

# Developments in the HRM– Performance Research stream: The mediation studies

**Stephen Wood**   
University of Leicester, UK

German Journal of  
Human Resource Management  
2021, Vol. 35(1) 83–113  
© The Author(s) 2021



Article reuse guidelines:  
sagepub.com/journals-permissions  
DOI: 10.1177/2397002220986943  
journals.sagepub.com/home/gjh



## Abstract

Testing Human Resource Management (HRM)'s effect on organisational performance has been a core part of HRM research over the past 25 years. Whereas pioneering studies in the field neglected the mechanisms explaining this relationship, treating it as a 'black box', in the last decade the focus has been on examining the mediators of this relationship. Most recently, a series of reviews has been more critical of the field, particularly highlighting its diversity and underplaying of employee involvement, a concern central to its inception. This paper assesses these mediation studies in the light of these concerns, which provide criteria by which I summarise them and assess the extent to which they have advanced the field. The analysis demonstrates that the main problems of the black-box studies remain: the misalignment of the use of additive indexes and the theory of synergistic relationships, confusion over analysis methods, inadequate justification of the selection of practices in the empirical investigations, and under-representation of employee involvement. The researchers continue to present the field as a unified one. However, since the majority of studies are centred on high-performance work systems, there is a clear schism across them between these studies and those centred on high-involvement management. The paper reinforces the importance of this distinction, on the basis that a high-performance work system is a technology, a set of sophisticated personnel practices, whereas high-involvement management is a managerial philosophy or orientation towards fostering employee involvement. The paper concludes by suggesting ways of overcoming the recurring problems in HRM–performance research, and how these vary between the two perspectives.

## Keywords

Ability-motivation-opportunities framework, formative versus reflective scales, high-involvement management, high-performance work systems, human resource management – performance research, job design

---

## Corresponding author:

Stephen Wood, School of Business, University of Leicester, Brookfield, London Road, Leicester LE2 1RQ, UK.

Email: [s.j.wood@le.ac.uk](mailto:s.j.wood@le.ac.uk)

## Introduction

Assessing the relationship between human resource management (HRM) and organisational performance has been a core part of the HRM field during the past three decades. A research stream developed from the mid-1990s that was based on quantitative, cross-sectional studies regressing performance against measures of the combined use of human resource practices. Initial reviews led to a widespread acceptance that a positive relationship is well established (Becker and Gerhart, 1996; Becker and Huselid, 1998; Dyer and Reeves, 1995; Wall and Wood, 2005; Wood, 1999a). The main issues remaining were thought to be what mechanisms explain this? Diversity in the practices across the studies was observed by the initial reviewers but was not presented as a serious problem. Nor was the diversity of methods of constructing the composite measures of HRM. The impression conveyed was of a stream making good progress, with the time being right to explore potential mediators of the relationship. Calls for such mediation studies have indeed been followed and they have dominated the research in the past decade, superseding the black-box studies that opened up the field (e.g. Bonias et al., 2010; Paul and Anantharaman, 2003; Takeuchi et al., 2007).

However, more recent reviewers of the area have been less sanguine about the stream, questioning in particular whether it is as homogeneous as portrayed by past reviewers. They have highlighted the diversity in ‘the different ways to combine practices in HR systems’ (Boon et al., 2019: 2499) and how these entail ‘different assumptions about the relationships between the components of HRM system concerning a specific outcome’ (Hauff, 2019: 2). Such diversity is more fundamental than the diversity in practices as the various methods of combining the practices imply different notions of the relationship between HRM and performance. For example, a measure based on the total use of practices implies a linear relationship between practices and performance, which may not fit the theoretical suppositions of authors who assume synergies between practices or who see the practices as reflecting an underlying orientation that can be measured by a reflective latent variable. The object of study, HRM, may not then be consistent across the studies. Wood (2020), in particular, argues that we need to distinguish between high-performance work systems and high-involvement management, which have frequently been treated as synonymous. This reflects his previous differentiation between the complementary-practices, synergy and orientations perspectives (Wood and De Menezes, 2008). In the complementary perspective the use of the complete set of best-in-class practices produces the highest performance, under the synergy perspective practices enhance the performance of each other so performance increases disproportionately with the addition of practices, and under the orientations perspective an underlying managerial philosophy explains the performance effects and the adoption of practices reflects this philosophy (Wood and De Menezes, 2008).

A consequence of the diverse methods and practices across the studies, Boon et al. (2019) conclude, is that all we can presume from the studies is that ‘investments in some broad set of HR practices yields returns’ (p. 2516). Since the identification of the problems behind this have mainly been based on the initial black-box literature, any fresh assessment of where we are in this research stream should focus on studies exploring mediators. This paper offers such an assessment, evaluating what we can conclude about

potential mediators and whether the mediation studies have overcome the problems of the black-box studies. Or, are they similar to the black-box studies, apart from confronting the black-box problem?

I open with a summary of the concerns expressed in these reviews, in order to identify the criteria that I use to evaluate the mediation studies. The next section reports a systematic review of the mediation studies, focusing on these criteria and the extent to which they have developed beyond the black-box studies. This shows that many of the problems of the black-box studies – in particular the diversity across them and their neglect of involvement – are reproduced across the mediation studies. The final section draws out the importance of acknowledging both this continuity and the schism between the high-involvement management and high-performance work systems perspectives and suggests ways in which the problems in the field can be addressed.

