

Unveiling the nexus: exploring the collective social exchange dynamics of high-performance work systems in shaping organizational outcomes

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Abstract

Purpose – This study aims to explore the nuanced role of organizational “collectives” in transmitting the effect of high-performance work systems (HPWS) on organizations’ market success and workforce retention.

Design/methodology/approach – The multi-source data was collected from 113 construction firms operating in Pakistan using a survey questionnaire.

Findings – The findings indicate that collective human capital and collective satisfaction of organizations differentially mediate the effect of HPWS on market success and workforce retention. Collective satisfaction mediates the effect of HPWS on both market success and workforce retention, however collective human capital only mediates this relationship for market success of organizations.

Practical implications – Organizations should consider prioritizing investment in cognitive and affective development of overall human resources. Knowledge, skills, abilities and emotions of individual employees operate at the collective level so organizations should design HRM practices to manage collective thoughts and interpretations.

Originality/value – This is the first study to investigate human capital and satisfaction at the collective organization level to explore collective developmental and motivational paths for HPWS to boost organization strategic outcomes.

Keywords High-performance work systems, Collective human capital, Collective satisfaction, Performance, Collective social exchange theory

Paper type Research paper

1. Introduction

Strategic human resource management (SHRM) scholars, during recent decades, have marked the potential role of high-performance work systems (HPWS) in yielding positive performance outcomes for organizations (Siddique *et al.*, 2019). HPWS is defined as a bundle of interconnected HRM practices such as “flexible job assignments, rigorous and selective staffing, extensive training and development, developmental and merit-based performance appraisal, competitive compensation, and extensive benefits” (Takeuchi *et al.*, 2007, p. 1069) that are designed to develop, utilize and retain a competitive workforce that

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Key Points:

- (1) HPWS help organizations shape collective knowledge, attitudes and behaviors.
- (2) HPWS enhance organizational market success and workplace retention.
- (3) Collective human capital and satisfaction differentially mediate the relationship between HPWS and organization market success and workforce retention.



engenders competitive advantage for the organization (Jiang *et al.*, 2012; Pathomphattaphan *et al.*, 2023; Raineri, 2017). While the extant literature has generally established a positive link between HPWS and organizational performance (Jiang *et al.*, 2012; Li *et al.*, 2022), scholars recommend investigation of the underlying paths, also called the black box, to better explain HPWS's effect mechanisms (Huang *et al.*, 2018).

The existing literature predominantly revolves around individual-level capabilities (Li *et al.*, 2022; Zhou *et al.*, 2019) and motivations (Dorta-Afonso *et al.*, 2023; Gardner *et al.*, 2011; Huang *et al.*, 2018) through which HPWS influence organization performance. However, another stream of HRM scholars underscores the importance of "organizational collectives" to explain how individuals' specific KSAs and motivations can be synergistically transformed into organizational collective resources (Ployhart and Moliterno, 2011). For instance, Barrick *et al.* (2015) presented a theory of collective organizational engagement to explain how organizational practices act as resources that, when used together, promote the psychological conditions necessary for fostering engagement at a collective level. Raineri (2017) found that specific HR practices within HPWS can foster motivational pathway of collective affective commitment in the organization. Call *et al.* (2015) built on context-emergent turnover theory and found that the interplay between rate of and change in collective turnover, as part of a holistic human capital resource system, significantly contributes to organizational performance. Lelebina and Gand (2018) concluded that focusing solely on individual expertise through HRM practices is insufficient, as fostering a collective dimension is crucial for knowledge sharing, innovation and long-term expertise retention within organizations. These studies, while valuable, primarily examine the collective motivational outcomes of HR practices, and thus, a gap exists in our understanding of how HPWS cultivate the synergistic emergence of human capital and satisfaction at the collective level to enhance firm performance. Furthermore, the existing studies employ aggregation of individual responses to measure collectives, which scholars of emergence perspective (Lelebina and Gand, 2018; Ployhart and Moliterno, 2011) have criticised arguing that the unit-level human capital and motivations differ from the sum of its individual components.

The concept of collectives, based on the notion of "emergence" and "synergies", differentiate individual KSAs and motivation from collective level human resources where the former includes the characteristics possessed by individuals, and the later considers the synergetic configuration and accumulation of individuals' KSAs and motivations to create, utilize and retain collective human resources at the organization level. According to Kozlowski *et al.* (2013) "a phenomenon is emergent when it originates in the cognition, affect, behaviors, or other characteristics of individuals, is amplified by their interactions, and manifests as a higher-level, collective phenomenon" (p. 4). Scholars argue that an emergence-enabling process is formed by combining task complexity with behavioral, cognitive and affective enabling states that leads to the creation of a unit-level human resource and resultant competitive advantage (Chun *et al.*, 2013; Kehoe and Wright, 2013; Ployhart and Moliterno, 2011; Raineri, 2017). The concept of emergence challenges the traditional economic view of simply aggregating individual human capital, suggesting a more complex interaction that requires empirical investigation and consideration of disciplinary divides. However, there is a gap in the existing literature regarding our understanding of the potential of HPWS to develop strategic knowledge, skills and attitudes at the collective level in the organizations (Fu *et al.*, 2019) to enhance organizational performance (Raineri, 2017). Therefore, this study, by drawing on the collective social exchange (CSE) theory aims to address this void and test an organization-level model wherein HPWS enhance organizational performance through the development of collective human capital and collective satisfaction.

Given this, our study makes some important contributions. First, by addressing the ongoing debate in the strategic HRM literature regarding individual versus collective outcomes, this research emphasizes the exploration of HRM practices' potential to leverage interdependencies and social processes to foster the collective emergence of behavioral, cognitive and affective states (Barrick *et al.*, 2015; Chun *et al.*, 2013; Gong *et al.*, 2010;

Ployhart and Moliterno, 2011). While individual KSAs and motivations reflect personal attributes, the collective level encapsulates the synergetic interaction and accumulation of these characteristics, culminating in organizational-level resources. Our theorisation that this emergent process is not merely the sum of its parts but represents a higher-order standalone phenomenon where individual contributions coalesce into a cohesive, offers a more holistic understanding of how HPWS impact organizations through collective dynamics. Second, our integration of developmental and attitudinal mechanisms at the collective level offers a nuanced assessment of HPWS's differential contributions to collective intellectual and attitudinal resources to enhance organizational performance. By leveraging CSE theory, this study seeks to unravel the complex pathways through which HPWS foster these collective resources, offering a fresh perspective on how organizations can strategically develop and retain human capital at the collective level (Barrick *et al.*, 2015). Third, our study contributes to multidimensional phenomenon of performance by considering both market performance and workforce retention as strategic performance outcomes. Given this, our study goes beyond individual turnover intentions and incorporate collective turnover (retention) within CSE theory to better understand workforce retention as an important performance indicator for organization to maintain greater social harmony, productivity and knowledge uniqueness (Lin and Huang, 2020; Nyberg and Ployhart, 2013; Reilly *et al.*, 2014). Finally, while recognizing contextual differences, such as cultural, regulatory and institutional factors (Pak, 2022), our research attends the calls to go beyond Western-centric perspectives and acknowledges variations in HPWS effectiveness (Zhai and Tian, 2022).

In sum, our study's contribution lies in its holistic approach to examining HPWS at the collective level, considering both developmental and attitudinal paths, extending the CSE theory, adopting a multidimensional view of organizational performance and contextualizing the investigation in a developing economy.

2. Role of collectives in organizations

The literature on collectives in organizations offers nuanced insights into human resource dynamics, particularly within strategic HRM. A central debate concerns the distinction between individual and collective levels of human resources, with contrasting views on aggregating individual knowledge, skills and abilities (KSAs) into unit-level human capital. Macro-level scholars advocate aggregation to assert that the sum of individual KSAs directly contribute to organizational performance (Mahoney and Kor, 2015; Wright and McMahan, 2011; Coff, 2002). Conversely, psychologists emphasize the emergent nature of human capital at the collective level (Kozlowski *et al.*, 2013; Ployhart and Moliterno, 2011) to argue that individual KSAs interact and emerge within a dynamic context shaped by organizational practices and routines. Ployhart and Moliterno (2011) suggest that organizational human capital might not always align with aggregated individual human capital especially in competitive and uncollaborative environments. Contemporary research underscores the importance of collective factors in organizational effectiveness ranging from organizational engagement to turnover patterns. For example, Ployhart and Moliterno (2011) present a multilevel model explaining how individual KSAs transform into strategic human capital through organizational processes. Barrick *et al.* (2015) argue that high collective engagement, driven by employee motivation and strategic implementation, boosts firm performance. Call *et al.* (2015) reveal that collective turnover patterns are dynamic, with their impact influenced by timing, quality of leavers and replacements. Raineri (2017) demonstrates that specific HR practices can enhance organizational performance by improving collective affective commitment and developing human capital. Lelebina and Gand (2018) advocate for shifting away from "hero-based" management and towards HRM practices that support collective expertise development. Despite these conceptual and empirical insights, gaps remain. For instance, there is limited understanding as how HPWS shape collectives to influence firm

performance. The role of collective attitudes like satisfaction and the emergence of collective human capital in mediating HPWS' impact on firm strategic performance outcomes is also somewhat under-explored. Additionally, empirical validation of theoretical propositions regarding HPWS and collective outcomes is needed. Finally, the predominant aggregation approach to measuring collective human capital and satisfaction is contested, with some advocating for direct measurement at the organizational level (Ployhart and Moliterno, 2011). These gaps highlight the need for nuanced conceptualisation and methodologies to assess collective HRM dynamics within organizations.

