

**EMPLOYEE PSYCHOLOGICAL CONDITIONS AS MEDIATORS OF THE
RELATIONSHIP BETWEEN HUMAN RESOURCE MANAGEMENT AND
EMPLOYEE WORK ENGAGEMENT**

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Abstract

Employee work engagement is an asset valued by today's organisations, not only as an indicator of well-being at work but also because it improves both employees' work performance and organisational performance. Knowing how employee work engagement can be fostered in the firm is therefore a subject of great interest to both academics and managers, but few studies have examined how organisational interventions positively affect employee work engagement. In this research, we focus on the relevance of organisations' human resource management to promote high levels of engagement among their employees. The theoretical framework guiding our research, Kahn's (1990) model, provides interesting insights into the mechanisms through which human resource management influences employee work engagement. By testing a multilevel model based on matched data from a sample of 146 HR managers and 504 employees in Spanish companies, our analyses show that high performance work systems have a positive influence on work engagement through the employee psychological conditions of meaningfulness, psychological safety and psychological availability.

Keywords: work engagement, human resource management, meaningfulness, safety, availability.

INTRODUCTION

In today's fast-changing world, companies need to constantly transform and innovate. While traditional organisational structures still rely on management control and the economic principles of cost reduction and efficiency, the crucial new focus in modern organisations lies in managing human capital (Gerhart & Feng, 2021; Gerrard & Lockett, 2018). Faced with this paradigm, companies need employees that deploy their full potential, have initiative, assume responsibility and are fully dedicated to their work; in other words, engaged employees. Work engagement is defined as a positive, fulfilling state of mind characterised by vigour and dedication in the performance of tasks (Schaufeli et al., 2002). Engaged employees show higher levels of job satisfaction, proactivity and creativity (e.g. Bakker et al., 2006; Koyuncu et al., 2006; Meynhardt, 2020; Schaufeli & Bakker, 2004; Schaufeli & Salanova, 2007). In addition, work engagement is related to positive organisational outcomes such as low absenteeism or higher service quality (Salanova et al., 2005; Schaufeli & Bakker, 2004; Schaufeli et al., 2002). In sum, the academic literature has found that work engagement is a highly valued asset for companies, as it promotes superior job and organisational performance (Bailey et al., 2017; Halbesleben, 2010).

Given the value of work engagement for today's organisations, it is important to know what they can do to foster it. Many studies on the antecedents of work engagement focus on individual behaviours that lead to higher work engagement, such as self-regulation (Baumeister et al., 2018) or job-crafting behaviours (Petrou et al., 2012; Wrzesniewski & Dutton, 2001), but very little research analyses how organisational interventions contribute to promoting employee work engagement, so less is known about the role companies play in increasing their employees' levels of work engagement (Albrecht et al., 2015; Bakker & Albrecht, 2018; Zhang et al., 2018). In a recent narrative analysis, Bailey et al. (2017) found that only nine out of the 155 empirical studies they revised analysed the relevance of

organisational variables as antecedents of employee work engagement. As these authors claim (Bailey et al., 2017: 44), there is much scope for further research that seeks to develop and extend current theorisations of engagement through studies that take greater account of the organisational contexts within which engagement is enacted. The contextual approach to organisations (Johns, 2006, 2018) holds that companies' situational factors are key variables in favouring desired attitudes or behaviours in employees. One key element that defines a company's context is the human resource (HR) practices it uses to manage relations with its employees (Saks & Gruman, 2018). These practices help to delineate the roles of both the employee and the organisation and to support certain individual attitudes and behaviours. To extend understanding of the antecedents of employee work engagement, this study examines the mechanisms through which HR practices influence employee work engagement.

In exploring these mechanisms, we draw on Kahn's (1990) model, which assumes that the experience of engagement fluctuates due to changes in employees' perceptions of their work context, rather than a steady mindset (Bakker, 2014, 2015). That is, rather than passively receiving HR practices, the way employees interpret their work context is shaped by these practices. Specifically, Kahn (1990) argues that employees ask themselves three fundamental questions in each work context: namely, "How meaningful is it for me to bring myself into this performance? How safe is it to do so? and How available am I to do so?" (May et al., 2004). These three employee psychological conditions (meaningfulness, psychological availability and psychological safety) directly influence the employee's willingness to engage at work. In this study, we will examine the mediating role of the three psychological conditions in the relationship between HR practices and employee work engagement. Kahn's (1990) model may help researchers to bridge the gap between psychological studies on engagement and the interests of HRM scholars by emphasising the contextualised experience of engagement (Fletcher et al., 2018; Guest, 2014). In addition,

Kahn's (1990) theorising focuses on the mediating role that employees' psychological conditions play in connecting the wider work context with the experience of personal engagement and consequently it allows us to better understand the psychological foundations of engagement and to better predict why some employees come to identify with their jobs (Fletcher et al., 2018).

Taking into account the abovementioned gaps in the literature, the contributions of our study are threefold. First, authors such as Saks and Gruman (2018) have recently called for further research into the mechanisms through which HR practices influence employee work engagement, identifying the need to study the 'process' by which HR practices affect engagement. Although several researchers consider that there are mediating variables in the relationship between job characteristics and employee work engagement (May et al., 2004; Rothmann & Olivier, 2007), a significant number of previous studies (e.g. Bakker et al., 2007; Saks, 2006; Schaufeli & Bakker, 2004; Veth et al., 2019) do not empirically test the mediating effects of intervening variables on employee work engagement (Rothman & Welsh, 2013). Considering Kahn's (1990) psychological conditions as mediating variables helps to disentangle the process that explains how HR practices influence employee work engagement. In particular, and in accordance with authors such as Barrick et al. (2015), May et al. (2004) or Rich et al. (2010), we propose a full mediation model where HR practices serve as antecedents of employee work engagement by influencing the three psychological conditions necessary for engagement: meaningfulness, psychological availability and psychological safety.

Second, the job demands–resources (JD-R) framework (Demerouti et al., 2001) predominates in the theorisation of the antecedents of employee work engagement. This theoretical framework has provided valuable insights into the influence of the work environment on employee work engagement (e.g. van Wingerder et al., 2016). However, the

JD-R literature characteristically focuses on perceived organisational context, with studies analysing the influence of employees' perceptions of HR practices on their work engagement, which indicates an overreliance on self-report data in this field (Alfes et al., 2013, Boon & Kalshoven, 2014; Crawford et al., 2010; May et al., 2004; Wingerder et al., 2016).

Consequently, common method bias may be a factor influencing the findings of previous studies (Bailey et al., 2017). Studies such as Crawford et al. (2010) call for future research that provides non-job-incumbent measures of HR practices when examining the influence of HR practices on engagement. In this paper we respond to this call by testing a multilevel model in which HR practices are defined (and measured) as organisational variables and work engagement is defined (and measured) as an individual employee variable, so the relationship between the two is top-down, from the company to the individual (Preacher et al., 2010). To our knowledge, this is the first empirical study to propose a multilevel model of the influence HR practices have on employee work engagement, thereby responding to the need for empirical research into the organisational antecedents of employee work engagement.