## **Concerns about the HRM–performance research stream**

### *The focus of the stream*

The HRM–performance research stream emerged from two concerns: the advantages of the holistic use of sophisticated HRM practice, and an assumed need for employee involvement in an increasingly competitive world (Wood, 2020). The first concern, the need for holistic methods, was a reaction firstly to management's use of HR practices that were not necessarily the most advanced 'textbook' practices, and secondly to their use in a piecemeal or *ad hoc* way. Emphasis was placed on how the systemic use of state-of-the-art practices should result in superior performance because of their mutually reinforcing nature. The second concern, for employee involvement, was a reaction to low workforce involvement and commitment associated with the dominance of Taylorist control methods. Employee involvement is required to reverse these methods, through designing (a) good-quality jobs with autonomy and variety and (b) mechanisms by which employees can be involved in the wider organisation and contribute to continuous improvement. The former, the job or role involvement, is the bedrock of Lawler's (1986) high-involvement management and Walton's (1985) high-commitment management, but their distinctiveness was in highlighting the additional value of wider organisational involvement, which is focused on improvement-oriented voice.

A narrative developed in which the two concerns were linked, so that the modernisation of HRM involved a more strategic approach to personnel management than traditional methods, in which employee involvement and development are central (Wood, 2020). It was envisaged that practices enhancing the abilities, motivation and opportunities for participation would maximise performance, and this notion was increasingly regarded as the AMO model of the HRM–performance relationship, following Bailey's (1992) lead. He concluded that motivation alone could not yield high performance, since workers must have the necessary skills and access to participatory organisational structures to optimise its effects.

Initial reviewers of the stream, in making light of the variability of practices across the studies, assumed in effect that the studies covered a sufficient range of practices to represent the AMO dimensions. However, the coverage of practices often was not

comprehensive and involvement (O) practices have been showed to be neglected (Wood and Wall, 2007). When the diversity in the methods of combining the practices to create a measure of the HRM system was observed, these were treated as substitutes and as measuring the same object, a complement of mutually-reinforcing practices. This again is deficient. The significance of these different modes of combining human resource practices is at the heart of the concerns expressed in the recent reviews (Boon et al., 2019; Hauff, 2019; Wood, 2020).

### *The problems of the stream*

I will now summarise the main points of these recent reviews and their implications for the next steps in the field.

1. The emphasis across the studies has been on the systemic concern that ignited the stream, rather than the involvement one so the narrative coupling them is misleading; it should be acknowledged that the field is not homogeneous and high-performance work systems and high-involvement management should be decoupled (Wood, 2020).
2. The synergistic relationship between practices is a ‘fundamental assumption’ (Boon et al., 2019: 2498) of the area but additive indexes have been the predominant method of measuring this system; these can measure a complementary theory of the practices, whereby each practice is the best in class and fills a gap left by the others, but their use will not measure a synergistic one.
3. Measurement and statistical techniques – additive composite measures, multiplicative indexes, principle component analysis, cluster analysis, latent reflective analysis, and latent formative analysis – have readily been treated as alternative ways of measuring the same system or synergistic effects; but their nature and utility varies (Hauff, 2019). Additive methods and formative scales can be used in the testing of complementary theory, multiplicative indexes (and not cluster analysis) for testing synergistic relationships, latent reflective scales (distinct from principle component analysis) for testing an orientation theory (Wood and De Menezes, 2008).
4. The variety of methodologies and practices used in the studies means that they may not be capturing the same construct (Boon et al., 2019; Boselie et al., 2005; Hauff, 2019); it is especially important to dissociate the notion of a philosophy from a system, which is a set of complementary, or potentially synergistic, practices (Wood, 2020).
5. Measures of the practices often mix descriptive and evaluative (or even irrelevant) items (Beijer et al., 2019) and may over-rely on managerial respondents for information on them (Gerhart, 2012). A greater use of employees may increase the validity of the measurement, as they are closer to the implementation of the practices; however, if the aim is the actual or intended practice as ‘designed on paper’ (Beijer et al., 2019: 10) then managers’ accounts may be more appropriate.
6. The diversity of practices in the studies is especially significant if the HRM system is measured by an additive or formative index, since these are defined by the

items included in them; if the aim is to cover all AMO dimensions then neglect of one or more of these means this is not achieved, while if high-involvement management is the target concept then the measure will be limited to involvement practices and supports for these.

7. The theoretical foundation of the area is underdeveloped (Batt, 2002) and diverse (Fleetwood, and Hesketh, 2006) with AMO and resource-based theory being quite prevalent but their role is typically not precisely or convincingly demonstrated.

The AMO framework implies that skills, motivation, and opportunities to participate are the mediators, certain mechanisms can be inferred from labels such as 'high-commitment' and 'high-involvement' (Patterson et al., 2010: 3), and explanatory mechanisms are suggested in introductions to the HRM–Performance studies. Yet, these are pointers to explanatory variables absent of well-developed theory(ies). Indeed, the labelling of studies as black-box in nature carries an association that the field lacks strong theory. We now examine the extent to which the mediation studies have overcome the failings of the black-box studies that I have identified.

