); they also tend to possess more complex and adaptive mental framework (Baron, 2004).

Scholars argued that proactive personality is one of the critical determinants of entrepreneurial alertness to opportunities, given that opportunity identification is a process that typically involves personal initiative (Ardichvili, Cardozo, & Ray, 2003; Tang et al., 2012). We propose that entrepreneurial alertness will partially account for the relationship between proactive personality and boundaryless career attitudes and adaptability. We anchor our theorizing on studies that suggest a positive relation between proactive personality and entrepreneurship (e.g., Becherer & Maurer, 1999; Kickul & Zaper, 2000), and from career scholars that have alluded to (but have not empirically examined) the relevance of alertness to opportunities in careers research (cf. Arthur & Rousseau, 1996; Korotov et al., 2011). It has also been argued that opportunity recognition is not limited to creating new ventures, but is relevant for contemporary career theory and research (Bridgstock, 2005; Hoekstra, 2011; Sullivan & Baruch, 2009). Similar to entrepreneurs, boundaryless-minded individuals would draw validation and marketability from outside the present employer, and sustain their work through external networks (Sullivan & Baruch, 2009). While many career scholars have alluded to the importance of alertness to opportunities (e.g., Lent, 2013; Tams & Arthur, 2010), we are unaware of empirical studies that tested its significance.

In the current study, our focal outcome variables are boundaryless mindset, protean career attitude, and career adaptability. We did not explicitly hypothesize for organizational mobility preference because our participants are students who have insufficient work experience (cf. Chan et al., 2012). Moreover, Briscoe and colleagues (2012) conceptualized boundaryless

mindset as something that includes physical and psychological mobility, implying that the notion of organizational mobility preference is already subsumed under boundaryless mindset.

Specifically, we hypothesize that entrepreneurial alertness will partially account for the links between proactive personality and boundaryless career mindset, but not self-directed protean attitude (**Hypothesis 1**). Briscoe and Hall (2006; see also Briscoe, Hall, DeMuth, 2006) have attempted to clarify the conceptual distinction between boundaryless mindset and self-directed protean attitudes. Underlying this distinction is the fundamental notion that if boundarylessness concerns one's thinking about one's career in relation to opportunities and (the lack of) boundaries in one's *external* environment, protean, self-directed attitude in contrast pertain to *internal*, personal factors like one's identity and values that affect one's career thinking. If boundaryless-minded individuals tend to draw validation and marketability from the external environment, and sustain their work through external networks (Sullivan & Baruch, 2009), protean-minded individuals adopt internally-developed standards and seek independence in their careers (Inkson, 2006). As such, we expect entrepreneurial alertness to (external) opportunities to relate positively to boundaryless mindset but not to (internally-driven) self-directed, protean attitude, especially when dispositional proactivity has been accounted for as a common antecedent to both career attitudes.

Similarly, to the extent that career adaptability is operationalized as a psychosocial construct concerning one's resources for coping with changes that are not at the core of the individual, but that reside at the intersection of person-in-environment (i.e., both internal and external; Savickas & Porfeli, 2012), and with Herr and colleagues (2004) postulating that entrepreneurial sensibilities are needed to be adaptable in the global market, we also hypothesize that entrepreneurial alertness to opportunities will partially mediate the relationship between proactive personality and career adaptability (**Hypothesis 2**).

Our overall research model is depicted in Figure 1.

Method

Sample and procedures

A former British colony with English as the main language of education and business, Singapore has had a relatively strong tradition of research on vocational behavior (Tan, 1998). Today, Singapore finds itself with a rapidly aging workforce competing economically in a globalized world (e.g., Harper, 2006). Workforce development policies have therefore shifted to address issues of employability and career adaptability (see Billett, 2011), of which one approach has been to inculcate entrepreneurialism in the workforce (Say & Patrickson, 2012).

With this backdrop, a total of 761 undergraduate students from a large public university in Singapore were recruited to participate in the present study. Eleven respondents were omitted from the dataset due to incomplete or questionable response patterns (e.g., selecting 1 as a response across entire sections of the survey including reverse worded items) leaving 750 participants in the final sample (45% were male). The mean age was 23.25 years ($sd = 1.51$). A total of 77% were Singapore citizens and 23% were non-Singaporeans. The breakdown of students by academic discipline was as follows: 37% engineering; 20% arts, humanities, social sciences, and education; 19% science; and 24% business. In terms of year of study, 20% of the participants were in year two, 49% were in year three, and 31% were in year four. Data collection was conducted via online survey administered in the university computer laboratory. Upon completing the survey, each participant received S\$20 and was enrolled in two lucky draws. All participants gave their informed consent before the study commenced.

