

High-Performance Work Systems and Innovation in Vietnamese Small Firms

Hoa Do

Assistant Professor in Management
PDP Education Center
Musashi University
Japan
hoa.do@cc.musashi.ac.jp

Helen Shipton

Professor of International HRM
Centre of People, Work and Organizational Practice
Nottingham Business School
Nottingham Trent University
Nottingham
HG14FQ
United Kingdom
Helen.Shipton@ntu.ac.uk

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ABSTRACT

This article examines the interplay between high-performance work systems (HPWS) and the innovation of Vietnamese small and medium-sized enterprises (SMEs). Our conceptual model relies on the componential theory of creativity along with HPWS, learning goal orientation (LGO), creativity and innovation to hypothesise both mediation and moderation mechanisms linking such a relationship. Using a sample of 133 SMEs, we find that (1) employee creativity mediates the pathway between HPWS and firm innovation; and (2) LGO moderates the HPWS - employee creativity relationship. Our study casts new light on the theoretical mechanism through which HPWS influence firm innovation and adds to understanding about HPWS within SMEs by bringing employees centre stage.

Keywords: HPWS, learning goal orientation, innovation, componential theory of creativity, SMEs.

Introduction

Small and medium sized enterprises (SMEs) account for 98% of all businesses in Vietnam, thereby contributing significantly to national economic growth and prosperity (Nguyen, Mickiewicz and Du, 2018). Vietnam's dynamic environment - its young population, growing wealth, changing consumer attitudes and urbanisation- are factors pushing Vietnam through a period of great change (Nguyen and Bryant, 2004; Zhu and Verstraeten, 2013). Faced with this imperative, SMEs rely upon innovation to survive, progress and retain competitive advantage (Do, Budhwar and Patel, in press). Defined as the intentional introduction of ideas at the level of the collective that are both novel and valuable for the organisation (West and Farr, 1990), leveraging innovation is challenging (Anderson, Potočnik and Zhou, 2014). This is especially the case given the resource limitations of SMEs in Vietnam.

One attribute available to SMEs is their human resource base (Sheehan 2014). High performance work practices (HPWS) are 'the primary means by which firms can influence and shape the skills, attitudes, and behaviour of individuals to do their work and thus achieve organisational goals' (Chen and Huang: 104). Accordingly, a growing body of work has examined the effect of HPWS within SMEs on outcomes such as performance (Bryson and White, 2018; Lai, Saridakis and Johnstone, 2017; Sheehan, 2014). Added to this, a proliferation of studies beyond SMEs has investigated whether and how HPWS foster innovation (Fu, Ma, Bosak and Flood, 2015; Zhou, Fan and Son, 2019), with increasing attention devoted to the multi-level implications that innovation presents (Do, Budhwar and Patel, 2015; Shipton, Sparrow, Budhwar and Brown, 2017). This broader strand of work has also highlighted that HPWS influence outcomes through the mediating effect of employee attitudes and behaviours

(Jiang et al., 2012; Jiang, Takeuchi and Lepak, 2013) and reflected upon the centrality of employee perceptions of HPWS in the HR- performance causal chain (e.g., Liao, Toya, Lepak and Hong, 2009; Purcell and Hutchinson, 2007).

Despite progress, significant gaps in understanding remain. First, evidence pertaining to the HPWS and performance relationship within small, rather than large, organisations, remains mixed; a significant body of work points to a positive relationship with performance outcomes (Bryson and White, 2018; Sheehan 2014; Aït Razouk, 2011). Yet, other studies present a more complex scenario (Lai et al., 2017; Sels et al., 2006). Reflecting on these mixed results, it is notable that the field has yet to reflect wider developments within strategic HR literatures that bring employee perceptions of HPWS centre stage (Bowen and Ostroff, 2004; Liao et al., 2009).

Second, despite progress, whether and how HPWS influence innovation, rather than other outcomes such as financial performance, remains unclear (Laursen and Foss, 2014). Generally, scholars argue that HR practices exert a complementary effect, in that the introduction of one HR practice increases the returns gained through the use of other HR practices (Laursen and Foss, 2003; Subramony, 2009). Commitment-oriented HR practices in conjunction with collaboration - focused practices have been demonstrated to foster innovation (Zhou, Hong and Liu, 2013); so too do practices that allow for employees to experience exploratory learning in conjunction with practices such as teamwork and training (Shipton, Sanders, Atkinson and Frenkel, 2016; Zhou et al., 2013). Notwithstanding valuable insight, the mechanisms through which such effects come about with innovation in mind remain opaque (Anderson et al., 2014). More work is needed not just on mediating pathways but also on theorising how and why

HPWS matter where innovation is concerned. This gap is stark given the multi-level perspective at the forefront in strategic HRM research (Jiang et al., 2013).

Finally, and again reflecting on this multi-level perspective (Jiang et al., 2013), there has been limited attention devoted to the question of how individual differences might unroll where the HPWS- performance relationship is concerned (Guest, 2011). Specifically, any role that learning goal orientation (LGO) has in shaping employee perceptions of HPWS to release creative behaviours has yet to be explored. The extant literature reveals that the LGO of individuals significantly influences their creativity (Gong, Huang and Farh, 2009; Hirst, Van Knippenberg and Zhou, 2009). Indeed, research suggests that employee creativity is necessary step for innovation at a higher level of analysis (Do, Budhwar and Patel, 2018). Targeting these gaps in the literature, we ask, first, whether HPWS influence firm innovation in the context of Vietnamese SMEs and second, the nature of the pathway through which any effect occurs. Our final question asks what moderator, if any, amplifies the indirect pathways from HPWS to firm innovation.

Addressing these questions, the study pursues four objectives:

(i) To theorise and examine multilevel theory with respect to the cross-level influences of HPWS on employee creativity and firm innovation

(ii) To draw on componential theory of creativity (CTC) to elucidate why some HPWS practices set building blocks for employee creativity, which in turn acts as a potential mediator to underpin the relationship between HPWS and firm innovation

(iii) To further extend CTC to theorise LGO as a potential boundary condition that may amplify the HPWS - creativity relationship.

(iv) To test the hypothesised model using a Vietnamese sample of 133 SMEs, a unique context where innovation is called for to survive and progress.

Our contributions are four-fold. First, following others (Aït Razouk, 2011; Sheehan, 2014), we cast new light on the question of whether and how HPWS influence organisational innovation in smaller businesses. Studies have started to tease out the effect of individual innovative behaviours on innovation at a higher level of analysis (Fu et al., 2015); yet, the field remains undeveloped. In this article, by drawing on CTC (Amabile, 1996; Amabile 2012) (Amabile, 1996, 2012), we propose that employee creativity plays a mediating role. By bringing employee (creative) behaviours to the forefront, we speak not only to calls in extant work to recognise the centrality of the employee response to HPWS (Bowen and Ostroff, 2004), but also to the importance of theoretically aligned mediating pathways which are contingent upon the strategic aspirations of the business (Jiang et al., 2013).