## **A review of the mediation studies of the HRM–performance relationship**

The preceding discussion of concerns about the HRM–performance area provides criteria by which we can critically evaluate the mediation studies. I will assess the studies in terms of five dimensions:

1. The extent to which they present a unified portrayal of the black-box studies as the benchmark for their distinctiveness.
2. The extent to which they adopt measurement and analysis procedures that fit with their underlying theory and object of study.
3. The extent of which they use evaluative or irrelevant measures within the set of practices and whether this is related to the use of employee respondents.
4. Whether diversity of practices continues and the neglect of involvement exists.
5. Whether the selection of mediators reflects the underlying theory and object of study.

### ***Finding the studies***

I conducted a search for the mediation studies using sources including PsycInfor, Business Source Premier, Sage Journals Online, and supplemented this by the reference lists of the articles unearthed in this search and of the recent reviews of the area. I used four criteria to select the studies to be evaluated. They had to be:

1. Published in reputable refereed journals, providing some quality assurance.
2. Concerned with multiple HRM practices.
3. Testing the relationship between HRM and economic performance measures such as productivity, profit or return on assets.

4. Include a test of the mediating effect of one or more construct on the HRM–economic performance relationship.

The first three are the same criteria used by Wall and Wood (2005) in their review of the black-box studies, which we will use when comparing them to the mediation studies.

I thus excluded studies that evaluated HRM's effects on (a) performance solely via one or more individual practice (e.g. Khoreva and Wechtler, 2018; Vlachos, 2008), (b) both potential mediators and performance measures without testing for mediation (e.g. Wright et al., 2003), (c) non-economic or individual-level performance measures (e.g. Kazlauskaite et al., 2012; Rogg et al., 2001) or employee outcomes (e.g. Cafferkey and Dundon, 2015).

I used the search stream: (Human Resource Management or High-performance work systems or High-involvement management) and (organisational performance or economic performance) and (mediation or mediator). No dates were entered in the search.

### *Assessing the studies*

I will first identify the label the authors use for the HRM construct, then I will discuss their perspective on the research stream, their choice of measurement method for the HRM object, their use of evaluative statements and respondent, their selection of practices included in their HRM measure, the mediators in the analysis, concluding with the results of the studies. A summary of the 34 studies covering these issues is in the Supplemental Appendix available online.

### *Terminology*

'High-performance work system' is the most common label for the HRM object, used by 19 of the 34 studies (56%). Other terms include those associated with high involvement (employee empowerment, high-involvement work practices, high-involvement management) or high commitment (commitment-based/oriented HRM, high-commitment HR practices), which in some cases are treated as synonymous with high-performance work systems, as well as each other (Beltrán-Martín et al., 2008; Latorre et al., 2016). More idiosyncratic terms include AMO-maximisation system and performance- and maintenance-oriented HR, which are both related to the concept of high-performance work system.

Striking is the increase, compared to the black-box studies, in the use of the label 'high-performance work system' (or practices). Five of the 27 (19%) black-box studies used it (Wood and Wall, 2007) compared with the 19 of the 34 (56%) mediation studies. The emphasis in accounts of high-performance work systems is on the holistic concern underlying the research stream, rather than the involvement one. For example, Bonias et al. (2010) (p. 320) quote Zacharatos et al. (2005) as defining high-performance work systems as 'a group of separate, but interconnected human resource practices that together recruit, select, develop, motivate and retain employees'. The neglect of involvement is exemplified in similar definitions; for example, Raineri (2017) justifies his

preference for high-performance work systems on the basis that the practices ‘work in an interrelated manner when affecting employees’ performance’ through impacting not only on ‘employees’ motivational states but also . . . their knowledge and skills’ (p. 3150).

The accounts of the core concept are littered with references that imply a synergistic relationship between the practices and performance. Chow (2012) refers to a central ‘concept of bundling with complementary relationships among HR practices’ that results ‘in positive interactions and a synergistic effect that goes far beyond the effects of individual practices’ (p. 3116). This is a rare reference to synergy, but the term ‘mutually reinforcing set of practices’ is commonly referred to, and in a way that implies interaction effects amongst practices and conflates these with practices being complementary. Heffernan et al. (2016) for example, write, ‘The HRM debate has consistently advocated that mutually reinforcing or complementary HR practices would result in superior performance than if practices were applied in isolation’ (p. 440). Similarly, references to the practices forming ‘coherent systems of practices’ (Beltrán-Martín et al., 2008: 1013; Chow, 2012: 3116), and being ‘internally coherent’ (Messersmith et al., 2011; Raineri, 2017) or ‘interconnected’ (Takeuchi et al., 2007: 1069) also imply that the greater efficacy of practices when implemented with each other.

Some of the idiosyncratic labels are also defined, like high-performance work systems, in AMO terms. For example, Chen and Huang’s (2007) strategic human resource practices covers all AMO practices, as does how both Katou and Budhwar (2010) and Paul and Anantharaman (2003) use the term HRM. Farouk et al. (2016), also use the term HRM but define it in terms of the abilities dimension of AMO, as concerned with enhancing ‘employees’ knowledge, abilities and skills’ (p. 774). Standing more outside of the AMO framework, Gong et al. (2009) differentiate maintenance- and performance-oriented practices, on the basis that the former are concerned with influencing employees’ motivation to remain in the organisation and the latter with employees’ motivation to perform. Finally, both Lopez-Cabrales et al. (2009), and Zhou et al. (2013) differentiate between collaborative HRM and knowledge-based HRM. Lopez-Cabrales et al. (2009) focus on HRM as fostering internal collaboration, while Zhou et al. (2013) see it as involving external collaboration, as both are concerned with innovative performance.

