

# **Informal learning and career identity formation: The mediating role of work engagement**

## **Abstract**

**Purpose:** To extend prior research on career identity formation by investigating whether individuals' participation in informal workplace learning activities positively relates to career identity. We also examine whether work engagement significantly mediates the participation in informal learning and career identity relationship.

**Design/methodology/approach:** Using data from a survey of 313 individuals in Iran, we developed and tested measurement and structural models and employed partial least squares structural equation modelling to test our hypotheses.

**Findings:** The findings suggest that work engagement substantially mediates the positive relationship between participation in informal learning and career identity. Furthermore, the learning potential of the workplace and the propensities of individuals to actively approach situations that provide them with opportunities to learn and seek feedback on their performance have positive although varying relations with levels of participation in informal learning.

**Practical implications:** HRM and career management specialists must be cognisant of the central role that employee participation in informal learning plays in strengthening their work engagement and career identity. Learning and development specialists should seek to create conditions in the work environment that are favourable to informal learning and work engagement.

**Originality/value:** Although the role of formal development programs in career identity formation is well documented, studies that examine links between participation in informal learning activities and career identity are very rare. Furthermore, there are no known studies that examine the potential mediating role of work engagement in the relationship between participation in informal learning activities and career identity.

**Keywords:** career management, career identity, human resource management, Iran, workplace learning.

**Paper type:** Research paper

# **Informal learning and career identity formation: The mediating role of work engagement**

## **Introduction**

Career identity (CI) refers to the way individuals define themselves in the career context and has been conceptualised as a “cognitive compass” used for navigating career opportunities (Fugate *et al.*, 2004; McArdle *et al.*, 2007). CI has benefits for both individuals and organisations. For individuals, it provides direction for career motivation (London, 1983), guidance for career decisions (McArdle *et al.*, 2007; Nazar and van der Heijden, 2012), and as a meta competency CI helps individuals cope with career-related difficulties (e.g. career adaptability) (Haibo *et al.*, 2018). Regarding organisations, individuals with value-driven and self-directed careers develop their CIs and react proactively towards organisational change initiatives because they perceive themselves, rather than their organisations, as being responsible for their careers (Lysova *et al.*, 2015). There is also evidence that a high level of CI is associated with organisational commitment (Kidd and Smewing, 2001). **Having established the importance of CI for individuals and organisations, next we outline what scholars currently know about CI formation, what is not known, and why this knowledge void matters.**

**The concept of *identity* is closely linked to participation in learning activities (Lave and Wenger, 1991; Søreide, 2016). Previous studies have explored the role of learning activities in different types of identity formation, such as professional identity (Mackay, 2017) and work identity (Collin, 2009). Although the literature provides empirical evidence for associations between learning and various types of identity formation, we know little about whether CI is associated with participation in informal learning activities (PILA). Scholars have suggested that informal work-related learning activities can play an important role in CI formation. For example, Meijers and Lengelle (2012) explained how informal learning processes using career-related stories as a learning mechanism can be effective for development of CI. However, there is limited empirical support for the supposition that there is an association between PILA and CI. Investigating such an association is important because informal learning is the predominant form of learning in workplaces, with estimates suggesting that it constitutes up to 70% to 90% of learning in workplace settings (Cerasoli *et al.*, 2018).**

**In this paper we also explore the relations between work engagement (WE) and CI. There is evidence that WE relates positively to career outcomes such as career success (Kraimer *et al.*, 2019) and career satisfaction and career commitment (Lee and Eissenstat, 2018). However, little is known about what role, if any, WE plays in the formation of CI. To illustrate, a review of literature on studies that have investigated relations between WE and career-related concepts located just 18 articles, none of which focussed specifically on CI (Lee *et al.*, 2016). Given the several positive influences of high WE and CI on individuals and organisations (Bakker and Albrecht, 2018; Lee and Eissenstat, 2018), it is important to investigate their relationship from a theoretical and practical standpoint.**

Our study addresses these knowledge voids by examining how individuals' PILA relates to CI among employees in Iran—a nation that faces many challenges in implementing effective human resource management (HRM) practices, specifically the development of workforce competencies as a result of brain drain, low female participation rates in the workforce and difficulties in attracting and retaining skilled experts (Budhwar and Mellahi, 2018; Ghorbani and Tung, 2007; Haghighi *et al.*, 2019). The study draws on job demand–resources (JD-R) theory (Bakker and Demerouti, 2017) to explicate how PILA relates to CI. We argue that the linkage is not direct and that WE is the mediating mechanism between PILA and CI.

