

# A study on the mechanisms of strengths-based psychological climate on employee innovation performance: a moderated mediation model

Po-Chien Chang

*School of Business, Macau University of Science and Technology, Macau, China*

Keyi Sun

*China Communications Services Capital Holdings Co. Ltd., Beijing, China, and*

Ting Wu

*School of Business, Macau University of Science and Technology, Macau, China*

## Abstract

**Purpose** – This paper aims to adopt a moderated mediation model to examine the mediation roles of employee engagement and hindrance time pressure; the moderation roles of personality in the relationship between strengths-based psychological climate and employee innovation performance.

**Design/methodology/approach** – Applying snowball sampling and a self-administered survey, the data were collected from employees and immediate supervisors working in Chinese small-medium-sized enterprises. The PROCESS macro for SPSS was applied to examine the moderated mediation model.

**Findings** – The results show that a strengths-based psychological climate significantly influences employee engagement and hindrance time pressure, which, in turn, affects employee innovation performance. Both extroversion and emotional stability moderate the relationship between strengths-based psychological climate, employee engagement and hindrance time pressure but also the indirect effect of strengths-based psychological climate on employee innovation performance through employee engagement and hindrance time pressure.

**Research limitations/implications** – Drawing on job demands and resources models, this research focusses on maximizing employee strengths instead of weaknesses and includes both two intermediating mechanisms in-between strengths-based psychological climate and innovation performance. Personality variables are applied as moderators, as the study assumes the effectiveness of the strengths-based interventions may vary depends on individual differences.

**Practical implications** – This study proposes that a strengths-based psychological climate may shift focusses from employee weakness to strengths to maximise their talents. Also, personality variables are suggested to be considered in the related human resource practices (e.g. hiring and performance appraisal) to increase the fit between employees, their jobs and the organisations.

**Originality/value** – This study develops a moderated mediation model to investigate the possible mediating mechanisms and boundary conditions in relation to the impact of strengths-based psychological climate on employee innovation performance.

**Keywords** Employee engagement, Extroversion, Emotional stability, Employee innovation performance, Hindrance time pressure, Strengths-based psychological climate

**Paper type** Research paper



## Introduction

With the advent of the informational economy, the world has been experienced a new era based on knowledge and innovation (Chen and Huang, 2009). Organisations have to build their own sustainable competitive advantages by carrying out innovative initiatives by making good use of their “human assets” to deliver innovation performance to attain organisational success (Chen and Huang, 2009; Kumar *et al.*, 2012). Small-medium-sized enterprises (SMEs) play a critical role in contributing to a country’s economic development, especially in innovative development for global competitiveness. In China, 97.5% are SMEs accounting for 63% of the profits, 65% of the patents and over 80% employment positions in 2016 (Mu and Xiao, 2019). Despite the importance of innovation, the driving forces in SMEs are different from those of large-scale international or multinationals (MNCs) (Mu and Xiao, 2019). These SMEs focus on structural changes to compete with other large-sized enterprises by relatively similar products and indifferent services with limited financial resources (Ma and Inn, 2017; Mu and Xiao, 2019).

To continuously make progress in advancement and improvement, these SMEs may need to properly leverage firm-specific human capital to create new products and services for innovation to take place. Based on the resource-based view (RBV), organisations obtain, attain and maintain competitive advantages by investing their valuable, rare, imitable and non-substitutable human capital (Wright *et al.*, 2001). As a result, it is important to develop new human resource (HR) strategies to optimally make good use of the strengths of a heterogeneous workforce to obtain innovation performance (Chen and Huang, 2009; Zhou and Shalley, 2008).

Most HR practices are based on a deficit perspective emphasising on improving weaknesses, correcting disadvantages to better employee insufficient skills and abilities (Luthans, 2002; Bouskila-Yam and Kluger, 2011). Though the deficit correction or weaknesses amendments may help improve skills and performance, employees may feel demoralised and frustrated that can hardly engender self-efficacy and positive affect on overall performance (Hodges and Clifton, 2004; Luthans, 2002; Miglianico *et al.*, 2019; van Woerkom and de Bruijn, 2016). The development of positive psychology is inclined to complement the deficit approach by examining how employees make good use of the unique strengths and related outcomes. Though strengths-based studies have received more attention, the relationships amongst employee strengths use, strengths-based psychological climate and its outcomes (e.g. innovation performance) are still in their early stages (Miglianico *et al.*, 2019). Strengths-based psychological climate is defined as individual perceptions of the formal and informal policies, practices and procedures in the organisations regarding identifying, developing, using and appreciating the talents and strengths (van Woerkom and Meyers, 2015). Employees perceive and interpret a “strengths-based philosophy” from organisational HR practices that may positively related to both in-role and extra-role performance (van Woerkom and de Bruijn, 2016; van Woerkom and Meyers, 2015).

As a result, this study proposes a strengths-based psychological climate as a motivational factor to facilitate employee innovation performance in the SMEs in China and further delves into relevant mediating and moderating mechanisms. The job demands-resources model (JD-R) assumes that both job resources and job demands exist in the workplace that the former may significantly alleviate the latter (Schaufeli and Bakker, 2004). Explicating how employees interpret different organisational HR practices, strengths-based psychological climate as job resources increase employee engagement and intermediating mechanism in the psychological motivation process that further enhances their innovation performance (Bakker and Demerouti, 2017). Hindrance time pressure as a source of job

demands is examined as the mediator between strengths-based psychological climate and employee innovation performance (Baer and Oldham, 2006).

Next, this study examines if differences in personality characteristics may influence the effectiveness of HR practices on employee innovation performance. Previous findings revealed the inconsistent results of the effectiveness of HR practices on individuals, as it may vary due to individual different perceptions (Combs *et al.*, 2006). Previous positive psychology studies suggest that the extent to which the perceptions regarding strengths-based interventions (i.e. Strengths-based psychological climate) may be contingent upon individual different personality such as the “Big Five” (Bakker *et al.*, 2019; Debusscher *et al.*, 2016; Oerlemans and Bakker, 2014; Seligman *et al.*, 2005). As a result, this research includes both extroversion and emotional stability as moderators to investigate the impacts on the strengths-based psychological climate-employee innovation performance relationship (Bakker *et al.*, 2019; Debusscher *et al.*, 2016; Oerlemans and Bakker, 2014; Senf and Liao, 2013; Zhou *et al.*, 2015).

Figure 1 depicts our research model.

Literature review and hypotheses

Strengths-based psychological climate and employee innovation performance

The strengths-based interventions, indicating strengths identification, development and deployment emphasise individual characteristics, abilities that allow a person to perform at his or her best in the workplace (van Woerkom *et al.*, 2016). Previous research has been focussed on the external contexts (e.g. working conditions) that may influence how people make good use of their strengths in the workplace (Ding *et al.*, 2020; Miglianico *et al.*, 2019; van Woerkom *et al.*, 2016).