Where the high-commitment terminology is used, it is defined in terms of AMO practices, akin to AMO-based designations of high-performance work systems (Allen et al., 2013; Latorre et al., 2016). High-involvement management in one instance is similarly defined, as a set of ‘mutually reinforcing. . . HR practices that are intended to acquire, retain, involve, and motivate employees and to improve communication’ (Martínez-del-Río et al., 2012: 829). In three studies ‘high-involvement management’ is, however, adopted without the association with high performance work systems, as entailing both role- and organisational-involvement management, though empirically they do not always co-exist (Fernandez and Moldogaziev, 2013; Wood and Ogbonnaya, 2018; Wood et al., 2012).

The emphasis on the holistic approach to practices thus underlies the terminology in the majority of studies. Narratives combining this with the initial involvement concern are no longer prominent. The majority of accounts of high-performance work systems do not include involvement or refer to the O in equivalent terms to the A and M in AMO. Where O is mentioned, its connection to involvement may be diluted, and referred to as



the opportunity ‘to perform’ (Raineri, 2017: 3153), ‘to exert their best performance’ (Raineri, 2017: 3152), ‘to contribute’ (Zhang and Morris, 2014: 74), or to ‘express. . . talents’ (Fu et al., 2015: 212), or just as ‘opportunity’ (Hauff et al., 2018). This is not dissimilar to the black-box studies, where the majority of authors eschewed the term ‘involvement’ in their HRM construct – it was used in only four of the 27 (15%) studies reviewed by Wood and Wall (2007). The mediation studies show a similar proportion; but the difference between the two groups lies in the use of high-performance work systems. The variety of terms used in the black-box studies was considerable, whereas there is more of a concentration on the high-performance work system in the mediation studies, at the cost of concern for involvement.

### *Perspective on the research stream*

The black-box stream is presented throughout the mediation studies as united by the consistently positive relationships between holistic HRM constructs and measures of organisational performance. Zhang and Morris (2014), exceptionally, insert a rider that there are studies showing no relationship. No mediation study mentions the unevenness of results across performance measures in the same study, as chronicled by Wall and Wood (2005).

Naturally, the focus of the introductions to the past studies is on their lack of investigation of mediators. Authors present themselves as addressing calls to unlock ‘the black box’ (Farouk et al., 2016: 774), or investigate the ‘mediating mechanisms’ (Hauff et al., 2018: 6) between HRM and performance. In some of the more recent studies authors have, understandably, referred to the emerging mediation studies (e.g. Heffernan et al., 2016).

The AMO framework is increasingly seen as a unifying force within the area in a sizeable proportion of the high-performance work systems studies. Hauff et al. (2018), for example, write ‘though there is still no agreement on which HRM practices represent HPWPS [. . .], researchers usually refer to the AMO framework’ (p. 7). Their study covers all three of its dimensions. Elorza et al. (2011) go as far as saying ‘there is a consensus on the validity of a system based on the three ability, motivation and opportunity (AMO) dimensions’ (p. 1404). However, when applying AMO authors unwittingly show the lack of such a strong consensus, as they vary in the emphasis placed on each dimension.

Recognition of diversity across the black-box studies is limited mostly to references to the variety of practices and a lack of consensus about the required compaction, as if the matter is one of scholars not agreeing to agree (Beltrán-Martín et al., 2008; Hauff et al., 2018; Mansour et al., 2014). The existence of alternatives to the universal theory of the HRM–performance relationship – contingency and configuration theory – is acknowledged by a few authors (e.g. Riaz, 2016; Zhang and Morris, 2014), but in only two studies is a contingent factor (business strategy) tested as a moderator (Heffernan et al., 2016; Sun et al., 2007).

Authors also characterise the HRM–performance field in terms of its concentration on certain sectors or countries in order to signal the distinctiveness of their study. For example, Hauff et al. (2018) claim the literature concentrates on the USA, making their German study distinctive (p. 7). Similarly, Riaz (2016) considers that studies have concentrated on developed countries, adding to the value of her study in Pakistan (p. 422).



Bonias et al. (2010) mention the focus of black-box studies on manufacturing (which was true of the pioneering studies) as demonstrating the novelty of their hospital study. Additionally, Fu et al. (2015) highlight the lack of concern for innovation as an HRM outcome to justify their study of law firms.

The high-involvement management studies are exceptional. Not, however, because they highlight the diversity in the area; rather they see high-involvement management as distinctive so their authors do not dwell on reviewing the area (Fernandez and Moldogaziev, 2013; Wood et al., 2012).

Overall, the impression conveyed by the introductions to the prior literature in the mediation studies is of a unified field. They thus mirror the majority of the reviews of the black-box studies by underplaying any consequences of the diversity of practices.