Second, we extend CTC (Amabile, 1996, 2012) by incorporating firm innovation. This extension starts with positioning creativity as the generation of new and useful ideas at the individual level, and then theorising innovation as the successful implementation of creative ideas within firms (Amabile, 1996, 2012). The CTC highlights the dynamic interplay between four elements: knowledge and skills relative to the task required (domain relevant skills), intrinsic motivation, creative capacity (creativity-relevant skills) and the social environment (Amabile, 2012). Highlighting that the social environment has the potential to draw out, or alternatively suppress employee novel ideas that have value, stands in contrast to longstanding

perspectives within creativity literatures that prioritise individual qualities (Sternberg and Lubart, 1991). As such, the model offers a theoretical lens for exploring questions at the heart of this study.

Third, we connect work on SMEs (Bryson and White, 2018; Lai et al., 2017; Sheehan, 2014) with an emergent stream of research within the broader HR literature (Liao et al., 2009; Purcell and Hutchinson, 2007) to bring out the effect of employee perceptions of HPWS on their (creative) behaviour, in turn influencing organisational innovation. Studies investigating the centrality of the employee in the HR causal chain have proliferated in the wider literature (Purcell and Hutchinson, 2007), on the basis that HPWS can only achieve strategic goals when detected by employees as intended. HR practices come to life not through their existence per se but through dialogue and interaction between manager and employee (Guest, 2011; Shipton et al., 2017). Accounting for employee perceptions of HPWS goes some way towards reflecting the close social ties and personal supervision ethos that characterise SMEs (Marlow, Taylor and Thompson, 2010).

Finally, we examine the effect of individual differences on the HPWS - outcome (creativity) relationship (Guest, 2011). LGO is conceptualised as concern for and dedication to developing individual competences (Dweck and Leggett, 1988). Underpinned by social cognitive theory (SCT) (Bandura, 2001), LGO is central for enactive mastery (Gong et al., 2009), which arises through the direct experience of gaining knowledge about how to perform a task or skill. Casting light on this particular individual difference has important implications for how organisations recruit, train and performance manage individual employees. We turn to this moderating effect in our article.

Theoretical background and hypotheses development

Creativity and innovation in organisations

We define innovation as ‘the intentional introduction and application within an organisation of ideas, processes, products or procedures new to the unit of adoption and intended to benefit the individual, group, organisation or wider society’ (West and Farr, 1990: 9). Innovation entails two key phases: the generation of new and useful ideas, followed by their implementation at a higher level of analysis (Anderson et al., 2014; Baer, 2012; West and Farr, 1990). The first phase, creativity, refers to idea generation, while innovation represents the subsequent stage of implementing ideas toward better procedures, practices, or products (Anderson et al., 2014).

Viewing creativity as a first stage prior to innovation at a higher level of analysis chimes with the CTC posited by Amabile (1996: 1154), who propose that: “All innovation begins with creative ideas. The successful implementation of new programs, new product introductions, or new services depends on a person or a team having a good idea - and developing that idea beyond its initial state.” By emphasising the social environment and its importance for individual creativity, CTC goes further than other relevant theories, which prioritise individual qualities (Sternberg and Lubart, 1991; Sternberg and Lubart, 1995). Furthermore, the theory allows us to expand from the individual process of creativity to the process of organisational innovation, bringing a multi-level perspective to creativity theory that has been overlooked (Amabile, 2012; Kuo, 2011).

HPWS and innovation

HPWS address the key means by which organisations affect the knowledge, skills, motivation, attitudes and behaviours of the employees to perform best at work, thereby reaching organisational objectives (Chen and Huang, 2009). As such, HPWS can be seen as ‘a key strategic lever, both as a means to develop and sustain core competencies and as a necessary condition for strategy implementation’ (Huselid and Becker, 1997: 144). Rather than comprehensively reviewing the (vast) literature investigating HPWS and innovation as others have done (Seeck and Diehl, 2017), we highlight two themes, first within larger organisations, then from an SME perspective. A first theme views innovation as one amongst many performance outcomes for HPWS. A second instead casts light on the HPWS and innovation relationship in a direct way.

Turning to the first theme, HPWS, innovation and performance, it is argued that HPWS are effective to the extent that they are applied in conjunction with one another (Jiang et al., 2012; Subramony, 2009). Complementarities arise where individual practices are mutually consistent; in other words, the introduction of one HRM practice increases the returns that others bring. For example, where employees are recognised in performance appraisal for acquiring new skills, they are more likely to welcome and benefit from training opportunities provided by the organisation. HPWS are believed not just to enable firms to experience higher performance (Shin and Konrad, 2017; Zhang and Morris, 2014), but also to yield higher levels of product, process and firm innovation (Messersmith and Guthrie, 2010). Indeed, more than two decades ago, (Huselid, 1995: 638) noted that HPWS influence individual performance in order to ‘allow employees to improve how their jobs are performed.’ Although studies rest on the notion of complementarity (Laursen and Foss, 2003), performance indicators deployed in strategic HRM research vary significantly. Metrics include intention to leave (García-Chas,

Neira-Fontela and Castro-Casal, 2014); employee attitudes and behaviour (Kehoe and Wright, 2013) and labour productivity (Stirpe, Bonache and Revilla, 2014; Shin and Konrad, 2017), amongst others. A predominant trend has been to reveal multi-level considerations (Collins and Smith, 2006; Do et al., 2015), given growing acknowledgement of the key role of the employee in the HR-performance causal chain (Liao et al., 2009).

HPWS and innovation viewed directly. The complementarity view highlighted above (Subramony, 2009) argues that combinations of HR practices yield innovation through various theoretical mechanisms. For example, HPWS intended to foster innovation might allow decision-making to be devolved while simultaneously offering training in job-related skills, teams spanning boundaries and reward for making suggestions at work (Laursen and Foss, 2003). Devolved decision-making utilises employee insights that would otherwise pass unnoticed; cross-function teams present a forum where these diverse perspectives can be aired to yield creative ideas while reward acknowledges that such behaviours are valued (Laursen and Foss, 2014). A longitudinal study by Shipton, West, Dawson, Birdi and Patterson (2006) depicts complementarities across practices which foster day-to-day efficiency, such as training, together with exposure to new and different perspectives, as exhibited through exploratory learning. In a similar vein, Zhou et al. (2013) show that commitment-oriented HR practices foster firm innovation only when deployed in conjunction with collaboration-oriented systems, prioritising external connections and exposure to alternative options. Beugelsdijk (2008) drawing on the CTC (Amabile, 1996, 2012) highlights the synergies implicit in an HR system that offers task autonomy, training and flexible work arrangements with innovation in mind but without explicitly testing for creativity.

HPWS and innovation in small firms

In Vietnam, the dynamism of the external environment as the country transitions to a developed economy make it imperative for valuable ideas emanating from employees to be deployed in ways that add value. Given that HPWS are picked up by employees as anticipated by senior management, they can be a useful tool in a small firm's competitive armoury. Yet, although SMEs are in many ways the ideal site for HPWS because of the direct communication, flatter hierarchy, greater flexibility and clearer impact of each employee on organisational performance (Sels et al., 2006: 84), empirical research on their effects is at an early stage relative to larger counterparts (Drummond and Stone, 2007; Lai et al., 2017).