3. Theoretical framework and hypotheses development

We draw on the collective social exchange (CSE) theory (Chun *et al.*, 2013; Gong *et al.*, 2010) to conceptualize human capital and employee satisfaction as collective organization-level mechanisms to mediate the effect of HPWS on organizational performance outcomes. CSE theory posits that when individuals collaboratively invest in and draw upon the combined knowledge, skills and motivation level of the organization, it results in a synergistic effect, ultimately enriching the collective human capital and satisfaction level of the organization. The theory also explains how members of an organization homogeneously interpret the social exchange relationship and influence each other's cognitive and affective interpretations and evaluation during this process (Blau, 1964; Gong *et al.*, 2010). Consequently, a shared sense of social exchange emerges at the collective level which transcends individual exchange relationships (Gong *et al.*, 2010, p. 858) to form a collective governing standard that may exert influence on exchange parties not to deviate from the collective standards governing exchange transactions (Chun *et al.*, 2013, p. 124). Under a collective social exchange relationship, individuals tend to abide by the collective expectation of performance attitudes and behaviors even when their personal perceptions of the exchange relationship differ.

3.1 HPWS and collective human capital

Human capital refers to employees' knowledge, skills and attitudes and behaviors (KSABs) to perform their organizational roles (Subramaniam and Youndt, 2005). Building on this, Ployhart and Moliterno (2011) defined human capital as "a unit-level resource that is created from the emergence of individuals' knowledge, skills, abilities, and other characteristics" (p. 128). Based on this, collective human capital should be understood in terms of KSAs that are widely shared and embedded in the organization. According to Cook and Brown (1999), "the body of (collective) knowledge is possessed by the group as a whole and is drawn on in its actions, just as knowledge possessed by an individual is drawn on in his or her actions" (p. 386). Collective human capital thus emerges through an interactive and reciprocal process in which employees share and access (shared) knowledge and skills for ongoing learning and development. The shared KSAs become the memory or collective organizational mind which resides between rather than within employees and can be accessed through interactions and routines (Lam, 2000; Wexler, 2002). Therefore, collective human capital transcends individual human capital by integrating, sharing and reconfiguring individual knowledge and skills to create a shared human capital base consumed and fueled by members of the organization (Kogut and Zander, 1992).

Collective human capital is developed through a two-way reciprocated process where employees access knowledge and skills collective for new learning and development and, during this process, contribute to the collective knowledge through their shared knowledge, skills and abilities (Littlejohn *et al.*, 2012). Collective human capital over time gets embedded in organizational systems, routines and shared norms and can be accessed by organizational members through networking and social interactions (Hecker, 2012; Wexler, 2002). This

development happens in a dynamic and cyclic way wherein frequent interactions and exchanges among organizational members further enhance collective human capital resource as a result of each new interaction and exchange (Gardner *et al.*, 2011; Littlejohn *et al.*, 2012; Wexler, 2002). It is pertinent to understand that the development of collectives is a complex process which involves synergies, adaptability, shared expertise and organizational effectiveness. Organizations thus plan and implement targeted initiatives and establish a conducive environment to actively promote the collaborative development and transformation of organizational collective human capital (Hecker, 2012).

HPWS can contribute to the development of collective human capital by first transforming and amplifying individual KSAs into a valuable organization-level resource, and then fostering an environment that encourages collaboration, continuous learning and shared problem-solving (Combs *et al.*, 2006; Jeong and Shin, 2019). By offering training and development programs that focus on the development of collective knowledge and skills, and through the involvement of employees in decision-making processes and problem-solving, HPWS can leverage individual talents and also promote organization-wide sharing of insights and expertise (Jeong and Shin, 2019). Furthermore, incentive systems tied to performance encourage employees to contribute their best efforts and share knowledge to achieve collective developmental and performance goals. HPWS also promote open communication and information sharing across the organization which facilitates the dissemination of knowledge, best practices and lessons learned, contributing to the collective learning and development of human capital. Empirical evidence suggests that strategically designed HRM practices such as HPWS are instrumental in acquiring, developing and motivating collective capabilities, attitudes and behaviors in the organization (Barrick *et al.*, 2015; Ma *et al.*, 2017; Zhou *et al.*, 2019). Accordingly, it is expected that:

H1. HPWS relate positively to the collective human capital of the organization.

3.2 HPWS and collective employee satisfaction

Collective employee satisfaction is referred to “a work unit’s shared internal state that is expressed by affectively and cognitively evaluating shared job experiences with some degree of favor or disfavor” (Whitman *et al.*, 2010, p. 46). It represents the shared perceptions, attitudes and sentiments of the workforce as a whole, encompassing the degree to which employees collectively find fulfillment and happiness in their work environment. Given this, it goes beyond individual job satisfaction and reflects the harmonious and positive atmosphere cultivated through shared experiences, effective teamwork and a supportive organizational culture (Harter *et al.*, 2002).

CSE theory posits that satisfaction among employees is influenced by the reciprocal relationships and social exchanges within the workplace. When employees perceive a supportive and cooperative work environment where their contributions are acknowledged and reciprocated by colleagues and the organization as a whole, it fosters a positive collective atmosphere that enhances overall job satisfaction among the workforces. Satisfied employees share their positive evaluations and experiences of the work environment which influence others’ evaluation and affective responses in the workplace – a phenomenon referred to as collective attitudes (Shepherd *et al.*, 2020). Morgeson and Hofmann (1999) argue that collective attitudes emerge as a result of cyclic interactions where individuals continuously interact with one another, and each subsequent interaction contributes toward a shared and contagious positive effect resulting in positive event cycles.

The literature indicates that job satisfaction can be positively enhanced at the collective level through social interactions that must take place in a positive work environment within a unit. For instance, individuals in the same unit typically have common workspaces, experience and adhere to the same practices, rules and policies, interact with the same co-workers and utilize the same technologies (Ryan *et al.*, 1996). HPWS can foster a positive and collaborative culture centred on a common organizational vision and shared goals that reinforces the collective nature of success and accomplishments within the organization. Through employee

involvement, empowerment and recognition for collective contributions and achievements, HPWS create a positive work environment where individuals share their cognitive and affective evaluations of opportunities, contributions and achievements. Continuous learning and development opportunities coupled with open communication and fair social interactions further contribute to a shared sense of satisfaction with work, colleagues, management and the organization. Taken together, HPWS establish a conducive environment for shared fulfillment, mutual support and positive group interactions that leads to the collective satisfaction of the workforce (Jeong and Shin, 2019). Accordingly, it is expected that:

H2. HPWS relate positively to collective employee satisfaction.

3.3 *Collective human capital and organization performance*

The literature usually evaluates performance with regard to market-based indicators such as growth, market share, profitability, return on investment and overall success in the market. However, scholars assert that organizational performance is also depicted through behavioral indicators such as employee retention which carries significant financial and behavioral implications for an organization's strategic performance (Schiemann *et al.*, 2018). Employee retention is critical to the development of collective human capital as employees' voluntary turnover leads to knowledge loss and the deterioration of the development process of organizational "collectives". This is particularly relevant to industries such as construction, where employees leave the organization in groups, in which the success of an organization relies heavily on the availability of employees who understand the processes of accessing, using and producing collective knowledge to complete projects and strategic tasks. Therefore, this study includes market success and workforce retention to evaluate organization performance. We have treated workforce retention at the organization level to match the collective levels of analysis. Nyberg and Ployhart (2013) assert that "embedding collective turnover [retention] within resource-based theory more richly conceptualizes both collective turnover and human capital resources and builds on calls to study their interrelationships" (p. 112).

Concerning the influence of human capital on organizational performance, it is primarily acknowledged that organizations utilize their human capital, that is their employee's technical and non-technical competencies, to achieve superior operational and financial performance (Schiemann *et al.*, 2018). An organization's competitive advantage stems from its valuable, unique and inimitable resources. Collective human capital is embedded in an organization's social processes, which can permit the organization to develop firm-specific collective competencies to manage positive organizational change and resultantly obtain a performance advantage rivals (Hecker, 2012; Zhou *et al.*, 2019). Collective human capital promotes organizational market success and builds competitive advantage by harnessing the synergies of shared knowledge and skills, fostering innovative collaboration among members and enabling the organization to navigate complexities and adapt swiftly to dynamic market conditions (Littlejohn *et al.*, 2012). Similarly, collective human capital can enhance workforce retention by fostering a positive and collaborative work environment where shared skills and knowledge create a sense of belonging and satisfaction, promoting long-term commitment and reducing turnover within the organizational collective. The literature asserts that employees' KSAs, critical antecedents of performance, are significantly related to their decision to remain in or leave the organization such that knowledgeable and skilled employees tend to continue with the organization (Lin and Huang, 2020). Accordingly, it is expected that:

H3. Collective human capital relates positively to organization performance outcomes such as (a) market performance and (b) workforce retention.

3.4 *Collective employee satisfaction and organization performance*

Collective satisfaction is a tendency for organizational members to collaborate, share and align with organizational goals (Brief, 1998). High level of collective satisfaction helps organization

to identify members with willingness and maturity to make sense of complex situations and make consistent efforts to achieve organizational goals (Ostroff, 1992). Consequently, an organizational unit with high collective satisfaction creates a positive work environment with harmonious social relationships and widespread acceptance of organizational complexities and goals. This positive environment is expected to translate into improved organizational performance in the market. Empirical literature indicates that employees' satisfaction with their jobs and organizations is a significant predictor of their intentions to leave or stay in the organization (Pathomphattaphan *et al.*, 2023). Based on CSE theory, when employees feel that the organization takes care of their development and career progression and their performance is recognized and rewarded fairly, they tend to reciprocate by influencing others' positive perceptions and intentions to stay with the organization. Empirical evidence indicates that organization members who experience a collective and shared sense of satisfaction are more likely to exert efforts at work and stay with the organization (Kloutsiniotis and Mihail, 2018). Accordingly, it is expected that:

- H4. Collective employee satisfaction relates positively to organization performance outcomes of (a) market success and (b) workforce retention.