### *Choice of HRM measure*

Additive measures are used in the majority of studies (28 of 34, 85%, 17 out of 19, 90%, using the high-performance work system label), which is consistent with the black-box studies. In the majority of cases they are introduced with little or no discussion. This reflects the adoption or adaption in many cases (23 out of 34, 68%) of the indexes in black-box studies – for example the measures of Delery and Doty (1996), Huselid (1995), Snell and Dean (1992) and Zacharatos et al. (2005). In one case their distinctiveness relative to latent variables is acknowledged when Allen et al. (2013) state that their measure is ‘composed of substitutable components that are not caused by an underlying construct’. Justifications for using additive indexes, when given, typically refer to their regular use in the area. For example, Latorre et al. (2016) refer to their use as the ‘dominant approach in the literature’, on the assumption that ‘HRM is best viewed as a system. . . and the higher the presence of relevant practices, the stronger the consistent signals about the intentions underpinning them’ (p. 332). Some references are more specific, quoting in particular Becker and Huselid’s (1998) justification that they are consistent with a unitary human resource system as a strategic asset, and fulfil the equifinality principle that practices can have an equal effect (p. 640). They suggest that medium levels of implementation of the system could have very different combinations. Consequently, such measures are seen as fulfilling the basic aim of the research to test whether the greater or more intensive use of a ‘system’ yields higher performance.

A variety of methods are used to arrive at the index. Principal component analysis is used, typically to support the unitary index, but no tests comparing these with models with two or more components have been made, despite widespread references to Huselid (1995), which included a two-component model to the data, as an exemplar study. Cronbach’s alpha was sometimes used, with little explanation, but appears to be being used to test the consistency of the items, and whether they can be taken to measure similar phenomena (Allen et al., 2013; Bartram et al., 2014).

Two authors refer to their measure as a formative scale (Gardner et al., 2011; Hauff et al., 2018). It is used to measure a system akin to an additive index but it differs from these as a statistical model underlies them so the fit of the model can be tested, as Hauff et al. (2018) do, through structural equation modelling.

Three studies use reflective latent variables and in ways that are aligned with their theory, which is centred on high involvement as a managerial philosophy. Fernandez and

Moldogaziev (2013) focus on Lawler's four dimensions of high-involvement management (p. 492), which they term empowerment following Lawler's (Bowen and Lawler, 1992) earlier work. Using similar items to Lawler, with US data, they measure each dimension using a latent variable. Taken together, they form a unidimensional measure of empowerment as a 'multifaceted management approach' (Fernandez and Moldogaziev, 2013: 493). Wood et al. (2012) fit latent trait models to data on involvement practices and supports for these practices, and find that the two dimensions of high-involvement management – role- and organisational-involvement management – are discrete. The former is termed 'enriched job design' and the latter 'high-involvement management', but in a subsequent study Wood and Ogbonnaya (2018) use the terms role- and organisational-involvement management, clarifying that they are both dimensions of a high-involvement orientation. The results of the first study are replicated in the second, using similar data on British workplaces from two different time periods (2004 and 2011).

Beltrán-Martín et al. (2008) also use a latent scale to measure their high-performance work system concept. Partly defined by its practices, their conception implies an underlying approach to management centred on eliciting 'commitment to and involvement with the organisational goals so that people's behaviour is self-regulated rather than controlled by sanctions and pressures' (p. 1012). Katou and Budhwar (2010) similarly measure their HRM systems construct with latent measures. Their three-dimensional concept is assumed to represent the extent to which the firm has policies in the three areas corresponding to the AMO dimensions: resourcing and development, compensation and incentives, and involvement. Allen et al. (2013), having stated they want to measure an additive index 'not caused by an underlying construct', curiously use a latent variable, to meet their ambition to create a 'conceptually driven additive index of commitment-based HR practices'. They conduct a confirmatory factor analysis on their practice-data which fits well, then use the factor scores to compute their measure of commitment-based HR practices (p. 161).

Of those who did not measure high-performance work systems or high-involvement management, Lopez-Cabrales et al. (2009) measure their knowledge HRM and collaborative HRM using an additive index. Gong et al. (2009) use principle component to validate the discreteness of nine types of HR practices, which they then allocated on the basis of theory to maintenance- and performance-oriented HR.

No study uses a multiplicative index. Given the reference in the theory to how practices mutually reinforce each other, the misalignment between the synergistic theory and its testing using additive indices continues (Bartram et al., 2014; Chow, 2012). In a few cases, however, the authors present the additive index as correctly enabling the testing of a theory that the larger the number of practices used the greater the performance. For example, Latorre et al.'s (2016) use of an additive measure is consistent with their theory that increasing numbers of practices will enhance the consistency of messages given to employees, and this in turn will engender organisational commitment and performance.

### *Nature and source of data*

The studies were included in the review on the basis of a focus on actual practices not evaluations of these. Descriptive questions on the practices, which involve the least amount of interpretation (Beijer, et al., 2019), include Hauff et al.'s (2018) asking

managers about the extent to which they agree with statements such as, ‘employees work in semi-autonomous work groups’ and ‘compensation for employees are based on firm profits’, and Heffernan et al.’s (2016) asking what proportion of employees ‘receive formal performance appraisals on a routine basis’ and ‘are administered attitude surveys on a regular basis’. The set of items used by Messersmith et al. (2011), drawn from Datta et al. (2005), to measure high-performance work system is the best example of one using the average scores on scales that are descriptive; examples of items include ‘one or more employment tests administered prior to hiring’ and employees are ‘provided financial performance information’. Other measures that exclusively use descriptive items have relied on asking managers to indicate 1 if they have a practice and 0 if they do not (Choi and Lee, 2011, Gardner et al., 2011, Wood et al., 2012; Wood and Ogbonnaya, 2018). Similarly, Latorre et al. (2016) using employees as respondents, ask for example ‘Have you received a formal performance appraisal during the past year?’ (p. 332).