According to the JD-R model, job resources characterised by gain spirals, generate additional resources that are beneficial to improve employee positive outcomes at work through psychological motivation process (Bakker and Demerouti, 2017; Ding *et al.*, 2018, 2020). Strengths-based psychological climate as one job resource represents individual perceptions towards organisational strengths-based interventions to develop their strengths may further influence individual attitudes and behaviour (Bakker and Demerouti, 2017; Ding *et al.*, 2018). Organisations that provide strengths use interventions to help employees be more engaged by facilitating the use and capability of their strengths (van Woerkom *et al.*, 2016). Once receiving organisational support in identifying, deploying and

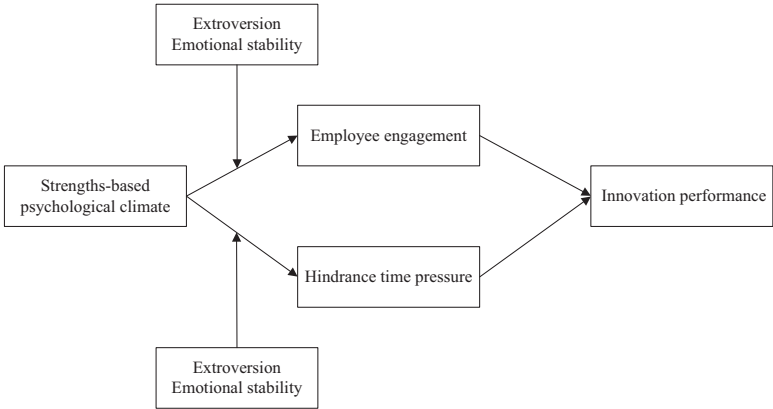


Figure 1.  
Proposed moderated  
mediation model

appreciating their strengths, employees feel good about themselves and are motivated by taking strength use as psychological resources to face the challenges (van Woerkom and Meyers, 2015; van Woerkom *et al.*, 2016).

Organisational success largely depends on its innovative capabilities to generate products, services and facilitate administrative processes to respond to create values and obtain sustainable competitive advantages in the dynamic business context (Chen and Huang, 2009). Innovation performance, defined as generation, promotion and realisation of innovation prospects to benefit individuals, groups or organisations at large, has been recognised as critical elements for contemporary firms, especially in the high-tech industry (Chen and Huang, 2009; Janssen, 2000). As such, it is necessary to delve into the environment catalysing and nurturing individual performance in innovation, as they are the primary sources to generate initiatives for better outcomes (Chen and Huang, 2009). Organisations that adopt strategic HR practices emphasising employee strengths may develop their new knowledge, skills and innovative capabilities by motivation and involvement (van Woerkom *et al.*, 2016). Organisations applying strengths use interventions to convey information and messages that making good use of strengths at work is encouraged and appreciated, which, in turn, leads to giving more back to the organisation in the form of positive workplace outcomes, innovation performance in this study (van Woerkom *et al.*, 2016). By implementing strengths-based interventions, organisations may create a supportive and open working environment, recognising and appreciating employee talents and strengths for further growth that may lead to more innovation performance (Ding *et al.*, 2020). Therefore, this research suggests that a strengths-based psychological climate, where individuals feel appreciated and recognised due to exerting their strengths at work, may facilitate their feelings of self-worth, respect and competence, which, in turn, will result in better innovation performance. Thus, following from the reasoning, we predict:

- H1. Strengths-based psychological climate is positively related to employee innovation performance.

#### *Mediating role of employee engagement*

Employee engagement is a positive work-related psychological state, characterised by absorption, vigour and dedication that contains meaningful, optimistic and high-activation positive states (Schaufeli, 2012). Based on JD-R theory, strengths-based psychological climate as the shared perceptions of strengths-based HR practices can be seen as a job resource emphasising identifying, developing and using employee strengths (van Woerkom *et al.*, 2020). When organisations create a positive climate for recognising and deploying employee strengths use active feedback, for instance, the positive experiences stimulate their intrinsic motivation and encourage personal growth (Miglianico *et al.*, 2019; van Woerkom and Meyers, 2015; van Woerkom *et al.*, 2020). Previous research shows that some HR practices facilitate the formation of the strengths-based climate (van Woerkom and Meyers, 2015; van Woerkom *et al.*, 2020). Recruitment and selection process emphasising related knowledge regarding applicants' strengths while new hires' strengths are focussed through socialisation processes (van Woerkom *et al.*, 2020). Also, the process of job (re) design via job crafting allows employees to customise their tasks based on their strengths (Wrzesniewski and Dutton, 2001). The perceptions of strengths identification, development and deployment in the workplace tend to positively affect employee engagement (van Woerkom and Meyers, 2015; van Woerkom *et al.*, 2020).

Employee engagement as a key indicator of their well-being at work can be seen as a significant antecedent of individual innovation performance (Ding *et al.*, 2020). Employees

may experience pleasurable states and generate feelings of vitality and competence if they perceive capitalising on their strengths at work (Miglianico *et al.*, 2019; van Woerkom *et al.*, 2020). Previous literature started to focus on the link between certain strengths-based interventions and employee innovation performance (Fu, 2017; Ding *et al.*, 2020). For innovation to engender in the workplace, organisations have to develop innovation activities by means of strengths-based practices in staffing, training, performance appraisal and the like to encourage employees to commit to the innovation process. By encouraging employees to perform at their best through these practices, employees may make more effort and put more energy into their work. The process inspires employees to energise into work, dedicated to what they pursue and immerse themselves in their jobs (i.e. employee engagement) (Schaufeli, 2012). High employee engagement leads to more innovation performance, as the positive emotional experiences may strengthen their capabilities to accumulate and develop their personal resources such as creative impulse, exploration desire, information sharing and experience absorption (Ding *et al.*, 2020; Fredrickson, 2001). Therefore, high employee engagement shows more energy (vigour) in learning and positive affect at work that serves as a prerequisite for better employee innovation performance (Fu, 2017). Taken together, we propose the following hypothesis:

- H2. Employee engagement mediates the relationship between strengths-based psychological climate and employee innovation performance.

#### *Mediating role of hindrance time pressure*

Hindrance time pressure has emerged as the main source of job demand that may result in negative outcomes such as negative affect, counterproductive behaviour and limit goal attainment (Chong *et al.*, 2011). Under hindrance time pressure, individuals may narrow down the scope to obtain additional cues, pay less attention to new information and ignore practical suggestions for decision-making (Kelly and Loving, 2004; Kruglanski and Webster, 1996). Individuals consider hindrance time pressure as a negative stressor are said to avoid directly confronting and may be detrimental to individual development and dampen teamwork (Bakker and van Woerkom, 2018). JD-R model shows that job resource is beneficial to lessen job demands, alleviate health depletion to succeed in attaining work-related goals (Schaufeli and Taris, 2014; van Woerkom *et al.*, 2016). Strengths-based climate as a job resource supports employee to emphasise their competence and comprehension that relatively reduce psychological burdens at work (Bakker *et al.*, 2019; Zhang and Liu, 2010).