3.5 Mediating paths

Further to our arguments for direct effects, based on collective social exchange (CSE) theory, we posit that collective human capital and collective employee satisfaction mediate the relationship between HPWS and organizational performance of market success and workforce retention. The theory emphasizes the mutual give-and-take between the organization and its members, highlighting how HPWS practices and the development of collective human capital create a positive exchange loop that reinforces both organizational and individual well-being. HPWS contributes to the development of collective human capital by fostering shared learning experiences, collaborative problem-solving and continuous skills enhancement. As collective human capital strengthens, organizational members are more likely to engage in collaborative efforts, adapt to changing circumstances and contribute positively to the organizational performance goals. This, in turn, influences firm performance by enhancing productivity, innovation and overall organizational effectiveness. Similarly, HPWS nurtures collective employee satisfaction by providing a positive work environment, recognizing and rewarding performance and promoting meaningful engagement. Satisfied employees are more likely to reciprocate through increased commitment, higher levels of effort and a positive contribution to organizational goals. As per CSE theory, the frequent reciprocal exchanges between the organization and employees, characterized by positive workplace practices and satisfaction, are likely to translate into enhanced organizational performance. Taken together, the shared expertise and capabilities developed through HPWS practices contribute to a positive sense of mutual commitment and organization-wide satisfaction, which enables organizations to retain its workforce.

The empirical literature indicates that HPWS, through its collaborative and synergistic bundle of developmental and motivational practices enhances collective knowledge, skills and motivation level of organizational members. Which helps organizations to achieve higher performance outcomes (Zhou *et al.*, 2019) such as increased market performance (Raineri, 2017) and higher workforce retention (Gardner *et al.*, 2011). In their meta-analysis, Harter *et al.* (2002) found support for a solid link between employees' overall skills and organization-level outcomes. Accordingly, it is proposed that:

- H5. Collective human capital mediates the relationship between HPWS and organization performance outcomes such as (a) market performance and (b) workforce retention.
- H6. Collective employee satisfaction mediates the relationship between HPWS and organization performance outcomes such as (a) market performance and (b) workforce retention.

4. Method

4.1 Population and data collection

We collected data from construction sector organizations in Pakistan, a \$17.4bn market expected to grow by over 5% annually from 2024 to 2027 [1]. The construction industry presents a globally significant setting (Trivedi and Srivastava, 2023) for researching high-performance work systems (HPWS), particularly through the lens of collective social exchange theory. This theory emphasizes the collective dynamics of human capital development and motivation. HPWS fosters a shared sense of obligation, reciprocity and trust, developing and encouraging employees to collaborate and contribute to the collective success of complex projects (Barrick *et al.*, 2015).

In Pakistan, the industry faces several workforce challenges, including skill shortages, high collective turnover, low productivity and safety concerns, all of which hinder organizational performance and growth (Ayodele *et al.*, 2020). As the sector evolves with technological advancements, a workforce aligned through collective social exchange is better equipped to collectively adapt to and leverage these innovations. Despite the Pakistani government's stimulus packages (PKR 30 billion/US\$191.5m) and tax incentives to spur growth of construction sector, HR challenges persist. HPWS, as a core element of HRM practices, can address these issues by enhancing organizational collective knowledge and skills base, while simultaneously fostering motivation and engagement of workforce. It is, therefore, timely to explore how HPWS, driven by collective social dynamics, can improve behavioral and performance outcomes, supporting growth and sustainability in Pakistan's construction sector.

We employed a purposive sampling design to collect data from construction organizations with established HR departments and practices, essential for studying HPWS effects. This approach ensures relevance, enhances the study's validity and allows for in-depth insights from firms best suited to provide data on HRM practices (Etikan *et al.*, 2016). The Pakistan Engineering Council (PEC), the governmental regulatory body for the construction industry, provided a list of 300 such organizations. Due to COVID-19 safety protocols, data was collected online. We initially contacted focal persons in the sampled organizations to obtain consent for participation. An email detailing the study's objectives, confidentiality assurances and survey links was then sent to the focal persons. Employees completed a survey on satisfaction and turnover intentions, while HR heads provided information on HPWS practices, human capital and firm performance. Following multiple reminders, 118 organizations responded, yielding a firm-level response rate of 39.73%. After excluding five incomplete responses, the final sample comprised 113 organizations. This sample size is adequate, as determined using the G*Power3 formula in GPower 3.1 software, which exceeded the minimum requirement of 111 organizations.

In our final sample, the majority of organizations (73.5%) were local, with the remaining 26.5% operating internationally. A significant proportion (85.7%) had been established for over nine years, followed by those operating for 3–9 years (13.4%) and less than 3 years (0.9%). In terms of workforce size, most organizations were large, with over 500 employees (42.5%), followed by those with 100–500 employees (38.1%) and 50–100 employees (19.5%). Given the organizational focus of this study and consistent with established literature (Barrick *et al.*, 2015; Gardner *et al.*, 2011; Gong *et al.*, 2010; Jena and Nayak, 2023; Shepherd *et al.*, 2020), individual responses were aggregated to construct firm-level variables.

4.2 Measures

In this study, all variables in the model were assessed using established and thoroughly validated scales. Respondents provided their subjective assessments on the measurement scales. Although objective data is preferred, the literature provides sufficient evidence to support the general reliability of subjective measures (Madrid-Guijarro *et al.*, 2009). Some scholars have identified (1) the strong positive correlation between objective and subjective measures, (2) slight differences in results of perceptual and objective measures or/and (3) perceptual measures as

superior to objective ones (Hughes, 2001). Given this, it was appropriate for this study to use subjective measures (Frishammar and Åke Hörte, 2005; Hughes, 2001; Madrid-Guijarro *et al.*, 2009). An expert panel comprising two academics and one industry professional was established to ensure the validity of the measurement tools. Their role was to review, validate and approve the questionnaire. Respondents rated items using a 5-point Likert-type scale, where 1 = strongly disagree and 5 = strongly agree, unless specified otherwise. The questionnaire was administered in the English language. The measures are given in Table 1.

4.3 Control variables

To mitigate potential confounding effects, consistent with established literature (Gardner *et al.*, 2011; Raineri, 2017), we incorporated firm type, size and age as control variables. By including these control variables, we aim to isolate the specific impact of HPWS practices on organizational outcomes, accounting for the broader context in which these practices are embedded. Larger firms typically possess more extensive resources to invest in HPWS practices, such as competency-based training and performance-related rewards. These investments enhance employee skills and motivation, positively impacting organizational performance (Raineri, 2017; Sun and Mamman, 2022). The number of full-time employees measured firm size, as larger employee bases often correlate with increased capacity to support comprehensive HR initiatives and resultant performance (Delery and Dotty, 1996; Wright *et al.*, 2005). Over time, long-tenured firms accumulate knowledge and develop competencies to develop well-defined career paths. These paths help retain superior human capital and achieve competitive performance (Sun and Mamman, 2022). Firm age was quantified as the number of years since the firm’s inception. Older firms often leverage their experience to implement effective HPWS practices (Huselid, 1995). The scope of a firm’s domestic or international operations can significantly affect its HR resources and capabilities. International firms generally have access to greater financial resources, advanced market knowledge and superior HR competencies, enabling them to design more effective HPWS practices (Raineri, 2017). These advantages often translate into higher workforce retention and better market performance. We classified firm type based on the span of operations, recognizing that international exposure can enhance a firm’s ability to implement sophisticated HR strategies and practices (Ahmad *et al.*, 2019; Rabl *et al.*, 2014).

4.4 Data biases assessment

Considering the cross-sectional nature of our study, potential common method bias was identified as a concern. To proactively address this issue, following Podsakoff *et al.* (2012)

Table 1. Measurement of scales

Variables	No. of items	Sample items	Reference
High-performance work system	9	Employees in this organization can earn group bonuses for productivity, performance or other group performance outcomes	Kehoe and Wright (2013)
Collective human capital	4	Our employees are highly skilled	Subramaniam and Youndt (2005)
Collective employee satisfaction	5	All in all, people in this organization are satisfied with their job	Bowling and Hammond (2008)
Market performance	5	Compared with key competitors; our company is more successful	Lee and Choi (2003)
Workforce retention	3	I often think about quitting (R)	Vigoda (2000)
Source(s): Authors’ own creation/work			

recommendations, we adopted several *ex ante* procedural remedies, including collecting data from two sources, using reverse-scored items, counter-balancing question order, assuring respondents' confidentiality and anonymity and avoiding double-barrelled questions. Additionally, we applied the ex-post statistical technique and estimated three models through confirmatory factor analysis (CFA). A comparison of the three models presented in Table 2 indicates that hypothesized model 2 ($\chi^2/\text{df} = 1.54$; CFI = 0.91; TLI = 0.90; RMSEA = 0.07) outperformed model 3 ($\chi^2/\text{df} = 1.74$; CFI = 0.88; TLI = 0.85; RMSEA = 0.08) and model 1 ($\chi^2/\text{df} = 7.62$; CFI = 0.54; TLI = 0.41; RMSEA = 0.19). The superior fit values of the baseline model established statistically that common method bias was not a substantial concern in our study. Moreover, by comparing early and late responses following Armstrong and Overton's (1977) approach, we found no significant issue of non-response bias. Furthermore, we also employed Kock's (2015) variance inflation factor (VIF) to assess common method bias. Our findings show a non-presence of common method bias as VIF values were below 3.3.