Turning to the association between HPWS and innovation, studies align more with the first theme than the second, tending to place emphasis on innovation rather as a bi-product of performance than a focal point. Based on a sample of 215 high-tech SMEs, Patel, Messersmith and Lepak (2013) position HPWS as a systematic tool for increasing organisational ambidexterity, which subsequently mediates the relationship between HPWS and firm growth. Sheehan (2014), like Ait Razouk (2011), controlling for past performance, found that HPWS were associated not only with enhanced organisational performance but also with higher innovation. Klaas, Semadeni, Klimchak and Ward (2012), drawing on archival and survey data from 294 small-businesses, revealed that leader perceptions of HR effectiveness are positively associated with HPWS and that this relationship is enhanced where a small-business leader has access to the guidance of an external HR consultant. Bryson and White (2018) found that HPWS deployed over time were associated with higher employee intrinsic motivation and commitment.

On the other hand, a more critical thread permeates thinking in this area. It is speculated that HPWS may have less influence in a SME setting than in larger organisations because small businesses are predisposed to informal rather than formal management practices (Lai et al., 2017; Marlow et al., 2010). Lai et al. (2017) for example, revealed that HPWS may compensate for a poor-quality work environment rather than foster it. Sels and colleagues (2006), focusing on SMEs in Belgium, found that although overall HPWS positively affect financial outcomes, this is significantly lessened where corresponding costs are taken into account. Despite overall positive conclusions, Bryson and White (2018) found that HPWS can interfere with the management/ employee relationship to damaging effect, at least in the short term.

Taken together, the above review reveals that the study of HPWS and innovation within SMEs and beyond has lagged behind in several respects (Drummond and Stone, 2007). First, literature focused on SMEs has yet to investigate the HPWS - innovation relationship in a direct way (aligned with theme two), meaning that the field lacks theoretical insight that may be important. More work is needed to build on what is currently known in larger firms to take next steps in theorising how any effect occurs (Anderson et al., 2014; Shipton et al., 2017; Zhou et al., 2013). Second, despite points of connection between prevailing work in SMEs and the first theme highlighted above, research on HPWS in SMEs has yet to embrace a multi-level perspective. This is an important omission, for several reasons. As discussed, the wider literature has, for some years, brought the employee centre stage in the HR causal chain (Purcell & Hutchinson, 2007; Wright, Gardner, Moynihan and Allen, 2005). Both HR content, i.e. the specific practices advocated by the organisation, and HR process - the way in which the practices are implemented and picked up by employees as intended- matter for strategic goals (Liao et al., 2009). We argue that although smaller firms are oriented towards informality rather than

formality in terms of employment practices, formality and informality may co-exist rather than exerting countervailing effects (Marlow et al., 2010). In this respect, employee perceptions are influenced by what is consciously observed about HPWS, as well as interactions with other stakeholders including line managers about people-related matters (Shipton et al., 2016). For example, while a particular HR practice, such as performance appraisal, might be instigated at senior level, the informal interaction and dialogue between employee and line manager, such as personal supervision about the steps needed to ensure a good review, are likely to shape whether or not the practice comes to life. Capturing employee perceptions of HPWS acknowledges the mutuality of formality and informality in a small business context (Marlow et al., 2005). Research suggests that rather than existing as a dichotomy, i.e. a high degree of formality as opposed to a high degree of informality, the reality is more nuanced in that formal practices exist alongside more informal, ad-hoc ways of managing people (Marlow et al., 2010).

Mediating role of employee creativity

Although both HRM content and HRM process are important to influence employee attitudes and behaviours, the latter may matter more because the HRM process highlights the manner in which employees attach meaning to HRM (Bowen and Ostroff, 2004; Sanders and Yang, 2016). When employees perceive HPWS as an effective investment in them as human resource assets, they understand the HPWS in the way that management intends (Bowen and Ostroff, 2004). Consequently, they will feel confident and obliged to return to their employer's investment by modifying their attitudes, behaviour and performance outcomes (Nishii et al., 2008).

Given that understanding and experience of HPWS influences outcomes such as feelings and actions at work, we expect that HPWS have the potential to shape creative behaviour. For this to be the case, and based on insights from CTC, we argue that employee creativity is contingent on first, domain-relevant skills, second, creativity-relevant skills, and third, intrinsic task motivation of employees (Amabile, 1996, 2012). The first component - the domain-relevant skills can be understood as the necessary knowledge, skills and ability underpinned by employee perceptions of HPWS such as selective staffing, extensive training and opportunities to acquired knowledge at work. These qualities provide the fundamental background knowledge and grounding for employee creativity (Amabile, 1996).

The second component – the creativity-relevant skills, can be understood as cognitive and personality processes conducive to novel thinking and acting. These skills lay the essential foundation for employee creativity (Amabile, 1996). In order for individuals to acquire these skills, firms should adopt well-designed HPWS practices (e.g., rigorous staffing, job design) that attract employees characterised by novel and critical thinking that can be achieved through rigorous recruitment and selection. Furthermore, HPWS practices need to focus on appropriate job designs for such creative employees to harness their creative capability in the workplace so for example, employees are given the opportunity to decide how to perform their job tasks and think innovatively and propose new ideas and practical ways of working.

Regarding the final component – intrinsic task motivation - employees are expected to be highly and intrinsically motivated in order to turn their competence into higher productivity and creativity. To do so, firms must effectively invest in an appraisal and incentive system because the motivation of employees and their productivity can be enhanced through providing them with effective reward and recognition, which subsequently contributes to higher

performance (Jiang, Wang and Zhao, 2012). Danish and Usman (2010) claim that the success of an organisation is based on how it keeps its employees motivated and in what way they reward and recognise them in accordance with their job performance and contributions. In sum, the reward system can influence employee motivation to be innovative, propose new ideas and be willing to experiment with new behaviours (Jiang et al., 2012).

To ensure that the above components exist in the workplace, firms must adopt HPWS that develop the social environment (Amabile, 1996, 2012). As such, firms can identify and exert a set of strategic HR practices to elicit the willingness and motivation of employees to engage in performing these delicate practices to develop organisational expertise for business objectives such as innovation Chen and Huang (2009). In short, if well-designed HPWS practices help develop a context that shapes and enhances domain-relevant skills, creativity-relevant skills and intrinsic task motivation of employees, individuals are likely to think and act creatively at work.

On the grounds of these arguments, we further extend CTC to describe the process of firm innovation, based on the idea that creativity is the generation of new and novel ideas and usually occurs at the individual level, while innovation is the implementation of such ideas, and normally occurs at the organisational level (Amabile, 2012; Hirst et al., 2009; Zhou and Hoever, 2014). We thus hypothesise as follows.

H1. Employee creativity mediates the relationship between HPWS perception and firm innovation.

Moderating role of LGO

In order to further explore the importance of HPWS to employee creativity, we position LGO as a potential moderator that amplifies the HPWS-employee creativity relationship. Choi and Jacobs (2011: 242) view LGO as ‘ability, personality, and interests related to learning and development activities in the workplace’. It represents a concern for and dedication to developing individual competence (Dweck and Leggett, 1988), and stands out as a central internal drive for enactive mastery (Gong et al., 2009). This is further underpinned by SCT, which holds that enactive mastery experience such as direct experience of gaining a task or skill is the salient means that enables individuals to acquire the necessary knowledge and skills to perform their jobs (Bandura, 2001; Gong et al., 2009). LGO can help individuals to develop their knowledge, skills and motivation to become highly competent and intrinsically motivated to innovate in the workplace. It is enhanced through the HR process, in which the meaning of the HR practices is widely shared among employees, meaning that the shared perceptions of employees are stronger, and the specific purpose intended by firms achieved (Nishii et al., 2008). To this end, we argue that employee perceptions of HPWS serve as a salient antecedent of LGO and exert a complementary effect on employee creativity.

