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Short forms of protean and boundaryless career attitudes scales in the Turkish context: validation and psychometric evaluation

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Abstract
This project validates the short forms of protean and boundaryless career attitude scales and assesses their psychometric properties in the Turkish context. Two studies confirmed the two-factor structure and good internal consistency. Career planning was positively related to the short forms of self-directed career management, values-driven career orientation, and boundaryless mindset subscales, indicating concurrent validity. The short forms of self-directed career management, values-driven career orientation, and boundaryless mindset subscales were positively related to proactive personality and mastery goal orientation. Results suggest that the short forms of protean and boundaryless career attitude scales are reliable and valid in the Turkish context.

Keywords Protean careers · Boundaryless careers · Scale validation

Resumé
Version courte des échelles de mesure des attitudes de carrière protéenne et sans frontières dans le contexte turc : Validation et évaluation psychométrique Ce projet valide les versions courtes des échelles de mesure des attitudes de carrière protéenne et sans frontières, et évalue leurs propriétés psychométriques dans le contexte turc. Deux études ont confirmé la structure à deux facteurs et la bonne cohérence interne. La planification de carrière était positivement liée aux versions courtes du management de la carrière par soi-même, aux valeurs propres à l'individu et aux sous-échelles de l'état d'esprit sans frontières, ce qui indique une validité concur-

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rente. Les versions courtes du management de la carrière par soi-même, des valeurs propres à l'individu et les sous-échelles de l'état d'esprit sans frontières étaient positivement liées à la personnalité proactive et au but de maitrise. Les résultats suggèrent que les versions courtes des échelles de mesure des attitudes de carrière protéenne et sans frontières sont fiables et valides dans le contexte turc.

Zusammenfassung

Kurzformen der Skalen zur proteischen und entgrenzten Laufbahneinstellung im türkischen Kontext: Validierung und psychometrische Überprüfung Dieses Projekt validiert die Kurzformen der Skalen zur proteischen und entgrenzten Laufbahneinstellung und überprüft deren psychometrische Eigenschaften im türkischen Kontext. Zwei Studien bestätigten die Zwei-Faktoren-Struktur und die gute interne Konsistenz. Laufbahnplanung stand in einem positiven Zusammenhang mit den Kurzformen der Subskalen selbstgesteuertes Laufbahnmanagement, wertegeleitete Einstellung, und entgrenzte Laufbahneinstellung. Dadurch konnte die konkurrente Validität bestätigt werden. Die Kurzformen der Subskalen selbstgesteuertes Laufbahnmanagement, wertegeleitete Einstellung, und entgrenzte Laufbahneinstellung standen in einem positiven Zusammenhang mit den Skalen proaktive Persönlichkeit und Lernzielorientierung. Die Ergebnisse deuten darauf hin, dass die Kurzformen der Skalen zur proteischen und entgrenzten Laufbahneinstellung im türkischen Kontext reliabel und valide sind.

Resumen

Formas cortas de escalas de actitudes profesionales proteicas y sin fronteras en el contexto turco: validación y evaluación psicométrica Este proyecto valida las formas cortas de escalas de actitudes profesionales proteicas y sin froteras y evalúa sus propiedades psicométricas en el contexto turco. Se confimó, a través de dos estudios, una estructura de dos factores y una buena consistencia interna. La planificación de la carrera se relacionó positivamente con las formas cortas de gestión de la carrera autodirigida, la orientación profesional basada en valores y las subescalas de mentalidad sin límites, lo que indica la validez concurrente. La gestión profesional autodirigida, la orientación profesional basada en valores y las subescalas de mentalidad sin fronteras de las formas cortas se relacionaron positivamente con la personalidad proactiva y la orientación hacia objetivos de control. Los resultados sugieren que las formas cortas de escalas de actitudes profesionales proteicas y sin fronteras son fiables y válidas en el contexto turco.

Introduction

Traditional career paths and career expectations have undergone significant changes in recent years due to the increasingly fluid work environments (De Vos & Soens, 2008). The concepts of protean and boundaryless careers have therefore received a great deal of attention in the career field over the last few decades (Briscoe & Hall, 2006), as they capture the realities of the contemporary working life (Inkson, 2006).

Due to the fact that protean and boundaryless careers have been welcomed enthusiastically by both academics and practitioners, Briscoe, Hall, and DeMuth (2006) developed and validated the first protean and boundaryless careers attitudes scales. Even though these scales led to a significant increase in empirical research (Gubler et al., 2014; Hall et al., 2018; Porter et al., 2016), several authors (e.g., Baruch, 2014; Borges et al., 2015; Porter et al., 2016) questioned the scales with regard to their validity and psychometric properties. For instance, the length of the scales has been heavily critiqued (Baruch, 2014; Porter et al., 2016). Moreover, some items of the scales are found repetitive and overly broad (Porter et al., 2016). Protean career attitudes (PCA) scale has been specifically criticized more compared to the boundaryless career attitudes (BCA) scale (e.g., de Bruin & Buchner, 2010; Enache et al., 2012). It is argued that the values-driven career orientation subscale remains problematic, especially for non-Western contexts (e.g., Chan et al., 2012; de Bruin & Buchner, 2010; Enache et al., 2012). Porter et al. (2016) therefore developed and validated the short forms of both the PCA and BCA scales in order to address those problematic issues.

The aim of this paper is to validate the Turkish-language version of the PCA and BCA short forms and to assess their psychometric properties in the Turkish context. The reason why we focus on the short forms instead of the original versions is threefold. First, the certain problematic items (e.g., low inter-item correlations, low communalities, overlapping content) were eliminated in both the PCA and BCA short forms (cf. Porter et al., 2016). Second, by minimizing response rate problems, we believe that the PCA and BCA short forms will facilitate further investigations of the PCA and BCA in relation to their increasing currency and significance to the contemporary working life. Third, Porter et al. (2016) found that the short forms are applicable for the non-Western contexts (e.g., South Korea), which we make to think that the short forms are more appropriate for Turkey, as a non-western context.

We conducted two separate studies to validate the Turkish-language version of the PCA and BCA short forms and to assess their psychometric properties. Study 1 was based on the translation and the confirmatory factor analysis of the PCA and BCA short forms. The internal consistency of the PCA and BCA short forms was also assessed in Study 1. Study 2 was conducted to evaluate the structural, convergent and concurrent validity of the PCA and BCA short forms. In Study 2, the convergent validity of the PCA and BCA short forms was evaluated by assessing the correlations with the PCA and BCA original scales. Porter et al. (2016) suggested that future research might investigate the relationships between the PCA and BCA short forms and theoretically related variables. Thus, Study 2 focused on the theoretically related variables including proactive personality, mastery goal orientation, career satisfaction, and career planning. Study 2 therefore tested whether the PCA and BCA short forms would be related to proactive personality and mastery goal orientation. The concurrent validity was assessed by examining the relationships between the PCA and BCA short forms, career satisfaction, and career planning. This study has potential to facilitate further cross-cultural research on protean and boundaryless careers by expanding the knowledge beyond the Western contexts.