Furthermore, we explore work environment conditions and individual predispositions that foster PILA. We draw on the person–environment interaction perspective (Bandura and Walters, 1977; Cerasoli *et al.*, 2018) to argue that the workplace as a learning environment, referred to here as the learning potential of the workplace (LPW), provides the enabling space for PILA. We also consider individuals' propensities to PILA, specifically feedback-seeking orientation (FSO) and learning goal orientation (LGO).

This study makes several contributions to the literature. First, the study extends knowledge by employing a novel approach to providing evidence that suggests PILA shapes CI. Our approach was novel because we assessed individual and situational determinants of PILA and actual PILA. Studies that include a focus on learning at and through work typically do not include all these variables (e.g., Huo and Boxall, 2020). Second, we offer empirical evidence on the relative salience of individual and situational factors that incite PILA, which in turn contributes to shaping CI. Third, this study presents evidence on the mediating role of WE in the

relationship between PILA and CI. Fourth, we highlight the importance of CI and its antecedents in the career literature which tends to focus on topics such as career optimism, success, adaptability, and development. Finally, the study contributes knowledge to the domain of career competency development and thus to the broader field of HRM in the Middle East, and in Iran in particular.

## **Theoretical background**

**We begin with a theoretical discussion on how PILA is stimulated by two sets of factors: individual and environmental. Individual factors refer to characteristics of the workers as learners that affects their learning, while environmental factors refer to any factor within the learning situation or context that might enable or constrain employees' learning. In the present study, the individual factors refer to LGO and FSO, while the LPW captures the environment where informal learning takes place. Our main argument is therefore underpinned by the person–environment interaction perspective, which suggests that both internal personal factors and external situational factors affect the extent of PILA**

### *Informal learning*

Informal learning is a broad construct that is problematic to define because of the unstructured, implicit nature of the process and the difficulty of differentiating it from participation in everyday work activities (Wolfson *et al.*, 2018). Attempts at clarifying the construct have focused on intentional, self-directed learning that occurs through specific cognitive activities and behaviours (Wolfson *et al.*, 2018). For example, Noe *et al.* (2013) suggested that informal learning can originate from oneself (e.g., experimenting, reflecting), others (e.g., interacting with peers or a supervisor) or non-social sources (e.g., information-seeking on the Internet).

### *Learning goal orientation*

An LGO is a stable, general learning-related motive or internal drive that relates to a concern for, and devotion to, developing one's competence (Dweck and Leggett, 1988; VandeWalle and Cummings, 1997). This internal drive finds outward expression through learning-related behaviours and cognitive activities, such as information-seeking proactive behaviours and learning from experiences through reflection and experimentation (Tan *et al.*, 2016). Because of their drive to acquire task-related knowledge and skills, individuals with an LGO have a

propensity to approach situations actively if they provide learning opportunities that support individuals' competence development (Whitaker and Levy, 2012). There is empirical support for the proposition that a high LGO is conducive to knowledge and skills acquisition (e.g., VandeWalle and Cummings, 1997; Whitaker and Levy, 2012). More specifically, LGO has been shown to be positively associated with individuals' propensity to PILA (Cerasoli *et al.*, 2018; Choi and Jacobs, 2011).