To illustrate this further extending CTC, we theorise LGO as a key ingredient that develops three key building blocks for employee creativity, namely domain-relevant skills, creativity-relevant skills and intrinsic task motivation of employees (Amabile, 1996, 2012; Hirst et al., 2009). LGO enables individuals to enhance their skill acquisition and intrinsic motivation, as well as influencing their willingness to seek and utilise feedback to upgrade skills and creativity (Hirst et al., 2009). In particular, LGO may ‘feed into creativity by engendering the development of domain-relevant skills and creativity-relevant skills’ (Hirst et al., 2009: 281). For employees to acquire such knowledge and skills, they need to intensively engage in a

learning process that can be best implemented through well-designed HPWS practices such as extensive training, job design and in so doing, obtain the tools or techniques required for their actual job duties and ‘enactive mastery experience’ (Gong et al., 2009: 767). These learning activities are therefore, the key to enabling employees to acquire necessary knowledge and skills.

Although knowledge and skills are instrumental for individuals to perform their jobs, they are necessary but insufficient conditions to truly intrinsically motivate them to innovate at work. As such, firms should focus on skill development associated with LGO that implies an intrinsic interest in comprehending and mastering task performance (Hirst et al., 2009; Janssen and Van Yperen, 2004). This interest in the task itself – intrinsic motivation – leads to a deeper and more intensive engagement with the task, which often results in creativity (Hirst et al., 2009: 281). In other words, firms must develop an internal mind-set that motivates employees to enhance their competence (see Gong et al., 2009; Dweck and Leggett, 1988) through making use of HR practices such as job design, performance appraisal and rewards to develop a context that promotes employee LGO.

Employees with LGO tend to challenge themselves, fostering learning opportunities (Gong et al., 2009) often seeking out creative activities taking risks, proposing new ideas and novel ways of working, experimenting with new ideas and solutions (Hirst et al., 2009). As such, LGO complements optimal investments of organisations in HR practices, which target towards providing learning opportunities for their employees (Jyoti and Dev, 2015), thereby promoting their employee creativity. We therefore hypothesise the following:

H2. Employee LGO moderates the relationship between HPWS perception and employee creativity such that the relationship is stronger when employees' LGO is higher.

Insert Figure 1 about [here](#)

Methods

To test our hypotheses, we focused on small but highly-skilled and knowledge-based environments such as IT, pharmaceuticals and professional service firms of 10 - 200 employees in the capital city of Vietnam. To ensure that HPWS are present in the firms of interest, they must be operating in the industry for more than three years (Patel et al., 2013). These firms are thought to be more likely to have had time to adopt and assess the value of HPWS practices (Patel et al., 2013; Do et al., 2018). We used the list of firms provided by Vietnam Chamber of Commerce and Industry (VCCI) as our sampling frame. We first contacted organisations that fit with the project remit in terms of firm size, age and knowledge-based organisations. We then informed the organisations about the study and invited them to participate, establishing a meeting with the CEO of each organisation with a view to explaining the core aim of the study and discussion of ethical issues. Of the 450 organisations contacted, 167 agreed to participate.

The first ten firms that agreed to participate were chosen for the pilot study. We then conducted 20-40 minute semi-structured interviews with the CEOs of the chosen firms. Our primary aim was to determine whether or not HPWS practices existed and were adopted in the context of SMEs, and if yes, which HPWS practices were most frequently adopted. Using the inputs from the CEOs, we concluded that HPWS practices existed in SMEs and five most frequently used

HPWS practices included selective staffing, extensive training, performance appraisals, incentive rewards and job design. In the next stage, we conducted additional interviews with these CEOs using the five existing scales, using their feedback to enable respondents in the main survey to provide more effective and valid responses (Patel et al., 2013). Given the importance of a multisource procedure and to reduce common method bias, we collected data from different sources in each firm (Podsakoff, MacKenzie, Lee and Podsakoff, 2003). In particular, the CEO provided basic information about the firm, such as industry, firm size and firm age as well as firm innovation and employee creativity. In the context of SMEs, CEOs are a relevant respondent group as young and small firms tend to have fewer hierarchical levels, which suggests that CEOs have a key role to play in the daily management of employees (Patel et al., 2013). The employee questionnaire asked the employees to rate their perceptions of HPWS practices and LGO. Despite utilising two sources of respondents (CEOs and employees), some of the measures employed could share common method variance (e.g., firm innovation and employee creativity rated by the CEOs). To address this issue, we followed survey design guidelines suggested by Podsakoff et al. (2003). Rather selecting the employee sample group based on specified prerequisites, we asked the CEOs to select employees from a list of numbers, withholding names. This approach was used to minimise the risk of subjective selection of participating employees by the CEOs (Podsakoff et al., 2003).

The survey was undertaken between May and June 2017. A paper-based survey package including CEO and employee surveys enclosed in separate envelopes, along with a reply envelope was sent to the CEO of each firm. Each package contained a cover letter attached to each questionnaire explaining the purpose of the survey and assuring the respondents that their participation was voluntary, and they had the right to withdraw without repercussion. To ensure

that CEO and employee questionnaires would be matched, a researcher-assigned identification number was encoded on each questionnaire to match each employee's responses with his or her CEO's ratings. All respondents returned the completed questionnaires in the envelopes directly to the researcher.

A total of 167 firms that agreed to participate in the research, we received survey packages from 136 firms, obtaining a response rate of 81.43%. We did not receive responses from the rest (34 firms) because they withdrew from the research. Specifically, we received responses from 136 CEOs and corresponding 518 employees. After cleaning and matching the questionnaires, we obtained usable responses from 133 CEOs, and 506 employees. In the final sample, 31.5% of firms were from the IT industry, 17.8% were from the pharmaceutical industry and 50.7% were from the other professional service industry. The average firm size is 43.97 employees ($SD = 19.44$). On average, one CEO rated at least 3 employees (ranging from 3 to maximum 5) (e.g., Do et al., 2018).

Measures

As Vietnamese is the official language of commerce and administration in Vietnam, the questionnaires were administered in Vietnamese. The English language questionnaires were translated into Vietnamese using the method of back translation (Brislin, 1970). We compared the original version and the back-translated version and did not view cross-cultural construct validity as a problem in our analysis (Kearney, Gebert and Voelpel, 2009). We adopted established measures for all of the variables. All measures were rated on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

HPWS perception. This scale was measured using an 18-item scale adopted from Sun, Aryee and Law (2007) and Liao et al. (2009). This measure was widely used and validated in different studies and research contexts (e.g., Patel et al., 2013). As we adopted the majority of dimensions developed and examined in the Chinese context by Sun et al. (2007), they were therefore considered relevant to the Vietnamese context. This is because Vietnam and China have cultural, political and economic features in common. The index was based on five distinct dimensions for HPWS (see Appendix A for details). As early studies have mainly asked CEOs to self-rate their HR practices (Patel et al., 2013), this study went a step further by asking employees to do so. Employees were asked to indicate the extent to which they understood and experienced each HR practice within their firms (Liao et al., 2009). To ensure that the employees of the small businesses perceived the HR scales in a similar fashion to typical employees in larger firms we undertook a pilot study of the index on 43 employees of 10 firms, asking employees to talk about the meaning they attached to the HPWS. The results were satisfactory, indicating understanding of the measure.