Most studies despite their attention to actual practices, use a mixture of descriptive and evaluative items. For example, Beltrán-Martín et al. (2008) used evaluative ones such as ‘How extensive is the employee selection process for a job’ alongside descriptive items like ‘what percentage of employees is covered by performance appraisal systems’ or ‘has received training this past year?’ Other examples of evaluative items include ‘Our compensations include high wages’ used in Takeuchi et al.’s (2007) index, which Beijer et al. (2019) class as low evaluative, Raineri’s (2017) ‘supervisors maintain open communication with employees’, and Hauff et al.’s (2018) ‘continuous training’. A high evaluative item is Takeuchi et al.’s (2007) ‘training programmes are comprehensive’ and Riaz’s (2016) mirror of this, ‘selection is comprehensive’.

In these examples the demand for interpretation arises from the type of questions. Evaluative items in some cases, however, reflect underlying concepts that lack precision, the most notable one being selective recruitment (e.g. in Gong et al., 2009). The need for interpretation also arises from a desire to assess intensity or to create scales. For example, Chow (2012) asked respondents to gauge practices on a five-point scale from very low to very high; the descriptions of practices did not make this a particularly easy task – for example she included using communication networks, reporting for information sharing, and pay incentives tied to job performance. A practice used by several authors was to ask employees on a five-point scale the extent to which they agree with a set of statements such as ‘employees have a feeling of personal empowerment with respect to work processes’, all of which use a mixture of descriptive and evaluative statements (Fernandez and Mondogaziev, 2013; Gong et al., 2009, Hauff et al., 2018; Liao et al., 2009; Mansour et al., 2014; Patel et al., 2013 Takeuchi et al., 2007). Raineri (2017), uniquely, presents what the respondent was asked to agree upon: ‘please indicate the extent of your agreement or disagreement about whether the practices has been used by your organization to manage employees . . . in the past three years’ (pp. 3161–3162). Several authors, also in order to get scales, used questions based on asking the proportion of staff are subject to practices such as ‘receive formal individual performance appraisals’ (Fu et al., 2015), the provision of ‘financial performance information’ (Heffernan et al., 2016) and receive ‘incentives depending on performance appraisals’ (Martínez-del-Río et al., 2012).

Finally, the inclusion of qualifiers in questions creates a need for evaluation. This is illustrated by the use of primarily in ‘when interviewing applicants, we primarily assess their ability to work with our current employees’ or almost in ‘job security is almost guaranteed to employees’ (Sun et al., 2007).

An additional problem in some studies is the use of items that are not practices. Bartram et al. (2014) and Bonias et al. (2010) follow Zacharatos et al. (2005) in including transformational leadership. While accounts of the workforce characteristics are used as Patel et al. (2013) and Raineri (2017) asked whether ‘great effort is taken to select the right person’, and Heffernan et al. (2016) asked what proportion of employees ‘can expect to stay in this organisation for as long as they wish’ (p. 447).

Employees were respondents in ten studies, which makes them distinctive from the black-box studies. In four cases, employees were the sole respondent (Fernandez and Moldogaziev, 2013; Latorre et al., 2016; Paul and Anantharaman, 2003; Raineri, 2017). Latorre et al. (2016) even refer to their choice as following what is now ‘the standard approach of asking employees to report those [practices] they have experienced or knew were in place in their organization’ (p. 332). (Which my review has shown is not true.) Takeuchi et al. (2007) combined the managerial and employee responses to measure high-performance work systems. Liao et al. (2009) conducted two tests of the performance effects of high-performance work systems using managerial and employee measures, and found that the mediation results were slightly different. Riaz (2016) tested two discrete mediation models, one with a management measure of high-performance work systems and human capital as the mediator, the other based on employee-level data on the same practices but with social exchange, relational coordination, and several employee-attitude measures as the mediators. All the mediators were significant. In three studies, the employee data was used to validate the managerial data (Allen et al., 2013; Bartram et al., 2014; Messersmith et al., 2011). In two studies managers and employees were used for different purposes. Choi and Lee (2013) used managers for the existence of practices and employees to assess effectiveness and managers. Elorza et al. (2011) used managers to measure the actual system and employees the perceived system using the identical practices, and then assessed whether perceptions mediate the relationship between the actual system and productivity.

The aim when using employees was predominantly to measure the existence of practices, and descriptive items are no less prominent in these studies using employees than in the black-box studies. There is no sign that any greater use of employees, singularly or in conjunction with managerial respondents, has led to an increase in evaluative items in scales, not least as many of the evaluative items are in black-box studies. The problems of evaluative items are independent of the source of data, and are about the extent to which they can provide valid measures of actual or intended practices, rather than of their perceived effectiveness.