#### *Feedback-seeking orientation*

FSO is a multifaceted individual difference that has been described as follows (Linderbaum and Levy, 2010; London and Smither, 2002): an individual's openness to feedback, including comfort with feedback due to positive affect towards feedback and low evaluation apprehension; a behavioural tendency towards feedback-seeking and a cognitive tendency to mindfully process feedback; a tendency to act on feedback to guide behaviour change and performance improvement; and a strong sense of being accountable for acting on feedback. FSO is related to adopting a mastery orientation (Dweck, 1986). Individuals with a mastery orientation focus on developing competence through knowledge and skills acquisition until mastery is reached. Those with a high FSO thrive on feedback and perceive feedback about skill deficits as improvement opportunities that are imperative to their learning and development (Gabriel *et al.*, 2014). FSO is a predictor of outcomes such as training accomplishments and performance improvement (Gregory and Levy, 2012; London and Smither, 2002).

#### *Learning potential of a workplace*

There is wide agreement that workplaces provide important sites for learning (Eraut, 2004; Tynjälä, 2008). Furthermore, an array of factors influence the quality of the workplace learning environment (Ellinger, 2005). Several studies have identified workplace factors that influence employees' propensity to PILA (e.g., Berg and Chyung, 2008; Lohman, 2006). While there is no definitive list of such factors, there is strong consensus that factors related to both the job (e.g., autonomy; Wielenga-Meijer *et al.*, 2010) and the social environment in the workplace (e.g., accessibility to individuals with relevant expertise; van der Rijt *et al.*, 2013) are important determinants of an individual's PILA. Drawing on the foregoing literature, we propose the following:

*Hypothesis 1(a):* LGO relates positively to PILA.

*Hypothesis 1(b):* FSO relates positively to PILA.

*Hypothesis 1(c):* LPW relates positively to PILA.

In the next section, we turn our attention to CI and relate PILA to the formation of CI.

### *Career identity*

CI refers to “how central one’s career is to one’s identity” (London, 1983, p. 621). Engagement in workplace learning activities that develop job competencies has an important role in the formation of CI (Meijers and Lengelle, 2012). More specifically, CI is reinforced by learning processes and its formation facilitated by learning situations in which socially constructed new knowledge is integrated with existing knowledge structures (Meijers, 1998). Thus, an individual’s identity is in large part formed by new knowledge that has been acquired from the socially collaborative work context to which the individual belongs (Nazar and van der Heijden, 2012). Central to this process is the role of an expansive learning environment (Meijers, 1998) that affords opportunities for individuals to pursue learning paths that facilitate their career growth (Nazar and van der Heijden, 2012), which is ultimately “aimed at the acquisition of a CI” (Meijers, 1998, p. 202). As noted, a paucity of research examines the role of PILA in CI formation. In this study we posit that PILA is inherently embedded in patterns of social relationships in the workplace (Manuti *et al.*, 2015) and that CI formation is associated with a social process (Lave and Wenger, 1991). Accordingly, we propose the following hypothesis:

*Hypothesis 2:* PILA relates positively to CI.

In the next two sections of the paper, we make the case that PILA increases WE, which increases CI. To make the case, we draw on JD-R theory (Bakker and Demerouti, 2017) to explain how PILA enables individuals to develop a CI through WE as a mediating mechanism.

### *Informal learning and work engagement*

Schaufeli *et al.* (2002) defined WE “as a positive, fulfilling, work-related state of mind that is characterised by vigor, dedication, and absorption (p.74)”. To argue for relations between PILA and WE, we drew on JD-R theory (Bakker and Demerouti, 2017). In brief, the theory postulates that job resources (e.g., informal learning opportunities) help individuals cope with their job demands (e.g., mental demands, workload) and that it is job resources that fuel WE (Bakker

and Albrecht, 2018). Job resources are physical, social or organisational job features that are beneficial in accomplishing work-related goals (Bakker and Demerouti, 2017). Examples are supervisor and co-worker support for learning, performance feedback and job autonomy (Schaufeli, 2017). Job resources are sources of intrinsic motivation because they fulfil needs for autonomy, relatedness and competence (Van den Broeck *et al.*, 2008). Moreover, job resources are extrinsically motivating because they help employees accomplish work-related goals (Bakker and Albrecht, 2018). Job competence is essential to the achievement of work-related goals, and it is developed largely through individuals' PILA (Cerasoli *et al.*, 2018; Wolfson *et al.*, 2018).