To assess validity and reliability, we first conducted exploratory factor analysis using Principle Component Analysis to explore the underlying factor structure of the HPWS practices (Appendix A). Results indicated that the rotated factor matrix produced a five-factor solution. Individual item loadings, reliabilities, and average variance extracted (AVE) are listed in Appendix A. The alpha reliabilities for the subscales were equal to or above the .70 criterion (see Patel et al., 2013). To further confirm its validity and reliability, we conducted confirmatory factor analyses (CFA) to test the factor structure of the 18 HPWS practices. The result indicated an acceptable data fit with indices of fit ($\chi^2 = 187.17$; $df = 59$; $p < .001$; $\chi^2/df = 3.17$; CFI = .94; TLI = .91; RMSEA = .07; SRMR = .04). As shown in Appendix A, the AVE

values are above 0.5 and hence indicate discriminant validity among the subscales. Its Cronbach's alpha is .72.

LGO. The measure was calculated using a six-item scale adopted by Elliot and Church (1997). Employees were asked to indicate the extent to which they agreed with a statement. Its sample item is 'I desire to completely master my job.' CFA demonstrated an acceptable data fit with indices of fit ($\chi^2 = 65.73$; $df = 17$; $p < .00$; $\chi^2/df = 3.86$; $CFI = .95$; $TLI = .93$; $RMSEA = .06$; $SRMR = .04$). Its Cronbach's alpha is .92

Employee creativity. This was measured using a seven-item scale developed by Gong et al. (2009). CEOs were asked to indicate the extent to which they agreed with the description of employees' creative performance. Its sample item is 'This person often uses creativity to develop new clients through different means and channels'. CFA demonstrated an acceptable data fit with indices of fit ($\chi^2 = 47.85$; $df = 14$; $p < .00$; $\chi^2/df = 3.41$; $CFI = .97$; $TLI = .95$; $RMSEA = .08$; $SRMR = .03$). Its Cronbach's alpha is .85.

Firm innovation. We used a seven-item scale with two dimensions of innovation, including administrative and technical innovation by Chen and Huang (2009), but originally developed by Ibarra (1993). The administrative dimension encompasses four items to assess the extent of responsiveness to environmental changes and the degree of innovation in planning, procedures, process control systems, and integrated mechanisms (Chen and Huang, 2009). The technical dimension is comprised of three items to assess the extent to which the firm devises new technologies, incorporates technologies into new products, and facilitates new processes to increase quality and minimise cost (Chen and Huang, 2009). Both administrative and technical innovations are considered as key ingredients that enable firms to create a source of lasting

competitive advantage (Chen and Huang, 2009; Damanpour, 1991). CEOs were asked to indicate the extent to which they agreed with the description of firm innovation (see Appendix B for the items). We tested the dimensionality of our measure by conducting CFA. CFA of the two second-order factors demonstrated an acceptable data fit with indices of fit ($\chi^2 = 95.69$; $df = 37$; $p < .001$; $\chi^2/df = 2.58$; CFI = .95; TLI = .92; RMSEA = .07; SRMR = .04). In order to assess whether there may exist some common method variance in this self-rated variable by the CEOs, we conducted Harman's single-factor test, which extracted 37.32% of the total variance. As it is less than 50% of the total variance, we conclude that there is no threat of current method bias as the Cronbach's alpha is .88.

Controls. Given the multilevel nature of the study, we control for both individual-level and firm-level factors. At the individual level, we control for (a) employee age, (b) gender, measured as a dummy variable (1 = male, 2 = female), and (c) employee tenure. By including these factors, we control for the potential impacts of employee demographic differences, such as gender and tenure (Jensen et al., 2013), which may influence employee perceptions of HPWS. At the firm level, we control for firm size. Firm size is considered as a control as it may be associated with the influence of the HPWS on firm outcomes.

Statistical analysis

Given our data is multilevel in nature with employees nested within firms we adopted Mplus Version 7.13 to measure the multilevel structural equation modeling (MSEM). There are several key reasons why we adopted MSEM for the analytical techniques. First, this software can help us test multilevel models (see Preacher, Zhang and Zyphur, 2011). Second, MSEM is a powerful tool that can allow for testing both the measurement as well as structural models

(Do et al., 2018). Third, MSEM provides fit indices that allow researchers to measure the absolute and relative fit of models while it is not easy to do so in the MLM framework (Preacher, Zyphur and Zhang, 2010). Finally, the software can allow us to utilise a full information maximum likelihood estimator for all analyses (Jensen, Patel and Messersmith, 2013). Following this prescription, we first evaluated the robustness of the studied variables. Given our study is a multi-level analysis, we then ran Rwg, ICC (1) and ICC (2) tests to evaluate whether individual-level scores could be aggregated to the firm level. We finally tested the structural models corresponding to the proposed hypotheses: (1) a 1-1-2 mediation model; (2) a 1-1-1 moderation model.

Results

Table 1 shows the descriptive means, standard deviations and correlations of the study variables.

Insert Table 1 about [here](#)

Evaluating the robustness of the studied variables

We conducted a number of tests to evaluate the robustness of the studied variables before testing the proposed hypotheses. First, we conducted Harman's single factor test to check whether there is potential presence of common method variance of the studied variables. The 23.47% variance explained by a single factor suggests that there is no threat of current method bias. We then conducted post-hoc tests between the studied variables to check for common method variance. Results demonstrate that all the variables are statistically significantly different from one another. Next, as Kline (2015) points out that indicators of substantial multicollinearity arise with correlations above .85, we conducted variance inflation factors

(VIF) tests for some variables with high correlations (learning orientation = .92; employee creativity = .85; and firm innovation = .88). Results of VIF suggest that there are no multicollinearity issues and these values are good and low (VIF = 1.031; $p < .001$) (Gujarati, 2004). Furthermore, we tested for Heteroscedasticity using the Breusch-Pagan test SPSS macro and found no evidence of its presence (VIF = 1.031; $p > .89$). Finally, we conducted CFA to further verify the potential variance of the studied variables. The results of the hypothesised four-factor measurement model, including self- and other-rated items demonstrated a better data fit with indices of fit than alternative models ($\chi^2 = 298.661$; $df = 113$; $p < .001$; $\chi^2/df = 2.37$; CFI = .94; TLI = .93; RMSEA = .06; SRMR = .05) (for the alternative measurement models, see Appendix C). We therefore conclude that our focal variables are distinct from one another. Taken together, our results suggest that common method bias was not a significant concern in the study.