The Turkish context

Turkey is a developing country with its bridge position between Europe and the Middle East. Despite Turkey's increased relations with the West, especially after the full membership negotiations with European Union, Turkey has still close political, economic, and industrial relations with the Middle East. Turkey therefore can be considered as a non-Western context (Çakmak-Otluoğlu, 2012; Çakmak-Otluoğlu, 2018). In terms of the economy, economic and financial crises hit Turkey in 1994 (Seyidoğlu, 2011), 2001 (Ataman, 2006), and 2008 (Acar, 2013). Due to these economic and financial crises, the Turkish work environments have faced dramatic changes such as insecurity, instability, and uncertainty over the last two decades (Çakmak-Otluoğlu et al., 2015). In a more competitive, challenging, and insecure work environments, Turkish employees have been experiencing more transitions during their careers (Çakmak-Otluoğlu, 2012). It can be therefore argued that protean and boundaryless careers come into prominence in Turkey as well. Hence, there is a need to validate the Turkish-language version of the PCA and BCA short forms and to assess their psychometric properties in the Turkish context.

Protean and boundaryless careers

Protean and boundaryless careers provide a convenient framework for understanding contemporary careers. Protean career reflects a career that is driven by the person, not the organization and making career choices depending on one's values (Hall, 1976, 2004). Hall (1976, 2004) argues that individuals with protean career attitudes tend to become active agents in managing their own careers such as taking initiatives for seeking out career opportunities and having greater responsibility for their own career choices. Also, individuals with protean career attitudes are less likely to seek validation from others (e.g., their employing organizations) and to guide their careers according to their own values rather than the values of their employing organizations (Briscoe & Hall, 2006). Consistent with Hall's definition (1976, 2004), Briscoe, Hall, and DeMuth (2006) operationalized the protean career along two dimensions: Self-directed career management and values-driven career orientation (Briscoe & Hall, 2006). Self-directed career management refers to taking a personal initiative to control one's career, while values-driven career management reflects reliance on internal values to evaluate one's career decisions and career success (Briscoe & Hall, 2006).

Boundaryless career is typically defined as a movement away from secure, predictable, and vertical progression with an emphasis on recognizing opportunities available outside the one single organization (Arthur, 1994). However, this typical definition leads to oversimplification of the boundaryless career concept by focusing only on the mobility across organizational boundaries (Lazarova & Taylor, 2009), namely physical boundaries (Inkson, 2006). Although Arthur and Rousseau (1996) have proposed that boundaryless career concept includes crossing a different range of boundaries such as organizational, hierarchical, occupational, and psychological,

researchers put emphasis only on physical mobility (Inkson, 2006; Sullivan & Arthur, 2006). Sullivan and Arthur (2006) have therefore clarified boundaryless career concept by distinguishing physical and psychological mobility. Physical mobility reflects the actual movements across the physical boundaries, while psychological mobility refers to the perceptions of capacity to move (Sullivan & Arthur, 2006). Consistent with the notion of psychological mobility, Briscoe, Hall, and DeMuth (2006) suggest that boundaryless career has two dimensions: Boundaryless mindset and organizational mobility preferences. Boundaryless mindset is defined as "one's general attitude to working across organizational boundaries" and organizational mobility preference is conceptualized as "the strength of interest in remaining with a single (or multiple) employer(s)" (Briscoe, Hall, & DeMuth, 2006, p. 33). Boundaryless mindset denotes being enthusiastic about initiating and pursuing work-related relationships transcending organizational boundaries, while organizational mobility preferences imply being comfortable to move across organizations.

The original PCA and BCA scales were developed and validated by Briscoe, Hall, and DeMuth (2006). PCA scale consists of two subscales such as self-directed career management and values-driven career orientation. Self-directed career management subscale is composed of eight items, while values-driven career orientation subscale is composed of six items. On the other hand, BCA scale consists of two subscales including boundaryless mindset and organizational mobility preferences. Boundaryless mindset subscale is composed of eight items, while organizational mobility preferences subscale consists of five items (Briscoe, Hall, & DeMuth, 2006). Porter et al. (2016) created the PCA and BCA short forms by reducing to seven items for the PCA original scale (four items for self-directed career management subscale and three items for values-driven career orientation subscale) and six items for the BCA original scale (three items for boundaryless mindset subscale and three items for organizational mobility preferences subscale).

We hypothesized that Turkish translated PCA and BCA short forms would confirm the two-factor structure of protean and boundaryless career attitudes (H1a). Moreover, the internal consistency of the PCA and BCA short forms would exceed acceptable Cronbach's alpha coefficients (> .70, Nunnaly, 1978) (H1b). Convergent validity was evaluated by assessing the correlations of the PCA and BCA short forms with the original scales (H2).

Theoretically related variables

In order to validate the Turkish-language version of the PCA and BCA short forms and to assess their psychometric properties, this paper also investigates the relationships between the PCA and BCA short forms and theoretically related variables. After reviewing the protean and boundaryless careers literature, proactive personality (e.g., Briscoe, Hall, & DeMuth, 2006; Porter et al., 2016; Uy et al., 2015), mastery goal orientation (e.g., Briscoe, Hall, & DeMuth, 2006), career satisfaction (e.g., Colakoglu, 2011; De Vos & Soens, 2008; Verbruggen, 2012), and career planning (e.g., Direnzo et al., 2015) were therefore included in the study.

Proactive personality

Proactive personality refers to a personal disposition to influence, alter, or create one's environment (Bateman & Crant, 1993). Literature review shows that proactive personality is the most commonly associated dispositional antecedent with the PCA (Hall et al., 2018), due to the fact that the PCA is proactive in nature (De Vos & Soens, 2008). Proactive personality can be conceptually related to self-directed career management, as they both indicate individuals' active agency in taking charge of their decisions and actions. Also, previous studies (e.g., Briscoe, Hall, & DeMuth, 2006; Uy et al., 2015) have found empirical evidence that proactive personality predicts self-directed career management. Values-driven career orientation refers to relying on internal values rather than the organizationally imposed values to take career decisions and evaluate career success (Briscoe & Hall, 2006). Similarly, proactive personality literature is based on the idea that "individuals are not passive recipients of environmental presses" (Buss, 1987, p. 1220). In this regard, proactive personality can also be conceptually related to values-driven career orientation. Proactive personality can be conceptually related to boundaryless mindset, as they both imply seeking out opportunities and launching initiatives. Even though Briscoe, Hall, and DeMuth (2006) have found that proactive personality is positively related to organizational mobility preferences, organizational mobility preferences conceptually seem to have no major implications for proactive personality. We therefore hypothesized that proactive personality would be positively related to the Turkish translated short forms of self-directed career management (H3a), values-driven career orientation (H3b), and boundaryless mindset (H3c).