5. Data analysis and results

5.1 Analytical approach

In recent years, the variance-based approach, that is partial least square structural equation modelling (PLS-SEM), has been widely used in human resource management research (Legate *et al.*, 2023; Ringle *et al.*, 2018). Accordingly, this study utilized PLS-SEM (SmartPLS 4.0.9.9) to assess hypotheses due to the relatively small sample size ($n = 113$) (Hair *et al.*, 2019) and the predictive nature of the study (Legate *et al.*, 2023) that, involves a two-step process: (1) measurement model and (2) structural model assessment (Hair *et al.*, 2019; Ringle *et al.*, 2018).

5.2 Measurement model: reliability, convergent and discriminant validity

The measurement model in PLS-SEM was used to establish convergent and discriminant validity (Hair *et al.*, 2019). As per guidelines of Hair *et al.* (2019), factor loadings, average variance extracted (AVE) and composite reliability (CR) were considered to confirm reliability and convergent validity. The satisfactory limit of factor loading is >0.60 (Field, 2005). Table 3 shows all variable factor loadings were higher than 0.60 except CHC5; hence, it was deleted due to poor loading (Field, 2005). Likewise, the satisfactory value of the AVE and CR is ≥ 0.50 and >0.70 , confirming the convergent validity. Table 3 confirmed that AVE and CR values of all constructs, including high-performance work system (AVE = 0.52; CR = 0.90), collective human capital (AVE = 0.53; CR = 0.82), collective employee satisfaction (AVE = 0.63; CR = 0.89), market performance (AVE = 0.51; CR = 0.84), workforce retention (AVE = 0.88; CR = 0.95) (Hair *et al.*, 2019) were greater than 0.50 and 0.70 respectively, establishing convergent validity. The discriminant validity was evaluated using the Heterotrait-Monotrait (HTMT) (Hair *et al.*, 2019). The HTMT values of all five

Table 2. Confirmatory factor analysis

Model	Description	χ^2/df	CFI	TLI	RMSEA
Model 1	Method-only model (all items on a single latent construct)	7.62	0.54	0.41	0.19
Model 2 (Baseline model)	Trait-only model (items on their respective latent constructs) – [Selected Model]	1.54	0.91	0.90	0.07
Model 3	Method-and-trait model (common latent factor with items from Model 2)	1.74	0.88	0.85	0.08

Source(s): Authors' own creation/work

Table 3. Factor loadings, reliability and convergent validity

Constructs	Items	Loadings	α	P_A	CR	AVE
High-performance work system	HPWS1	0.62	0.88	0.89	0.90	0.52
	HPWS2	0.79				
	HPWS3	0.62				
	HPWS4	0.72				
	HPWS5	0.82				
	HPWS6	0.70				
	HPWS7	0.86				
	HPWS8	0.64				
	HPWS9	0.73				
Collective human capital	CHC1	0.81	0.70	0.70	0.82	0.53
	CHC2	0.64				
	CHC3	0.81				
	CHC4	0.66				
Collective employee satisfaction	CES1	0.78	0.85	0.85	0.89	0.63
	CES2	0.80				
	CES3	0.79				
	CES4	0.82				
	CES5	0.79				
Market performance	MP1	0.72	0.76	0.76	0.84	0.51
	MP2	0.75				
	MP3	0.77				
	MP4	0.67				
	MP5	0.69				
Workforce retention	WR1	0.93	0.93	0.93	0.95	0.88
	WR2	0.95				
	WR3	0.94				

Note(s): HPWS = high-performance-work-system; CHC = collective human capital; CES = collective employee satisfaction; MP = market performance; WR = workforce retention; α = Cronbach's Alpha; P_A = Dijkstra-Henseler's rho; CR = composite reliability

Source(s): Authors' own creation/work

constructs (Table 4) were less than the threshold of HTMT, that is 0.85, confirming discriminant validity (Hair *et al.*, 2019; Henseler *et al.*, 2015).

5.3 Structural model: hypotheses testing

The structural model was evaluated using the PLS bootstrapping methods (5,000 bootstrap samples) to test hypotheses (Hair *et al.*, 2019), controlling for the effects of firm size, age and type. The PLS-path model's predictive power was assessed through the PLS-Predict (Hair *et al.*, 2019). The values of Q^2 in Table 5 show that the PLS-path model has medium predictive accuracy and power (Hair *et al.*, 2019).

Following the guidelines of Hair *et al.* (2019), the *beta* values, R^2 and *p* values are used to confirm hypotheses. Table 5 shows that high-performance work system has a positive impact on collective human capital ($\beta = 0.48$; $p < 0.001$) and collective employee satisfaction ($\beta = 0.67$; $p < 0.001$), supporting H1 and H2. Collective human capital has a positive effect on market performance ($\beta = 0.37$; $p < 0.001$, supporting H3a), and it has an insignificant impact on workforce retention ($\beta = -0.03$; $p > 0.05$, not supporting H3b). Collective employee satisfaction has a positive effect on market performance ($\beta = 0.41$; $p < 0.001$) and workforce retention ($\beta = 0.65$; $p < 0.001$), thereby supporting H4a and H4b. In contrast, control variables, such as firm size, affect market performance significantly but insignificantly on workforce retention. In addition, firm age and type have insignificant effects on market performance and workforce retention.

Table 4. Heterotrait-Monotrait (HTMT) ratio

Constructs	1	2	3	4	5	6	7	8
1. Collective employee satisfaction	–							
2. Collective human capital	0.76	–						
3. High-performance work systems	0.76	0.60	–					
4. Market performance	0.75	0.81	0.68	–				
5. Workforce retention	0.71	0.44	0.29	0.43	–			
6. Firm Size	0.13	0.16	0.15	0.22	0.17	–		
7. Firm Age	0.10	0.12	0.17	0.15	0.07	0.31	–	
8. Firm Type	0.08	0.15	0.18	0.23	0.04	0.30	0.13	–

Note(s): Heterotrait-Monotrait Ratio < 0.85
Source(s): Authors' own creation/work

Table 5. Path analysis and hypotheses testing

Structural path	Path coefficient	t value (bootstrap)	LLCI	ULCI	Conclusion
<i>Direct effects</i>					
HPWS → CHC	0.48***	6.19	0.33	0.64	H1: Accepted
HPWS → CES	0.67***	15.31	0.59	0.76	H2: Accepted
CHC → MP	0.37***	3.85	0.21	0.58	H3a: Accepted
CHC → WR	−0.03, <i>n.s.</i>	0.29	−0.23	0.16	H3b: Rejected
CES → MP	0.41***	3.90	0.18	0.60	H4a: Accepted
CES → WR	0.65***	8.00	0.50	0.81	H4b: Accepted
Firm Size → MP	0.21**	2.86	0.07	0.36	–
Firm Size → WR	−0.13, <i>n.s.</i>	1.49	−0.30	0.03	–
Firm Age → MP	−0.02, <i>n.s.</i>	0.26	−0.14	0.10	–
Firm Age → WR	0.13, <i>n.s.</i>	1.25	−0.05	0.35	–
Firm Type → MP	0.16, <i>n.s.</i>	0.88	−0.21	0.50	–
Firm Type → WR	−0.09, <i>n.s.</i>	0.52	−0.43	0.24	–
<i>Indirect effects</i>					
HPWS → CHC → MP	0.18**	2.65	0.09	0.35	H5a: Accepted
HPWS → CHC → WR	−0.01, <i>n.s.</i>	0.27	−0.13	0.08	H5b: Rejected
HPWS → CES → MP	0.28***	3.49	0.12	0.43	H6a: Accepted
HPWS → CES → WR	0.44***	6.80	0.32	0.58	H6b: Accepted

Note(s): $n = 113$. HPWS = high-performance work system; CHC = collective human capital; CES = collective employee satisfaction; MP = market performance; WR = workforce retention. Bootstrap confidence intervals were constructed using 5,000 resamples, R^2 = Determination coefficients; Q^2 = Predictive relevance of endogenous. R^2 Collective human capital = 0.23; Q^2 Collective human capital = 0.20. R^2 Collective employee satisfaction = 0.45; Q^2 Collective employee satisfaction = 0.44. R^2 Market performance = 0.54; Q^2 Market performance = 0.32. R^2 Employee retention = 0.44; Q^2 Employee retention = 0.01. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. R^2 is considered weak (>0.25), moderate (>0.50) and substantial (>0.75). Q^2 indicate small (>0), medium (>0.25) and large (>0.50) predictive accuracy and power of the PLS-path model

Source(s): Authors' own creation/work

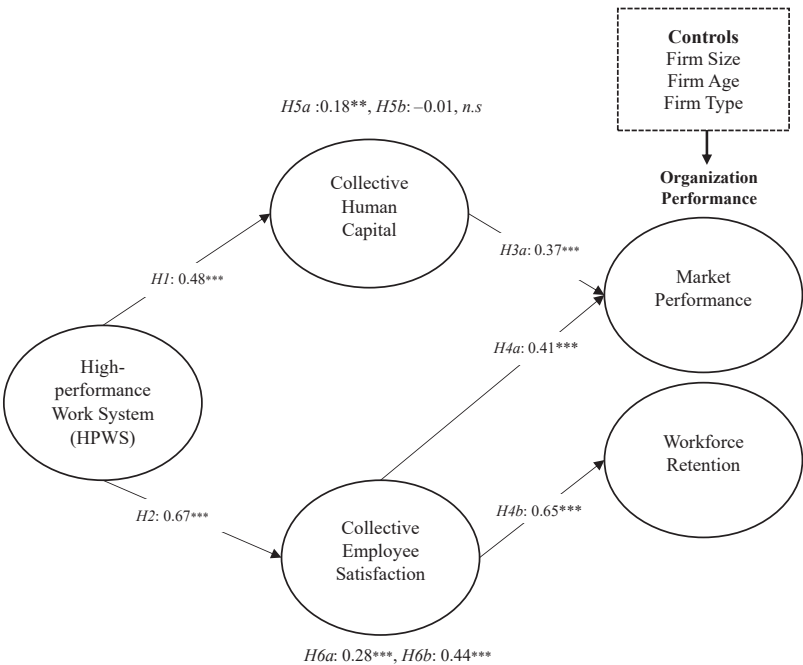
The mediational analysis showed that collective human capital mediates the relationship between high-performance work system and market performance ($\beta = 0.19$; $p < 0.01$), as zero did not occur between LLCI = 0.09 and ULCI = 0.35, thus supporting H5a (Hair et al., 2019). However, the mediation of collective human capital between HPWS and workforce retention is insignificant ($\beta = -0.01$; $p > 0.05$) as zero falls between LLCI = −0.13 and ULCI = 0.08; hence, H5b is not supported (Hair et al., 2019). Collective employee satisfaction significantly mediates the relationship between HPWS and market performance ($\beta = 0.28$; $p < 0.001$), as zero did not occur between LLCI = 0.12 and ULCI = 0.43, supporting H6a (Hair et al., 2019).