Results of ICCs and RWG tests

Given our model is multi-level, we conducted such tests as ICC(1), ICC(2) and RWG (Biemann, Cole and Voelpel, 2012) to determine whether HPWS perception, LGO and employee creativity could be aggregated to the firm level. Scholars suggest that a value of .70 or above is viewed as satisfactory with regard to ICC(2) and good with within-group interrater agreement (Biemann et al., 2012; Bliese, 2000). Results (see Appendix D) suggest that the ICC(2) values of the measures falling below the traditional cutoff recommended for forming groups of .70, their ICC(1) values being relatively low (Biemann et al., 2012). The rwg values of HPWS and employee creativity being above .70 suggests that these measures should be theorised at the individual level of analysis. This is in line with the theorising that creativity involves the generation of new and novel ideas and usually occurs at the individual

level, while innovation entails the implementation of such ideas, and normally occurs at the organisational level (e.g., Amabile, 1996, 2012).

Results of hypotheses testing

Hypothesis 1 postulated that employee creativity would mediate the relationship between HPWS and firm innovation. To establish mediation, we first regressed the effect of the predictor on the mediators and the outcome, and the mediators on the outcome after accounting for the predictor (Do et al., 2018). Table 3 showed that HPWS perception significantly relates to employee creativity ($\beta = .24, p < .001$); employee creativity has a positive and significant effect on firm innovation ($\beta = .25, p < .001$); and HPWS perception has a positive and significant effect on firm innovation ($\beta = .27, p < .05$). Results suggested that the linkage between HPWS perception and firm innovation is initially established through the mediating components of employee creativity. We then conducted a 1-1-2 mediation model to test this hypothesis, using the Mplus syntax proposed by (Preacher et al., 2011; Preacher et., 2010), controlling for firm size, as Level 2 effects and employee age, gender and tenure as Level 1 effects in our analyses. The results showed that the partial mediation of HPWS on firm innovation was significant ($\beta = .16; p < .00$; 95% of confidence interval = .06 to .29), thereby supporting Hypothesis 1.

Hypothesis 2 suggested the moderating effect of LGO on the relationship between HPWS and firm innovation. We utilised a model constraint procedure to test this hypothesis, controlling for employee gender, age and tenure. As shown in Table 2, the interaction between HPWS and learning orientation is significant ($\beta = .22; p < .00$; 95 % of confidence interval = .07 to .37). In Figure 2, the interaction plot for this result is depicted. The figure demonstrates that HPWS

is more positively associated with employee creativity when LGO is higher. Therefore, Hypothesis 2 is supported.

Insert Table 2 about [here](#)

Insert Figure 2 about [here](#)

Discussion

Drawing on matched, multi-source data across 133 SMEs from knowledge-intensive industries based in Vietnam, our work speaks to the prerogative these firms have to continuously learn, advance and innovate in order to overcome competitive pressures and resource deficits through the effective deployment of their human resource base (Sheehan, 2014). Smaller businesses often differ in their approach to people management relative to larger counterparts, preferring a more fluid and informal approach, a flexible workplace structure and less hierarchical working relationships (Lai et al., 2017; Marlow et al., 2005). Nonetheless, our data reveal that employee perceptions of HPWS are integral for innovation within small, as well as larger firms, to the extent that they equip individuals with a determination to achieve mastery and overcome challenge (Gong et al., 2009). That the effect of HPWS on organisational innovation is mediated through employee creativity, and given the centrality of CCT (Amabile, 1996, 2012) in our model, our work contributes to deeper understanding of the antecedents of innovation where smaller firms are concerned, also offering important insights for larger businesses.

This is a powerful and compelling message for Vietnamese SMEs, which have multiple demands on their resources, including physical and technological investments as well as plant,

machinery and equipment. Our conceptualisation of HPWS, following Liao et al., (2009), assesses employee experiences of the work system, asking employees questions about their personal experience and understanding of each set of HR practices included in the measure. This more nuanced depiction of HPWS goes some way towards capturing variation across employees in terms of how HPWS are perceived. In SMEs, where informal and formal employment practices exist in tandem, employee perceptions of HPWS may be shaped partly through the daily interactions, ad hoc managerial approaches and strong bonds across hierarchies that characterise this working environment (Marlow et al., 2010).

Although Lai et al. (2017) uncovered that the relationship between HPWS and outcomes in SMEs is contingent upon employee job-related attitudes, our study differs in several respects. First, their research focused on performance measures (financial performance and labour productivity) rather than innovation. The antecedents of innovation in HPWS terms are not necessarily analogous with other outcomes (Shipton et al., 2006) and we turned the spotlight on employees in order to generate theoretically informed insight based on Amabile (1996) of the line of sight between employee perceptions, their creativity as assessed by team leaders and organisational innovation. Second, we measured employee perceptions of HPWS, capturing not just the existence of HR practices but also employee understanding and experience of each of HR practices. This measure makes it possible to track the causal chain in terms of the relationship between employee perceptions and corresponding attitudes and behaviours (Liao et al., 2009).

Theoretical implications

A number of theoretical contributions arise from this article. We reveal that HPWS, as perceived by employees, are significantly and positively associated with innovation at the level of the organisation through the mediating pathway of employee creativity (Jiang et al., 2013). Although it has been established in strategic HRM research that HPWS potentially influence innovation alongside other performance outcomes such as profitability, productivity, turnover (Sheehan, 2014), the field continues to lack theoretical insight about the demands and challenges that innovation presents (Anderson et al., 2014). Our analysis speaks to mainstream HPWS research noting the synergies that flow from their deployment (Collins and Smith, 2006; Subramony, 2009). We add to this work by connecting with prior work focused specifically on the HPWS – creativity - innovation nexus (Beugelsdijk, 2008) by revealing that HPWS foster innovation in a specific way by generating a context where individual employees can behave creatively. We extend CTC by describing the process of firm innovation; this extension starts with positioning creativity as the generation of new and useful ideas at the individual level, and then theorising innovation as the successful implementation of creative ideas within firms (Amabile, 1996, 2012).

Second, by deploying a multi-level lens, our study chimes with literatures that bring the employee centre stage in the HR causal chain (Liao et al., 2009). Although studies that span levels of analysis have gained ascendancy in strategic HRM research since the seminal work of Bowen and Ostroff (2004), surprisingly, this approach has yet to be embraced within the literature that reflects upon HPWS and innovation, despite suggestive hints (Fu et al., 2015). Furthermore, notwithstanding a small but insightful body of work reflecting on the implications of HPWS for performance including innovation within SMEs (Bryson and White, 2018; Sheehan, 2014), it is one of the first analyses, to our knowledge, that assesses HPWS through

the eyes of employees in a small business context. Since research suggests significant differences in perceptions of owners, managers and employees across the entire domain of labour management within SMEs (Harney and Dundon, 2006), honing in on the perspective of one key stakeholder- the employee - gets closer to understanding whether or not HPWS are gaining traction as envisaged by the senior team. Doing so sheds light on the dynamics behind innovation within SMEs.

Third, measuring employee perceptions of HPWS speaks to the question of how employees perceive a work environment where HPWS, rather than being prescribed in a formal sense through policy documents, best practice guidelines and specified protocol, are made manifest through informal working practices, relationships with line managers, senior members and other employees (Marlow et al., 2005). Lacking formal HR strategies and policies does not necessarily mean that smaller companies value employees less (Bryson and White, 2018); rather that they communicate more directly with employees, through informal dialogue and discussion/ feedback that flow from the demands the work environment presents (Sels et al., 2006).. Gaining insight as to employee experiences and understanding of such practices goes some way towards capturing wider influences.