Measures

Proactive personality. Proactive personality was measured using Bateman and Crant's (1993) scale. Participants rated the extent to which each item described them, such as "If I

believe in an idea, no obstacle will prevent me from making it happen” using a 5-point scale ranging from 1 (strongly disagree) to 5 (strongly agree). The alpha coefficient was .77.

Entrepreneurial alertness. Entrepreneurial alertness was measured using a 13-item three-factor scale developed by Tang and colleagues (2012). Participants used a 5-point scale ranging from 1 (strongly disagree) to 5 (strongly agree) to rate the extent to which each item described them, such as “I am always actively looking for new information” (*Scanning and search*), “I see links between seemingly unrelated pieces of information” (*Association and connection*), and “I have an extraordinary ability to smell profitable opportunities” (*Evaluation and judgment*). The alpha coefficient of the general alertness factor was .88.

Boundaryless career attitudes. Participants’ boundaryless mindset was measured using Briscoe et al.’s (2006) Boundaryless Career Attitudes scale. Participants were asked to indicate on a 5-point scale ranging from 1 (to a little or no extent) to 5 (to a great extent) the extent to which each item described them, such as “I would enjoy working on projects with people across many organizations.” The alpha coefficient was .91.

Self-directed protean attitude. Self-directed protean attitude was measured using Briscoe et al.’s (2006) Protean Career Attitudes scale. Participants rated the extent to which each item described them, such as “I am responsible for my success or failure in my career” on a 5 point scale ranging from 1 (to a little or no extent) to 5 (to a great extent). The alpha coefficient was .78.

Career adapt-abilities. We used Savickas and Porfeli’s (2012) Career Adapt-abilities Inventory (International version 2.0) which consists of 4 sub-scales—concern, control, curiosity, and confidence—with 6 items per sub-scale. Participants were asked to indicate the extent to which they have developed their career adapt-abilities on a 5-point scale, ranging from 1 (not strong) to 5 (strongest) on items such as, “Thinking about what my future will be like”

(*Concern*), “Making decisions by myself” (*Control*), “Probing deeply into questions I have” (*Curiosity*), and “Overcoming obstacles” (*Confidence*). The alpha coefficient for the general adapt-abilities factor was .95.

Results

Score distributions of all items were examined; skewness and kurtosis were within the acceptable range of -2 to $+2$ and histograms and normal Q–Q plots suggested no major violation of the assumption of normality. Outliers were also checked using box-plots and no outliers were found. Table 1 shows the descriptive statistics, reliability coefficients and correlations among all the variables. Cronbach alpha coefficients were all above .70 (Nunnally & Bernstein, 1994). All correlations were significant at $p = .001$. Consistent with past studies, the correlations indicated strong relationships between proactive personality and career attitudes ($r = .49$ with boundaryless mindset, $r = .56$ with self-directed, protean attitudes) and with career adaptability ($r = .61$). Proactive personality was also related to entrepreneurial alertness ($r = .56$).

Following Anderson and Gerbing (1988), we first tested the fit of the measurement model before testing the underlying structural models using MPlus 7.2 (Muthén & Muthén, 1998-2012). We used the sub-scale scores of entrepreneurial alertness and career adapt-abilities scales to model the general factors respectively. For proactive personality, boundaryless mindset, organizational mobility preference, and self-directed protean attitude scales, we used Little and colleagues’ (2002) approach to form item parcels for each scale by balancing the best and worst items based on single-factor loadings to create three indicators for each scale (see also Landis, Beal, & Tesluk, 2000). We ran confirmatory factor analysis to check for common method bias. Fitting a single common-factor to all item parcels generated poor fit ($CFI = .73$; $SRMR = .08$; $RMSEA = .13$) relative to the measurement model with 5 first-order factors ($CFI = .97$; $SRMR = .03$; $RMSEA = .05$; see Table 2). This suggests that common method bias does not pose a threat

to our findings (Podsakoff, MacKenzie, Lee & Podsakoff, 2003).