Also, collective employee satisfaction mediates the relationship between HPWS and workforce retention ($\beta = 0.44$; $p < 0.001$), as zero did not occur between LLCI = 0.32 and ULCI = 0.58, thus accepting H6b (Hair *et al.*, 2019). Accordingly, we present the final model in Figure 1.

6. Discussion

The primary purpose of this research was to respond to the individual vs collective debate in strategic HRM literature by investigating the underlying mechanism of organizational “collectives” to explain the HPWS-performance relationship. Borrowing from collective social exchange theory and focusing on the role of collective human capital and collective satisfaction, we theorize a model to describe how HPWS can enhance organizational performance and workforce retention. Our findings highlight that collective human capital and satisfaction are critical pathways through which HPWS positively influences organizational market success and workforce retention. Notably, collective satisfaction emerges as a mediator for the effect of HPWS on both market success and workforce retention. In contrast, collective human capital is a mediator solely for market success. These results support existing literature, offering significant theoretical and practical insights.

First, the positive relationship between HPWS and collective human capital and collective satisfaction supports the potential of HRM practices to function synergistically to transform human resources at the collective level (Raineri, 2017). This finding aligns with a growing body of contemporary literature emphasizing the need for a holistic perspective when examining the role of an organization’s strategic HR practices on human capital development



Note(s): ** $p < 0.01$, *** $p < 0.001$
Source(s): Authors’ own creation/work

Figure 1. Final model

and ensuing market success (Fachrunnisa *et al.*, 2020; Jeong and Shin, 2019; Makarius and Stevens, 2019; Ployhart and Moliterno, 2011; Shahzad *et al.*, 2022). Despite the abundance of studies exploring HPWS' influence on individual human capital and employee motivation (see meta-analysis by Combs *et al.*, 2006), insufficient attention has been given to explaining how strategic HRM practices facilitate the emergence of human capital and satisfaction at the organizational level (Jeong and Shin, 2019; Wright and McMahan, 2011). This neglect jeopardizes our understanding about HPWS' potential to promote crucial developmental processes such as knowledge management, organizational memory, collective learning, problem-solving and innovation (Lelebina and Gand, 2018). With a dual emphasis on cognitive (Knowledge, Skills and Abilities – KSAs) and attitudinal paths (satisfaction), our theoretical model and empirical findings offer valuable insights into unravelling the “black box” by elucidating how HPWS can foster developmental and motivational “collectives” to enhance organizational performance. This is increasingly vital in the current knowledge-driven economy, where collective expertise and rapid knowledge sharing drive organizational adaptability, innovation and competitiveness (Fachrunnisa *et al.*, 2020; Ghlichlee *et al.*, 2024; Shahzad *et al.*, 2024).

Second, our study offers essential insights to contemporary debates in the strategic HRM literature about the underlying mechanisms through which HRM practices influence performance outcomes (Huettermann and Bruch, 2019; Trivedi and Srivastava, 2023). Our findings indicate an interesting distinction between mediating mechanisms that operate at the collective level and through which HPWS influences an organization's market success and ability to retain a knowledgeable workforce. Collective employee satisfaction emerges as a key mediator for both outcomes, underscoring its universal significance in the HPWS-performance relationship. In contrast, collective human capital mediates explicitly the link between HPWS and market success. This challenges a reductionist view of HRM practices and suggests that, while common pathways exist for specific performance outcomes, organizations should tailor HRM practices based on specific desired outcomes. Our findings also support assertions that human capital and satisfaction are contagious and transformable within organizations (Gardner *et al.*, 2011; Ployhart and Moliterno, 2011). The motivational path combined with the human capital path underscores HRM as an integrated system that operates within the social interdependence of practices to foster human capital and satisfaction at the collective level (Makarius and Stevens, 2019; Ployhart and Moliterno, 2011). This holistic understanding enriches the strategic HRM literature regarding the potential of HPWS to generate macro-level mediating outcomes that ultimately influence strategic performance goals.

Third, our study contributes to the collective social exchange perspective (Gong *et al.*, 2010) by expanding its realm in two ways. First, we offer valuable insights into optimizing organizational performance during transitional periods by understanding how HRM systems should be configured to maximize social integration and collective exchanges (Jeong and Shin, 2019). Our findings support contemporary assertions (Maurer and Qureshi, 2021) that human capital and employee satisfaction at the collective level are dynamic and evolve through continuous interactions, learning, collaborations and organizational responsiveness. This conceptualisation shift underscores agility's importance in human capital development strategies. Second, our research accurately depicts “throughput” in HRM processes. By conceptually framing and empirically testing the mediating role of collectives, we illuminate how HPWS may impact organization performance through the emergent and aggregated knowledge, skills, and abilities (KSAs) and the motivations of employees. This nuanced understanding highlights the significance of incorporating collective dynamics into HRM strategies (Jeong and Shin, 2019; Makarius and Stevens, 2019; Shahzad *et al.*, 2022), showcasing how such practices contribute to organizational success through the contagious interplay of employees' cognition and affect.

Finally, our findings highlight contemporary and pressing challenge of employee voluntary turnover and its significant cost to organizations. Our findings underscore that HPWS,

emphasizing collective development and satisfaction, mitigate the risk and costs associated with turnover by enhancing workforce retention (Shin and Alam, 2022; Maurer and Qureshi, 2021). Turnover loss transcends individual skill sets, eroding the collective knowledge, innovation potential and overall strength of teams and organizations. Recognizing the role of social dynamics and interdependence in employee decisions (Piszczek, 2020), our findings suggest that fostering positive shared experiences, both developmental and affective, organizations can significantly enhance their workforce retention rate and the resultant knowledge reservoirs.

6.1 Managerial implications

The findings of our study are helpful to managers who undertake complex projects and require a highly skilled and motivated workforce to complete projects within stipulated costs, timelines and quality standards (Mellado *et al.*, 2019). The findings indicate that organizations can benefit from HPWS in developing, motivating and retaining firm-specific human capital for creative and innovative utilization of resources and achieving strategic goals. Managers, thus, should recognize the synergistic impact of HRM practices. They should adopt a holistic approach to HRM, recognizing that a combination of merit-based selection, intensive training, high compensation, performance appraisal, reward systems, career development and employee participation in decision-making fosters a collective sense of satisfaction and encourages the sharing of ideas, concerns and solutions, ultimately contributing to positive organizational performance outcomes (Ling *et al.*, 2018). Furthermore, managers should realize the more significant potential of collective satisfaction, compared to collective human capital, to enhance both market success and workforce retention and thus adopt a nuanced approach, considering additional retention strategies beyond human capital development to prioritize collective employee satisfaction. This implies that beyond competitive salaries and benefits, managers should invest in factors such as job design, work-life balance and employee development opportunities to retain skilled and motivated workforce (Makarius and Stevens, 2019). This could also involve investments in workplace culture, employee development programs and measures to improve work-life balance (Call *et al.*, 2015). The learning that employees' KSAs and feelings of satisfaction evolve in a collective social exchange can help managers better manage participation and knowledge-sharing events to ensure that employees understand and advocate HRM practices in line with the organization intended purpose. Managers should focus on how HRM practices are implemented and how collective interpretations and opinions are developed through social interactions and exchanges (Roehl, 2019). Finally, given that the construction industry faces a growing scarcity of skilled workers and meeting project deadlines, budgets and quality standards is a constant battle (Ayodele *et al.*, 2020), managers can use HPWS as a powerful tool to attract and retain top talent by creating a more engaging and rewarding work environment. Specifically, the construction industry is rapidly adopting digital technologies (Musarat *et al.*, 2024; Rodrigo *et al.*, 2024). Through effective training and development programs, HPWS can equip employees with the necessary technological knowledge and skills to adapt and thrive in this evolving digital environment. By implementing HPWS strategically and adapting it to the current industry trends, managers can position their construction firms for success in a competitive and ever-changing landscape.

6.2 Limitations and future directions

While our study offers valuable insights, it is essential to acknowledge some limitations. First, the cross-sectional nature of the research poses challenges in establishing the intended causality among variables, limiting our ability to infer causation. Second, the data collected from the construction industry may limit the generalizability of findings to other sectors, and thus, caution is advised in extrapolating these results to diverse organizational settings. Third, the reliance on self-reported and subjective data introduces the potential for common method bias as respondents may exhibit consistency or social desirability biases in their responses.

Fourth, this research focused on only the underlying mechanism of HPWS- the HPWS-performance relationship and ignored the boundary conditions that could potentially influence this relationship. To enhance the robustness and applicability of future research across various organizational contexts, future scholars should consider employing longitudinal designs to capture temporal dynamics, expanding the sample to encompass a more diverse range of industries, including boundary conditions and incorporating objective performance metrics. Finally, this study lacked demographic information about respondents, which may obscure identifying specific individuals involved in people management and performance issues. Future research could include comprehensive demographic data to better understand these variables' impact on the study's findings. By addressing these limitations, future studies can build upon our findings and contribute a more comprehensive understanding of the complex interplay between organizational HPWS, collectives and strategic performance outcomes.