The more employees receive strengths-based interventions regarding identifying, using, developing, appreciating their strengths, the more perceived strengths-based psychological climate which may further increase employee psychological resources and lessen job demands (i.e. hindrance time pressure) (Bakker and van Woerkom, 2018). Subsequently, individuals tend to care about themselves rather than others' interests, reduce diverse information sources for personal advancement which may negatively impact innovation performance (Bakker and van Woerkom, 2018; Perrewé and Spector, 2002). Working in a context characterised as emphasizing individual strengths use (i.e. strengths-based psychological climate) may facilitate individual ability to manage hindrance time pressure, as people feel more competent and effective in coping with job demands. Being supported by making good use of one's strengths in the organisations, employees are able to reduce hindrance time pressure to meet their work goals (i.e. innovation performance). Taken together, we propose the following hypothesis:

H3. Hindrance time pressure mediates the relationship between strengths-based psychological climate and employee innovation performance.

#### *Moderating role of extroversion*

Previous research suggested that personal traits lead to differences in individual performance in the same or similar workplace (Costa and McCrae, 1980; McCrae and Costa, 1992). From the perspective of individual-situational interaction, the interaction between personality characteristics and other contextual variables further influences personal responses and job-related outcomes due to individual differences (Handa and Gulati, 2014; Mischel and Shoda, 1995).

Personality is a set of individual characteristics demonstrating consistent behavioural patterns taken as personal resources (Bhatti *et al.*, 2018; McCrae and Costa, 1992; Perrewé and Spector, 2002). When examining personality, most research focusses on the “Big Five” elements, a well-developed model (Costa and McCrae, 1980; Handa and Gulati, 2014; McCrae and Costa, 1992). Studies show that an understanding of the relationship between personality traits and individual attitudes and behaviours may better result in a better fit between employees and their jobs (Handa and Gulati, 2014; Perrewé and Spector, 2002). Seen as a crucial factor in the “Big Five” that affects a set of employee behaviours, extroversion is the tendency to be active, self-confident, optimistic and cheerful (Bakker *et al.*, 2019; Costa and McCrae, 1980). Extroverts are usually talkative, assertive and showing positive emotions (Costa and McCrae, 1980; Handa and Gulati, 2014). Such individuals tend to actively look for problem-solving strategies and feedback-seeking by frequently and intensively interacting with people (Costa and McCrae, 1980; Handa and Gulati, 2014). Extraverts are easy to communicate with colleagues and supervisors, as they are outgoing, friendly and showing the positive effect that can further accumulate and mobilise personal resources through this specific trait (Bakker *et al.*, 2019; Bhatti *et al.*, 2018; Costa and McCrae, 1980; Zweig and Webster, 2004).

Based on the JD-R model, employees possessing more resources are capable of investing energy and making efforts to obtain fruitful experiences and meet expectations of jobs (Bhatti *et al.*, 2018; Handa and Gulati, 2014; McCrae and Costa, 1992). With the organisational resources that support them to make good use of their strengths, employees tend to be more energetic, resilient and dedicated to their work (i.e. employee engagement) (Bhatti *et al.*, 2018; Costa and McCrae, 1980; Handa and Gulati, 2014). Perceiving opportunities out of organisational identification, appreciation and deployment of their strengths encourage employees to actively dedicate energy and absorption in the workplace. Extroversion facilitates good workplace relationships that bring support and feedback from colleagues and efficiently attain the goals (Zweig and Webster, 2004). That is, the relationship between strengths-based psychological climate and employee engagement may be varied upon the level of extroversion. Following this line of reasoning, this study proposes the following hypothesis:

H4a. Extroversion moderates the relationship between strengths-based psychological climate and employee engagement, such that the positive relationship is stronger for employees with high extroversion than low extroversion.

Personal resources are the ability of an individual to successfully manage the environment out of resiliency and adaptability (Bhatti *et al.*, 2018). Accumulated by making good use of their strengths, employees with more personal resources may avoid hectic situations (e.g. hindrance time pressure) and related costs due to limited time (Bhatti *et al.*, 2018). Under this



condition, employees high on the trait of extroversion further help decrease job stress and effectively manage job demands while performing their best using the unique resources (Handa and Gulati, 2014; Zweig and Webster, 2004). Thus:

*H4b.* Extroversion moderates the relationship between strengths-based psychological climate and time hindrance pressure, such that the negative relationship is stronger for employees with high extroversion than low extroversion.

We propose two mediated moderation hypotheses following the above-mentioned mediated (*H2*) and moderated (*H4a* and *H4b*) relationship. In the model, extroversion moderates two mediation paths:

*H4c.* Extroversion moderates the strength of the mediated relationship between strengths-based psychological climate and employee innovation performance via employee engagement, such that the mediated effect will be stronger for employees with high extroversion than low extroversion.

*H4d.* Extroversion moderates the strength of the mediated relationship between strengths-based psychological climate and employee innovation performance via hindrance time pressure, such that the mediated effect will be stronger for employees with high extroversion than low extroversion

#### *Moderating role of emotional stability*

Individual personality as a set of personal traits determines individual perception and response to certain situations (McCrae and Costa, 1992; Mischel and Shoda, 1995). Emotional stability as one of the dimensions of the “Big Five” personality model is defined as an individual ability to emotionally adjust to the environment (McCrae and Costa, 1992). Individuals characterised by emotional stability tend to easily inhibit their impulses and capable of reducing social anxiety and helplessness (Costa and McCrae, 1980). The ways people perceived their emotional status may influence how they think, act and apply their coping strategies when confronting challenges. Instead of proactive and approaching actions (Bakker *et al.*, 2019; Geukes *et al.*, 2017; Hobfoll *et al.*, 2018), people low on the trait of emotional stability often unsuccessfully control their environment and take coping strategies such as avoidance and distractions, as they consider they have limited capabilities (e.g. deny, self-criticism). Individuals high on emotional stability may have more energy to manage difficulties with persistence and resilience (Bhatti *et al.*, 2018; Costa and McCrae, 1980).

According to the JD-R model, strengths-based psychological climate as job resources perceived by individuals may make employees feel energetic, invigorated and intrinsically motivated that increase engagement in the workplace (Bakker *et al.*, 2019; Hobfoll *et al.*, 2018). Emotional stability as the critical personality traits may support individuals to make good use of personal strengths when encountering stressful situations (Handa and Gulati, 2014). Employees high on the extent of emotional stability make them feel more proactive, self-esteemed, vigorous with positive affective further extend the positive impacts of strengths use to engage more in work and properly manage their psychological resources to lessen the reactions to stressors (i.e. hindrance time pressure) (Bakker *et al.*, 2019; Choi and Lee, 2014; Costa and McCrae, 1980). Following previous assumptions, the relationship between strengths-based psychological climate and employee engagement may be varied upon the different levels of emotional stability. Thus, this study proposes the hypotheses:

*H5a.* Emotional stability moderates the relationship between strengths-based psychological climate and employee engagement, such that the positive relationship is stronger for employees with high emotional stability than low emotional stability.