Mastery goal orientation

Mastery goal orientation refers to a focus on learning, improving, and mastering the tasks (Dweck & Leggett, 1988). Mastery goal orientation can be conceptually related to self-directed career management because they both denote personal growth and learning (Briscoe et al., 2012). Mastery goal orientation can also be conceptually related to values-driven career orientation, as they both indicate self-set standards and self-improvement rather than pleasing others (e.g., organizations) (Pintrich, 1999). Boundaryless mindset implies being enthusiastic about engaging in new learning experiences (Briscoe, Hall, & DeMuth, 2006). Mastery goal orientation can be therefore conceptually related to boundaryless mindset. Even though Briscoe, Hall, and DeMuth (2006) have found that mastery goal orientation is positively related to organizational mobility preferences, organizational mobility preferences conceptually seem to have no major implications for mastery goal orientation. Thus, we hypothesized that mastery goal orientation would be positively related to the Turkish translated short forms of self-directed career management (H4a), values-driven career orientation (H4b), and boundaryless mindset (H4c).

Career satisfaction

Career satisfaction can be generally conceptualized as the subjective indicator of the career success (Ng et al., 2005). Career satisfaction is the most frequently studied outcome variable regarding the PCA and BCA (e.g., Colakoglu, 2011; De Vos & Soens, 2008; Verbruggen, 2012). Self-directed career management is typically assumed to be positively associated with career satisfaction because taking personal initiative for career decisions is seen favorable for subjective career success. In line with this assumption, previous studies showed that self-directed career management was positively related to career satisfaction (e.g., De Vos & Soens, 2008; Enache et al., 2011; Volmer & Spurk, 2011; Zhang et al., 2015). However, the findings on the relationship between values-driven career orientation and career satisfaction were non-significant (e.g., Cerdin & Pargneux, 2014; Lo Presti et al., 2018; Volmer & Spurk, 2011). Regarding the boundaryless mindset, previous research showed that boundaryless mindset did not have a direct association with career satisfaction (e.g., Lo Presti et al., 2018; Verbruggen, 2012). Also, there were no established relationship between organizational mobility preferences and career satisfaction (e.g., Lo Presti et al., 2018). We therefore hypothesized that career satisfaction would be positively related to the Turkish translated short form of self-directed career management (H5).

Career planning

Career planning represents the deliberate efforts of an individual to outline future career development and to establish and pursue clear career goals and strategies (Gould, 1979). Self-directed career management implies preferring to control career and to meet the career goals (Hall, 2002; Briscoe, Hall, & DeMuth, 2006). In this regard, there can be a positive relationship between self-directed career management and career planning. Also, Direnzo et al. (2015) found that individuals with self-directedness demonstrated more career planning activities. Considering the fact that values-driven career orientation represents managing one's career and assessing one's career success based on the internal values (Briscoe & Hall, 2006), individuals with values-driven career orientation can be expected to engage in more career planning activities in order to pursue their own values (Li, 2018). Individuals with a boundaryless mindset attempt to gain a variety in their work experiences in terms of different tasks, projects, and contacts. Hence, individuals with boundaryless mindset can be expected to demonstrate more career planning activities. However, organizational mobility preferences conceptually seem to have no major implications for career planning. We therefore hypothesized that career planning would be positively related to the Turkish translated short forms of self-directed career management (H6a), values-driven career orientation (H6b), and boundaryless mindset (H6c).

Study 1: scale translation and confirmatory factor analysis

Using a data from a sample of 380 white-collar employees, Study 1 focused on the translation, confirmatory factor analysis, and internal consistency of the PCA and BCA short forms.

Method

Translation procedure

Even though the main aim of the study was to validate the Turkish-language version of the PCA and BCA short forms, first we focused on the original scales for the translation process. First, two bilingual (Turkish–English) researchers translated the items of the original PCA and BCA scales into Turkish. Then, the first author of the current study evaluated the synthesis of the two independent translations and conducted in-depth interviews with five Turkish employees from various organizations to ensure an accurate interpretation of the translated items. After adjusting the Turkish translated version, the items were back-translated from Turkish to English by a bilingual researcher. Afterwards, the back-translated scale adjusted again in the Turkish translated version based on feedback from the first author of the original English version of the scales.

Participants

The sample consisted of 380 white-collar employees (after listwise deletion of the missing values) in several private sector organizations located in Istanbul, Turkey. The respondents participated in the survey via Internet and were from 68 organizations that varied broadly in terms of industry and size. Samples obtained from each organization ranged from 2 to 42. Females comprised 53.4% of the sample. The average age of participants was 30.30 years old ($SD = 4.61$) ranged from 22 to 54, with an average work experience of 8.60 years ($SD = 5.24$) ranged from 1–32, and an organizational tenure of 4.48 years ($SD = 3.56$) ranged from 1–22. In terms of educational level, 56.2% of participants had bachelor degree, 30.9% had postgraduate degree, 7.9% had college education, and 4.7% were high school graduates. The majority of the participants were professionals without a managerial responsibility (65%) and 35% of participants were managers.

Measures

Protean career attitudes (PCA) PCA original scale was developed by Briscoe, Hall, and DeMuth (2006). Eight items measured self-directed career management. The Cronbach alpha for this scale in the present study was .84. Six items measured the values-driven career orientation. The Cronbach alpha for this scale in the present study was .73. Responses were made on a 5-point scale ranging from 1 (to little or no extent) to 5 (to a great extent), which was used to indicate the extent of agreement

with each item. PCA short form was created by Porter et al. (2016). The short form of self-directed career management subscale consists of four items, and these are as follows: "I am responsible for my success or failure in my career.", "Where my career is concerned, I am very much "my own person".", "Overall, I have a very independent, self-directed career.", "Freedom to choose my own career path is one of my most important values.". The Cronbach alpha for this scale in the present study was .83. The short form of values-driven career orientation involves three items, and these are as follows: "It does not matter much to me how other people evaluate the choices I make in my career.", "I navigate my own career, based upon my own priorities, as opposed to my employer's priorities.", "What is most important to me is how I feel about my career success, not how other people feel.". The Cronbach alpha for this scale in the present study was .77. Responses were made on a 5-point scale ranging from 1 (to little or no extent) to 5 (to a great extent), which was used to indicate the extent of agreement with each item.