Using structural equation modeling, we compared the fit of the hypothesized, partial mediation model (see Figure 1) where all direct paths from proactive personality to boundaryless mindset, organizational mobility preference, self-directed protean attitudes and career adaptability resources were freed, against a fully-mediated model. The fit statistics (see Table 2) showed that the fit of our hypothesized partial mediation model with all possible direct and indirect paths ($\chi^2 = 331.47$; $df = 98$; CFI = .95; SRMR = .05; RMSEA = .06; AIC = 18898.14; BIC = 19147.63) fitted the data better compared to that of the full mediation model with all paths mediated through entrepreneurial alertness ($\chi^2 = 376.31$; $df = 100$; CFI = .94; SRMR = .06; RMSEA = .06; AIC = 18953.74; BIC = 19193.99).

To check if we can further improve our partial mediation model, we examined the modification indices and added correlation between the error terms of the endogenous variables (boundaryless mindset and self-directed attitude). The final partial mediation model (see standardized coefficients in Figure 2) showed better fit ($\chi^2 = 283.80$; $df = 97$; CFI = .96; SRMR = .04; RMSEA = .05; AIC = 18833.59; BIC = 19087.70) compared to the rest of the models (cf. Table 2). Therefore, we retained it (i.e., the third structural model in Table 2) as the final model.

The paths in the final model depicted in Figure 2 indicated that entrepreneurial alertness partially mediated the impact of proactive personality on boundaryless mindset (Hypothesis 1) and career adaptability (Hypothesis 2). The Sobel tests indicated that the mediating effect of entrepreneurial alertness was significant for proactive personality to boundaryless mindset ($z=3.05$, $p<0.01$) and proactive personality to career adaptability ($z=5.99$, $p<0.01$). Hence, both hypotheses were supported. Consistent with our hypothesis, entrepreneurial alertness did not mediate the relationship between proactive personality and protean career attitude, as the path from alertness to protean career attitude was not significant ($b=-0.05$, ns).

Discussion

According to Sardeshmukh and Smith-Nelson, “the need for an entrepreneurial, opportunity-focused mindset extends beyond entrepreneurial careers to encompass a broader careers perspective” (2011, p. 48). In recent years, career scholars have also begun to incorporate entrepreneurship as a critical dimension of the 21st century context of more boundaryless and protean or self-directed (rather than traditional, organizationally-managed) careers. Chan et al. (2012), for example, have shown empirically how entrepreneurial, professional and leadership motivations and efficacies can be measured independently, arguing that career trajectories can be studied and even be represented or constructed as vectors in a boundaryless entrepreneurial, professional and leadership/bureaucratic space.

The present study, as part of an effort to examine the role of entrepreneurialism in careers, aimed to illuminate the relationship between proactive personality and contemporary career development outcomes by proposing entrepreneurial alertness as a mediating mechanism. While it has been previously argued that the ability to recognize opportunities are relevant for boundaryless careers (Bridgstock, 2005), we have shown empirically that entrepreneurial alertness to opportunities partially mediated the relationship between proactive personality and (1) boundaryless career mindset, and (2) career adaptability. In other words, proactive personality encourages alertness to opportunities which in turn promotes boundaryless career mindset and career adaptability. Our findings lend support to the arguments by DeFillippi and Arthur (1994; see also Arthur & Rousseau, 1996) alluding to the relevance of entrepreneurialism in contemporary career research, as well as Korotov et al.'s (2011) career entrepreneurship, which suggests that entrepreneurial opportunity seeking is crucial to thrive in the present complex and dynamic environment.

Second, as hypothesized, alertness to opportunities did not predict self-directed or

protean career attitudes. In doing so, we have also shown empirically how entrepreneurial alertness to opportunities is a cognitive construct that can help illuminate the distinction between boundaryless (concerning the external environment) and self-directed protean career attitudes (which focuses on the within-person, internal aspect). This finding lends empirical support to Briscoe and colleagues' (2006) theorizing that boundaryless mindset and protean career attitude are related yet conceptually distinct. Finally, our finding that both proactive personality and entrepreneurial alertness to opportunities are antecedents to career adaptability also reinforces Savickas and Porfeli's (2012) operationalization of career adaptability as a psycho-social, "person-in-environment" rather than a "person-only" construct.

Our study demonstrates how an entrepreneurial perspective can contribute to efforts aimed at building the nomological network of contemporary career constructs such as boundaryless and protean attitudes, and career adaptability. More significantly, we show how theoretical frameworks on contemporary career constructs at the psychological level can gain from incorporating entrepreneurial alertness to opportunities into their models. Our study therefore helps to fulfill the promise of entrepreneurship (cf. Shane & Venkatamaran, 2000) as a field that is able to contribute to the broader domain of research (and in this instance, career studies) with its own unique concepts like entrepreneurial alertness to opportunities.