**Although opportunity for informal learning as a job resource is a frequently mentioned antecedent of WE, the empirical evidence to support this purported link is sparse (Wollard and Shuck, 2011). Just a few studies have provided empirical support for the link (e.g., Susomrith and Coetzer, 2019; Uzunoma *et al.*, 2020). The informal learning-WE link is predicated on the idea that those highly involved in informal learning activities are likely to be beneficiaries of significant levels of work resources (e.g., job control) and social resources (e.g., co-worker support) because most informal learning is task-based or interactional (Nikolova *et al.*, 2014). Furthermore, reviews of working adults' PILA have revealed that participation is positively associated with positive general work attitudes, such as job satisfaction and affective organisational commitment (Cerasoli *et al.*, 2018; Tannenbaum and A.Wolfson, 2021). Moreover, scholars have noted that job satisfaction, affective organisational commitment and WE, although distinguishable, are constructs that have much in common (Macey and Schneider, 2008). Therefore, we expect that PILA will increase WE.**

#### *Work engagement and career identity*

**Bakker and Demerouti (2008) and Lee *et al.*, (2016) have leveraged JD-R theory to argue that fostering employees' WE contributes to their career development. The formation of CI is integral to career development and** results of some studies suggest that CI may well be an outcome of WE (Lee *et al.*, 2016). For example, WE has been shown to predict career development and career success (Kraimer *et al.*, 2019) and career satisfaction and career commitment (Lee and Eissenstat, 2018). WE is a proactive predisposition that triggers participation in career-related activities that can heighten career certainty and reduce career-related anxiety (Praskova *et al.*, 2015). Perceptions of career stability and continuity and reduced career-related anxiety all contribute to higher levels of perceived CI (Dheer and

Lenartowicz, 2018; LaPointe, 2010). Furthermore, WE is an outcome of individuals experiencing meaningfulness in their work, which, in turn, positively influences these individuals' attitudes towards their careers (Hirschi, 2012; Xie *et al.*, 2016). WE refers to “the simultaneous employment and expression of a person’s ‘preferred self’ in task behaviours that promote connections to work and to others” (Kahn, 1990, p.700). This self-expression (Kahn, 1990) helps individuals understand the potential effects of what they are doing – for themselves and others – which can shape their CI.

Drawing on the foregoing arguments for a chain of relations between PILA, WE and CI, we propose the following hypothesis:

*Hypothesis 3:* The positive relationship between PILA and CI is mediated by WE.

**The hypothesised linkages between the study variables are illustrated in Figure 1.**

### **Figure 1. Conceptual Model of the Study**

#### **Data collection and methods**

Data were collected through an anonymous survey in Iran of employees in the fields of accounting, finance, computer programming, architecture, and engineering. These employees that were included in the study after meeting the inclusion criteria were working with 47 companies.

After following data cleaning procedures recommended by Fowler (2013) which include response screening outlier analysis and answer analysis (e.g., straight lining, contradictory and incomplete answers), a total of 313 cases were deemed useable. The response rate of 56.9 % is above the average response rate of 52.7% (with 20.4% standard deviation) for organisational studies in which individuals are the respondents (Baruch and Holtom, 2008). Table 1 presents a profile of the respondents.

Table 1. Demographic Characteristics of Respondents

We accounted for response or non-response bias, whereby the data may be attenuated by more active participation and heightened enthusiasm by some respondents relative to others (Dillman



*et al.*, 2014). Following Armstrong and Overton (2018) we compared the variables of age, gender, education and tenure both in job and in organisation and the three main constructs (used in this study) across early and late groups of respondents (as representatives of responders and non-responders, respectively). The between-group t-test results revealed insignificant differences, which suggests that response and non-response bias did not confound the results.