Third, the consideration of Kahn's (1990) psychological conditions as mediating variables in this relationship falls outside the scope of the JD-R model and helps to extend our knowledge on the mechanisms between HR practices and employee work engagement (Crawford et al., 2010). Studies rooted in the JD-R premises assume that HR practices represent job resources that impact employee work engagement through a motivational path, playing either an intrinsic or an extrinsic motivational role (Bakker & Demerouti, 2007). Prior studies argue that Kahn's (1990) framework is both parsimonious and comprehensive and consequently it enables a better understanding of the antecedents of employee work engagement (Crawford et al., 2014; Fletcher et al., 2018). Kahn's (1990) model allows us to explore three individual variables (meaningfulness, psychological availability and psychological safety) that have not been considered as mediating variables within the JD-R

framework, therefore extending research into the processes through which HR practices affect engagement. Kahn's (1990) theorising offers a clear reasoning to explain how the work context aligns with the experience of personal work engagement. More broadly, our study addresses one of the main criticisms of the HRM literature, namely the need to better articulate the psychological processes between HR practices and employee work outcomes by analysing the mechanisms through which these practices impact employee work engagement (Heffernan & Dundon, 2016).

Figure 1 summarises the theoretical model of our study. As can be seen, there are two levels of analysis. At the firm level (level 2), we consider HR practices. At the individual level (level 1) we consider employee psychological conditions and work engagement. Consequently, this is a 2-1-1 multilevel model, where a level-2 antecedent influences a level-1 mediator, which then affects a level-1 outcome (Preacher et al., 2010; Zhang et al., 2009). In our study, HR practices (level 2) influence employee psychological conditions (level 1) and these psychological conditions in turn, impact employee work engagement (level 1).

Insert Figure 1 about here

RESEARCH MODEL AND HYPOTHESES

Work engagement is a fulfilling state of mind according to which employees show high levels of energy and mental resilience while working, willingness to invest effort in their work, the ability to avoid fatigue, and persistence in the face of difficulties (Schaufeli et al.,

2002). Thus, engagement is a positive attitude to work tasks (Bailey et al., 2017). In this state of engagement, employees are psychologically present when performing their roles and are able to realise their full potential. Work engagement is closely related to constructs such as employee involvement, but it differs from involvement in two ways: engagement refers to how employees 'use themselves' while performing their job, and it implies the use of emotions and behaviours in addition to cognitions (May et al., 2004).

Employee work engagement can be affected by the work context and in particular by the company's HR practices. In our research we focus on the effect that high performance work systems (HPWS) can have on employee work engagement levels. By HPWS we mean a set of interconnected HR practices designed to enable employees to contribute to the achievement of organisational goals and competitive advantage. HPWS comprise practices that promote the company's human capital, through actions such as comprehensive training or performance evaluation systems for development purposes. HPWS also include practices designed to increase employee motivation through, for example, systems of remuneration linked to work performance. Finally, HPWS practices can also encourage employee participation through internal communication systems or higher work autonomy, so employees actively contribute to the achievement of organisational objectives (Jiang et al., 2012). The HPWS literature emphasises the need to adopt coherent systems of practices (Arthur, 1994; Delery & Doty, 1996) in order to capture the complementarities among the HPWS components. In terms of the conceptualisation of HPWS presented in this study and following suggestions from several authors (Chadwick, 2010; Wood & Albanese 1995; Wood & de Menezes, 2008), we assume there is an underlying approach to the management of the HR practices that explains the association between them. This idea corresponds to a 'virtuous overlap' approach to conceptualise synergies in the HRM field (Chadwick, 2010). According to this approach, the degree to which interrelated HR practices function jointly determines the

effectiveness of the whole HPWS, and the decomposable effects of each HR practice or group of practices are less important (Chadwick, 2010). The shared variance of the HR practices represents the latent 'high performance' philosophy or overall orientation of the organisation and provides a holistic approach to HPWS. Consequently, we assume that the power of HPWS to increase employee work engagement does not load onto a single practice, but rather lies in integrating all the HR practices as a whole.

Some recent studies have provided evidence of the relationship between HPWS and employee work engagement by assuming that the HPWS practices may have a joint effect on engagement. This is the case of Alfes et al. (2013), Boon and Kalshoven (2014) and Juhdi et al. (2013), who demonstrate the relevance of perceived high performance practices to increase employee work engagement levels. Despite these results, more work is needed to understand the variables through which HPWS affect employee work engagement (Saks & Gruman, 2018). This approach considers the 'process' through which companies' HR systems impact individual employee work engagement in order to better understand how these effects occur and to help provide company managers with clear indications of how to support workforce engagement levels. As to what these intermediate variables are, Kahn's (1990) model constitutes a solid theoretical framework that has been recognised and adapted by numerous authors in the field of engagement (Bailey et al., 2017; Barrick et al., 2015; May et al., 2004). Kahn (1990) suggests that three psychological conditions are necessary for individuals to show more engagement. Psychological conditions refer to employees' perceptions of the work context in which they perform their job, that is, employees' interpretations of the elements of the context around them. According to Kahn (1990), the three psychological conditions that favour work engagement are *meaningfulness*, *psychological availability* and *psychological safety*.

The mediating effect of employee meaningfulness in the relationship between HPWS and employee work engagement

Meaningfulness is the employee's feeling that the company needs them and that they are able to make a significant contribution to the organisation through their work (Kahn, 1990). In other words, meaningfulness refers to employees' beliefs that their work is particularly significant and valuable (Martela & Pessi, 2018; Robertson et al., 2020). Perceptions of meaningfulness contribute to higher employee work engagement because they encourage employees to invest their energies in their work role (Kahn, 1990) and deepen the purpose and personal fulfilment of work (Kahn & Heaphy, 2014). According to Kahn's (1990) model, meaningfulness acts as a motivational pathway that transforms the value and purpose stemming from the work context into a positive and fulfilling experience (Shuck & Rose, 2013). From the perspective of the conservation of resources theory (Hobfoll, 1989), employees who experience meaningfulness at work will invest more of themselves in their work role; that is, they will show higher engagement, since they feel that it will contribute to protecting and enhancing their well-being (Fletcher, 2019). Empirical studies have demonstrated the positive relationship between meaningfulness and employee work engagement (e.g. Chen et al., 2011; Soane et al., 2013).

HPWS can help to increase employee meaningfulness for several reasons. First, the social network theory (Borgatti & Foster, 2003) holds that employee experience of meaningfulness at work depends on the types of exchanges occurring between the employee and the organisation and the social structures in which they take place. HPWS help to establish high quality relationships between the employee and the organisation because employees interpret HPWS as indicative of the personified organisation's commitment to them (Blau, 1964; Eisenberger et al., 1986; Whitener, 2001). High quality exchange relationships at work are a source of affiliation with others (Kahn & Heaphy, 2014) and also

of information, instrumental support, shared commitment and so on (Robertson et al., 2020), all of which contribute to higher meaningfulness. In addition, drawing on Hackman and Oldham's (1976) job characteristics model, by implementing HPWS, firms are helping to increase autonomy, variety, task significance, task identity and feedback, and employees' sense that their work has value and purpose, which generates a perception of meaningfulness (Barrick et al., 2015). This leads us to propose the first of our hypotheses as follows:

Hypothesis 1: Meaningfulness mediates the relationship between HPWS and employee work engagement.