Boundaryless career attitudes (BCA) BCA original scale was developed by Briscoe, Hall, and DeMuth (2006). Eight items measured the boundaryless mindset. The Cronbach alpha for this scale in the present study was .84. Five items measured the organizational mobility preference (Reverse scored). The Cronbach alpha for this scale in the present study was .79. Responses were made on a 5-point scale ranging from 1 (to little or no extent) to 5 (to a great extent), which was used to indicate the extent of agreement with each item. BCA short form was created by Porter et al. (2016). The short form of boundaryless mindset subscale consists of three items, and these are as follows: "I like tasks at work that require me to work beyond my own department.", "I would enjoy working on projects with people from across many organizations.", "I have sought opportunities in the past that allow to me to work outside the organization.". The Cronbach alpha for this scale in the present study was .88. The short form of organizational mobility preferences subscale involves three items, and these are as follows: "I would feel very lost if I couldn't work for my current organization.", "I like the predictability that comes with working continuously for the same organization.", "I prefer to stay in a company I am familiar with rather than look for employment elsewhere." (Reverse scored). The Cronbach alpha for this scale in the present study was .81. Responses were made on a 5-point scale ranging from 1 (to little or no extent) to 5 (to a great extent), which was used to indicate the extent of agreement with each item.

Results

Confirmatory factor analysis

Regarding the first hypothesis, a single confirmatory factor analysis including both the PCA and BCA short forms were conducted using AMOS version 22 with the maximum likelihood method of analysis. Prior to conducting confirmatory factor analysis, data were checked for normality through skewness and kurtosis values for each item. All the items demonstrated acceptable skewness values, as

they ranged from − 1 to + 1. Regarding the kurtosis, all the items demonstrated acceptable kurtosis values which ranged from − 2 to + 2 (Muthen & Kaplan, 1985). Thus, a normal distribution of all the items was inferred.

To assess model fit, the following six goodness of fit indices were used: χ^2 per degree of freedom (χ^2/df), the comparative fit index (CFI), the normed fit index (NFI), The Tucker–Lewis Index (TLI), the root mean square error of approximation (RMSEA), and the standardized root mean square residual (SRMR). We compared the fit of each model using the Chi-square difference test. χ^2/df less than 3 indicates good fit (Kline, 2015). The CFI, NFI, and TLI fit indices range from 0 to 1, with values exceeding .95 indicating a good fit to data (Byrne, 2013; Hu & Bentler, 1999; Kelloway, 1998). While the RMSEA value should be smaller than .06, the SRMR should be smaller than .08 (Hu & Bentler, 1999).

We compared three models: (1) a one-factor model in which all the items from PCA and BCA short forms were specified as loading onto one factor; (2) a two-factor model in which the items from PCA short form were specified as loading onto a single, one factor, and the items from the BCA short form were specified as loading onto a single, second factor; (3) a four-factor model in which the items from two subscales in each of the PCA and BCA short forms were specified as loading onto four factors.

The four-factor model (χ^2 = 153.221, df = 59; χ^2/df = 2.597; CFI = .952; NFI = .964; TLI = .966; RMSEA = .065; SRMR = .049) provided a better fit to the data compared to either of the one-factor or two-factor models. The fit indices for these models are presented in Table 1.

Internal consistency

Internal consistency refers to the degree to which all items in a scale measure the same construct. Cronbach's alpha coefficient is the most widely used measure of internal consistency. The internal consistency of the PCA and BCA short forms was therefore calculated using Cronbach's alpha coefficients. We obtained acceptable Cronbach's alpha coefficients for all subscales of PCA and BCA short forms, ranging from .77 to .88 (> .70, Nunnaly, 1978). Hypothesis 1 was therefore supported.

Table 1 Fit indices of CFA models for the Turkish translated PCA and BCA short forms in Study 1

Model	χ^2	df	CFI	NFI	TLI	RMSEA	SRMR	χ^2/df
One-factor	1185.963	65	.425	.415	.310	.293	.166	18.246
Two-factor	775.775	64	.635	.617	.555	.171	.136	12.121
Four-factor	153.221	59	.952	.964	.966	.065	.049	2.597

Discussion

The aim of the Study 1 was to translate and validate the PCA and BCA short forms. The results of the Study 1 validated the two subscales in each of the PCA and BCA short forms in the Turkish context. All of the items loaded appropriately on their corresponding factors. Also, the results showed good internal consistency for all subscales of both the PCA and BCA short forms. The results of the Study 1 provided support for the hypothesis that Turkish translated PCA and BCA short forms would confirm the two-factor structure of protean and boundaryless career attitudes (H1a) and the internal consistency of the PCA and BCA short forms would exceed acceptable Cronbach's alpha coefficients (H1b).

Study 2: scale validation

Using a data from a sample of 402 white-collar employees, Study 2 was conducted to evaluate structural, convergent, and concurrent validity of the PCA and BCA short forms.

Method

Participants

The sample consisted of 402 white-collar employees (after listwise deletion of the missing values) in several private sector organizations located in Istanbul, Turkey. The respondents participated in the survey via Internet and were from 55 organizations that varied broadly in terms of industry and size. Samples obtained from each organization ranged from 3 to 45. Males comprised 51% of the sample. The average age of participants was 33.73 years old ($SD = 6.43$) ranged from 22 to 62, with an average work experience of 7.57 years ($SD = 4.32$) ranged from 1 to 25, and an organizational tenure of 3.18 years ($SD = 2.33$) ranged from 1–20. In terms of educational level, 63.4% of participants had bachelor degree, 26.6% had post-graduate degree, 6.5% had college education, and 3.5% were high school graduates. The majority of the participants were professionals without a managerial responsibility (68.4%) and 31.6% of participants were managers.

Measures

PCA short form PCA short form was developed by Porter et al. (2016). Four items measured self-directed career management. A sample item is "I am responsible for success or failure in my career". The Cronbach alpha for this scale in the present study was .81. Three items measured the values-driven career orientation. A sample item is "What is most important to me is how I feel about my career success, not how other people feel.". The Cronbach alpha for this scale in the present study was .80.

Responses were made on a 5-point scale ranging from 1 (to little or no extent) to 5 (to a great extent), which was used to indicate the extent of agreement with each item.

PCA original scale PCA original scale was developed by Briscoe, Hall, and DeMuth (2006). Eight items measured self-directed career management. A sample item is "I am in charge of my own career". The Cronbach alpha for this scale in the present study was .82. Six items measured the values-driven career orientation. A sample item is "I will follow my own conscience if my company asks me to do something that goes against my values". The Cronbach alpha for this scale in the present study was .75. Responses were made on a 5-point scale ranging from 1 (to little or no extent) to 5 (to a great extent), which was used to indicate the extent of agreement with each item.

BCA short form BCA short form was developed by Porter et al. (2016). Three items measured the boundaryless mindset. A sample item is "I would enjoy working on projects with people from across many organizations.". The Cronbach alpha for this scale in the present study was .87. Three items measured the organizational mobility preference. A sample item is "I would feel very lost if I could not work for my current organization." (Reverse scored). The Cronbach alpha for this scale in the present study was .78. Responses were made on a 5-point scale ranging from 1 (to little or no extent) to 5 (to a great extent), which was used to indicate the extent of agreement with each item.