*H5b.* Emotional stability moderates the relationship between strengths-based psychological climate and time hindrance pressure, such that the negative relationship is stronger for employees with high emotional stability than low emotional stability.

Integrating the mediated (*H3*) and moderated (*H5a* and *H5b*) relationships developed in the study, we propose two mediated moderation hypotheses. In the model, emotional stability moderates two mediation paths:

*H5c.* Emotional stability moderates the strength of the mediated relationship between strengths-based psychological climate and employee innovation performance via employee engagement, such that the mediated effect will be stronger for employees with high emotional stability than low emotional stability.

*H5d.* Emotional stability moderates the strength of the mediated relationship between strengths-based psychological climate and employee innovation performance via hindrance time pressure, such that the mediated effect will be stronger for employees with high emotional stability than low emotional stability.

## Methods

### *Participants and procedure*

Data was collected from 60 SMEs located in Hunan, Guizhou, Guangdong and Sichuan province in China, covering several sectors of industry such as medical, food, communication and engineering (Ding *et al.*, 2020; Malerba, 2006). Respondents were frontline employees and their immediate supervisors. The reason why we chose frontline employees in SMEs as our samples is that over 70% of innovative ideas derive from them. To obtain the necessary number of samples, we adopt personal contacts and a snowballing technique to collect our data because Sun *et al.* (2007) suggested that this approach is particularly useful in the Chinese context. The specific survey procedures are as follows. Firstly, MBA and PhD students from our department helped us contact various SMEs via personal contacts (i.e. *guanxi*). Once these companies expressed that they are interested in participating in our survey, the second author will contact firms' HR managers directly and explained the research purpose. Consequently, the second author provided the questionnaires, including the questionnaires for employees and for the immediate supervisor who was randomly selected by the HR manager in each company, respectively. In addition, to minimise the possible threat of common method variance (CMV), we asked the immediate supervisor to help us collect the data in two different time periods. Therefore, in the real survey process, at time 1, data for strengths-based psychological climate, extroversion, emotional stability and employee demographic information were collected; data for employee engagement and hindrance time pressure were collected at time 2 after one month. The immediate supervisor also provided the evaluation of these employee innovation performances and their own demographic information at this stage. To match the data collected from the different time periods (i.e. time 1 and time 2) and different sources (employees and immediate supervisors), the questionnaires were all coded and the participants were also asked to provide the last four digits of cell phone numbers in the



questionnaire for double-checking. In each period of questionnaire distribution, participants were informed that their responses would be kept strictly confidential and that their participation was voluntary.

In total, 600 respondents in 60 SMEs, with 10 employees in each, participated in the survey. Participants' absence and missing data over the two time periods of data collection reduced the sample to 449 in 60 companies, representing an overall 74.8% participation rate. Of those who responded, 52.3% were men. Around 80% of employees were more than 23 years old and had at least attained a bachelor's degree. In total, 93.3% of the immediate supervisors were men. Around 97% of supervisors were more than 30 years old and had at least attained a bachelor's degree.

*Measures*

- Strengths-based psychological climate: Strengths-based psychological climate was measured with 12 items adapted from [van Woerkom and Meyers \(2015\)](#). All items were rated on a Likert five-point scale that ranged from (1) "strongly disagree" to (5) "strongly agree". A sample item is "I get the opportunity to learn what my talents are". The Cronbach's alpha for is 0.93.
- Extroversion: We used [Saucier's \(1994\)](#) 8-item Big-Five scale to measure extroversion. Individuals described themselves using a five-point rating scale that ranged from (1) "extremely inaccurate" to (5) "extremely accurate". A sample item is "extraverted". The Cronbach's alpha is 0.92.
- Emotional stability: We used [Saucier's \(1994\)](#) 8-item Big-Five scale to measure emotional stability. Individuals described themselves using a five-point rating scale that ranged from (1) "extremely inaccurate" to (5) "extremely accurate". A sample item is "quiet". The Cronbach's alpha is 0.92.
- Employee engagement: Employee engagement was measured with 9 items adapted from [Schaufeli and Bakker \(2006\)](#). A sample item is "At my job, I feel strong and vigorous" All items were rated on a Likert five-point scale that ranged from (1) "strongly disagree" to (5) "strongly agree". The Cronbach's alpha is 0.92.
- Hindrance time pressure: We used [Chong et al.'s \(2011\)](#) 8-item scale to measure hindrance time pressure. All items were rated on a Likert five-point scale that ranged from (1) "strongly disagree" to (5) "strongly agree". A sample item is "The impossibility to fulfil the project schedule". The Cronbach's alpha is 0.91.
- Innovation performance: Innovation performance was measured with 8 items adapted from [Han, Liao and Long \(2007\)](#). A sample item is "Creating new ideas for improving the current situation". All items were rated on a Likert five-point scale that ranged from (1) "strongly disagree" to (5) "strongly agree". The Cronbach's alpha is 0.91.
- Control variables: Given that prior research suggested that gender, age, education level, job tenure may potentially influenced employee innovation ([Riaz et al., 2018](#)). We included this demographic information as control variables in our analyses.

To more clearly understand the measurement of variables, we made a summary table as shown in [Table 1](#).

*Common method variance check*

As [Podsakoff and Organ \(1986\)](#) argued that self-reported data collected from the same respondents may have potentially serious effects on research findings, therefore, we

conducted two statistical remedies suggested by Podsakoff *et al.* (2003) to check the extent of the bias caused by CMV in this study. Firstly, we did Harman's single-factor test. We used exploratory factor analysis and examined the unrotated factor solution to determine the number of factors based on the eigenvalue larger than 1. The cumulative percent of the variance is 61.29% and the explanation variance percentage of the first factor is 29.95%, which is less than the recommended threshold of 50%. Therefore, this result showed that CMV is not a significant issue in our data. In addition, we adopted another way which is about controlling for the effects of an unmeasured latent methods factor to check potential problems of CMV. Following the recommendation of Podsakoff *et al.* (2003), we added a latent common method factor into the hypothesised six-factor model with all items loading on it. This model fits the data slightly better [ $\chi^2(1257) = 1,492.30$ , CFI = 0.98, TLI = 0.98, SRMR = 0.03 and RMSEA = 0.02] than the hypothesised six-factor model [ $\chi^2(1310) = 1,586.15$ , CFI = 0.98, TLI = 0.98, SRMR = 0.03 and RMSEA = 0.02]. Even so, the variance extracted by the common method factor is only 0.24, which falls below 0.50 (Dulac *et al.*, 2008). Therefore, CMV may not influence our hypothesis testing results.