The mediating effect of employee psychological availability in the relationship between HPWS and employee work engagement

Psychological availability refers to the confidence a person has to carry out the tasks the company assigns to them because they feel that they have the physical, emotional or cognitive resources to perform those tasks effectively (Kahn, 1990). This concept is also related to self-efficacy, defined as the "beliefs in one's capabilities to organise and execute the courses of action required to produce given attainments" (Bandura, 1997: 3). This perception of being ready to do the job motivates employees to put all their energies into performing their tasks, in other words, to show greater work engagement (May et al., 2004). Employees will be more willing to engage in their work roles if they feel confident and have the energy to do so. According to the stress literature, individuals who experience overload in their job tend to disengage from work in order to replenish their own resources (Ganster & Schaubroeck, 1991; May et al., 2004). Thus, although there is less supporting evidence than for the psychological condition of meaningfulness (e.g. Salanova et al., 2003; Salanova et al.,

2009), it seems that psychological availability also positively affects work engagement (Rothman & Welsh, 2013).

HPWS may significantly contribute to employee perceived psychological availability. On the one hand, according to the uncertainty management theory (Lind & van den Bos, 2002), employees look to HR practices “for cues that will aid in their ability to make inferences about their value, worth and future prospects in their organization” (Rosen et al., 2011: 823). HPWS create conditions of greater certainty among the workforce, which enhance employees’ psychological availability because they do not need to invest their energies in pursuing a feeling of security (Binyamin & Carmeli, 2010). On the other hand, from a social cognitive perspective (Bandura, 1982) HPWS foster psychological availability by reinforcing employees’ perceptions that they can easily master their assigned tasks –thus enhancing their confidence in performing their work (i.e. enactive mastery)– by providing vicarious experiences of seeing and learning from others how to perform effectively and by providing social information which increases the employees’ beliefs that they can achieve what they are seeking (Beltrán et al., 2008; Ma et al., 2011). Some empirical studies provide indirect support for the relationship between HPWS and employee psychological availability by demonstrating the linkage between HPWS and human capital (Chang & Chen, 2011; Liao et al., 2009). More recently, Ma et al. (2021) empirically demonstrated the contribution of HPWS to employee psychological availability. Consequently, we posit that:

Hypothesis 2: Psychological availability mediates the relationship between HPWS and employee work engagement.

The mediating effect of employee psychological safety in the relationship between HPWS and employee work engagement

Psychological safety is related to feeling confident about being oneself at work and expressing one's opinions without fear of possible consequences for one's self-image, status or career (Rich et al., 2010). In a psychologically safe work environment, "employees feel that their colleagues will not reject people for being themselves or saying what they think, respect each other's competence, are interested in each other as people, have positive intentions to one another, are able engage in constructive conflict or confrontation, and feel that it is safe to experiment and take risks" (Newman et al., 2017: 522). Employee psychological safety is a factor that motivates individuals to show greater work engagement (Kahn, 1990) because they are more willing to take risks that express their true selves. Psychological safety allows employees to actively engage their interest in their own work and try novel ways of conducting their assigned tasks (May et al., 2004). Also, the social exchange theory (Blau, 1964) holds that employees who feel psychologically safe at work will reciprocate by engaging and putting more effort into their work (i.e. higher engagement) (e.g., Chen et al., 2014; De Clercq & Rius, 2007; Newman et al., 2017). Some empirical evidence corroborates the linkage between psychological safety and work engagement (May et al., 2004; Nembhard & Edmonson, 2006).

For psychological safety to exist, employees must perceive the organisational context as fair (Kahn, 1990), and it should be characterised by interpersonal relationships based on mutual trust and constant management support for workers, as demonstrated by prior empirical studies (Carmeli & Zisu, 2009; Tucker, 2007). HPWS contribute to this climate of mutual trust in companies (Wu & Chaturvedi, 2009; Heffernan & Dundon, 2016). For instance, for a sample of medical professionals, Carmeli and Zisu (2009) found that supportive organisational practices foster psychological safety through social learning processes. Similarly, Singh et al. (2013) argue that implementing HPWS fosters psychological safety through employee identification with the firm. In addition, drawing on the job characteristics theory (Hackman &

Oldham, 1976), HPWS are expected to influence employee psychological safety by signalling to individuals that they are trusted to take relevant decisions and by providing them with clear expectations regarding their role in the firm (Frazier et al., 2017). Recently, Frazier's (2017) meta-analysis corroborated the relevant role of a supportive work context to promote psychological safety among the workforce. For all these reasons, we expect that:

Hypothesis 3: Psychological safety mediates the relationship between HPWS and employee work engagement.

METHOD

Sample and data collection procedure

This research was carried out on a sample of Spanish companies operating in various sectors. To select the companies, we used the information from the SABI (*Sistema de Análisis de Balances Ibéricos*) database (Bureau van Dijk, 2013). Our interest lies in 'key employees' (Lepak & Snell, 1999), defined as those who directly contribute to achieving the objectives related to the company's products or services. Therefore, the work engagement of these employees is of vital importance in achieving the company's strategic objectives. We delimited the sample to companies with 25 employees or more to ensure they would have a formalised human resource strategy; this yielded an initial population of 11,704 companies.

For the data collection, we prepared two questionnaires, one addressed to the companies' HR managers and the other to its key employees. The HPWS measure was included in the questionnaire for the HR managers. Measures of employee psychological conditions and employee work engagement were included in the employee questionnaire.

We contacted 560 companies (randomly chosen from the population) by email with an invitation to participate in the study and information about the research; this invitation was followed up with phone calls. Of these 560 companies, 146 participated in the study (response

rate of 26%). The HR manager of each company completed the HR manager questionnaire, which yielded a total of 142 usable questionnaires for analysis. We then distributed the key employee questionnaire to a sample of key employees in these 142 participant firms. Following Wright and Boswell's (2002) suggestion, by focusing on key employees, we avoid the problems inherent in the differential application of HR practices on different employee groups. Coverage of HPWS might be concentrated in 'strategic jobs' (Becker & Huselid 2006; Wood, 2020), given that these employees contribute directly to attaining organisational goals.

The HR managers were asked to identify the range of employees considered key in the firm, from which we chose a random sample. Although resource limitations prevented us from surveying all the key employees, we interviewed a minimum of three per firm. We obtained responses from 504 employees (three responses per firm in 45% of the sample firms, four responses per firm in 52%, and more than four responses per firm in 3%). The final sample for the analyses comprised 142 organisations and 504 employees.