Limitations and future directions

Our empirical findings employed cross-sectional data-modeling to examine conceptual hypotheses. These are not causal claims. Longitudinal designs and intervention studies can be conducted to test whether training individuals to be more entrepreneurially alert can in turn raise boundaryless career attitudes and career adaptability. While the present study has focused on university graduates in an attempt to examine the early antecedents of individual differences in career attitudes and adaptability resources, future research should also examine how career

attitudes and adaptabilities emerge or change with employment experience among working adults, which itself may impact the development of alertness to opportunities.

While we have tried to examine empirically the relationship between proactivity and entrepreneurial alertness to opportunities and career constructs, the entrepreneurial constructs included in this study are certainly not exhaustive. In terms of DeFillipi and Arthur's (1994) intelligent career framework, entrepreneurial alertness relates to "know-how" skills such as opportunity identification. Specific studies can be conducted using these measures alongside other measures of "know-why" skills (e.g, identification with the entrepreneurial mission), and "know-whom" capacities (e.g., having entrepreneurially-relevant social network and interaction) to more directly test their framework. Future research can also directly test Korotov et al.'s (2011) idea of career entrepreneurship by examining how entrepreneurial alertness to opportunities relates to job search and career self-management behaviors in the employment context. Similarly, besides alertness to opportunities, other cognitive elements such as perceptions of risks (Simon, Houghton, & Aquino, 2000), optimistic bias (Cassar, 2010), and cognitive styles (Brigham, De Castro, & Shepherd, 2007) can also be considered in future studies. As much as the cognitive perspective provided additional insights in entrepreneurship research (Baron, 2004), it could likewise complement and enrich our knowledge of career theories and research.

Practical implications

Implications from our study can also help guide efforts to prepare graduates for the more dynamic work environment. Because alertness to opportunities is a cognitive attribute that can be nurtured and developed (Baron, 2004), our findings can help career mentors, coaches, and policy makers in strategizing and designing relevant interventions and initiatives that bring in entrepreneurialism into the career development and guidance process. Given that alertness to

opportunities is an important component of career development (Watts, 2008), training programs can be designed to develop cognitive-related processes involving alertness to opportunities that extend beyond creating new ventures to include the broader career context (e.g., Béchard & Grégoire, 2005; Sardeshmukh & Smith-Nelson, 2011; Solesvik, Westhead, Matlay, & Parsyak, 2013).

Practically, therefore, our study suggests that one way to better prepare university graduates for careers in the global economy and information society may be to encourage them to increase their alertness to information and opportunities. Efforts can also be made to help them acquire more boundaryless mindsets and career adaptabilities. They should also focus their career development efforts at enhancing their career adaptabilities and their overall employability orientation (Van Dam, 2004). The latter could have implications for labor policies that have traditionally called for more emphasis on employability and entrepreneurship to tackle the economic challenges of work and employment for youth (cf. United Nations, 2001).

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Table 1**Descriptive Statistics, Correlations, and Reliabilities of Measures**

Variable	No. of items	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9
1. Proactive personality	8	3.67	.49	(.77)								
2. Entrepreneurial alertness	13	3.4	.56	.56***	(.88)							
3. Boundaryless mindset	7	3.71	.74	.49***	.42***	(.91)						
4. Self-directed protean attitude	7	3.71	.57	.56***	.37***	.57***	(.78)					
5. Career adapt-abilities (CAAS)	24	3.47	.64	.61***	.57***	.53***	.56***	(.95)				
6. CAAS: Concern	6	3.34	.76	.46***	.43***	.42***	.46***	.84***	(.87)			
7. CAAS: Control	6	3.45	.75	.52***	.45***	.46***	.54***	.87***	.66***	(.87)		
8. CAAS: Curiosity	6	3.52	.73	.59***	.60***	.53***	.50***	.87***	.61***	.68***	(.91)	
9. CAAS: Confidence	6	3.58	.70	.53***	.48***	.43***	.46***	.88***	.65***	.71***	.71***	(.86)

Note. Numbers on the diagonal represent alpha coefficients. N = 750. ***p < .001.