## Results

### *Confirmatory factor analysis*

We conducted a series of confirmatory factor analyses to examine our measurement model. This measurement model suggested six latent variables reflected by 8 to 12 (in sum 57) indicators. We calculated the hypothesised model (with strengths-based psychological climate, extroversion, emotional stability, employee engagement, hindrance time pressure and innovation performance) and compared it to alternative models. As shown in Table 2, the hypothesised 6-factor model [ $\chi^2(1371) = 1,752.44$ , CFI = 0.96, TLI = 0.96, SRMR = 0.04 and RMSEA = 0.03], yield a better fit to the data than any other model (i.e. 5-factor model, 4-factor model, 3-factor model, 2-factor model, 1-factor model). This result indicates that our measures have sufficient discriminant validity and suggested that our research variables could be treated as separate constructs in the following analytical procedures.

### *Hypotheses tests*

Descriptive statistics and bivariate correlations for all the variables are presented in Table 3. We tested all hypotheses using the PROCESS tool for SPSS as developed by Hayes (2013). This tool is useful for estimating mediation, moderation and moderated mediation hypothesis in our study. In testing our hypotheses, we chose Model 4, Model 1, Model 7 of the PROCESS tool (Hayes, 2013), which describes mediation, moderation and a moderated mediation with the first-stage moderation. We used 5,000 bootstraps and a confidence interval of 95% for assessing the significance of the indirect effect, moderated effect and conditional indirect effect of the independent variable on dependent variable at different

Variables	Items	Respondents	Time period	Cronbach's $\alpha$
<i>Strengths-based psychological climate</i>	12	Employees	I	0.93
<i>Extroversion</i>	8	Employees	I	0.92
<i>Emotional stability</i>	8	Employees	I	0.92
<i>Employee engagement</i>	9	Employees	II	0.92
<i>Hindrance time pressure</i>	8	Employees	II	0.91
<i>Innovation performance</i>	8	Immediate supervisors	II	0.91

**Table 1.**  
The summary of the  
measurement of  
variables

**Table 2.**  
The results of  
confirmatory factor  
analyses

Measurement model	$\chi^2$	df	$\chi^2/\text{df}$	CFI	TLI	SRMR	RMSEA	$\Delta\chi^2(\Delta\text{df})$
The hypothesised 6-factor model	1,586.15	1,310	1.21	0.98	0.98	0.03	0.02	
5-factor model	2,547.97	1,315	1.94	0.91	0.91	0.05	0.05	961.82***
4-factor model	4,048.24	1,319	3.07	0.81	0.80	0.07	0.07	2462.06***
3-factor model	5,499.39	1,322	4.16	0.71	0.69	0.09	0.08	3913.24***
2-factor model	7,230.83	1,324	5.46	0.58	0.57	0.11	0.10	5644.68***
1-factor model	8,664.37	1,325	6.62	0.48	0.45	0.12	0.11	7078.22***

**Notes:** CFI = comparative fit index; TLI = Tucker-Lewis Index; SRMR = standardised root mean square residual; RMSEA = root mean square of approximation;  $n = 449$ ; \*\*\* $p < 0.001$ ; 5-factor model: combining employee engagement and innovation performance; 4-factor model: combining employee engagement, innovation performance and strengths-based psychological climate; 3-factor model: combining employee engagement, innovation performance, strengths-based psychological climate and hindrance time pressure; 2-factor model: combining employee engagement, innovation performance, strengths-based psychological climate, hindrance time pressure and extroversion and 1-factor model: combining all variables

values of the moderator. We included gender, age, education level and job tenure as control variables in our all analyses.

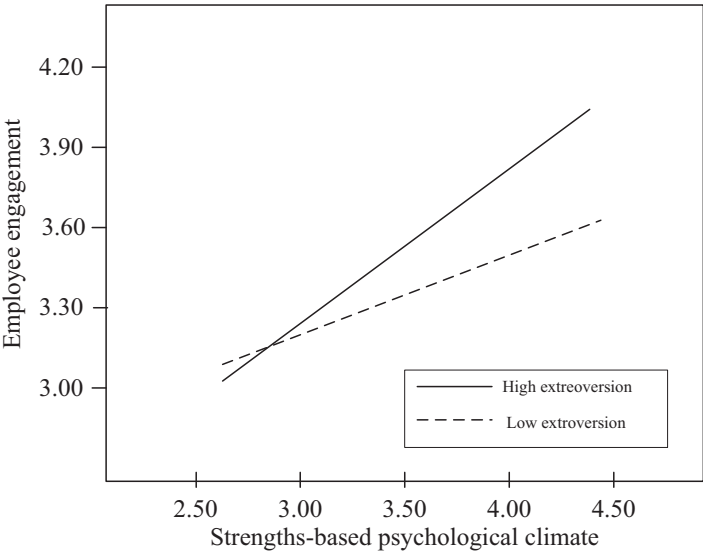
In *H1*, we predicted strengths-based psychological climate is positively related to employee innovation performance. The result ( $B = 0.57, p < 0.001$ ) of PROCESS macro provides support. Results from the mediation model indicated that strengths-based psychological climate was positively related to employee engagement ( $B = 0.52, p < 0.001$ ) and employee engagement was positively related to employee innovation performance ( $B = 0.58, p < 0.001$ ). Furthermore, results also showed that the indirect effect of strengths-based psychological climate on employee innovation performance via employee engagement (0.21, 95%CI [0.16, 0.26]) was significant. In addition, results also indicated that strengths-based psychological climate was negatively related to hindrance time pressure ( $B = -0.43, p < 0.001$ ), hindrance time pressure was negatively related to employee innovation performance ( $B = -0.43, p < 0.001$ ) and the indirect effect of strengths-based psychological climate on employee innovation performance via hindrance time pressure (0.11 95% CI [0.07, 0.15]) were significant. Thus, *H2* and *H3* were supported.