In the sample of key employees, 48 percent were female and the mean organisational tenure was 14 years. Regarding the organisations, 50% were from service sectors and 50% from industrial sectors; 64% of the companies were small (< 50 employees), 32% were medium-sized (50 to 249 employees) and 4% were large (250 employees or more).

Measures

We measured the variables using scales previously validated in the literature. The Appendix includes a description of the measurement scales used in this study. *HPWS* was measured with Gardner et al.'s (2011) scale, adapted for use as a continuous 7-point Likert scale (agreement–disagreement). This scale was part of the questionnaire for HR managers, who were asked to think about the HR practices their company used for the employees considered 'key' in their responses. To do this, we first clarified with the HR managers what

was meant by key employees and asked them for their opinion on the HR practices their company used with these employees. In line with the definition of HPWS adopted in this study, the scale includes measures of human capital practices, motivation practices and participation practices. We first performed an exploratory factor analysis (EFA) to test whether the proposed dimensionality of this scale in our sample corresponded to Gardner et al.'s (2011) original scale. The results of this EFA led us to modify the original scale by considering that the first item in Gardner et al.'s (2011) motivation dimension ("employees in this job regularly (at least once a year) receive a formal evaluation of their performance") loads on the human capital practices. This decision is in accordance with prior studies in the HRM literature, which have considered formal evaluations as components of the human capital dimension of the HR system (e.g. Youndt et al., 1996; Zhu et al., 2005). The CFA with the six items in the human capital bundle showed a poor fit with the data. In accordance with standard scale development procedures (MacKenzie et al., 2005), we deleted one item from the original scale as it showed a factor loading below 0.3 (see Appendix). The CFA with the remaining five items ($\alpha=0.70$) fell within the commonly accepted values ($\chi^2_{SB}=8.37$; d.f.=4; $p=0.08$; CFI=0.96; BBNNFI=0.91; RMSEA=0.09). We measured the motivation practices dimension with five items ($\alpha=0.82$); the corresponding CFA shows appropriate fit indexes ($\chi^2_{SB}=4.12$; d.f.=5; $p=0.53$; CFI=1; BBNNFI=1; RMSEA=0.00). Concerning participation practices ($\alpha=0.84$), the CFA with the seven items in the original scale showed a poor fit to the data; we therefore conducted an EFA, the results of which led us to conclude that Gardner et al.'s (2011) items loaded on two different dimensions, the first corresponding to bottom-up communication between the employees and the organisation (bottom-up: items 12 to 14) and the second corresponding to top-down communication from the firm to its employees (top-down: items 15 to 18). Consequently, instead of conducting a CFA with the seven items loading on a single dimension, we considered a two-dimensional CFA with two correlated latent factors, which shows acceptable fit indexes.

The CFA corresponding to this dimension shows appropriate fit indexes ($\chi^2_{SB}=21.67$; d.f.=12; $p=0.04$; CFI=0.97; BBNNFI=0.95; RMSEA=0.07).

As noted in the theoretical framework, we assume that HR practices share a common 'high performance' philosophy, so there is a latent variable that captures the relationships between the HR practices (Chadwick, 2010). This philosophy (orientation) is responsible for the use of a specific set of HR practices (Hauff, 2019; Wood & de Menezes, 2008; Wood, 2020), so the causality flows from the construct HPWS to the indicators. In other words, the HR practices represent the construct's manifestations (Hauff, 2019). In addition, we consider that HR practices are interchangeable items so if one of the HR practices is left out, the construct's meaning will not change (Wood, 2020). For all these reasons, we operationalise HPWS as a latent construct with reflective indicators. This approach is consistent with previous operationalisations of HR systems in the HRM literature (e.g. Vandenberg et al., 1999; Wood & Albanese, 1995; Wood & De Menezes, 1998, 2008).

In order to verify the dimensionality of this scale, we also conducted a confirmatory factor analysis (CFA) where HPWS is a second-order factor with three first-order latent factors as reflective indicators (corresponding to human capital, motivation and participation bundles), each of which has several reflective indicators (i.e. items included in the Appendix) ($\alpha=0.82$). The adjustment indexes of this CFA are within the commonly accepted values ($\chi^2_{SB}=83.00$; d.f.=50; $p=0.00$; CFI=0.93; BBNNFI=0.90; RMSEA=0.07) with factor loadings ranging from 0.46 to 0.96. Correlations between the measurement error terms were not allowed in the estimation of the CFA. These results verify the existence of a latent factor corresponding to a HPWS orientation in the firm, which captures the covariation among the different HR bundles and practices. In subsequent analyses, we used composite measures, by calculating the mean value of the indicators corresponding to each HR bundle and creating three new variables labelled 'human capital practices', 'motivation practices' and 'participation practices', which

will be the reflective indicators of HPWS (see Figure 1). In SEM models, using composite measures enhances the possibility of meeting the normal-distribution assumption of maximum likelihood estimation and results in more parsimonious models because it reduces the number of variances and covariances to estimate, thus increasing the stability of the parameter estimates, improving the variable to sample size ratio and reducing the impact of sampling error on the estimation process (Bagozzi & Edwards, 1998; Bandalos & Finney, 2001; McCallum et al., 1999; Little et al., 2002).

Employee psychological conditions were measured on three 7-point Likert scales rating agreement–disagreement and were included in the questionnaire for the key employees. Meaningfulness was measured with three items taken from Spreitzer’s work (1995) ($\alpha=0.73$). Psychological availability was measured with the 6-item scale proposed by Rigotti et al. (2008) ($\alpha=0.86$). Finally, psychological safety was assessed with a 5-item scale taken from Dunegan et al. (1992) ($\alpha=0.89$).

Kahn’s original study (1990) proposed that these three psychological conditions are different dimensions that lead to greater work engagement. To analyse the reliability of these constructs and the validity of Kahn’s (1990) original proposal, we conducted a CFA to verify that these three constructs are different dimensions. This model includes three correlated first-order factors (each corresponding to a psychological condition) in which the indicators included in the scales only load on the corresponding latent variable. The results of the CFA indicate that the model has a good fit ($\chi^2_{SB} =98.38$; d.f.=7; $p=0.03$; CFI=0.99; BBNNFI=0.99; RMSEA=0.03), with factor loadings between 0.62 and 0.83. In other words, these three psychological conditions, although related, are different constructs. In order to reduce the complexity of the statistical models, we calculated the mean value of the indicators corresponding to each of the psychological dimensions, creating three new variables labelled

‘meaningfulness’, ‘psychological availability’ and ‘psychological safety’, which are used later in the estimation of the multilevel models.

Finally, *employee work engagement* was measured with the Utrecht Work Engagement Scale (Schaufeli & Bakker, 2004), although to reduce the length of the questionnaire, we used the shorter 7-item version adopted by Bal et al. (2013). This scale was also included in the questionnaire addressed to key employees in the participating companies. When estimating a CFA with the seven items as indicators of a latent factor corresponding to engagement, we observed that one of them had a factor loading lower than 0.3. To increase the reliability of this scale, we eliminated this item (see Appendix). The CFA with the remaining six items ($\alpha=0.85$) has adjustment indexes within the commonly accepted values ($\chi^2_{SB}=9.54$; d.f.=9; $p=0.35$; CFI=0.99; BBNFI=0.99; RMSEA=0.01), with factor loadings between 0.62 and 0.75. For the psychological conditions we created a new variable, labelled ‘engagement’, which is the result of calculating the mean value of the six indicators of this scale.