6.3 Conclusion

This study uncovers the mediating role of collective human capital and collective employee satisfaction in the high-performance work systems (HPWS) – performance relationship. The study affirms that HPWS is pivotal in facilitating the acquisition, development, motivation and retention of organizational human capital resources, ultimately leading to elevated market performance and a higher workforce retention rate. The findings emphasize the interconnected nature of employee perceptions, showcasing how HPWS manages individual performance and shapes collective cognitive, attitudinal and behavioral outcomes to attain and sustain competitive advantage.

Note

1. <https://www.globaldata.com/store/report/pakistan-construction-market-analysis/>

References

- Ahmad, M., Allen, M.M., Raziq, M.M. and ur Rehman, W. (2019), "Converging HRM practices? A comparison of high-performance work system practices in MNC subsidiaries and domestic firms in Pakistan", *Employee Relations: The International Journal*, Vol. 41 No. 5, pp. 931-948, doi: [10.1108/er-01-2018-0021](https://doi.org/10.1108/er-01-2018-0021).
- Armstrong, J.S. and Overton, T.S. (1977), "Estimating nonresponse bias in mail surveys", *Journal of Marketing Research*, Vol. 14 No. 3, pp. 396-402, doi: [10.1177/002224377701400320](https://doi.org/10.1177/002224377701400320).
- Ayodele, A.O., Chang-Richards, A. and González, V. (2020), "Factors affecting workforce turnover in the construction sector: a systematic review", *Journal of Construction Engineering and Management*, Vol. 146 No. 2, 03119010, doi: [10.1061/\(ASCE\)CO.1943-7862.0001725](https://doi.org/10.1061/(ASCE)CO.1943-7862.0001725).
- Barrick, M.R., Thurgood, G.R., Smith, T.A. and Courtright, S.H. (2015), "Collective organizational engagement: linking motivational antecedents, strategic implementation, and firm performance", *Academy of Management Journal*, Vol. 58 No. 1, pp. 111-135, doi: [10.5465/amj.2013.0227](https://doi.org/10.5465/amj.2013.0227).
- Blau, P.M. (1964), *Exchange and Power in Social Life*, J. Wiley, New York.
- Bowling, N.A. and Hammond, G.D. (2008), "A meta-analytic examination of the construct validity of the Michigan organizational assessment questionnaire job satisfaction subscale", *Journal of Vocational Behavior*, Vol. 73 No. 1, pp. 63-77, doi: [10.1016/j.jvb.2008.01.004](https://doi.org/10.1016/j.jvb.2008.01.004).
- Brief, A.P. (1998), *Attitudes in and Around Organizations*, SAGE, Thousand Oaks, CA.
- Call, M.L., Nyberg, A.J., Ployhart, R.E. and Weekley, J. (2015), "The dynamic nature of collective turnover and unit performance: the impact of time, quality, and replacements", *Academy of Management Journal*, Vol. 58 No. 4, pp. 1208-1232, doi: [10.5465/amj.2013.0669](https://doi.org/10.5465/amj.2013.0669).
- Chun, J.S., Shin, Y., Choi, J.N. and Kim, M.S. (2013), "How does corporate ethics contribute to firm financial performance?: the mediating role of collective organizational commitment and organizational citizenship behavior", *Journal of Management*, Vol. 39 No. 4, pp. 853-877, doi: [10.1177/0149206311419662](https://doi.org/10.1177/0149206311419662).

- Coff, W.R. (2002), "Human capital, shared expertise, and the likelihood of impasse in corporate acquisitions", *Journal of Management*, Vol. 28 No. 1, pp. 107-128, doi: [10.1016/S0149-2063\(01\)00127-1](https://doi.org/10.1016/S0149-2063(01)00127-1).
- Combs, J., Liu, Y., Hall, A. and Ketchen, D. (2006), "How much do high-performance work practices matter? A meta-analysis of their effects on organizational performance", *Personnel Psychology*, Vol. 59 No. 3, pp. 501-528, doi: [10.1111/j.1744-6570.2006.00045.x](https://doi.org/10.1111/j.1744-6570.2006.00045.x).
- Cook, S.D.N. and Brown, J.S. (1999), "Bridging epistemologies: the generative dance between organizational knowledge and organizational knowing", *Organization Science*, Vol. 10 No. 4, pp. 381-400, doi: [10.1287/orsc.10.4.381](https://doi.org/10.1287/orsc.10.4.381).
- Delery, E.J. and Doty, H.D. (1996), "Modes of theorizing in strategic human resource management: tests of universalistic, contingency, and configurational performance predictions", *Academy of Management Journal*, Vol. 39 No. 4, pp. 802-835.
- Dorta-Afonso, D., Romero-Domínguez, L. and Benítez-Núñez, C. (2023), "It's worth it! High performance work systems for employee job satisfaction: the mediational role of burnout", *International Journal of Hospitality Management*, Vol. 108, 103364, doi: [10.1016/j.ijhm.2022.103364](https://doi.org/10.1016/j.ijhm.2022.103364).
- Etikan, I., Musa, S.A. and Alkassim, R.S. (2016), "Comparison of convenience sampling and purposive sampling", *American Journal of Theoretical and Applied Statistics*, Vol. 5 No. 1, pp. 1-4, doi: [10.11648/j.ajtas.20160501.11](https://doi.org/10.11648/j.ajtas.20160501.11).
- Fachrunnisa, O., Adhiatma, A. and Tjahjono, H.K. (2020), "Cognitive collective engagement: relating knowledge-based practices and innovation performance", *Journal of the Knowledge Economy*, Vol. 11 No. 2, pp. 743-765, doi: [10.1007/s13132-018-0572-7](https://doi.org/10.1007/s13132-018-0572-7).
- Field, A. (2005), *Discovering Statistics Using SPSS*, Sage publications, London.
- Frishammar, J. and Åke Hörte, S. (2005), "Managing external information in manufacturing firms: the impact on innovation performance", *Journal of Product Innovation Management*, Vol. 22 No. 3, pp. 251-266, doi: [10.1111/j.0737-6782.2005.00121.x](https://doi.org/10.1111/j.0737-6782.2005.00121.x).
- Fu, N., Bosak, J., Flood, P.C. and Ma, Q. (2019), "Chinese and Irish professional service firms compared: linking HPWS, organizational coordination, and firm performance", *Journal of Business Research*, Vol. 95, pp. 266-276, doi: [10.1016/j.jbusres.2018.08.021](https://doi.org/10.1016/j.jbusres.2018.08.021).
- Gardner, T.M., Wright, P.M. and Moynihan, L.M. (2011), "The impact of motivation, empowerment, and skill-enhancing practices on aggregate voluntary turnover: the mediating effect of collective affective commitment", *Personnel Psychology*, Vol. 64 No. 2, pp. 315-350, doi: [10.1111/j.1744-6570.2011.01212.x](https://doi.org/10.1111/j.1744-6570.2011.01212.x).
- Ghlichlee, B., Mohammadkhani, E. and Hatami, A. (2024), "Knowledge-enhancing HR practices and sustainable competitive advantage: the mediating role of intellectual capital in knowledge-based firms", *Journal of Intellectual Capital*, Vol. 25 Nos 2/3, pp. 275-296, doi: [10.1108/JIC-05-2023-0120](https://doi.org/10.1108/JIC-05-2023-0120).
- Gong, Y., Chang, S. and Cheung, S.-Y. (2010), "High performance work system and collective OCB: a collective social exchange perspective", *Human Resource Management Journal*, Vol. 20 No. 2, pp. 119-137, doi: [10.1111/j.1748-8583.2010.00123.x](https://doi.org/10.1111/j.1748-8583.2010.00123.x).
- Hair, J.F., Risher, J.J., Sarstedt, M. and Ringle, C.M. (2019), "When to use and how to report the results of PLS-SEM", *European Business Review*, Vol. 31 No. 1, pp. 2-24, doi: [10.1108/EBR-11-2018-0203](https://doi.org/10.1108/EBR-11-2018-0203).
- Harter, J.K., Schmidt, F.L. and Hayes, T.L. (2002), "Business-unit-level relationship between employee satisfaction, employee engagement, and business outcomes: a meta-analysis", *Journal of Applied Psychology*, Vol. 87 No. 2, pp. 268-279, doi: [10.1037/0021-9010.87.2.268](https://doi.org/10.1037/0021-9010.87.2.268).
- Hecker, A. (2012), "Knowledge beyond the individual? Making sense of a notion of collective knowledge in organization theory", *Organization Studies*, Vol. 33 No. 3, pp. 423-445, doi: [10.1177/0170840611433995](https://doi.org/10.1177/0170840611433995).
- Henseler, J., Ringle, C.M. and Sarstedt, M. (2015), "A new criterion for assessing discriminant validity in variance-based structural equation modeling", *Journal of the Academy of Marketing Science*, Vol. 43 No. 1, pp. 115-135, doi: [10.1007/s11747-014-0403-8](https://doi.org/10.1007/s11747-014-0403-8).