Common method variance (CMV) was accounted for in the survey development and administration phase, followed by a statistical analysis for CMV (Podsakoff, 2003). Items with different response scales were used to avoid response straightlining. Respondents were assured of confidentiality and anonymity to alleviate social desirability bias (Dillman *et al.*, 2014). We performed a Harman's single factor-test of the measures used in the study. The results showed multiple factors, with one factor accounting for the highest proportion of the total variance at only 31% (far less than the 50% minimum standard), indicative of CMV-free data. The full collinearity test (Kock and Lynn, 2012) further shows that the variance inflations factors (VIFs) of the structural models ranged from 1.23 to 1.32 (i.e., well below the 3.3 maximum threshold (Kock, 2015)). These results suggest that our data were not biased because of CMV.

Results of statistical power analysis and the sampling adequacy test demonstrated that the sample size of 313 exceeded the minimum sample size of 302 (Kock and Hadaya, 2018), given the minimum significant path coefficient in the main model (.14) at  $p \leq .05$  and a statistical power of .80. The Cohen's test (Cohen, 1992) based on the number of predictors and minimum  $r^2$  in the models used in this study (minimum of 256) and Faul *et al.* (2009) power analysis test (minimum of 182) both indicated that the sampling adequacy requirement was met.

#### *Measurement of constructs and variables*

Tables 2 and 3 contain the survey items. The LPW scale was adopted from Nikolova *et al.* (2014) and is considered a higher (second) order construct with four facets: learning through reflection (3 items), experimentation (3 items), from colleagues (3 items) and from supervisors (3 items). Each item has a 7-point response scale in which 1 = strongly disagree and 7 = strongly agree.

We adopted the 5-item scale developed by Linderbaum and Levy (2010) to measure FSO. The response scale for each item ranged from 1 = strongly disagree to 7 = strongly agree. LGO was

measured using a 5-item scale adopted from Brett and VandeWalle (1999) Each item was measured on a 7-point scale (1 = strongly disagree; 7 = strongly agree).

PILA was measured using 9 items and a 7-point Likert scale (1 = never; 7 = all the time; Noe *et al.*, 2013). PILA is a higher (second) order construct comprising three facets: learning from oneself (3 items), learning from others (3 items) and learning from non-interpersonal sources (3 items).

We followed the approach proposed by Schaufeli *et al.* (2006) to use a 9-item measure to assess WE. Responses ranged from 1 = never to 7 = every day. We adopted Day and Allen's (2004) 7-item measure of CI.

### **Hypothesis-testing and results**

To test our hypotheses, we employed the partial least squares structural equation modelling (PLS-SEM) approach to path analysis (Kock, 2020). PLS-SEM is a modelling technique that mainly examines the optimal explained variance of dependent latent variables (Hair *et al.*, 2017). This approach was considered effective and appropriate for this study for the following reasons: (a) the study's major aim was to determine the key drivers or antecedents of constructs (e.g., the links of FSO, LGO and LPW to PILA; (Hair *et al.*, 2017); (b) this study aimed to test and extend a generally established structural theory (Hair *et al.*, 2017); (c) the approach efficiently manages complex mediated models with many indicators and constructs; (d) the data set was relatively too small for covariance-based structural equation modelling; and (e) latent variable scores are derived from the raw data to develop and test models (Hair *et al.*, 2017).

We followed a two-step PLS-SEM approach using WarPLS v.7 (Kock, 2020). The first step is to develop and test the measurement model to demonstrate the psychometric properties of the constructs using confirmatory factor analysis (CFA). The results of the CFA are provided in Tables 2 and 3. As evident in the tables, the items had significant loadings to their respective constructs, indicated by the significant factor loadings. Their cross-loadings to other constructs were relatively lower than the theorised loadings and were non-significant at  $p < .05$ , which suggests homogeneity of the clustered items, convergent validity, and discriminant validity (Hair *et al.*, 2017; Kock, 2020). The average variance extracted (AVE) values (ranging between .61 for WE and .85 for Learning through experimentation) for all constructs were above the .5

minimum cut off, which further suggests acceptable levels of homogeneity of items and convergent validity. An AVE value of > 50% suggests that the latent construct accounts for more than half of the variance in the observed variables (i.e., items; Hair *et al* 2017). The full collinearity VIFs ranged between 1.50 (LPW) to 2.37 (Learning from supervisors) and were considered acceptable (below the maximum threshold of 3.3; Kock 2020), which suggests that multicollinearity was not an issue in the model.