Insert Table 1 about here

We assessed the issue of common method variance because a single respondent (employee) evaluates both the mediating variables (psychological conditions) and the dependent variable (work engagement). On the one hand, during the study design stage we took several steps to ensure that common method bias would not influence our results, following the guidelines in the literature (Conway & Lance, 2010) together with examples from previous studies (Andreeva et al., 2017; Sheel & Vohra, 2016). First, during the administration of the employee questionnaire, we guaranteed the participants’ confidentiality. This reduced the risk of common method bias by making respondents less likely to alter their answers to comply with others’ expectations. Second, we consider that self-reports were particularly appropriate for this

kind of study, since psychological conditions refer to the employees' reactions to the work context. Similarly, we believe it is appropriate to use self-report measures of employee work engagement since they refer to an individual's state of mind. In this regard, prior studies have found considerable agreement between self-report measures of engagement and coworkers' assessments of the same construct (Mazzetti et al., 2016). Third, we also conducted a pair-wise test (Bagozzi & Phillips, 1982) to examine the discriminant validity among the employee variables. For each pair of factors, the test compares whether a CFA with two freely correlated factors fits the data significantly better than a nested model in which the correlation is fixed to one (i.e. a model equivalent to a single-factor model). Table 1 shows the results of this analysis, where the chi-square difference ($\Delta\chi^2$) corresponds to the value of the chi-square of the correlated two-factor model (i.e. considering the possibility that the two dimensions may be correlated) minus the value of the chi-square of the model in which this correlation was set to one. The chi-square difference values for the ten pairs were found to be statistically significant at the 5% level, suggesting the existence of discriminant validity of the three psychological conditions and the discriminant validity of these three conditions with work engagement.

On the other hand, we performed additional statistical analyses to assess the possibility of common method bias. First, according to Harman's single-factor test (Podsakoff & Organ, 1986; Podsakoff et al., 2003), if common method variance exists, a single factor will emerge from a factor analysis of all survey items measured by the same person. This test can be performed using a CFA that includes all items from all the employee constructs in the study in a factor analysis to determine whether most of the variance can be accounted for by one general factor (Podsakoff et al., 2003: 890). The results of this CFA ($\chi^2_{SB}=630.4728$; d.f.=170; $p=0.00$; $BBNNFI=0.85$; $CFI=0.86$; $RMSEA=0.08$) indicate that common method variance does not exist in our study, since these indexes are below the acceptable values. Second, we compared a measurement model with an unmeasured latent common method variance factor and a

measurement model without the common method variance factor (Podsakoff et al., 2012). In the model with an unmeasured latent common method variance factor all the items loaded both on their theoretical constructs (meaningfulness, psychological availability, psychological safety and work engagement) and on a common method factor. The inclusion of the unmeasured latent common method variance in the measurement model did not significantly improve the model fit ($\Delta\chi^2=41.07$; $\Delta d.f.=20$; $\Delta RMSEA=0.00$) (Gu et al., 2020). Furthermore, the loadings on the method factor were lower than the loadings on the construct factor, which indicates that common method bias does not exist in our database (Andreeva et al., 2017).

We controlled for employee organisational tenure and gender in all analyses because previous studies have demonstrated that these variables affect levels of engagement (Alfes et al., 2009; Bal et al., 2013; Truss et al., 2006). We also controlled for organisational size and sector, since these firm-level variables may affect individual attitudes (e.g. Liao et al., 2009).

The following table includes the correlations between the variables considered in our analyses.

Insert Table 2 about here

Statistical procedure

To test our hypotheses, we estimated a model that included the mediating role of meaningfulness, psychological availability and psychological safety in the relationships between HPWS and employee work engagement. Specifically, we estimated a multilevel mediation model. In this model, HPWS is considered a latent organisational-level variable (level 2), while psychological conditions and engagement are individual variables, that is, employee-level variables (level 1). The model therefore includes cross-level relationships (2-1-1) (Preacher et al., 2010): HPWS affect employee work engagement through their

psychological conditions (see Figure 1). To estimate this model we applied multilevel structural equation methodology (MSEM) using the EQS 6.3 statistical package for Windows and the maximum likelihood estimator. Our data meets the two basic prerequisites for applying MSEM in mediation analyses (Krull & MacKinnon, 2001). First, we have clustered data with positive ICC (1). This coefficient indicates the degree of variability in the individual variables between the different companies compared with the variability between the employees in the same company. A value of 1 in the ICC (1) coefficient would indicate that all the variability in the individual variables is due to the difference between the companies. A value of 0 would indicate that the organisation does not contribute at all to explaining the variability of the individual variables, so it would not make sense to estimate a multilevel model. We also calculated ICC (2), which is a function of ICC (1) adjusted for group size (Klein & Kozlowski, 2000). The values for employee work engagement are ICC(1)=0.35 and ICC(2)=0.65; for meaningfulness they are ICC(1)=0.35 and ICC(2)=0.65; for psychological availability, ICC(1)=0.43 and ICC(2)=0.72; and for psychological safety, ICC(1)=0.46 and ICC(2)=0.75. These results indicate that it is pertinent to analyse the extent to which variables at the organisational level (in our case, HPWS) explain the variation of variables at the individual level among the companies in our sample. Second, our hypotheses propose a mediational model in which the outcome variable (employee work engagement) is measured at the lowest (i.e. individual) level of the data.

Traditional methods for testing mediation (e.g. Baron & Kenny, 1986) are not suitable for testing mediation in MSEM (James et al., 2006). Accordingly, we tested the mediating relationships of Hypotheses 1 to 3 by estimating a baseline model that is fully mediated, whose paths are 1) from HPWS to the three psychological conditions, and 2) from the three psychological conditions to employee work engagement. No indirect paths were specified in this model (James et al., 2006). Against the baseline model, we tested a nested model that

includes the direct path from HPWS to employee work engagement and compared the fit indexes and significance of the paths between the baseline and the nested models (Binyamin & Carmeli, 2010; Wang et al., 2005). In addition, following James et al.'s (2006) suggestion, we tested for the significance of the indirect effect of HPWS on employee work engagement through the three psychological conditions.

We used several indexes to assess multilevel model fit. Specifically, model fit was assessed with the Bentler-Liang likelihood ratio statistic (BLLRS), which is the multilevel equivalent of the χ^2 goodness-of-fit statistic (Bentler & Liang, 2003). In accordance with prior studies that conducted MSEM, we also used the comparative fit index (CFI), normed and incremental fit indexes (NFI and IFI), and the root mean square error of approximation (RMSEA) (Kostopoulos et al., 2021). As there is still no consensus on the standard cutoff levels for these fit indexes in the multilevel literature, we followed Kostopoulos et al. (2021) and adopted the conventional SEM recommendations, namely values of CFI, NIF and IFI greater than .90, and RMSEA up to .05.