BCA original scale BCA original scale was developed by Briscoe, Hall, and DeMuth (2006). Eight items measured the boundaryless mindset. A sample item is "I enjoy working with people outside of my organization.". The Cronbach alpha for this scale in the present study was .86. Five items measured the organizational mobility preference. A sample item is "If my organization provided lifetime employment, I would never desire to seek work in other organizations." (Reverse scored). The Cronbach alpha for this scale in the present study was .77. Responses were made on a 5-point scale ranging from 1 (to little or no extent) to 5 (to a great extent), which was used to indicate the extent of agreement with each item.

Proactive personality Proactive personality was measured using the ten-item scale (Seibert et al., 1999). A sample item is "I excel at identifying opportunities.". The Cronbach alpha for this scale in the present study was .97. Responses were made on a 5-point scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Mastery goal orientation Mastery goal orientation was measured using the eight-item scale (Button et al., 1996). A sample item is "The opportunity to extend the range of my abilities is important to me.". The Cronbach alpha for this scale in the present study was .96. Responses were made on a 5-point scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Career satisfaction Career satisfaction was measured using the five-item scale (Greenhaus et al., 1990). A sample item is "I am satisfied with the success I have achieved in my career.". The Cronbach alpha for this scale in the present study was .97. Responses were made on a 5-point scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Career planning Career planning was measured using the four-item scale (Gould, 1979). A sample item is "I have a strategy for achieving my career goals.". The Cronbach alpha in the present study was .95. Responses were made on a 5-point scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Proactive personality, mastery goal orientation, career satisfaction, and career planning scales were translated into Turkish by two bilingual (Turkish–English) researchers. Then, the first author of the current study evaluated the synthesis of the two independent translations. After adjusting the Turkish translated versions, the items were back-translated from Turkish to English by a bilingual researcher. Afterwards, the back-translated scales adjusted again in the Turkish translated versions by the first author of the current study.

Results

Confirmatory factor analysis

After conducting a single CFA including both PCA and BCA short forms in Study 1, a four-factor model (PCA and BCA with subscales) was identified. Based on the results of CFA in Study 1, two separate confirmatory factor analyses were conducted using AMOS 22 version with the maximum likelihood method of analysis in Study 2. Prior to conducting confirmatory factor analysis, data were checked for normality through skewness and kurtosis values for each variable. All the items demonstrated acceptable skewness values, as they ranged from − 1 to + 1. Regarding the kurtosis, all the items demonstrated acceptable kurtosis values, which ranged from − 2 to + 2 (Muthen & Kaplan, 1985). A normal distribution of all the items therefore was inferred.

We compared theoretically expected two-factor models to one-factor models for both the PCA and the BCA short forms. Compared to the one-factor PCA model ($\chi^2 = 381.51$, $df = 14$; $\chi^2/df = 27.25$; CFI = .651; NFI = .645; TLI = .477; RMSEA = .256; SRMR = .155), the two-factor model provided a better fit to the data ($\chi^2 = 31.94$, $df = 13$; $\chi^2/df = 2.46$; CFI = .982; NFI = .970; TLI = .971; RMSEA = .060; SRMR = .033), as proved by the Chi-square difference test ($\Delta\chi^2 = 349.57$, $\Delta df = 1$, $p < .01$). Standardized loadings were in the range of .57 to .89 for short form of self-directed career management, and .69 to .87 for short form of values-driven career orientation.

Similarly, the two-factor BCA model ($\chi^2 = 5.90$, $df = 8$; $\chi^2/df = .74$; CFI = 1.00; NFI = .994; TLI = 1.00; RMSEA = .00; SRMR = .021) provided a superior fit to the data compared to the one-factor model ($\chi^2 = 288.70$, $df = 9$; $\chi^2/df = 32.08$;

CFI = .727; NFI = .722; TLI = .545; RMSEA = .278; SRMR = .166), which was also supported by the Chi-square difference test ($\Delta\chi^2 = 282.81$, $\Delta df = 1$, $p < .01$). Standardized loadings were in the range of .71 to .89 for short form of boundaryless mindset, and .66 to .88 for short form of organizational mobility preferences.

We also examined whether two first-order factors could be explained by a single second-order factor for both the PCA and BCA short forms. Regarding the PCA short form, each first-order factor significantly loaded onto one second-order factor. The fit indices of the second-order two-factor model were virtually identical to the fit indices of the first-order model ($\chi^2 = 31.94$, $df = 13$; $\chi^2/df = 2.46$; CFI = .982; NFI = .970; TLI = .971; RMSEA = .060; SRMR = .033), with the same standardized loadings.

Considering the BCA short form, each first-order factor significantly loaded onto one second-order factor. In addition, the fit indices of the second-order two-factor model were virtually identical to the fit indices of the first-order model ($\chi^2 = 288.70$, $df = 9$; $\chi^2/df = 32.08$; CFI = .727; NFI = .722; TLI = .545; RMSEA = .278; SRMR = .166), with the same standardized loadings.

Convergent validity

Regarding the second hypothesis, convergent validity was tested through the bivariate correlations between the PCA and BCA short forms and the original scales. Results showed that the short-form self-directed career management subscale was very highly correlated with the original self-directed career management subscale ($r = .93$, $p < .01$). The short-form values-driven career orientation subscale was very highly correlated with the original values-driven career orientation subscale ($r = .87$, $p < .01$). The short-form boundaryless mindset subscale was very highly correlated with the original boundaryless mindset subscale ($r = .90$, $p < .01$). The short-form organizational mobility preferences subscale was very highly correlated with the original organizational mobility preferences subscale ($r = .94$, $p < .01$). In sum, the short and the original forms of the PCA and BCA subscales were very highly correlated. Hypothesis 2 was therefore supported.

Concurrent validity

Because all measures reported in the Study 2 came from a single source, a Harman's one-factor test (Podsakoff et al., 2003) was conducted to detect potential biases caused by common method variance. Thus, we first entered all scale items into a principal component analysis and examined the unrotated-factor solution. Eight factors (two for PCA, two for BCA, one for proactive personality, one for mastery goal orientation, one for career satisfaction, and one for career planning) accounted for 83.1% of the variance, which showed that the items did not load onto a general single factor. Next, we linked all the measures of the eight constructs to a single factor to perform a one-factor CFA. Results of this one-factor model were $\chi^2 = 13{,}479.25$, $df = 740$, $\chi^2/df = 18.22$, CFI = .342, NFI = .331, TLI = .307, RMSEA = .207, and SRMR = .219, which demonstrated a poor model fit. The fit indices of the eight-factor model were $\chi^2 = 1616.68$, $df = 712$, $\chi^2/df = 2{,}270$, CFI = .953, NFI = .920,

TLI = .949, RMSEA = .056, and SRMR = .028, which showed a good model fit. When we compared the one-factor model with the eight-factor model, the significant Chi-square change ($\Delta\chi^2 = 11{,}862.57$, $\Delta df = 28$, $p < .01$) indicated that the respondents of this study could distinguish the eight constructs well.