Table 2. Measurement Model – First Order Constructs

The constructs were considered reliable according to the Dillon-Goldstein (D-G) rho (a measure of composite reliability), composite reliability coefficient (CRC) and Cronbach's alpha coefficient (measure of item homogeneity and internal consistency, which were above the minimum acceptable threshold of .70 (Hair *et al.*, 2017; Kock, 2020).

Table 3. Measurement Model – Second Order Constructs

Table 4 presents descriptive statistics, correlations and other relevant psychometric indicators of the constructs and variables. The uppermost diagonal values are the squared root of AVEs (which are much greater than the intercorrelation coefficients), and they demonstrate adequate construct discriminant validity (Hair *et al.*, 2017; Kock, 2020). Below the correlation coefficients are the heterotrait–monotrait (HTMT) ratios of correlation, a robust indicator of discriminant validity (Hair *et al.*, 2017). The HTMT ratios presented in Table 4 are below the maximum threshold of .85, which further demonstrates adequate construct discriminant validity.

Table 4. Intercorrelations, HTMT Ratios and Descriptive Statistics of Constructs and Variables

The second stage of the PLS-SEM is the development and testing of the structural models towards hypothesis testing. We developed and tested three competing models. The first model (A) was a direct effects model only, in which we tested the following: (a) direct effects of FSO, LGO and LPW on PILA; (b) direct effects of PILA on CI; and (c) direct effects of WE on CI. Since this was a direct effect model only, we did not test the link between PILA and WE (the mediation effects as hypothesised in this study). While there may have been mediation effects

between the three exogenous variables (i.e., FSO, LGO and LPW), PILA and CI, the model did not account for this possibility because this was not the focus of the current study. Based on model A, LGO, FSO and LPW had positive and significant relationships at  $p < .01$  with PILA, which supports H1(a), H1(b) and H1(c). LPW had the strongest effect on PILA ( $\beta = .38$ ), and the Cohen's effect size (.19) suggests that the link was sufficiently substantial and meaningful to draw theoretical and empirical implications (Cohen, 1992). LPW accounted for more than half of the variation ( $r^2_C = .19$  or 57%) in the levels of PILA. LGO was the next most influential construct regarding PILA, followed by FSO, although their effect sizes were relatively lower than LPW's. The model also showed a positive and significant effect at  $p < .05$  of PILA (along with WE) on CI, explaining 50% of the latter's variance, which supports H2. The Stone–Geisser Q-squared coefficient when greater than zero indicates the predictive power of the model (Kock, 2020). In this model, the  $Q^2$  of PILA and CI were .33 and .51, respectively, which demonstrate the model's acceptable predictive validity.

The second model (B) was a partial mediation model, in which WE was posited as a mediator between PILA and CI. The results showed that PILA had strong and positive links to WE ( $\beta = .60$  and a large effect size). PILA explained approximately 30% of WE's variance, suggesting a partially mediated relationship between PILA and CI through WE, thereby partly supporting H3. This suggests that there may be other extraneous variables or constructs that can also explain the PILA–CI relationship.

The third model (C) was a full mediation structural model in which WE was assumed to be the mediator that translates solely the effects of PILA on CI. The results showed that while the effects of PILA on WE remained the same, the WE to CI path coefficient increased from .16 to .49, which is indicative of an increase in strength of the relationship. A noticeable change was the reduction in  $r^2$  of CI (from .5 in model B to .28 in model C), which suggests the lower explanatory power of WE alone (relative to the combined power of WE and PILA in model B) over the levels of CI.