RESULTS

Table 3 shows the results of estimating our baseline model, that is, a fully mediating model where we specified the paths from HPWS to each of the psychological conditions and from these conditions to employee work engagement.

Insert Table 3 about here

The value for the Bentler-Liang likelihood ratio statistic (BLLRS) is 27.519 (29) $p=0.54$ and all the fit indexes show an appropriate fit (NFI=0.98; CFI=1; IFI=1; RMSEA=0.00). We found statistically significant coefficients from the paths from HPWS to meaningfulness (0.20,

$p < 0.01$), to psychological availability (0.22, $p < 0.05$) and to psychological safety (0.19, $p < 0.01$) (between-level estimations) and also significant paths from the psychological conditions to employee work engagement, with coefficients of 0.25 ($p < 0.01$) for meaningfulness, 0.20 ($p < 0.01$) for psychological availability and 0.33 ($p < 0.01$) for psychological safety (within-level estimations). We then tested the nested model in which we added the direct path between HPWS and employee work engagement. This model shows a non-significant path between HPWS and employee work engagement, and also a good fit (BLLRS=27.607(28) $p = 0.48$; NFI=0.99; CFI=1; IFI=1; RMSEA=0.00). There are no differences between the main fit indexes, so according to the principle of model parsimony, these results suggest that the baseline model provides a better fit to our data (Wang et al., 2005). These results allow us to conclude that the three employee psychological conditions proposed by Kahn (1990) fully mediate the relationship between HPWS and employee work engagement. On the other hand, the value of the indirect effect exercised through these three psychological conditions is statistically significant and reaches a value of 0.1 ($p < 0.01$). Hypotheses 1, 2 and 3 are therefore confirmed.

DISCUSSION

Because of the demonstrated positive effects of work engagement on the performance and productivity of companies and workers (e.g. Schaufeli & Bakker, 2004), in recent years a growing number of studies have attempted to discover the organisational initiatives that increase employee performance and engagement (Guest, 2017). Although many studies suggest that the work context, and HR practices in particular, are determining factors in increasing employee work engagement, empirical evidence for their actual impact on engagement is still scarce. The present study has attempted to fill this gap by studying the relationship between high performance work systems and work engagement through the mediating role of three employee psychological processes: meaningfulness, psychological availability and psychological safety (Kahn, 1990). This study integrates engagement theory with resource management theory to explain what organisations can do to foster this robust motivational construct among their workforce (Barrick et al., 2015). The results of the study show that if a HPWS improves engagement, it is because it has an effect on employees' psychological conditions.

Scholarly implications

Through the integration of the engagement and human resource management literatures, our study combines the micro and macro approaches of work engagement by testing a multilevel model of the linkages between HPWS, employee psychological conditions and employee work engagement. In this regard, our study contributes to the engagement literature in three ways.

First, we extend the analysis of the organisational determinants of employee work engagement by focusing on the role of high performance work systems to foster this employee

attitudinal construct. In this vein, our study contributes to a line of research within the HRM literature that focuses on the practitioner approach of engagement (Shuck, 2011), that is, those organisational activities that help to foster engagement among the workforce (Truss et al. 2013). The conceptualisation of HPWS used in this study advances previous research, since it has allowed us to gather in a single model a broader spectrum of HR practices than that considered in previous empirical studies (e.g. Alfes et al., 2013; Boon & Kalshoven, 2014; Juhdi et al., 2013). Our results demonstrate that there is an underlying ‘high performance’ orientation in the firm that captures the joint variance of a set of HR practices and that impacts work engagement through employee psychological conditions. In other words, when the organisation implements a holistic set of HR practices aimed at fostering employees’ abilities, motivation and opportunities to participate, higher engagement levels are observable at the individual level of analysis. From this perspective, the extent to which interrelated HR practices function jointly determines that a HPWS impacts employee psychological conditions and, consequently, work engagement; the individual effect on engagement of a specific HR practice is not so relevant.

Second, our results corroborate the idea put forward in various studies that the relationship between HR systems and engagement is not direct, but can be explained through a series of individual variables that act as mediating variables (e.g. Saks & Gruman, 2018). By introducing Kahn’s (1990) three employee psychological conditions as mediating variables in this relationship, our research shows that what really matters is how this HR system impacts on the meaningfulness of work, psychological availability, and psychological safety perceived by employees in their workplace. Kahn’s (1990) model, although widely cited as the foundational study of engagement, has seldom been used in empirical research (Schuk, 2011). Our results show that these three employee psychological conditions significantly impact work engagement, chiming with previous studies such as May et al. (2004), who observed in a sample of 203 insurance firm employees that engagement was positively related to meaningfulness,

psychological availability and psychological safety. In addition, the indirect effects of these three intervening variables are statistically significant in our sample of firms and employees. In this sense, our research contributes to understanding the process through which company decisions on human resource practices influence employee attitudes and motivation. This represents an important step in examining the mechanisms between HR systems and employee work engagement, an issue that has often been ignored in the literature (e.g. Chacko & Conway, 2019; Meijerink et al., 2020; Van de Voorde et al., 2016; Zhang et al., 2018). When looking into the process through which HR practices are related to employee work engagement, the emphasis so far has been on mediators such as job demands and job resources (Meijerink et al., 2020; Van de Voorde et al., 2016), focusing on the motivational effects of organisational interventions (Bakker & Demerouti, 2007). We add to the engagement literature by considering the extent to which individual reactions to the work context in the form of experienced meaningfulness, psychological availability and psychological safety act as intervening variables in this relationship. Therefore, we respond to Bailey et al.'s (2017) suggestion to extend the arguments about the determinants of employee work engagement beyond the prevailing theoretical framework within the engagement domain, namely the JD-R model, which assumes that job resources energise employees and foster engagement. Our study also contributes to extend the arguments posited by another crucial theoretical framework in the engagement literature, namely social exchange theory (SET, Blau, 1964). According to SET, when employees feel that they are being treated well and are valued by the firm through HPWS, they are more likely to respond by showing higher levels of engagement on behalf of the organisation (Alfes et al., 2013). Despite the relevance and contributions of both the JD-R model and SET in developing the engagement literature (Bailey et al., 2017), empirical studies stemming from them lack a clear articulation of the mechanisms that intervene between HR systems and employee work engagement.

Finally, we propose a multilevel analysis of the relationships between HWPS, psychological conditions and work engagement. According to Bailey et al. (2017), the engagement field tends to rely on self-report data to assess all the variables of interest, including those related to HR practices. Common method variance may appear when a single rater evaluates both the predictor and the criterion variables (Wall & Wood, 2005). According to Podsakoff et al. (2003), this type of common method variance may result in inflated observed correlations among the variables assessed by the same rater. Consequently, Bailey et al. (2017) recommend using data from multiple informants in a single study. Our study responds to this call and uses manager-rated HPWS (independent variable) and employees' assessments of their own engagement (dependent variable) and psychological conditions (mediating variables).