Before assessing the concurrent validity, we tested whether the short forms of self-directed career management, values-driven career orientation, and boundaryless mindset would be related to proactive personality (H3) and mastery goal orientation (H4). Descriptive statistics, reliability coefficients, and intercorrelations of Study 2 variables are presented in Table 2.

Correlations showed that proactive personality was positively related to the short forms of self-directed career management ($r = .35$, $p < .001$), values-driven career orientation ($r = .42$, $p < .001$), and boundaryless career mindset ($r = .20$, $p < .001$) subscales. Hypothesis 3 was therefore supported. Correlations demonstrated that mastery goal orientation was positively related to short forms of self-directed career management ($r = .50$, $p < .001$), values-driven career orientation ($r = .43$, $p < .001$), and boundaryless career mindset ($r = .35$, $p < .001$) subscales. Hypothesis 4 was therefore supported.

In order to assess concurred validity, we examined the relationship between the short form of self-directed career management and career satisfaction (H5). We also investigated the relationships between the short forms of self-directed career management, values-driven career orientation, boundaryless mindset, and career planning (H6). According to the correlations, the short form of self-directed career management subscale was positively related to career satisfaction ($r = .33$, $p < .001$). Hypothesis 5 was therefore supported.

Correlations revealed that the short forms of self-directed career management ($r = .30$, $p < .001$), values-driven career orientation ($r = .37$, $p < .001$), and boundaryless career mindset ($r = .14$, $p < .001$) subscales were positively related to career planning. Hypothesis 6 was therefore supported.

Discussion

The aim of the Study 2 was to provide additional validity evidence for the Turkish translated PCA and BCA short forms. First of all, the results of the Study 2 provided additional support for the two-factor structure of both the PCA and BCA short forms, as indicated by confirmatory factor analyses. Moreover, the results showed that a second-order factor structure fit the data well for both the PCA and BCA short forms. Both first-order and second-order models were virtually identical, which indicated that second-order two-factor model could be preferable. Second, the short forms of the PCA and BCA subscales showed strong correlations with the original forms of the PCA and BCA subscales. These results confirmed the convergent validity of the PCA and BCA short forms. Third, the results indicated that the short forms of self-directed career management, values-driven career orientation, and boundaryless career mindset subscales were moderately and significantly related to both proactive personality and mastery goal orientation. Fourth, the short form of self-directed career management subscale was moderately and significantly related

Table 2 Descriptive statistics, reliability coefficients, and intercorrelations of Study 2 variables

Variable	*M*	*SD*	1	2	3	4	5	6	7	8
1. Self-Directed	3.68	.76	(.81)							
2. Values-Driven	3.82	.83	.38***	(.80)						
3. Boundaryless Mindset	3.79	.81	.30***	.25***	(.87)					
4. Organizational Mobility Preferences	3.56	.88	.15*	.22***	.40***	(.78)				
5. Proactive Personality	3.51	.76	.35***	.42***	.20***	.10	(.97)			
6. Mastery Goal Orientation	3.66	.61	.50***	.43***	.35***	.09	.32**	(.96)		
7. Career Satisfaction	3.78	.65	.33***	.10	.01	− .06	.07	.18***	(.97)	
8. Career Planning	3.53	.79	.30***	.37***	.14***	.03	.33**	.29***	.08	(.95)

Listwise $N = 402$, *$p < .05$, ***$p < .001$ (numbers in parentheses are coefficient alphas)

to career satisfaction. On the other hand, the short forms of self-directed career management, values-driven career orientation, and boundaryless career mindset subscales were moderately and significantly related to career planning. These results confirmed the concurrent validity of the PCA and BCA short forms.

General discussion

Since its first publication in 2006, the PCA and BCA scales have had a significant impact on the measurement, prediction, and understanding of the protean and boundaryless career attitudes. However, several authors have questioned their psychometric properties. Porter et al. (2016) therefore developed and validated the PCA and BCA short forms in order to address the problematic issues associated with the original scales. This study contained two studies that were conducted to validate the Turkish-language version of the PCA and BCA short forms and to assess their psychometric properties. Overall, the results of the two studies indicated that the PCA and BCA short forms showed satisfactory psychometric properties in the Turkish context.

More specifically, Study 1 was based on the translation, confirmatory factor analysis, and internal consistency of the PCA and BCA short forms. We tested three alternative models including a one-factor model, a two-factor model (PCA and BCA), and a four-factor model (PCA and BCA with subscales). The four-factor model provided the best fit, as theoretically expected. All subscales showed adequate internal consistency, which was in accordance with the findings of Porter et al. (2016). In Study 2, we evaluated the structural, convergent, and concurrent validity of the PCA and BCA short forms. Confirmatory factor analyses supported the two-factor structure of both the PCA and BCA short forms, which verified the structural validity. We also examined whether two first-order factors could be explained by a single second-order factor for both the PCA and BCA short forms. We found support for both the PCA and BCA short forms conceptualized as a second-order construct.

The convergent validity was supported by the very high correlations between the short and the original forms of the PCA and BCA subscales. In Study 2, we also focused on the theoretically related variables including proactive personality, mastery goal orientation, career satisfaction, and career planning. Both proactive personality and mastery goal orientation were positively related to short forms of self-directed career management, values-driven career orientation, and boundaryless mindset.

In order to assess concurrent validity, we examined the relationships between PCA and BCA short forms, career satisfaction, and career planning. Career satisfaction was only positively related to short form of self-directed career management in accordance with the previous studies (e.g., De Vos & Soens, 2008; Enache et al., 2011; Volmer & Spurk, 2011; Zhang et al., 2015). Career planning was positively related to the short forms of self-directed career management, values-driven career orientation, and boundaryless mindset. However, there was no significant relationship between organizational mobility preferences, as expected.

This study contributed to careers research in several ways. First of all, our findings indicated that the PCA and BCA short forms were reliable and valid inventories in the Turkish context. By validating the Turkish language of the PCA and BCA short forms, this study has potential to facilitate further cross-cultural research on protean and boundaryless careers by expanding the knowledge beyond the Western contexts. Second, this study demonstrated that PCA and BCA short forms adequately evaluated the protean and boundaryless career attitudes by investigating the relationships between PCA and BCA short forms, and theoretically related variables. Third, our results showed that short form of organizational mobility preferences was not significantly related to proactive personality, mastery goal orientation, career planning, and career satisfaction. These results were in line with the reports of a recent meta-analysis study on the protean and boundaryless careers (Wiernik & Kostal, 2019), which asserted that the protean and boundaryless career orientations structure should be reconsidered. The authors grouped self-directed career management, values-driven career orientation, and boundaryless mindset under the label of proactive career orientation apart from the organizational mobility preferences.