We used the recommended measures of predictive validity in PLS-SEM, which are presented at the lower section of Figure 2 (see Kock, 2020; Hair et al., 2017), to determine the model that best explains our data. We used the average  $r^2$  to determine the model with the greater explanatory power (Kock, 2020). Model B (partial mediation) was the most logical structural model because it considered the possibility that there are other unmeasured variables or

constructs that could also explain the impact of PILA on CI. We further tested for the significance of the direct and indirect effects of PILA on CI through the mediator WE. The indirect path coefficient (i.e., PILA–WE–CI) was .10 ( $p < .01$ ,  $f^2$  of .07, small effect size), while the total effect was .67 ( $p < .01$ ,  $f^2 = .46$ , large effect size). These results further confirm the predictive power of model B, which demonstrates the partial mediating effect of WE, consistent with H3.

Among the control variables, only education had strong and positive effects on CI. This result suggests that high levels of formal education are associated with high levels of CI. The remainder of the controls did not appear to have any significant or substantial impact on CI.

## **Discussion**

This study drew on the person-environment interaction perspective and JD-R theory to test the mediating role of WE in the relationship between individuals' PILA and their CI. Data analysis revealed that the LPW had the strongest positive association with PILA, followed by LGO and then FSO. Further, individuals' PILA was positively associated with their CI. The results also suggested that WE functions as a significant mediator in transmitting the effects of PILA onto CI. These results are consistent with JD-R theory, which proposes that job resources fuel WE (Bakker and Demerouti, 2017). The results are also congruent with the view that being fully engrossed in work presents opportunities for CI formation (Clarke and Ravenswood, 2019; Praskova *et al.*, 2015). Our research contributes to a theoretical understanding of the factors involved in CI formation in several ways, which are outlined below.

In their meta-analysis of the antecedents and outcomes of informal learning, Cerasoli *et al.* (2018) found that both individual and situational factors predicted participation in informal learning. Further, such participation was associated with several valued outcomes in knowledge and skills acquisition, attitudes, and task performance. However, the authors' results indicated that the relationship between PILA and CI is yet to be explored. Our results suggest that PILA, activated by personal predispositions and work environment conditions, does indeed contribute to the formation of CI. The findings are consistent with the view that learning shapes individuals' perceptions and sense of identity (Lankau and Scandura, 2002; Lave and Wenger, 1991). Thus, the results contribute to an understanding of the individual and situational factors and the informal learning practices that shape CI. This particular result of our study expounds the concept of 'career agency' that Praskova and Johnston (2020) highlighted as a major

predictor of career success. PILA represents the career-centric personal agency of an individual to take advantage of informal learning activities that contributes positively to one's CI. Hence, based on the findings, this study advances the view that an important element of career agency is one's proactive orientation and behaviour to learn at work.

Previous studies have offered theoretical frameworks and qualitative yet anecdotal evidence on the individual and situational factors and processes involved in shaping CI (Clarke and Ravenswood, 2019; Yang, 2019). In contrast, this study tests a structural model that examines specific personal predispositions and work environment conditions that conjointly shape CI. By doing so, the study employs a novel approach to examining selected individual and situational factors and learning processes that are conventionally assumed in the contemporary career management literature to have a strong influence on CI (Brokerhof *et al.*, 2020; Clarke and Ravenswood, 2019).

This study also presents empirical evidence that the relationship between PILA and CI is partially mediated by WE. This result suggests that WE is an intervening variable that is part of a causal sequence between PILA and CI formation. As noted, most informal learning is task-based or interactional (Nikolova *et al.*, 2014). Therefore, individuals who are highly involved in informal learning activities are likely to be beneficiaries of substantial levels of work resources (e.g., job autonomy) and social resources (e.g., supervisor support). Our results support and extend the scope of JD-R theory by highlighting the role of specific forms of job resources (e.g., learning opportunities) and personal resources (e.g., job competence) that stimulate WE. Further, the results extend the ambit of the theory by revealing that CI is an outcome of WE. This finding offers a more direct and parsimonious explanation of how PILA shapes CI relative to more current studies on CI development (Kwon and Cho, 2020; Lee *et al.*, 2016). More generally, the results provide empirical support to LaPointe's (2010) view that WE serves as a cognitive and behavioural process within a 'series of experience' that occur, which shapes an individual's CI over time. This finding offers a novel explanation of how CI is formed from an experiential learning perspective.