Table 3 presents the results for *H4a*, *H4b*, *H4c* and *H4d*. With regard to *H4a* and *H4b*, we predicted that the relationship between strengths-based psychological climate and employee engagement would be stronger for employees with high extroversion than low extroversion. The results showed that the cross-product term between strengths-based psychological climate and extroversion on employee engagement was significant ( $B = 0.21, t = 4.57, p < 0.001$ ) and the cross-product term between strengths-based psychological climate and extroversion on hindrance time pressure was also significant ( $B = -0.31, t = -6.29, p < 0.001$ ). Figures 2 and 3 display the interaction plot based on values plus and minus one standard deviation from the means of extroversion (Cohen *et al.*, 2003). The results are consistent with our expectations. Therefore, *H4a* and *H4b* were supported. Consequently, we examined the conditional indirect effect of strengths-based psychological climate on employee innovation performance through employee engagement at two values of extroversion. As shown in Table 3, we found stronger indirect effect when extroversion was high (effect = 0.24, 95%CI [0.19, 0.31]) as compared to low (effect = 0.11, 95%CI [0.07, 0.16]). The index of moderated mediation was also significant (index = 0.08, 95%CI [0.05, 0.11]). Therefore, *H4c* was supported. In addition, we also examined the conditional indirect effect of strengths-based psychological climate on employee innovation performance through hindrance time pressure at two values of extroversion. As shown in Table 3, we

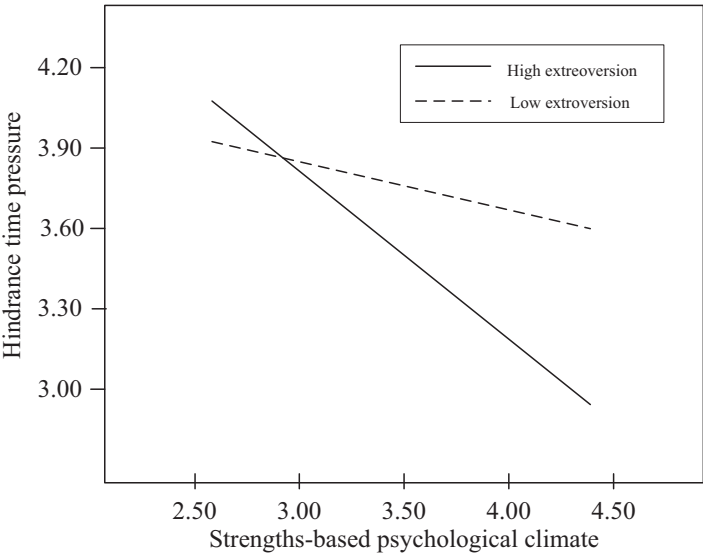
Variables	M	SD	1	2	3	4	5	6	7	8	9
1. Gender	0.48	0.50									
2. Age	2.25	1.03	0.03								
3. Education level	2.12	0.73	-0.06	0.07							
4. Job tenure	2.25	0.81	0.05	0.13**	-0.03						
5. Strengths-based psychological climate	3.56	0.85	-0.09	0.00	-0.15**	-0.05					
6. Extroversion	3.55	0.90	-0.02	0.02	-0.05	-0.04	0.35**				
7. Emotional stability	3.60	0.90	0.00	-0.03	-0.14**	-0.03	0.33**	0.35**			
8. employee engagement	3.63	0.87	-0.08	0.03	0.11*	0.08	0.48**	0.30**	0.28**		
9. Hindrance time pressure	3.56	0.88	0.03	-0.07	0.02	-0.08	-0.41**	-0.29**	-0.34**	-0.34**	
10. Innovation performance	3.64	0.85	0.09	0.02	0.03	0.11*	0.53**	0.25**	0.28**	0.57**	-0.44**

Notes: N = 449; \* $p < 0.05$ , \*\* $p < 0.01$

**Figure 2.**  
Moderating effect of  
extroversion on the  
strengths-based  
psychological  
climate-employee  
engagement  
relationship



**Figure 3.**  
Moderating effect of  
extroversion on the  
strengths-based  
psychological  
climate-hindrane  
time pressure  
relationship



found stronger indirect effect when extroversion was high (effect = 0.13, 95%CI [0.08, 0.18]) as compared to low (effect = 0.02, 95%CI [0.00, 0.05]). The index of moderated mediation was also significant (index = 0.06, 95%CI [0.03, 0.09]). Therefore, *H4d* was supported.

Table 4 presents the results for *H5a*, *H5b*, *H5c* and *H5d*. With regard to *H5a*, we predicted that the relationship between strengths-based psychological climate and employee engagement would be stronger for employees with high emotional stability than low

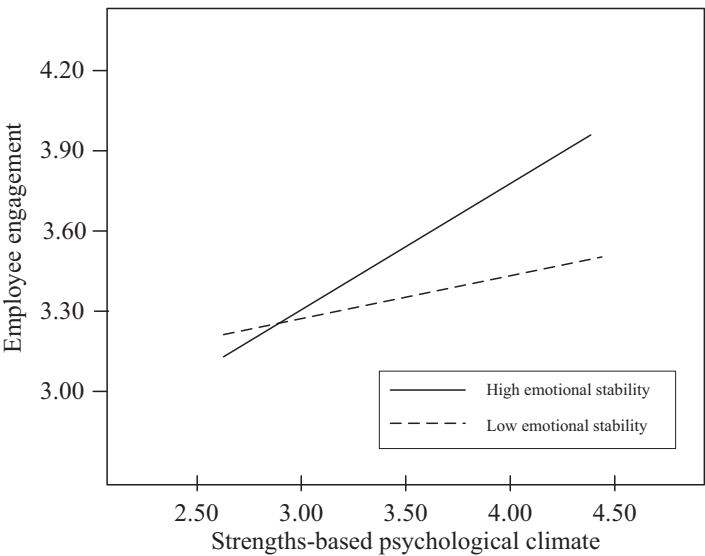
Variable	Model 1-1	Model 1-2	Model 1-3	Model 1-4	Model 2-1	Model 2-2	Model 2-3	Model 2-4
	X→Y	X→M1	M1→Y	X, M1→Y	X→Y	X→M2	M2→Y	X, M2→Y
Constant	0.97***	1.04***	1.46***	0.56***	0.97***	5.57***	4.91***	2.34***
Gender	0.23**	-0.05	0.22**	0.25**	0.23**	0.00	0.17*	0.23***
Age	-0.01	0.01	-0.00	-0.01	-0.01	-0.04	-0.02	-0.02
Education level	0.12*	0.22***	-0.06	0.03	0.12*	-0.06	0.02	0.10*
Job tenure	0.14**	0.12**	0.06	0.09*	0.14**	-0.11*	0.07	0.11**
Strengths-based psychological climate	0.57***	0.52***	0.58***	0.36***	0.57***	-0.43***		0.46***
Employee engagement				0.40***			-0.43***	-0.25***
Hindrance time pressure								
Indirect effect								
SE								
z								
p								
Value	0.21	0.03	7.65	0.00	0.11	0.02	5.13	0.00
Bootstrap results for the indirect effect								
SE								
LL95%CI								
UL95%CI								
M	0.21	0.02	0.16	0.26	0.11	0.02	0.07	0.15

Notes:  $n = 449$ . Unstandardised regression coefficients are reported. Bootstrap sample size = 5,000. LL= lower limit; UL= upper limit; CI = confidence interval.  
\*  $p < 0.05$ , \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$