Table 2**Fit Statistics for Models Tested**

Model tested	χ^2	df	χ^2/df	CFI	SRMR	RMSEA	AIC	BIC
Confirmatory factor analysis								
16 indicators, 1 common factor model	1416.33	104	13.62	0.73	0.08	0.13	20411.51	20633.27
16 indicators, 5 first-order factor measurement model	248.45	94	2.64	0.97	0.03	0.05	18791.23	19059.20
Structured model								
Full mediation*	376.31	100	3.76	0.94	0.06	0.06	18953.74	19193.99
Partial mediation*	331.47	98	3.38	0.95	0.05	0.06	18898.14	19147.63
Partial mediation†	283.80	97	2.93	0.96	0.04	0.05	18833.59	19087.70

* No correlation was assigned between the endogenous variables.

† Correlation between the endogenous variables (boundaryless career attitudes & self-directed protean attitude) was assigned based on modification indices (≥ 20).

Figure 1

Research Model: Proactive Personality, Entrepreneurial Alertness, and Career Development Outcomes

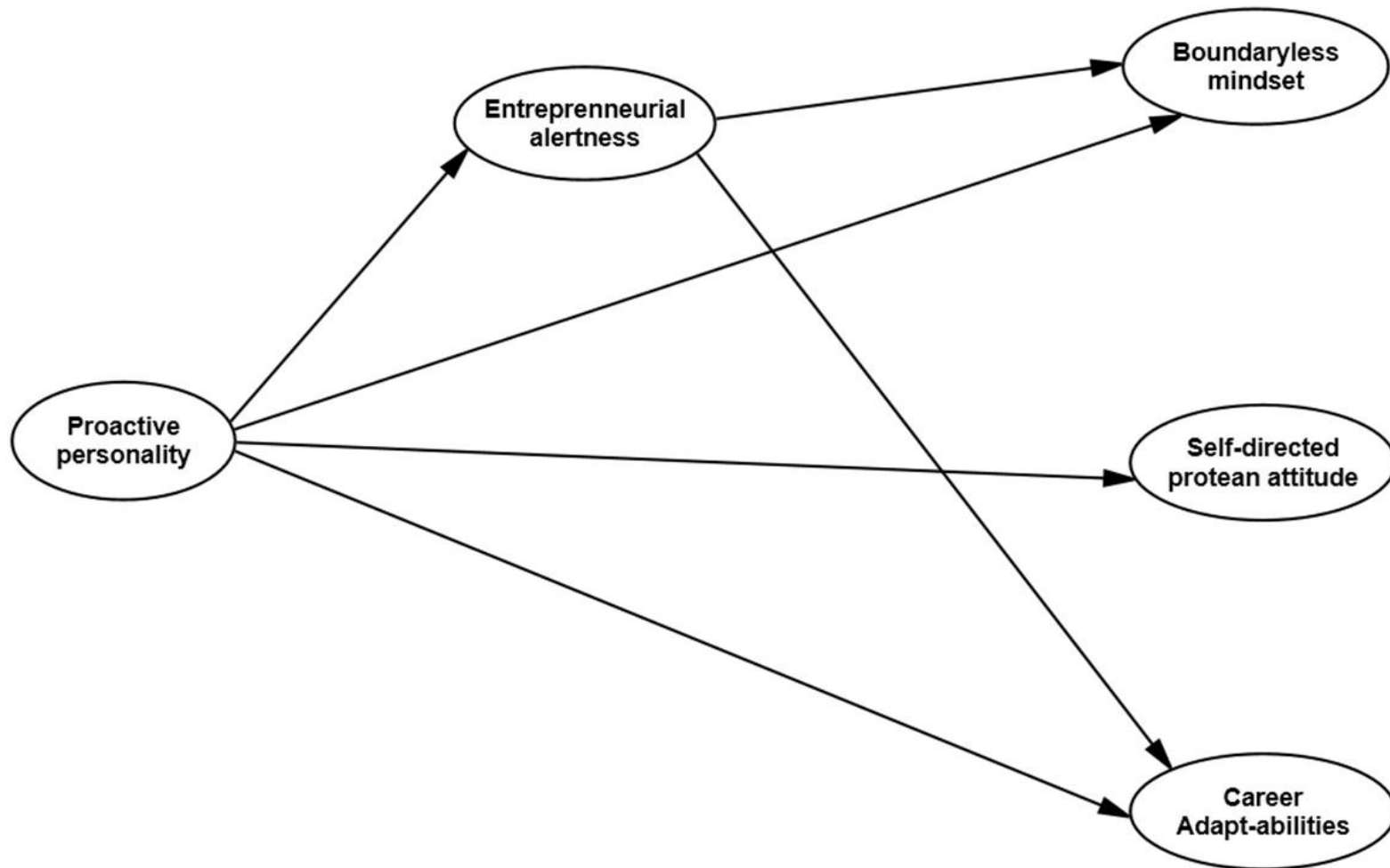
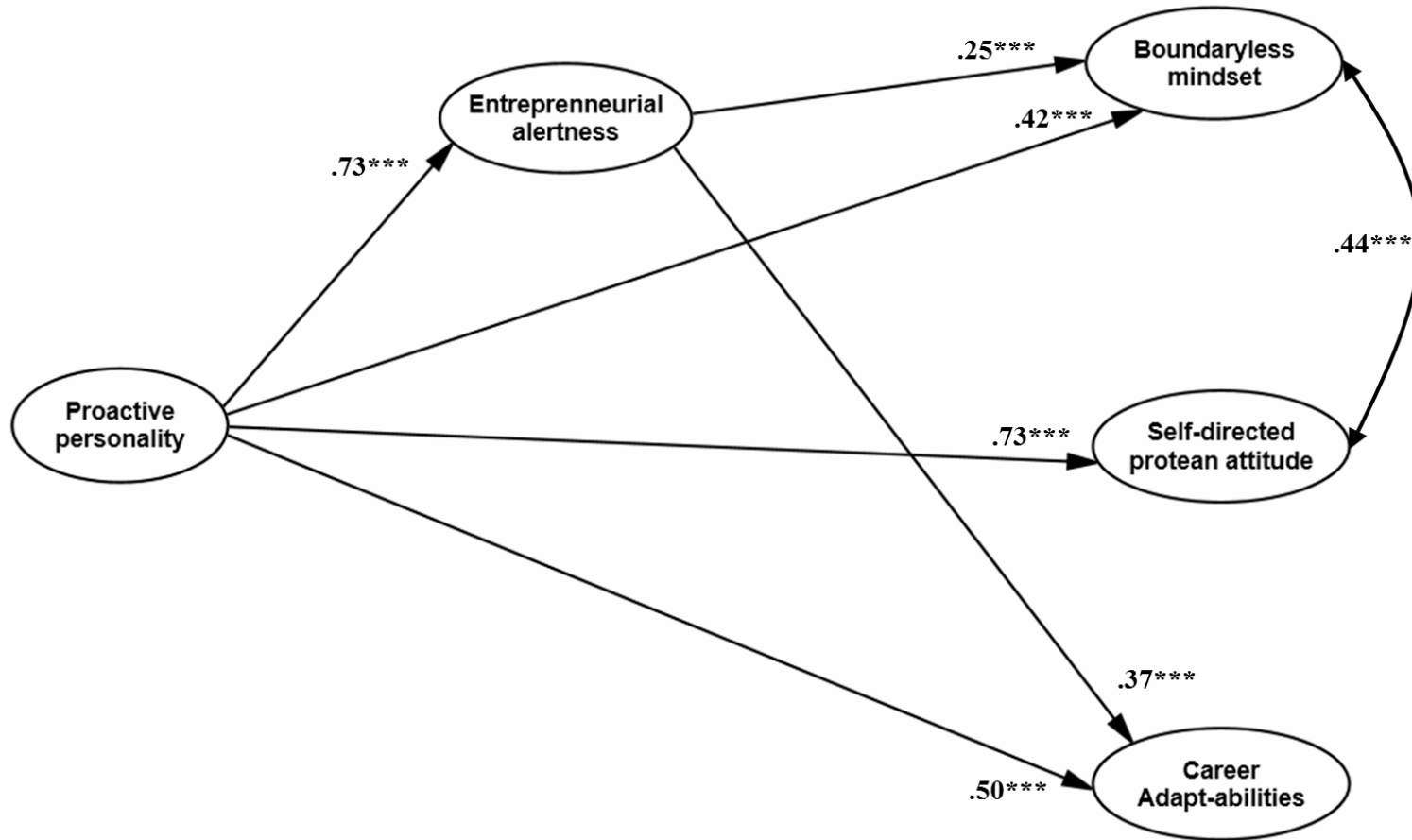


Figure 2

Results of the Partial Mediation Model: Proactive Personality, Entrepreneurial Alertness, and Career Development Outcomes



Note. Standardized factor loadings are reported. *** $p < .001$.

For presentation simplicity, only latent factors and structural paths are shown; observed indicators, and error terms are omitted from the model.