Implications for practice

The findings of this study provide a practical guide for designing HR strategies aimed at improving employee work engagement. This set of HR practices includes selection methods, training, performance evaluation, compensation, career management, engagement processes and communication strategies. From the virtuous overlap approach used in this research to define synergy (Chadwick, 2010), the HR managers are responsible for coordinating the different HR practices used in the firm so that efficacious redundancies (i.e. functional equivalence) are generated among these practices. When the different HR practices are functionally equivalent, they help to reinforce the same employee attitudes and behaviours. This is particularly relevant in, for instance, circumstances where HR practices are applied to a very varied range of key workers who may respond differently to them, or under different internal conditions (i.e. different sub-cultures or departments within a single firm). Functional equivalence may compensate for disparate employee responses across a variety of conditions and, therefore, help to foster the desired employee attitudes (Chadwick, 2010). For instance,

while not all employees should be involved in a formal evaluation process, the principle that their performance is fundamental to the firm may extend to all (Wood, 2020). Under this premise, the firm may decide to eliminate or reduce the frequency of the use of a certain HR practice under specific circumstances (with consequent time and cost savings) without altering the desired effects of the whole HPWS on employee psychological conditions (MacKenzie et al., 2005).

Given the relevance of HR managers in coordinating the HR practices of a HPWS, organisations should adapt their staffing methods to select managers accordingly, or they should introduce training initiatives aimed at developing managerial abilities so that these managers can lead employees in a way that is consistent with high performance principles and design and coordinate HR practices that are reflective of this philosophy (Wood, 2020).

Limitations and future research

The current study has several strengths, including its multilevel nature and the use of different rater sources for the independent and the mediating and dependent variables; however, it also has some limitations. The first of these is related to the cross-sectional nature of our research design, which implies that the direction of the proposed effects is argued theoretically rather than tested. Reverse causation, bidirectionality or any kind of dynamic causality among the variables should also be taken into account. For instance, at the individual level it is not clear whether employees feeling higher meaningfulness, psychological availability or psychological safety at work tend to show higher work engagement, or whether higher levels of engagement contribute to fostering the three psychological conditions. Our study does not test whether the three psychological conditions affect work engagement or vice versa or both. Future longitudinal studies are needed to examine the direction of causality in these relationships.

Secondly, our sample includes only key employees, so the results obtained cannot be extrapolated to the entire company workforce. Future research should replicate our model with a larger sample of employees that also includes support employees, among others. A stream of research in the HR literature adopts a contingent view and assumes that investment in specific HR practices is more effective for some employees than for others (e.g. Becker & Huselid, 2011; Lepak & Snell, 1999). In this regard, authors such as Kinnie et al. (2005) suggest that roles at different job levels present different challenges, responsibilities and demands and that employees at different job levels respond differently to HR practices because the utility of particular HR practices varies depending on the employees' needs. This is particularly relevant for future studies stemming from ours, given the relevance that attributes such as self-efficacy, resilience and personal resources have to promote engagement (Bailey et al., 2017). The replication of our study in a sample of non-key employees may provide a wider picture of the mechanisms between HPWS and employee work engagement. For instance, it may be the case that for non-key employees, data support a partial rather than a full mediating effect of HPWS through employee psychological conditions, since other relevant variables (e.g. intrinsic/extrinsic motivation, perceived organisational support, trust in the supervisor) may also be relevant to explain why HR practices impact employee work engagement.

Thirdly, although our conceptualisation of synergy falls into the 'virtuous overlap' approach suggested by Chadwick (2010), future studies could be conducted to analyse the notion of synergy from a different theoretical approach, such as 'efficient complementarities'. This latter approach assumes that the effect of an individual HR practice on the outcome of interest can be decomposed, so researchers could examine which HR practices have a stronger linkage with employee work engagement or psychological conditions and under which circumstances (Bailey et al., 2017). Furthermore, the introduction of interaction terms between

different HR practices could shed light on how a specific HR practice moderates and is moderated by the effect of the other HR practices (Chadwick, 2010).

Finally, from a contextual perspective (Johns, 2006, 2018) a considerable number of facets of the organisational context may affect the proposed relationships of the present study. In order to fully understand the influence of HR practices on work engagement, it is therefore necessary to adopt a broad and systematic description and measurement of the relevant contextual and individual variables (Johns, 2006). For instance, previous studies have demonstrated that employees who have a positive perception of organisational and supervisor support are more likely to respond positively to certain HR practices and would therefore be more likely to engage with their jobs (Rai et al., 2017; Vanhala & Dietz, 2019; Zhong et al., 2016). May et al. (2004) suggest that individuals who have more autonomy to craft their own roles are more likely to be engaged than those who are assigned roles by the firm. Other intervening variables addressed in previous studies include positive psychological capital (Aybas & Acar, 2017) and employee attributions (Huang et al., 2010). Assuming that a number of contextual and individual factors may affect the proposed relationships between HPWS, employee psychological conditions and work engagement, premises stemming from the trait activation model (Tett & Burnett, 2003) or theory of interpersonal situations (Kelley et al., 2003) may serve as a basis for future studies replicating our model in a different sample of firms and employees.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available because the information they contain could compromise the privacy of research participants.

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Figure 1. Proposed theoretical model