### *Selection of practices*

Around three quarters of the studies (26 out of 34, 76%) include at least one practice from each of the AMO dimensions, regardless of whether they are consciously following the framework, as some do (e.g. Bonias et al., 2010; Hauff et al., 2018; Liao et al., 2009; Piening et al., 2013; Raineri, 2017). Messersmith et al.’s (2011) study is, however,

exceptional in including both types of involvement – role and organisational – when covering the full range of AMO dimensions in a measure derived from Datta et al. (2005). The majority of the other studies focus on skills- and/or motivation-enhancing practices (e.g. Beltrán-Martín et al., 2008). Choi and Lee (2013) uniquely exclude motivational practices. The coverage of involvement in studies focused on high performance work systems is largely confined to one or two practices and a key practice – idea-capturing schemes – is included in only four such studies, two of which use the same data set. In contrast they consistently include selective hiring, comprehensive training, and performance-related pay. The studies focused on high-involvement management limit themselves to involvement practices and their supports, such as training in teamworking skills (Fernandez and Moldogaziev, 2013; Wood et al., 2012; Wood and Ogbonnaya, 2018).

Overall, 16 out of the 34 studies (47%) include at least one role-involvement practice in their HRM measure, while 27 (79%) include at least one organisational-involvement practice. Only 14 (41%) include both types. 25 (74%) include one or more supporting practice such as information sharing, appraisal, or employment security – indeed, some include only these (e.g. Chow, 2012). Compared with the black-box studies, a greater proportion include a measure of role involvement. Job autonomy or empowerment is measured in 14, while one includes ‘interesting and varied jobs’ (Latorre et al., 2016) and another ‘high quality work’ (Bonias et al., 2010). In contrast, the proportion with a measure of organisational involvement is slightly lower than for the black-box studies – 27 out of 34 (79%). Self-managed teams (or similar concepts like decentralised decision-making) are included in nine studies, idea capturing schemes in six, and participation in four.

The depth of coverage of involvement has not increased in comparison to the black-box studies. With the majority of studies having fewer involvement practices than they do for the other AMO dimensions and using rather general terms such as job design or participation. For example, Latorre et al. (2016) only include participation in decision-making in the eight practices that constitute their concept of high-commitment management. Elorza et al. (2011) and others align involvement activities such as participation, information sharing alongside compensation practices within the motivational dimension of AMO (pp. 1407, 1408). Some studies mention involvement, but do not measure it (e.g. Farouk et al., 2016), while others barely mention it in their introduction but *do* measure it (Chen and Huang, 2007). Particularly noticeable is the absence, except in the high-involvement studies, of the distinctive bedrock status of role involvement and the importance of idea capturing within organisational involvement. This continuing relative neglect of involvement reflects the increasing use of the label ‘high-performance work system’ (or practices) and the focus on the holism concern, as well as the use of measures from the black-box studies. A feature of the high-performance work system studies is their inclusion of selection tests, job analysis and formal job descriptions that are indicative of a personnel management that is more akin to the bureaucratic HRM than high-involvement management.

### *Choice of mediators*

The range of mediators across the studies is large. They can be classified into two main types: psychological or behavioural mechanisms and organisational mechanisms. The psychological mechanisms include organisational commitment, job satisfaction, perceived

organisational support, psychological empowerment, and organisational citizenship. Amongst the organisational mechanisms are human capital, social capital, social exchange, strategic orientation, relational coordination, and valuable and unique knowledge. It is noticeable that proactivity (Evans and Davis, 2014) continues to be neglected. Following Jiang et al. (2012), links between the O element in the AMO model and performance are treated as mediated by motivation.

Only three mediators figure in more than three studies: organisational commitment appears in ten studies, while job satisfaction and human capital both appear in nine. Employee involvement is a mediator in one study (Allen et al., 2013), while psychological empowerment is used in four (Bartram et al., 2014; Bonias et al., 2010; Liao et al., 2009; Messersmith et al., 2011), and related concepts involving proactive behaviour are mediators in four studies, innovativeness (Fernandez and Moldogaziev, 2013), innovative work behaviour (Fu et al., 2015), creativity climate (Heffernan et al., 2016), and organisational citizenship behaviour (Messersmith et al., 2011). The others include: HR flexibility (Beltrán-Martín et al., 2008), knowledge acquisition and sharing (Chen and Huang, 2007), valuable and unique knowledge (Lopez-Cabrales et al., 2009), organisational culture (Chow, 2012), organisational ambidexterity (Patel et al., 2013) and relational coordination (Gittell et al., 2010).

Most studies have multiple mediators, with three having two-stage mediation paths. Fu et al. (2017) view the initial mediator – intellectual capital resources – as affecting the second mediator in the chain, organisational dexterity; while, Latorre et al. (2016) posit job security, organisational support and psychological contract as first-stage mediators which all influence a second-stage mediator, job satisfaction. Fernandez and Moldogaziev (2013) posit that empowerment's mediating effect is through both innovation and job satisfaction. This array of mediators all adds to the variety in the field. Attending to the mediators has not brought the standardisation that Boselie et al. (2005) anticipated would follow a greater acceptance of the AMO framework.

### *Theory of mechanisms*

No single theory dominates the underpinnings of the studies. Only four theories are used in more than two studies: AMO (8), social exchange theory (7), resource-based theory (4) and psychological empowerment (3). Of the theories, Boselie et al. (2005) identified as prevalent in the black-box studies – contingency theory, resource-based theory, and AMO – two still figure, but references to contingency theory are scarce and shallow (Riaz, 2016). Two studies focus on human capital (Lopez-Cabrales et al., 2009; Raineri, 2017), and one on each of organisational ambidexterity (Fu et al., 2017), innovation culture (Heffernan et al., 2016), organisational culture (Chow, 2012) and the knowledge-based view of the firm (Chen and Huang, 2007). All of these have a similar focus to studies using resource-based theory, as they posit human capital or innovation as key mechanisms. Bartram et al. (2014) use social identity theory, while Gittell et al. (2010) term their underpinning theory 'post-bureaucracy', positing relational coordination as the mechanism explaining the link between high-performance work systems, or at least the O element of AMO, upon which they focus, and performance.