Finally, the study's findings contribute to the sparse literature on HRM in Iran (Namazie and Frame, 2007; Nilforooshan and Salimi, 2016) and specifically to literature on career. Expanding the evidence base in this domain of HRM is particularly important because evidence-based career development initiatives can help to retain top talent (Weer and

Greenhaus, 2020). Talent retention is crucial in the many Iranian organisations that risk losing their high performers to employers who routinely scan the globe in search of top talent (Hausknecht, 2017). The findings of this study underscore the importance of adopting work practices that nurture autonomous learning as part of a suite of HRM practices in the Iranian context; in turn, this will support CI formation. Overall, the results of this study support our novel learning-focused approach to CI formation.

### *Practical implications*

**The results imply two main interventions for enhancing CI formation. First, managers and HR practitioners must create work environment conditions that are conducive to PILA, because the results suggest that PILA influences CI formation. Managers and HR practitioners can create conditions that are favourable for PILA through a range of initiatives that include creating a learning culture, modelling a personal commitment to learning, encouraging knowledge sharing, and promoting experimentation and reasonable risk-taking (e.g., Berg and Chyung, 2008). Learning that is self-initiated and self-directed is well suited to contemporary realities which require individuals to construct their own careers in contexts of rapid change and high uncertainty (Kwon and Cho, 2020). Furthermore, Randall et al. (2021) showed that informal learning is negatively related to turnover intentions. Accordingly, opportunities for informal learning may well contribute to the retention of top talent, which is particularly crucial in the Iranian organisations (Hausknecht, 2017).**

**Second, managers and HR practitioners must employ interventions that foster WE. The results imply that CI is formed when individuals have abundant learning opportunities through participation in work practice and interaction with colleagues *and* when they are fully immersed in work. In this regard, Knight *et al.* (2017) identified four types of WE interventions: (1) personal resource building (e.g., developing individuals' self-efficacy); (2) job resource building (e.g., increasing job autonomy); (3) leadership training (e.g., knowledge and skill building workshops); and (4) health promotion (e.g., stress management). However, the authors emphasised that WE interventions must be appropriate to individual contexts and settings. Furthermore, given the talent retention challenges that many Iranian organisations face, managers and HR practitioners in such organisations should be cognisant that WE also fosters talent retention (Knight *et al.*, 2017; Meyer and Schneider, 2021).**

### *Limitations and directions for future research*

First, our cross-sectional study does not capture the lagged effects of PILA and WE. Learning processes and outcomes and the experiences of WE are best captured over time. Longitudinal tracking of the process of CI formation will provide a more robust understanding of how PILA influences the focal construct through WE. **Second, future studies could explore alternative model specifications to test relations between WE and CI. For example, we cannot discount the theoretical argument that there may be a reverse relationship and even causality between CI and WE. An alternative model might propose that CI constitutes a personal resource which is a precursor to WE. Testing competing models and alternative hypotheses will offer more nuanced theoretical and empirical explanations of the linkages among the constructs explored in this study.** Third, the use of single source data obtained through self-administered surveys can be complemented by other sources of data to triangulate and thus enhance the validity and reliability of the results. These sources could include team members, supervisors, and mentors. Fourth, given that formal development programs provided by organisations also contribute to one's career (Clarke, 2013), future studies should consider the influence of formal learning along with PILA on the formation of CI. Finally, it is also recommended that future studies examine the role of social media in shaping CI since it is a significant source of informal learning (Rehm and Notten, 2016).

### **Conclusion**

Our study finds that CI is an outcome of a series of experiences at work. Specifically, we present novel empirical evidence to show the parsimonious, positive, and significant relations between PILA, WE and CI. The evidence suggests that PILA fosters heightened engagement in work roles and that this behavioural process enhances individuals' CI. We also tested a model that unravels the relative salience of two individual predispositions and a learning-oriented work environment, which are drivers of PILA. From an Iranian and Middle Eastern HRM perspective, our results suggest that PILA plays a central role in fostering WE and individuals' CI formation. Accordingly, the facilitation of PILA and WE should be part of talent management and retention initiatives.



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