This study has several practical implications for the contexts of career counseling and human resource management. The results demonstrated that self-directed career management was positively linked to favorable career outcomes such as career satisfaction and career planning. Thus, career counselors could implement career interventions that help their clients to enhance their self-directedness. Because the results showed that self-directed career management, values-driven career orientation, and boundaryless career mindset were positively related to both proactive personality and mastery goal orientation, employers could consider providing their employees with autonomy, challenging assignments, and learning opportunities to further strengthen their protean career orientation and boundaryless mindset.

There are several limitations of this study. First, all variables in Study 2 were collected at the same time. Common method variance therefore could be a problem in our sample (Podsakoff et al., 2012). However, we conducted Harman's one-factor test to minimize this concern. Second, an overall measurement model including all the variables of Study 2 was estimated. However, there were not at least ten cases for each parameter to be estimated (Kline, 2015). Third, there is the possibility of reverse causality due to the cross-sectional nature of the data. Future research could design a longitudinal study to elucidate potential causal relationships. Fourth, this study did not investigate measurement invariance between genders. Future research could show support Turkish translated PCA and BCA short forms measurement invariance between genders.

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References

Acar, F. (2013). Türkiye ekonomisine genel bakış (2001–2013). [An overview of Turkey's economy].*Journal of Labour World*, *1*(2), 15–32. https://www.calismadunyasi.gov.tr/pdf/sayi2/02.pdf.

Arthur, M. B. (1994). The boundaryless career: A new perspective for organizational inquiry. *Journal of Organizational Behavior, 15*(4), 295–306. https://doi.org/10.1002/job.4030150402.

Arthur, M. B., & Rousseau, D. M. (1996). Introduction: The boundaryless career as a new employment principle. In Arthur, M. B., & Rousseau, D. M. (Eds.), *The boundaryless career: A new employment principle for a new organizational era* (pp. 3–20). Oxford University Press.

Ataman, B. C. (2006). Türkiye'de 2000–2005 dönemi işsizlik üzerine tartışmalar. [Debates over the unemployment period of 2000–2005 in Turkey]. *İktisat İşletme ve Finans*, *21*(239), 93–107. https://www.iif.com.tr/index.php/iif/article/view/iif.2006.239.4644.

Baruch, Y. (2014). The development and validation of a measure for protean career orientation. *The International Journal of Human Resource Management, 25*(19), 2702–2723. https://doi.org/10.1080/09585192.2014.896389.

Bateman, T. S., & Crant, J. M. (1993). The proactive component of organizational behavior: A measure and correlates. *Journal of Organizational Behavior, 14*(2), 103–118. https://doi.org/10.1002/job.4030140202.

Borges, L. F. L., De Andrade, A. L., de Oliveira, M. Z., & Guerra, V. M. (2015). Expanding and adapting the protean career management scale for university students (PCMS-U). *The Spanish Journal of Psychology, 18*, 1–13. https://doi.org/10.1017/sjp.2015.83.

Briscoe, J. P., & Hall, D. T. (2006). The interplay of boundaryless and protean careers: Combinations and implications. *Journal of Vocational Behavior, 69*(1), 4–18. https://doi.org/10.1016/j.jvb.2005.09.003.

Briscoe, J. P., Hall, D. T., & DeMuth, R. L. F. (2006). Protean and boundaryless careers: An empirical exploration. *Journal of Vocational Behavior, 69*(1), 30–47. https://doi.org/10.1016/j.jvb.2005.09.003.

Briscoe, J. P., Henagan, S. C., Burton, J. P., & Murphy, W. M. (2012). Coping with an insecure employment environment: The differing roles of protean and boundaryless career orientations. *Journal of Vocational Behavior, 80*(2), 308–316. https://doi.org/10.1016/j.jvb.2011.12.008.

Buss, D. M. (1987). Selection, evocation, and manipulation. *Journal of Personality and Social Psychology, 53*(6), 1214–1221. https://doi.org/10.1037/022-3514.53.6.1214.

Button, S. B., Mathieu, J. E., & Zajac, D. M. (1996). Goal orientation in organizational research: A conceptual and empirical foundation. *Organizational Behavior and Human Decision Processes, 67*(1), 26–48. https://doi.org/10.1006/obhd.1996.0063.

Byrne, B. M. (2013). *Structural equation modeling with LISREL, PRELIS, and SIMPLIS: Basic concepts, applications, and programming*. Psychology Press.

Cerdin, J. L., & Le Pargneux, M. (2014). The impact of expatriates' career characteristics on career and job satisfaction, and intention to leave: An objective and subjective fit approach. *The International Journal of Human Resource Management, 25*(14), 2033–2049. https://doi.org/10.1080/09585192.2003.870291.

Chan, K. Y., Moon-ho, R. H., Chernyshenko, O. S., Bedford, O., Uy, M. A., Gomulya, D., Sam, Y. L., & Phan, W. M. J. (2012). Entrepreneurship, professionalism, leadership: A framework and measure for understanding boundaryless careers. *Journal of Vocational Behavior, 81*(1), 73–88. https://doi.org/10.1016/j.jvb.201205.001.

Colakoglu, S. N. (2011). The impact of career boundarylessness on subjective career success: The role of career competencies, career autonomy, and career insecurity. *Journal of Vocational Behavior, 79*(1), 47–59. https://doi.org/10.1016/j.jvb.2010.09.011.

Çakmak-Otluoğlu, K. Ö. (2012). Protean and boundaryless career attitudes and organizational commitment: The effects of perceived supervisor support. *Journal of Vocational Behavior*, *80*(3), 638–646. https://doi.org/10.1016/j.jvb.2012.03.001.

Çakmak-Otluoğlu, K. Ö. (2018). A cluster analysis of protean and boundaryless career orientations: Relationships with career competencies. *Australian Journal of Career Development*, *27*(3), 127–136. https://doi.org/10.1177/1038416217743024.

Çakmak-Otluoğlu, K. Ö., Ünsal-Akbıyık, & B. S., Otluoğlu, E. (2015). Changing career patterns: A comparative study on the careers of chief financial officers. Near East University Journal of Social Sciences, *8*(1), 133–147.

de Bruin, G. P., & Buchner, M. (2010). Factor and item response theory analysis of the Protean and Boundaryless Career Attitude Scales. *SA Journal of Industrial Psychology/SA, 36*(2), 1–11. https://doi.org/10.4102/sajipv36i2.932.

De Vos, A., & Soens, N. (2008). Protean attitude and career success: The mediating role of self-management. *Journal of Vocational Behavior, 73*(3), 449–456. https://doi.org/10.1016/j.jvb.2008.08.007.

Direnzo, M. S., Greenhaus, J. H., & Weer, C. H. (2015). Relationship between protean career orientation and work–life balance: A resource perspective. *Journal of Organizational Behavior, 36*(4), 538–560. https://doi.org/10.1002/job.1996.

Dweck, C. S., & Leggett, E. L. (1988). A social-cognitive approach to motivation and personality. *Psychological Review, 95*(2), 256. https://doi.org/10.1037/0033-295X.95.2.256.