- Huang, Y., Ma, Z. and Meng, Y. (2018), "High-performance work systems and employee engagement: empirical evidence from China", *Asia Pacific Journal of Human Resources*, Vol. 56 No. 3, pp. 341-359, doi: [10.1111/1744-7941.12140](https://doi.org/10.1111/1744-7941.12140).
- Huettermann, H. and Bruch, H. (2019), "Mutual gains? Health-related HRM, collective well-being and organizational performance", *Journal of Management Studies*, Vol. 56 No. 6, pp. 1045-1072, doi: [10.1111/joms.12446](https://doi.org/10.1111/joms.12446).
- Hughes, A. (2001), "Innovation and business performance: small entrepreneurial firms in the UK and the EU", *New Economy*, Vol. 8 No. 3, pp. 157-163, doi: [10.1111/1468-0041.00208](https://doi.org/10.1111/1468-0041.00208).
- Huselid, M.A. (1995), "The impact of human resource management practices on turnover, productivity, and corporate financial performance", *Academy of Management Journal*, Vol. 38 No. 3, pp. 635-672, doi: [10.5465/256741](https://doi.org/10.5465/256741).
- Jena, L. and Nayak, U. (2023), "Organizational career development and retention of millennial employees: role of job satisfaction, organizational engagement and employee empowerment", *International Journal of Organization Theory and Behavior*, Vol. 26 Nos 1/2, pp. 115-131, doi: [10.1108/IJOTB-08-2022-0159](https://doi.org/10.1108/IJOTB-08-2022-0159).
- Jeong, I. and Shin, S.J. (2019), "High-performance work practices and organizational creativity during organizational change: a collective learning perspective", *Journal of Management*, Vol. 45 No. 3, pp. 909-925, doi: [10.1177/0149206316685156](https://doi.org/10.1177/0149206316685156).
- Jiang, K., Lepak, D.P., Hu, J. and Baer, J.C. (2012), "How does human resource management influence organizational outcomes? A meta-analytic investigation of mediating mechanisms", *Academy of Management Journal*, Vol. 55 No. 6, pp. 1264-1294, doi: [10.5465/amj.2011.0088](https://doi.org/10.5465/amj.2011.0088).
- Kehoe, R.R. and Wright, P.M. (2013), "The impact of high-performance human resource practices on employees' attitudes and behaviors", *Journal of Management*, Vol. 39 No. 2, pp. 366-391, doi: [10.1177/0149206310365901](https://doi.org/10.1177/0149206310365901).
- Kloutsiniotis, P.V. and Mihail, D.M. (2018), "The link between perceived high-performance work practices, employee attitudes and service quality: the mediating and moderating role of trust", *Employee Relations*, Vol. 40 No. 5, pp. 801-821, doi: [10.1108/ER-08-2017-0201](https://doi.org/10.1108/ER-08-2017-0201).
- Kock, N. (2015), "Common method bias in PLS-SEM: a full collinearity assessment approach", *International Journal of E-Collaboration (IJEC)*, Vol. 11 No. 4, pp. 1-10, doi: [10.4018/ijec.2015100101](https://doi.org/10.4018/ijec.2015100101).
- Kogut, B. and Zander, U. (1992), "Knowledge of the firm, combinative capabilities, and the replication of technology", *Organization Science*, Vol. 3 No. 3, pp. 383-397, doi: [10.1287/orsc.3.3.383](https://doi.org/10.1287/orsc.3.3.383).
- Kozlowski, S.W., Chao, G.T., Grand, J.A., Braun, M.T. and Kuljanin, G. (2013), "Advancing Multilevel Research Design: Capturing the Dynamics of Emergence", *Organizational Research Methods*, Vol. 16 No. 4, pp. 581-615, doi: <https://doi.org/10.1177/1094428113493119>
- Lam, A. (2000), "Tacit knowledge, organizational learning and societal institutions: an integrated framework", *Organization Studies*, Vol. 21 No. 3, pp. 487-513, doi: [10.1177/0170840600213001](https://doi.org/10.1177/0170840600213001).
- Lee, H. and Choi, B. (2003), "Knowledge management enablers, processes, and organizational performance: an integrative view and empirical examination", *Journal of Management Information Systems*, Vol. 20 No. 1, pp. 179-228, doi: [10.1080/07421222.2003.11045756](https://doi.org/10.1080/07421222.2003.11045756).
- Legate, A.E., Hair, J.F. Jr, Chretien, J.L. and Risher, J.J. (2023), "PLS-SEM: prediction-oriented solutions for HRD researchers", *Human Resource Development Quarterly*, Vol. 34 No. 1, pp. 91-109, doi: [10.1002/hrdq.21466](https://doi.org/10.1002/hrdq.21466).
- Lelebina, O. and Gand, S. (2018), "Beyond 'hero-based' management: revisiting HRM practices for managing collective expertise", *Relations Industrielles/Industrial Relations*, Vol. 73 No. 1, pp. 39-66, doi: [10.7202/1044426ar](https://doi.org/10.7202/1044426ar).
- Li, S., Jia, R., Seufert, J.H., Hu, W. and Luo, J. (2022), "The impact of ability-motivation- and opportunity-enhancing strategic human resource management on performance: the mediating roles of emotional capability and intellectual capital", *Asia Pacific Journal of Human Resources*, Vol. 60 No. 3, pp. 453-478, doi: [10.1111/1744-7941.12293](https://doi.org/10.1111/1744-7941.12293).

- Lin, C.-Y. and Huang, C.-K. (2020), "Employee turnover intentions and job performance from a planned change: the effects of an organizational learning culture and job satisfaction", *International Journal of Manpower*, Vol. 42 No. 3, pp. 409-423, doi: [10.1108/IJM-08-2018-0281](https://doi.org/10.1108/IJM-08-2018-0281).
- Ling, F.Y.Y., Ning, Y., Chang, Y.H. and Zhang, Z. (2018), "Human resource management practices to improve project managers' job satisfaction", *Engineering Construction and Architectural Management*, Vol. 25 No. 5, pp. 654-669, doi: [10.1108/ECAM-02-2017-0030](https://doi.org/10.1108/ECAM-02-2017-0030).
- Littlejohn, A., Milligan, C. and Margaryan, A. (2012), "Charting collective knowledge: supporting self-regulated learning in the workplace", *Journal of Workplace Learning*, Vol. 24 No. 3, pp. 226-238, doi: [10.1108/13665621211209285](https://doi.org/10.1108/13665621211209285).
- Ma, Z., Long, L., Zhang, Y., Zhang, J. and Lam, C.K. (2017), "Why do high-performance human resource practices matter for team creativity? The mediating role of collective efficacy and knowledge sharing", *Asia Pacific Journal of Management*, Vol. 34 No. 3, pp. 565-586, doi: [10.1007/s10490-017-9508-1](https://doi.org/10.1007/s10490-017-9508-1).
- Madrid-Guijarro, A., Garcia, D. and Van Auker, H. (2009), "Barriers to innovation among Spanish manufacturing SMEs", *Journal of Small Business Management*, Vol. 47 No. 4, pp. 465-488, doi: [10.1111/j.1540-627x.2009.00279.x](https://doi.org/10.1111/j.1540-627x.2009.00279.x).
- Mahoney, T.J. and Kor, Y.Y. (2015), "Advancing the human capital perspective on value creation by joining capabilities and governance approaches", *Academy of Management Perspectives*, Vol. 29 No. 3, pp. 296-308, doi: [10.5465/amp.2014.0151](https://doi.org/10.5465/amp.2014.0151).
- Makarius, E.E. and Stevens, C.E. (2019), "Drivers of collective human capital flow: the impact of reputation and labor market conditions", *Journal of Management*, Vol. 45 No. 3, pp. 1145-1172, doi: [10.1177/0149206317690585](https://doi.org/10.1177/0149206317690585).
- Maurer, C.C. and Qureshi, I. (2021), "Not just good for her: a temporal analysis of the dynamic relationship between representation of women and collective employee turnover", *Organization Studies*, Vol. 42 No. 1, pp. 85-107, doi: [10.1177/0170840619875480](https://doi.org/10.1177/0170840619875480).
- Mellado, F., Lou, E.C.W. and Becerra, C.L.C. (2019), "Synthesising performance in the construction industry: an analysis of performance indicators to promote project improvement", *Engineering Construction and Architectural Management*, Vol. 27 No. 2, pp. 579-608, doi: [10.1108/ECAM-09-2018-0419](https://doi.org/10.1108/ECAM-09-2018-0419).
- Morgeson, F.P. and Hofmann, D.A. (1999), "The structure and function of collective constructs: implications for multilevel research and theory development", *Academy of Management Review*, Vol. 24 No. 2, pp. 249-265, doi: [10.5465/amr.1999.1893935](https://doi.org/10.5465/amr.1999.1893935).
- Musarat, M.A., Alaloul, W.S., Zainuddin, S.M.B., Qureshi, A.H. and Maqsoom, A. (2024), "Digitalization in Malaysian construction industry: awareness, challenges and opportunities", *Results in Engineering*, Vol. 21, 102013, doi: [10.1016/j.rineng.2024.102013](https://doi.org/10.1016/j.rineng.2024.102013).
- Nyberg, A.J. and Ployhart, R.E. (2013), "Context-emergent turnover (CET) theory: a theory of collective turnover", *Academy of Management Review*, Vol. 38 No. 1, pp. 109-131, doi: [10.5465/amr.2011.0201](https://doi.org/10.5465/amr.2011.0201).
- Ostroff, C. (1992), "The relationship between satisfaction, attitudes, and performance: an organizational level analysis", *Journal of Applied Psychology*, Vol. 77 No. 6, pp. 963-974, doi: [10.1037/0021-9010.77.6.963](https://doi.org/10.1037/0021-9010.77.6.963).
- Pak, J. (2022), "Capturing variability of high-performance work systems within organisations: the role of team manager's person-HRM fit and climate for HR implementation and subsequent implementation behaviour", *Human Resource Management Journal*, Vol. 32 No. 4, pp. 759-781, doi: [10.1111/1748-8583.12467](https://doi.org/10.1111/1748-8583.12467).
- Pathomphattaphan, S., Das, S. and Jena, L.K. (2023), "Agile SHRM practices and employee-organisational outcomes during new normal: evidence from India and Thailand", *Journal of Organizational Effectiveness: People and Performance*, Vol. 11 No. 2, pp. 347-374, doi: [10.1108/JOEPP-07-2023-0288](https://doi.org/10.1108/JOEPP-07-2023-0288).
- Piszczyk, M.M. (2020), "Reciprocal relationships between workplace childcare initiatives and collective turnover rates of men and women", *Journal of Management*, Vol. 46 No. 3, pp. 470-494, doi: [10.1177/0149206318799480](https://doi.org/10.1177/0149206318799480).