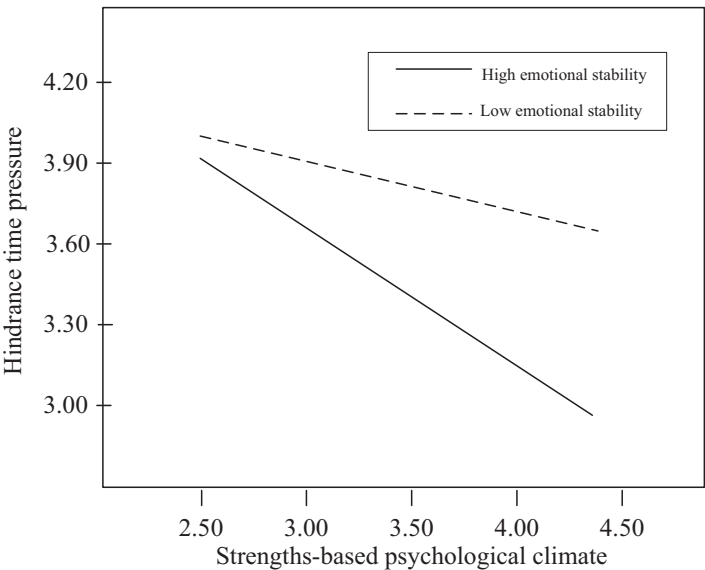
Table 4.  
Regression results  
for mediation model



**Figure 4.**  
Moderating effect of  
emotional stability on  
the strengths-based  
psychological  
climate-employee  
engagement  
relationship



**Figure 5.**  
Moderating effect of  
emotional stability on  
the strengths-based  
psychological  
climate-hindrane  
time pressure  
relationship



minus one standard deviation from the means of emotional stability (Cohen *et al.*, 2003). The results are consistent with our expectations. Therefore, *H5a* and *H5b* were supported. Consequently, we examined the conditional indirect effect of strengths-based psychological climate on employee innovation performance through employee engagement at two values of emotional stability. As shown in Table 4, we found a stronger indirect effect when emotional stability was high (effect = 0.27, 95%CI [0.20, 0.34]) as compared to low (effect = 0.08, 95%CI [0.04, 0.12]). The index of moderated mediation was also significant (index = 0.10, 95%CI [0.07, 0.14]). Therefore, *H5c* was supported. In addition, we also examined the conditional indirect effect of strengths-based psychological climate on employee innovation performance through hindrance time pressure at two values of emotional stability. As shown in Table 4, we found a stronger indirect effect when emotional stability was high (effect = 0.10, 95%CI [0.06, 0.15]) as compared to low (effect = 0.03, 95%CI [0.01, 0.06]). The index of moderated mediation was also significant (index = 0.04, 95%CI [0.02, 0.07]). Therefore, *H5d* was supported (Tables 5 and 6).

## Discussion

Drawing on the JD-R model (Bakker and Demerouti, 2017), this research examines the relationship between strengths-based psychological climate and employee innovation performance with a mediating role for employee engagement and hindrance time pressure; and moderating roles for extroversion and emotional stability. The results reveal that:

- strengths-based psychological climate is positively related to employee innovation performance;
- employee engagement and hindrance time pressure act as intermediary roles in the strengths-based psychological climate and employee innovation performance;
- Both extroversion and emotional stability moderate the relationship between strengths-based psychological climate and employee engagement/hindrance time pressure; and
- Both extroversion and emotional stability also moderate the indirect effect of strengths-based psychological climate on employee innovation performance through employee engagement and hindrance time pressure.

This study provides insights for both research and practices in increasing employee innovation performance and makes some significant contributions to the strengths use literature.

### *Theoretical implications*

The findings extend prior studies bring theoretical implications in several ways as follows. Firstly, this study contributes to existing strengths use in improving employee innovation performance by including strengths-based psychological climate as the main driver. Retrieving from positive psychology, this study reflects the importance to focus on identifying, developing and using employee strengths instead of fixing deficits and weaknesses for better performance (Luthans, 2002; Miglianico *et al.*, 2019). Reflecting the importance of strengths-based psychological climate as employee perceptions towards workplace contexts, it is positively related to employee efforts on improving and advancing their performance in delivering innovative outcomes (Miglianico *et al.*, 2019).

This study next examines employee perceptions of organisational strengths-based interventions on identifying, developing and deploying their strengths, namely, a strengths-

**Table 5.**  
Regression results  
for moderation and  
moderated mediation  
model (extroversion  
as a moderator)

Predictor	Employee engagement			Hindrance time pressure		
	B	SE	t	B	SE	t
<b>Moderation model</b>						
Constant	2.85***	0.16	18.04	4.11***	0.17	24.64
Gender	-0.06	0.07	-0.91	0.01	0.07	0.14
Age	-0.00	0.03	-0.08	-0.03	0.04	-0.90
Education level	0.24***	0.05	5.04	-0.08	0.05	-1.63
Job tenure	0.11**	0.04	2.63	-0.10*	0.04	-2.24
Strengths-based psychological climate	0.48***	0.04	11.12	-0.39***	0.05	-8.56
Extroversion	0.16***	0.04	3.93	-0.18***	0.04	-4.15
Strengths-based psychological climate × Extroversion	0.21***	0.05	4.57	-0.31***	0.05	-6.29
<b>Moderated mediation model</b>						
Extroversion	Boot indirect effect			Boot indirect effect		
Index of moderated mediation	0.08	0.02	0.05	0.06	0.01	0.03
	Conditional indirect effect at extroversion = M ± 1SD			Conditional indirect effect at extroversion = M ± 1SD		
-1SD (-0.90)	0.11	0.02	0.07	0.02	0.01	0.00
+1SD (0.90)	0.24	0.03	0.19	0.13	0.03	0.08

**Notes:** *n* = 449. Unstandardised regression coefficients are reported. Bootstrap sample size = 5,000. LL = lower limit; UL = upper limit; CI = confidence interval.  
\**p* < 0.05; \*\**p* < 0.01; \*\*\**p* < 0.001

Predictor	Employee engagement			Hindrance time pressure		
	B	SE	t	B	SE	t
<b>Moderation model</b>						
Constant	2.77***	0.15	17.92	4.16***	0.17	24.80
Gender	-0.05	0.07	-0.79	0.00	0.07	0.07
Age	-0.00	0.03	-0.03	-0.04	0.04	-1.13
Education level	0.24***	0.05	5.19	-0.08	0.05	-1.65
Job tenure	0.14**	0.04	3.32	-0.13**	0.04	-2.82
Strengths-based psychological climate	0.47***	0.04	11.36	-0.36***	0.05	-7.85
Emotional stability	0.18***	0.04	4.67	-0.25***	0.04	-6.00
Strengths-based psychological climate × Emotional stability	0.29***	0.04	6.70	-0.21***	0.05	-4.56
<b>Moderated mediation model</b>						
Extroversion	Boot indirect effect 0.10	Boot SE 0.02	Boot LLSI 0.07	Boot indirect effect 0.04	Boot SE 0.01	Boot LLSI 0.02
Index of moderated mediation	Conditional indirect effect at extroversion = M ± 1SD			Conditional indirect effect at extroversion = M ± 1SD		
-1SD (-0.90)	0.08	0.02	0.04	0.03	0.01	0.01
+1SD (0.90)	0.27	0.02	0.20	0.10	0.02	0.06
<b>Notes:</b> <i>n</i> = 449. Unstandardised regression coefficients are reported. Bootstrap sample size = 5,000. LL = lower limit; UL = upper limit; CI = confidence interval. ** <i>p</i> < 0.05; *** <i>p</i> < 0.01; **** <i>p</i> < 0.001						