Finally, our data suggest that LGO acts as a salient moderator by which HPWS foster employee creativity. In SMEs, where HRM practices are often characterised by both informality and formality, LGO plays a key role in fostering domain-relevant knowledge and skills and employee capacity to act in manner conducive creativity. As such, social cognitive theory addresses the means by which HPWS promote LGO, in turn influencing employees' enactive mastery experience such as acquiring qualities and behaviours required to cultivate creativity (Bandura, 2001; Gong et al., 2009).

Practical implications

Given that SMEs often face external pressures with limited resources, this article offers several practical implications. First, firms that wish to foster innovation should invest in HR practices. Such investments are likely to help develop a componential context for creativity that stimulates individuals to generate new and useful ideas, experimenting with new ways of working or dealing with job demands, in turn feeding into their creative capabilities. LGO provides the means by which HR practices influence employees' enactive mastery experience such as direct experience of acquiring useful qualities where creativity is concerned.

Our findings demonstrate that HPWS and LGO interact. The interaction of these two constructs is found to jointly influence the level of employee creativity. This finding offers insightful implications for managerial decision making in firms (Beugelsdijk, 2008). As such, managers must effectively invest in HPWS practices that help develop LGO to motivate employees to challenge themselves by risk-taking, proposing novel ideas and novel ways of performing their jobs. These creative activities are the key to enhancing employee creativity.

Finally, our results suggest that employee creativity is a key ingredient for organisational survival and long-term development in highly dynamic environments. As such, managers must be fully aware of the importance of creativity in fostering the innovation required for their survival. In so doing, firms must consistently implement well-designed HPWS that help build and nurture a supportive work environment in order to promote and stimulate employee LGO that is conducive to employee creativity, in turn resulting in higher firm innovation.

Limitations and future directions

This study is not without limitations that should be acknowledged, also providing potential avenues for future research. First, the study utilises a cross-sectional set of data gathered at one time to examine the HPWS and innovation nexus. It may affect inferences about causal linkages between the studied variables (Guest, 2011). Future research should therefore adopt a longitudinal design to analyse the HPWS - innovation relationship. Second, the generalisability of this study may be limited because the sample was restricted to Vietnamese SMEs exposed to Vietnamese management styles. Hence, it could be recommended that future research should be conducted in various research settings, and multiple industry contexts (Arthur, 1994) to address this drawback. Finally, the study adopts only the subjective measures of employee creativity and firm innovation. This imperfection has been accepted from prior research (Takeuchi, Lepak, Wang and Takeuchi, 2007) as it would be hard to compare objective measures of performance (Do et al., 2018). To fill this limitation, future research should employ both subjective and objective measures of innovation performance to replicate and extend the findings of this study (Do et al., 2018)

Conclusion

This article examines the interplay between HPWS and firm innovation in Vietnamese SMES. Drawing upon the CTC, we find both moderating and mediating roles (e.g., creativity and LGO) that optimally underlie the HPWS - firm innovation relationship. These results highlight the transmission pathways underlying HPWS and firm innovation. Our findings provide important implications that in order for innovation to occur in the workplace, SMEs must design and execute HPWS practices that help develop a context for fostering LGO that may set the stage for employee creativity.

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FIGURE 1 (click [here](#) to go back)
Hypothesized Model

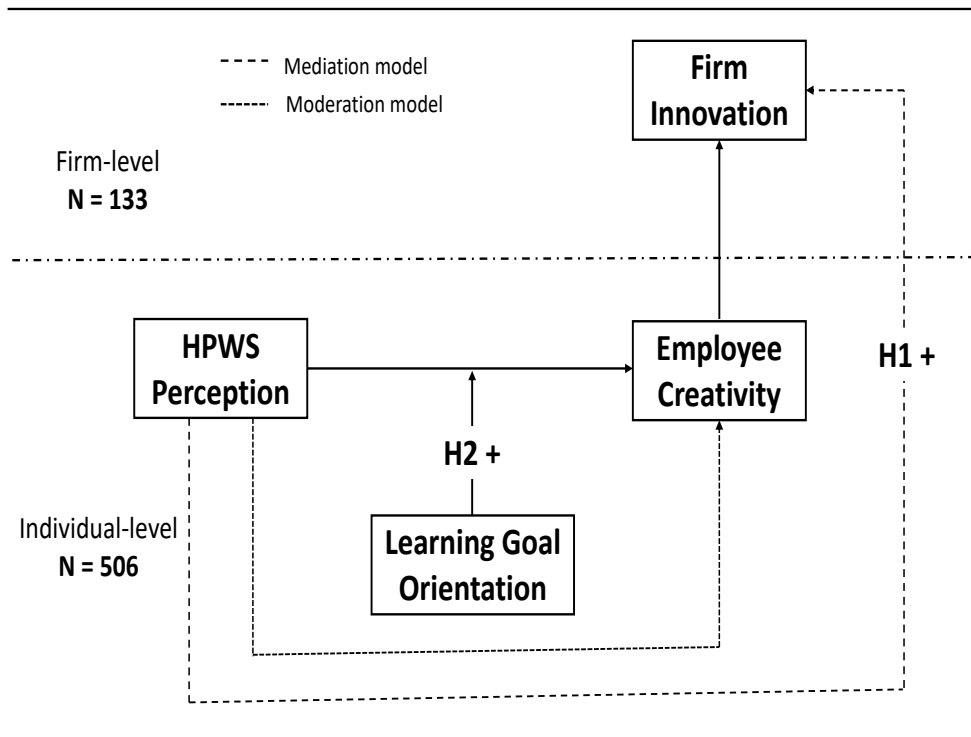
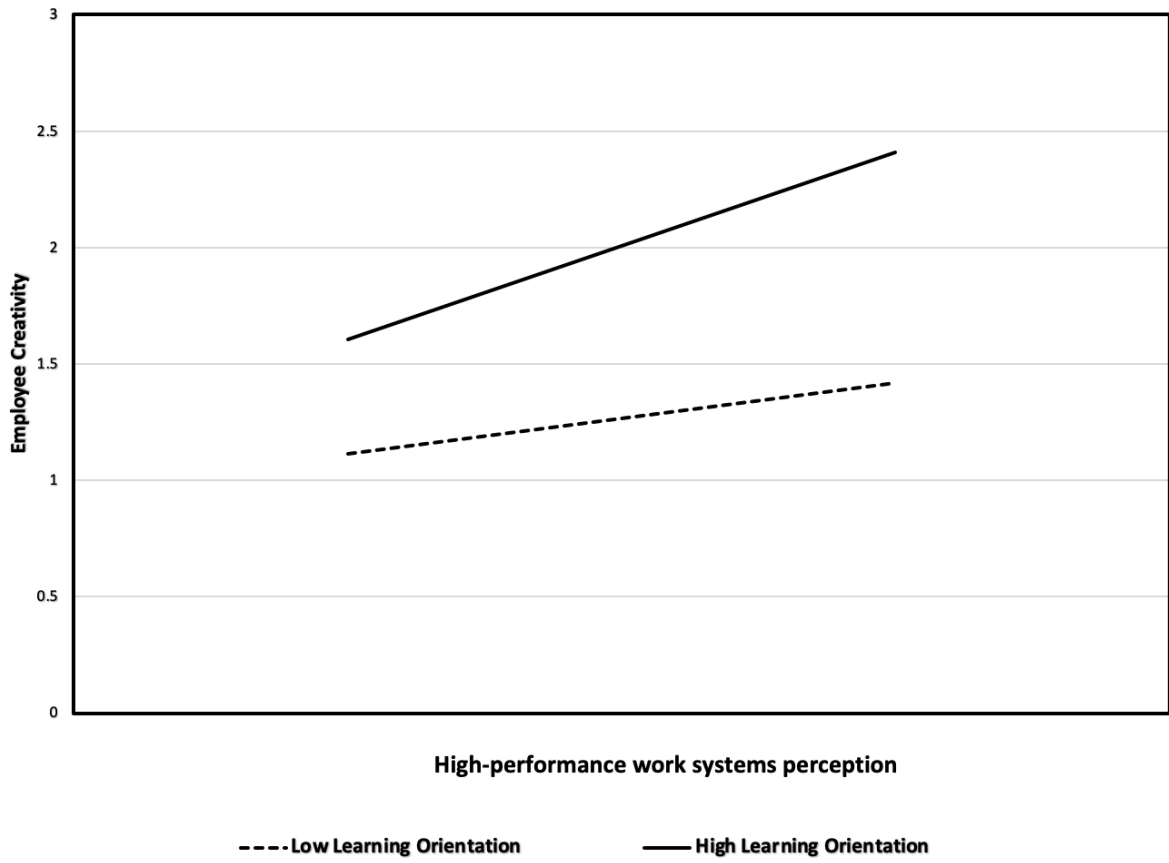