- Ployhart, R.E. and Moliterno, T.P. (2011), "Emergence of the human capital resource: a multilevel model", *Academy of Management Review*, *Academy of Management*, Vol. 36 No. 1, pp. 127-150, doi: [10.5465/amr.2009.0318](https://doi.org/10.5465/amr.2009.0318).
- Podsakoff, P.M., MacKenzie, S.B. and Podsakoff, N.P. (2012), "Sources of method bias in social science research and recommendations on how to control it", *Annual Review of Psychology*, Vol. 63 No. 1, pp. 539-569, doi: [10.1146/annurev-psych-120710-100452](https://doi.org/10.1146/annurev-psych-120710-100452).
- Rabl, T., Jayasinghe, M., Gerhart, B. and Kühlmann, T.M. (2014), "A meta-analysis of country differences in the high-performance work system–business performance relationship: the roles of national culture and managerial discretion", *Journal of Applied Psychology*, Vol. 99 No. 6, pp. 1011-1041, doi: [10.1037/a0037712](https://doi.org/10.1037/a0037712).
- Raineri, A. (2017), "Linking human resources practices with performance: the simultaneous mediation of collective affective commitment and human capital", *International Journal of Human Resource Management*, Vol. 28 No. 22, pp. 3149-3178, doi: [10.1080/09585192.2016.1155163](https://doi.org/10.1080/09585192.2016.1155163).
- Reilly, G., Nyberg, A.J., Maltarich, M. and Weller, I. (2014), "Human capital flows: using context-emergent turnover (CET) theory to explore the process by which turnover, hiring, and job demands affect patient satisfaction", *Academy of Management Journal*, Vol. 57 No. 3, pp. 766-790, doi: [10.5465/amj.2012.0132](https://doi.org/10.5465/amj.2012.0132).
- Ringle, C.M., Sarstedt, M., Mitchell, R. and Gudergan, S.P. (2018), "Partial least squares structural equation modeling in HRM research", *International Journal of Human Resource Management*, Vol. 31 No. 12, pp. 1617-1643, doi: [10.1080/09585192.2017.1416655](https://doi.org/10.1080/09585192.2017.1416655).
- Rodrigo, N., Omrany, H., Chang, R. and Zuo, J. (2024), "Leveraging digital technologies for circular economy in construction industry: a way forward", *Smart and Sustainable Built Environment*, Vol. 13 No. 1, pp. 85-116, doi: [10.1108/sasbe-05-2023-0111](https://doi.org/10.1108/sasbe-05-2023-0111).
- Roehl, M.T. (2019), "The impact of SHRM on the psychological contract of employees: a typology and research agenda", *Personnel Review*, Vol. 48 No. 6, pp. 1580-1595, doi: [10.1108/PR-02-2018-0063](https://doi.org/10.1108/PR-02-2018-0063).
- Ryan, A.M., Schmit, M.J. and Johnson, R. (1996), "Attitudes and effectiveness: examining relations at an organizational level", *Personnel Psychology*, Vol. 49 No. 4, pp. 853-882, doi: [10.1111/j.1744-6570.1996.tb02452.x](https://doi.org/10.1111/j.1744-6570.1996.tb02452.x).
- Schiemann, W.A., Seibert, J.H. and Blankenship, M.H. (2018), "Putting human capital analytics to work: predicting and driving business success", *Human Resource Management*, Vol. 57 No. 3, pp. 795-807, doi: [10.1002/hrm.21843](https://doi.org/10.1002/hrm.21843).
- Shahzad, K., De Sisto, M., Rasheed, M.A., Bajwa, S.U., Liu, W. and Bartram, T. (2022), "A sequential relationship between entrepreneurial orientation, human resource management practices, collective organisational engagement and innovation performance of small and medium enterprises", *International Small Business Journal*, Vol. 40 No. 7, pp. 875-903, doi: [10.1177/02662426211056460](https://doi.org/10.1177/02662426211056460).
- Shahzad, K., De Sisto, M., Ul-Durar, S. and Liu, W. (2024), "How technological knowledge management capability compliments knowledge-intensive human resource management practices to enhance team outcomes: a moderated mediation analysis", *Journal of the Association for Information Science and Technology*, Vol. 75 No. 4, pp. 377-394, doi: [10.1002/asi.24853](https://doi.org/10.1002/asi.24853).
- Shepherd, W.J., Ployhart, R.E. and Kautz, J. (2020), "The neglected role of collective customer perceptions in shaping collective employee satisfaction, service climate, voluntary turnover, and involuntary turnover: a cautionary note", *Journal of Applied Psychology*, Vol. 105 No. 11, pp. 1327-1337, doi: [10.1037/apl0000480](https://doi.org/10.1037/apl0000480).
- Shin, D. and Alam, S.M. (2022), "Lean management strategy and innovation: moderation effects of collective voluntary turnover and layoffs", *Total Quality Management and Business Excellence*, Vol. 33 Nos 1-2, pp. 202-217, doi: [10.1080/14783363.2020.1826923](https://doi.org/10.1080/14783363.2020.1826923).
- Siddique, M., Procter, S. and Gittell, J.H. (2019), "The role of relational coordination in the relationship between high-performance work systems (HPWS) and organizational performance", *Journal of Organizational Effectiveness: People and Performance*, Vol. 6 No. 4, pp. 246-266, doi: [10.1108/JOEPP-04-2018-0029](https://doi.org/10.1108/JOEPP-04-2018-0029).

- Subramaniam, M. and Youndt, M.A. (2005), "The influence of intellectual capital on the types of innovative capabilities", *Academy of Management Journal*, Vol. 48 No. 3, pp. 450-463, doi: [10.5465/amj.2005.17407911](https://doi.org/10.5465/amj.2005.17407911).
- Sun, Y. and Mamman, A. (2022), "Adoption of high-performance work systems in small and medium-sized enterprises", *Asia Pacific Journal of Human Resources*, Vol. 60 No. 3, pp. 479-509, doi: [10.1111/1744-7941.12277](https://doi.org/10.1111/1744-7941.12277).
- Takeuchi, R., Lepak, D.P., Wang, H. and Takeuchi, K. (2007), "An empirical examination of the mechanisms mediating between high-performance work systems and the performance of Japanese organizations", *Journal of Applied Psychology*, Vol. 92 No. 4, pp. 1069-1083, doi: [10.1037/0021-9010.92.4.1069](https://doi.org/10.1037/0021-9010.92.4.1069).
- Trivedi, K. and Srivastava, K.B. (2023), "The impact of intellectual capital-enhancing HR practices and culture on innovativeness—mediating role of knowledge management processes", *Journal of Organizational Effectiveness: People and Performance*, Vol. 11 No. 3, pp. 573-593, doi: [10.1108/JOEPP-05-2023-0174](https://doi.org/10.1108/JOEPP-05-2023-0174).
- Vigoda, E. (2000), "Organizational politics, job attitudes, and work outcomes: exploration and implications for the public sector", *Journal of Vocational Behavior*, Vol. 57 No. 3, pp. 326-347, doi: [10.1006/jvbe.1999.1742](https://doi.org/10.1006/jvbe.1999.1742).
- Wexler, M.N. (2002), "Organizational memory and intellectual capital", *Journal of Intellectual Capital*, Vol. 3 No. 4, pp. 393-414, doi: [10.1108/14691930210448314](https://doi.org/10.1108/14691930210448314).
- Whitman, D.S., Van Rooy, D.L. and Viswesvaran, C. (2010), "Satisfaction, citizenship behaviors, and performance in work units: a meta-analysis of collective construct relations", *Personnel Psychology*, Vol. 63 No. 1, pp. 41-81, doi: [10.1111/j.1744-6570.2009.01162.x](https://doi.org/10.1111/j.1744-6570.2009.01162.x).
- Wright, P.M. and McMahan, G.C. (2011), "Exploring human capital: putting 'human' back into strategic human resource management", *Human Resource Management Journal*, Vol. 21 No. 2, pp. 93-104, doi: [10.1111/j.1748-8583.2010.00165.x](https://doi.org/10.1111/j.1748-8583.2010.00165.x).
- Wright, P.M., Gardner, T.M., Moynihan, L.M. and Allen, M.R. (2005), "The relationship between HR practices and firm performance: examining causal order", *Personnel Psychology*, Vol. 58 No. 2, pp. 409-446, doi: [10.1111/j.1744-6570.2005.00487.x](https://doi.org/10.1111/j.1744-6570.2005.00487.x).
- Zhai, X. and Tian, X. (2022), "An institutional view on the relationship between high-performance work system and organizational performance: the role of country of origin", *Personnel Review*, Vol. 52 No. 4, pp. 1051-1070, doi: [10.1108/PR-06-2019-0334](https://doi.org/10.1108/PR-06-2019-0334).
- Zhou, Y., Fan, X. and Son, J. (2019), "How and when matter: exploring the interaction effects of high-performance work systems, employee participation, and human capital on organizational innovation", *Human Resource Management*, Vol. 58 No. 3, pp. 253-268, doi: [10.1002/hrm.21950](https://doi.org/10.1002/hrm.21950).

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