**Table 6.**  
Regression results  
for moderation and  
moderated mediation  
model (emotional  
stability as a  
moderator)

based psychological climate that leads to more employee engagement and lower hindrance time pressure. The findings show the role of employee engagement and hindrance time pressure are both important mediators that channel the impact of strengths-based psychological climate and employee innovation performance. Recently, researchers show that a certain degree of interactive effect existing between the process of job resources and job demands and may, respectively, exert an impact on individual motivation and health depletion (Bakker and Demerouti, 2017; Schaufeli and Bakker, 2004). Based on the JD-R model, the perceptions of strengths identification, use and development in the organisations help promote work engagement and lessen hindrance time pressure by means of feelings of vitality, efficacious, competence and vigour (Hodges and Clifton, 2004; Seligman *et al.*, 2005). Most strengths-based psychological climate studies focus on its outcomes such as happiness, life satisfaction and well-being (Ding *et al.*, 2018). Our research reaffirms the importance to investigate the “black box” in-between strengths-based psychological climate and innovation performance by framing a dual-path model. The results confirm our theoretical logic that a strengths-based psychological climate may increase employee engagement (i.e. motivational) on the one hand and decrease hindrance time pressure (i.e. depletion) on the other hand to facilitate employee innovation performance. The partial mediation effects imply there may be other mediators in between strengths-based psychological climate and employee innovation performance. In their study, the positive effect at work was a mediator in the relationship between strengths-based psychological climate and innovativeness (van Woerkom and Meyers, 2015). Nevertheless, strengths-based human resource practices as a double-edged sword that leads to positive affect on the one hand; maximizing labour input, on the other hand, that may result in negative affect eventually. Future researchers may include both positive and negative affect as dual-path mediation model to examine the possible impacts.

This research contributes to the personality literature by examining the moderating role of both extroversion and emotional stability on the indirect relationship between strengths-based psychological climate and employee innovation performance via employee engagement and hindrance time pressure. Previous research suggested the effectiveness of those interventions may vary depends on individual differences despite their positive impacts on individual thoughts, attitudes and behaviours, (Miglianico *et al.*, 2019; Seligman *et al.*, 2005). This study adopts both extraversion and emotional stability as moderators in the indirect relationship between strengths-based psychological climate and employee innovation performance via employee engagement and hindrance time pressure. The findings further reflect Seligman *et al.* (2005)’s a study that encourages further research on the impact of individual personality differences. Besides, in their conceptual research, van Woerkom *et al.* (2020) firstly proposed the importance of cross-level boundary conditions (i.e. task complexity) when examining the relationship between strengths use in organisations and performance. Another important direction for future research is to consider the issue beyond the individual level. It is encouraging to test the effect of a team or organisational climate (e.g. involvement climate, empowerment climate) on the basis of contingency theory.

#### *Practical implications*

The results reveal important implications for managers in practicing human resource management in the Chinese context. The positive relationship between strengths-based psychological climate and employee innovation performance shows that organisations may further include employee strengths when it comes to advancing employee innovation performance. Organisations are encouraging to shift their focus from fixing weaknesses and

correcting deficits to make good use of employee strengths. HR practitioners may delve into the underlying philosophy regarding how people should be treated and organised in the first place. The combination of HR practices, such as performance evaluation, performance feedback, training and development should be carefully scrutinised when applying a strengths-based philosophy. Regarding performance management, instead of passively punishing unattained goals or incomplete outcomes, HR practitioners may support and reward employees to take advantage of their strengths by properly applying strengths-based performance appraisal and retrospective feedback. By actively implementing strengths-based performance appraisal, employees are motivated to focus on what they are good at and are encouraged to effectively complete tasks for better innovation performance. As for training and development, organisations may not only apply traditional training for weakness correction but emphasise continuously develop employee strengths at the same time. In addition to promoting strengths use by designing strengths-based HR practices, these practitioners may take individual personality characteristics into consideration when improving employee innovation performance from their perceptions regarding strengths-based psychological climate. For example, as this study suggested to focus on personalities like extroversion and emotional stability, HR practitioners may apply different personality tests and relevant instruments to identify and filter those who have better fit with the organisational contexts during the hiring process which may later generate positive impacts on employee innovation performance.

#### *Limitations and future research*

There are some limitations to this study. Firstly, this study was only conducted in part provinces of China which may limit the generalisability of the findings. We hope the findings could be validated in different sectors and areas in the western context in the future. Secondly, this study tested the mediating effects by applying employee engagement and hindrance time pressure in between strengths-based psychological climate and employee innovation performance. The partial mediating role of these two variables implied that there may exist other mediators. Thus, it may be a good extension of this research to uncover more mediating mechanisms underlying this relationship based on other theoretical perspectives. Finally, future research may expand the individual-level strengths-based psychological climate variable in this study to organisational- or multi-level construct to further examine its impact. Moreover, the selection of extroversion and emotional stability as personal variables may be criticised when examining their moderating effects on the indirect relationship between strengths-based psychological climate and employee innovation performance. Future research is suggested to additionally include other personality characteristics or even bring in organisational-level variables for cross-level research.

#### **Conclusions**

This study has emphasised the significance and uniqueness of strengths use in organisations may bring beneficial outcomes not only for individuals but for organisations, as they may bring positive influence on employee performance through better well-being (Miglianico *et al.*, 2019). Therefore, by investing in strengths-based interventions, both organisational productivity, sales, profits, as well as individual satisfaction, word meanings and commitment may be improved and further lead to sustained competitive advantages.



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### About the authors

Po-Chien Chang (PhD, National Sun Yat-sen University) currently works as an Associate Professor at the School of Business at Macau University of Science and Technology Macau, China. His research interests include organisational behaviour, research methods and human resource management.

Keyi Sun (PhD, Macau University of Science and Technology) currently works as a Senior Manager in China Communications Services Capital Holdings Co. Ltd., China. His research interests include leadership, organisational behaviour.

Ting Wu (PhD, National Sun Yat-sen University) currently works as an Assistant Professor at the School of Business at Macau University of Science and Technology Macau, China. Her research interests include strategic human resource management and international human resource management. Ting Wu is the corresponding author and can be contacted at: [twu@must.edu.mo](mailto:twu@must.edu.mo)