FIGURE 2 (click [here](#) to go back)

Moderation Effects for HPWS × Learning Goal Orientation → Employee Creativity



APPENDIX A: Standardized Factor Loadings for Employee-Experienced HPWS

Employees were asked to answer questions on the basis of their personal experience and understanding of the HR practices on a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*).

Item	F1	F2	F3	F4	F5
Job Design					
My job is designed to be simple and repetitive. (reverse-coded)	.75				
Fostering involvement in decision-making of employees is an important element of the corporate strategy.	.72				
Many employees in this firm perform simple and repetitive tasks as part of their work. (reverse-coded)	.71				
Providing employees with high quality jobs (i.e., jobs that are challenging, fulfilling, etc.) is a priority in this firm.	.71				
Employees of this firm are given lots of opportunities to decide how to do their work.	.65				
Training					
Extensive training programs are provided to employees.		.81			
Employees will normally go through training programs every few years.		.78			
There are formal training programs to teach new hires the skills they need to perform their job.		.72			
Formal training programs are offered to employees in order to increase their promotability in this organisation .		.59			
Staffing					
Great effort is taken to select the right person.			.76		
Long-term employee potential is emphasized.			.73		
Considerable importance is placed on the staffing process.			.71		
Very extensive efforts are made in selection.			.63		
Performance Appraisal					
Performance is more often measured with objective quantifiable results.				.80	
Performance appraisals are based on objective quantifiable results.				.79	
Employee appraisals emphasize long term and group-based				.74	
Incentive Reward					
Individuals in this job receive bonuses based on the profit of the organisation .					.89

Close tie or matching of pay to individual/group performance					.88
Alpha	<i>.75</i>	<i>.76</i>	<i>.74</i>	<i>.75</i>	<i>.79</i>
Eigenvalue	32.21	13.04	10.79	9.15	6.13
AVE	<i>.67</i>	<i>.63</i>	<i>.61</i>	<i>.57</i>	<i>.54</i>
Note: N = 133; All item loadings are statistically significant $p < .000$. Coefficient alpha values of each factor are presented in italics along the diagonal; HPWS = Employees' experiences of High-Performance Work Systems; the KMO score of .82 is considered to be high (Kaiser, 1974); Coefficient alpha value of the whole HPWS is .72.					

APPENDIX B: Innovation Performance Items

Items

Administrative innovation

Responsiveness to environmental changes

Innovative administration in planning procedures

Innovative administration in process control systems

Innovative administration in integrated mechanisms

Technical innovation

Developing new technologies

Incorporating technologies into new products/services

Facilitating new processes to improve quality and cost

APPENDIX C: Measurement Models

Measurement Model	χ^2/df	p-value	CFI	TLI	RMSEA	SRMR
Four-factor model	2.37	p < .001	.94	.93	.06	.05
Two-factor model	47.46	p < .001	.69	.07	.04	.10
One-factor model	129.291	p < .001	.65	-1.08	.57	.12

Note: The hypothesized four-factor model demonstrated a better data fit than the alternative measurement models (e.g., two-factor model, one-factor model).

APPENDIX D: Results of ICCs and RWG

Variable	ICC1	ICC2	RWG	F-ratio	P-value
HPWS perception	.19	.48	.92	1.92	.00
Learning goal orientation	.15	.43	.68	1.78	.02
Employee creativity	.29	.65	.73	8.75	.00

TABLE 1 (click [here](#) to go back)

Means, Standard Deviations and Correlations of Study Variables

Variable	Mean	SD	1	2	3	4	5	6	7	8
1. Firm size	43.97	19.44	-							
2. Employee gender	1.37	.48	.29**	-						
3. Employee age	1.61	.64	-.04	-.11	-					
4. Employee tenure	2.27	.89	.05	.02	.02*	-				
5. HPWS	3.61	.37	-.06	.01	.11**	.01	<i>.72</i>			
6. LGO	3.93	.79	-.02	-.08	.15	.08	.19**	<i>.92</i>		
7. CREATIVITY	3.57	.68	.07	-.04	.04	.12	.21**	.17**	<i>.85</i>	
8. INNOVATION	4.07	.49	-.06	.01	-.01	.03	.22**	.15**	.07*	<i>.88</i>

Note: Coefficient alpha values are presented in italics along the diagonal; HPWS = High-performance work systems; LGO = learning goal orientation; CREATIVITY = employee creativity; INNOVATION = Firm Innovation; Employee gender coded 1 = male, 2 = female.

*p < .05; **p < .01

TABLE 3 (click [here](#) to go back)

Path Analysis Results

	Standardized betas	SE	T- <i>value</i>	P- <i>value</i>
HPWS → CREATIVITY	.24	.18	2.17	.01
CREATIVITY → INNOVATION	.25	.14	1.68	.00
HPWS → INNOVATION	.27	.21	2.65	.01
HPWS → CREATIVITY → INO (<i>H1</i>)	.16	.05	3.13	.00
HPWS → CREATIVITY	.14	.17	2.80	.04
LEARN → CREATIVITY	.19	.16	1.35	.00
HPWS × LGO → CREATIVITY (<i>H2</i>)	.22	.07	2.98	.00
LOW-LGO	.14	.06	5.31	.00
MED-LGO	.17	.07	4.72	.00
HI-LGO	.21	.08	6.10	.00
Covariance				
HPWS, CREATIVITY	.03	.01	4.55	.00
HPWS, LGO	.30	.08	4.03	.01
LGO, CREATIVITY	.17	.11	3.71	.00
CREATIVITY, INNOVATION	.06	.06	5.21	.00
LGO, INNOVATION	.01	.01	1.48	.04

Note: HPWS = High-performance work systems; LGO = learning goal orientation;
 CREATIVITY = employee creativity; INNOVATION = Firm Innovation