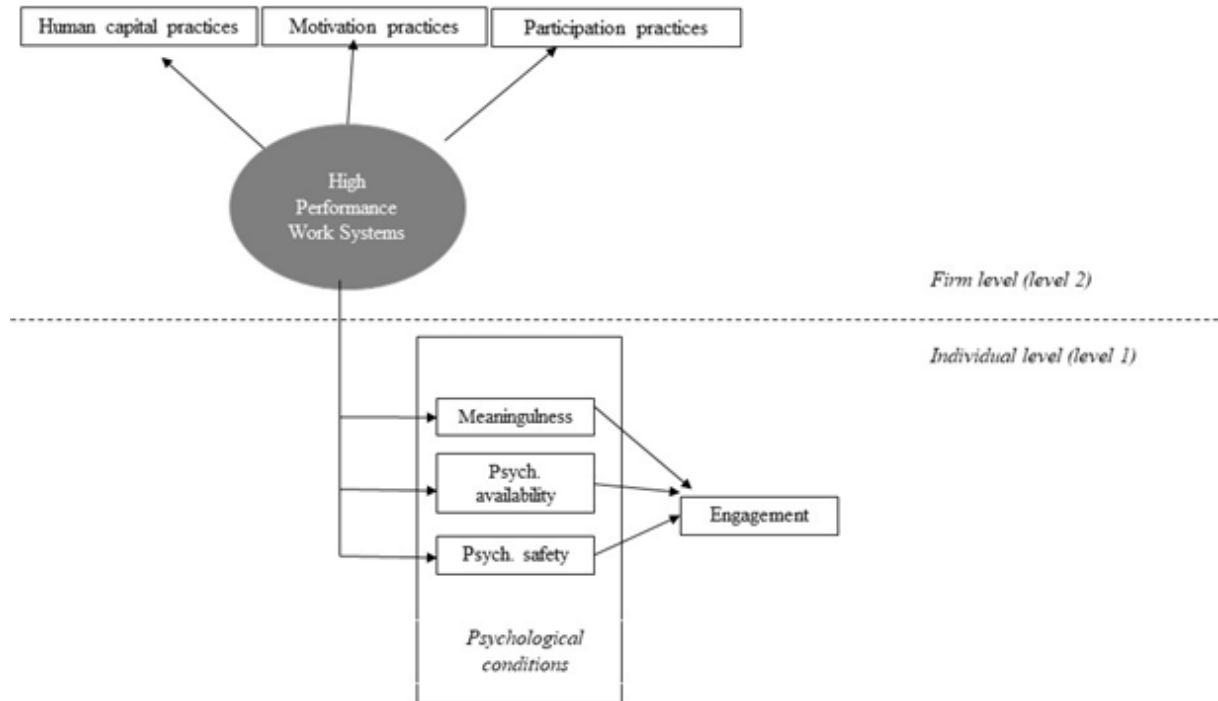


Table 1. Results of the pair-wise test to examine the discriminant validity of the employee variables

	Engagement	Meaningfulness	Psychological availability
Meaningfulness	$\Delta\chi^2 = 153.804$ (214.32-60.516) $\Delta d.f. = 1$ (27-26) p-value = 0.00		
Psychological availability	$\Delta\chi^2 = 152.87$ (269.684-116.814) $\Delta d.f. = 1$ (54-53) p-value = 0.00	$\Delta\chi^2 = 157.749$ (214.961-57.212) $\Delta d.f. = 1$ (27-26) p-value = 0.00	
Psychological safety	$\Delta\chi^2 = 109.302$ (218.301-108.999) $\Delta d.f. = 1$ (44-43) p-value = 0.00	$\Delta\chi^2 = 122.809$ (159.202-36.393) $\Delta d.f. = 1$ (20-19) p-value = 0.00	$\Delta\chi^2 = 114.279$ (159.202-72.880) $\Delta d.f. = 1$ (44-43) p-value = 0.00

Table 2. Correlation Matrix

	Mean	s.d.	Human capital practices	Motivation practices	Participation practices	Meaningfulness	Psych. availability	Psych. safety	Engagement	Gender	Tenure	Size	Sector
Human capital practices	5.26	1.39	1										
Motivation practices	4.33	1.79	0.28	1									
Participation practices	5.56	1.05	0.43	0.28	1								
Meaningfulness	6.04	0.70	0.17	0.06	0.18	1							
Psych. availability	5.93	0.71	0.17	-0.00	0.14	0.58	1						
Psych. safety	5.88	0.84	0.19	0.01	0.23	0.57	0.66	1					
Engagement	5.88	0.84	0.14	0.04	0.11	0.63	0.67	0.60	1				
Gender	1.46	0.53	-0.05	-0.04	-0.01	-0.02	0.01	0.01	-0.00	1			
Tenure	14.63	6.32	0.10	0.04	0.05	-0.00	-0.04	0.03	-0.01	-0.03	1		
Size	75.41	208.63	0.08	0.12	0.08	-0.02	0.00	-0.05	-0.07	-0.07	-0.03	1	
Sector	1.49	0.50	0.12	-0.06	0.04	-0.06	0.03	-0.03	-0.04	0.02	-0.00	-0.12	1

Table 3. Parameter estimates of the baseline model

	Within-level	Between-level
HPWS → Meaningfulness		.20 (.06)***
HPWS → Psychological availability		.22 (.07)**
HPWS → Psychological safety		.19 (.08)***
Sector → Engagement		.05 (.07)
Size → Engagement		.00 (.00)
Meaningfulness → Engagement	.25 (.05)***	.75 (.25)***
Psychological availability → Engagement	.20 (.06)***	-.28 (.33)
Psychological safety → Engagement	.33 (.05)***	.37 (.19)**
Gender → Engagement	.01 (.08)	.00 (.09)
Tenure → Engagement	-.00 (.00)	.05 (.05)

Note: Non-standardised parameter estimates. Standard errors in brackets. * $p < .10$. ** $p < .05$. *** $p < .01$

APPENDIX

High Performance Work Systems

Please indicate the extent to which the following HR practices are used in this company for the key employees, where 1= completely disagree; 7= completely agree with the statements:

Human capital practices

1. Applicants undergo structured interviews (job-related questions, same questions asked of all applicants, rating scales) before being hired
2. Applicants take formal tests (paper and pencil or work sample) before being hired
3. The results of the performance evaluation process are used to determine employees' training needs
4. Employees have the opportunity to receive tuition reimbursement for completing college classes
5. On average, how many hours of formal training do employees receive each year?*
6. Employees in this job regularly (at least once a year) receive a formal evaluation of their performance

Motivation practices

7. Pay rises for employees in this job are based on job performance
8. Employees have the opportunity to earn individual bonuses (or commissions) for productivity, performance, or other individual performance outcomes
9. Employees have the opportunity to earn group bonuses (or commissions) for productivity, performance, or other individual performance outcomes
10. Employees have the opportunity to earn company-wide bonuses (or commissions) for productivity, performance, or other individual performance outcomes
11. Qualified employees have the opportunity to be promoted to positions of greater pay and/or responsibility within the company

Participation practices

12. Employees have a reasonable and fair complaints process
13. Employees are involved in formal participation processes such as quality-improvement groups, problem-solving groups, roundtable discussions, or suggestion systems
14. Employees communicate with people in other departments to solve problems and meet deadlines
15. Employees frequently receive formal company communication regarding company goals (objectives, actions, and so on)
16. Employees frequently receive formal company communication regarding operating performance (productivity, quality, customer satisfaction, and so on)

17. Employees frequently receive formal company communication regarding financial performance (profitability, stock price, and so on)

18. Employees frequently receive formal company communication regarding competitive performance (market share, competitor strategies, and so on)

Employee psychological conditions

Meaningfulness

19. The work I do is very important to me

20. My job activities are personally meaningful to me

21. The work I do is meaningful to me

Psychological availability

22. I can remain calm when facing difficulties in my job because I can rely on my abilities

23. When I am confronted with a problem in my job, I can usually find several solutions

24. Whatever comes my way in my job, I can usually handle it

25. My past experiences in my job have prepared me well for my occupational future

26. I meet the goals that I set for myself in my job

27. I feel prepared for most of the demands in my job

Psychological safety

28. I feel free to give suggestions to my supervisor about ways of improving the work

29. My supervisor recognises my potential

30. I can count on my supervisor to help me out when I need it

31. My supervisor is willing to use his/her authority to help me solve problems

32. I work well together with my supervisor

Work engagement

33. At my work, I feel bursting with energy

34. At my job, I feel strong and vigorous

35. I am enthusiastic about my job

36. My job inspires me

37. When I get up in the morning, I feel like going to work*

38. I am proud of the work that I do

39. I am energised by my work

*Deleted after the EFA and CFA