Enache, M., Gonzalez, I., Castillo, D., & Lordan, O. (2012). Protean and boundaryless career attitudes scale: Spanish translation and validation. *Intangible Capital, 8*(1), 1–16. https://doi.org/10.3926/ic.309.

Enache, M., Sallan, J. M., Simo, P., & Fernandez, V. (2011). Examining the impact of protean and boundaryless career attitudes upon subjective career success. *Journal of Management & Organization, 17*(4), 459–473. https://doi.org/10.1017/S1833367200001395.

Gould, S. (1979). Characteristics of career planners in upwardly mobile occupations. *Academy of Management Journal, 22*(3), 539–550. https://doi.org/10.5465/255743.

Greenhaus, J. H., Parasuraman, S., & Wormley, W. M. (1990). Effects of race on organizational experiences, job performance evaluations, and career outcomes. *Academy of Management Journal, 33*(1), 64–86. https://doi.org/10.2307/256352.

Gubler, M., Arnold, J., & Coombs, C. (2014). Reassessing the protean career concept: Empirical findings, conceptual components, and measurement. *Journal of Organizational Behavior, 35*(S1), 23–40. https://doi.org/10.1002/job.1908.

Hall, D. T. (1976). *Careers in organizations*. Goodyear.

Hall, D. T. (2002). *Careers in and out of organizations*. Sage.

Hall, D. T. (2004). The protean career: A quarter-century journey. *Journal of Vocational Behavior, 65*(1), 1–13. https://doi.org/10.1016/j.jvb.2003.10.006.

Hall, D. T., Yip, J., & Doiron, K. (2018). Protean careers at work: Self-direction and values orientation in psychological success. *The Annual Review of Organizational Psychology and Organizational Behavior, 5*, 129–156. https://doi.org/10.1146/annurev-orgpsych-032117-104631.

Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal, 6*(1), 1–55. https://doi.org/10.1080/10705519909540118.

Inkson, K. (2006). Protean and boundaryless careers as metaphors. *Journal of Vocational Behavior, 69*(1), 48–63. https://doi.org/10.1016/j.jvb.2005.09.004.

Kelloway, E. K. (1998). *Using LISREL for structural equation modeling: A researcher's guide*. Sage.

Kline, R. B. (2015). *Principles and practice of structural equation modeling* (4th ed.). Guilford.

Lazarova, M., & Taylor, S. (2009). Boundaryless careers, social capital, and knowledge management: Implications for organizational performance. *Journal of Organizational Behavior, 30*(1), 119–139. https://doi.org/10.1002/job.545.

Li, Y. (2018). Linking protean career orientation to well-being: The role of psychological capital. *Career Development International, 23*(2), 178–196. https://doi.org/10.1108/CDI-07-2017-0132.

Lo Presti, A., Pluviano, S., & Briscoe, J. P. (2018). Are freelancers a breed apart? The role of protean and boundaryless career attitudes in employability and career success. *Human Resource Management Journal, 28*(3), 427–442. https://doi.org/10.1111/1748-8583.12188.

Muthen, B., & Kaplan, D. (1985). A comparison of some methodologies for the factor analysis of non-normal Likert variables. *British Journal of Mathematical and Statistical Psychology, 38*(2), 171–189. https://doi.org/10.1111/j.2044-8317.1985.tb00832.x.

Ng, T. W., Eby, L. T., Sorensen, K. L., & Feldman, D. C. (2005). Predictors of objective and subjective career success: A meta-analysis. *Personnel Psychology, 58*(2), 367–408. https://doi.org/10.1111/j.1744-6570.2005.00515.x.

Nunnaly, J. (1978). *Psychometric theory*. McGraw-Hill.

Pintrich, P. R. (1999). The role of motivation in promoting and sustaining self-regulated learning. *International Journal of Educational Research, 31*(6), 459–470. https://doi.org/10.1016/S0883-0355(99)00015-4.

Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology, 88*(5), 879–903. https://doi.org/10.1037/0021-9010.88.5.879.

Podsakoff, P. M., MacKenzie, S. B., & Podsakoff, N. P. (2012). Sources of method bias in social science research and recommendations on how to control it. *Annual Review of Psychology, 63*, 539–569. https://doi.org/10.1146/annurev-psych-120710-100452.

Porter, C., Woo, S. E., & Tak, J. (2016). Developing and validating short form protean and boundaryless career attitudes scales. *Journal of Career Assessment, 24*(1), 162–181. https://doi.org/10.1177/1069072714565775.

Seibert, S. E., Crant, J. M., & Kraimer, M. L. (1999). Proactive personality and career success. *Journal of Applied Psychology, 84*(3), 416–427. https://doi.org/10.1037/0021-9010.84.3.416.

Seyidoğlu, H. (2011). Uluslararası mali krizler, IMF politikaları, az gelişmiş ülkeler, Türkiye ve dönüşüm ekonomileri. [International financial crises, IMF policies, underdeveloped countries, Turkey and transformation economies].*Journal of Doğuş University*, *4*(2), 141–156. https://openaccess.dogus.edu.tr/xmlui/bitstream/handle/11376/537/seyidoglu.pdf?sequence=1.

Sullivan, S. E., & Arthur, M. B. (2006). The evaluation of the boundaryless career concept: Examining physical and psychological mobility. *Journal of Vocational Behavior, 69*(1), 19–29. https://doi.org/10.1016/j.jvb.2005.09.001.

Uy, M. A., Chan, K. Y., Sam, Y. L., Ho, M. H. R., & Chernyshenko, O. S. (2015). Proactivity, adaptability and boundaryless career attitudes: The mediating role of entrepreneurial alertness. *Journal of Vocational Behavior, 86*, 115–123. https://doi.org/10.1016/j.jvb.2014.11.005.

Verbruggen, M. (2012). Psychological mobility and career success in the 'New' career climate. *Journal of Vocational Behavior, 81*(2), 289–297. https://doi.org/10.1016/j.jvb.2011.10.010.

Volmer, J., & Spurk, D. (2011). Protean and boundaryless career attitudes: Relationships with subjective and objective career success. *Zeitschrift für Arbeitsmarkt Forschung, 43*(3), 207–218. https://doi.org/10.1007/s12651-010-0037-3.

Wiernik, B. M., & Kostal, J. W. (2019). Protean and boundaryless career orientations: A critical review and meta-analysis. *Journal of Counseling Psychology, 66*(3), 280–307. https://doi.org/10.1037/cou0000324.

Zhang, C., Hirschi, A., Herrmann, A., Wei, J., & Zhang, J. (2015). Self-directed career attitude as predictor of career and life satisfaction in Chinese employees: Calling as mediator and job insecurity as moderator. *Career Development International, 20*(7), 703–716. https://doi.org/10.1108/CDI-06-2015-009.