Alongside the studies using psychological empowerment theory are two studies taking a wider view of the psychological needs being fulfilled. Gardner et al. (2011) underpin their work with self-determination theory which goes beyond job autonomy as it includes connectedness and competence. Wood et al. (2012) incorporate such a wider set of needs when identifying the mutual-gains theory of high-involvement management, arguing that the increased autonomy associated with role involvement may be less applicable to organisational involvement, where needs for sociability, security, self-esteem and meaningfulness may be more significant.

Three studies (Choi and Lee, 2013; Farouk et al., 2016; Paul and Anantharaman, 2003) offer little in the way of a theory of their posited mechanism, as they construct their mediation chain mechanically on the basis of evidence of links between the HRM construct and (a) performance, and (b) the mediator, and between the mediator and performance. Some authors build much of their argument on how individual practices may affect performance (e.g. Beltrán-Martín et al., 2008; Martínez-del-Río et al., 2012).

Where one of the four most popular theories is used, the mediators are aligned with theory, but there is no straightforward correspondence across the studies between theories and mediators. In the case of AMO, it is firstly used to define the elements of the high-performance system as containing skill-, motivation- and empowerment- or opportunity-enhancement practices. However, the three mediators do not directly correspond to each dimension in any study, that is, skills–human capital, motivation–job satisfaction and involvement–participation. Hauff et al. (2018) perhaps get closest to this, using human capital and employee attitudes, but these are employed across the three groups of practices. Gardner et al. (2011), Fu et al. (2015) and Zhang and Morris (2014) differentiate the three AMO dimensions, but apply their mediator to all groups, these being commitment, innovative behaviour and a composite attitudinal and behavioural measure, respectively. In contrast, Fu et al. (2017) link the three AMO groupings to performance through three distinct mediators – human, social and organisational capital.

Resource-based theory is primarily used to identify the desired destination for high-performance work systems – development of unique capabilities. Mediators are then defined by deducing how to achieve these. Lopez-Cabrales et al. (2009) use valuable and unique knowledge as the mediator. Other authors, though using the terminology of unique capabilities, soften the claim that HRM practices can produce unique (rather than distinctive) human capital by implying that their contribution is to produce a highly competent workforce which is adaptable, flexible and capable of innovation. Consequently, mediators of the high-performance work systems–performance link in such studies include HR flexibility (Beltrán-Martín et al., 2008) and human capital (Mansour et al., 2014; Raineri, 2017; Riaz, 2016; Takeuchi et al., 2007).

Social exchange theory is applied on the basis that high-performance or -commitment work systems provide benefits to employees, who then feel obliged to respond with positive attitudes and behaviour, thus fulfilling their side of the psychological contract (Latorre et al., 2016). Benefits are assumed to include input in decision making, skill development, and fair reward systems, which by implication meet employees' needs (Elorza et al., 2011). Allied to this theory is the notion that HRM practices signal to employees not just what the organisation can offer, but also that management will be interested in their welfare, reciprocate their commitment, and act fairly. This creates 'a



sense of obligation' which employees reciprocate with behaviours aligned with organisational goals (Sun et al., 2007: 559). Consistent with the theory, the mediators included in studies following social exchange theory are either direct measures of social exchange (Riaz, 2016; Takeuchi et al., 2007) or are centred on affective commitment (Elorza et al., 2011), involvement, job satisfaction and psychological-contract fulfilment (Latorre et al., 2016), or organisational citizenship behaviour (Sun et al., 2007). In one case psychological empowerment is the mediator (Messersmith et al., 2011).

Finally, in the case of psychological empowerment theory, the mechanism explaining the HRM–performance link is the fulfilment of needs for intrinsic satisfaction and worker autonomy. Such need-fulfilment will be positively associated with affective commitment, job satisfaction, internalisation of task goals, persistence of effort and initiative (Bonias et al., 2010; Fernandez and Moldagaziev, 2013; Gardner et al., 2011; Liao et al., 2009). Need-fulfilment is not, however, restricted to empowerment-enhancing practices, and the predominant use of psychological empowerment is in studies of high-performance work systems (Bartram et al., 2014; Bonias et al., 2010; Liao et al., 2009; Messersmith et al., 2011). In using job satisfaction as mediator, the high-involvement studies are assuming it fulfils key needs that go beyond autonomy or competence (Fernandez and Moldagaziev, 2013; Wood et al., 2012; Wood and Ogbonnaya, 2018).

Some studies, positing multiple mediators, use more than one theory. Four studies combine resource-based theory with social exchange theory (Mansour et al., 2014; Messersmith et al., 2011; Raineri, 2017; Takeuchi et al., 2007). Martínez-del-Río et al. (2012) use resource-based theory and AMO. Riaz (2016) offers the most comprehensive study, including mediators reflecting resource-based, social exchange and relational coordination, and motivational theories, namely, human capital, social exchange, relational coordination, and job satisfaction and organisational citizenship behaviour. She and others who use multiple theories treat them as complementary, presenting them as an integrated set of hypotheses.

Only two studies test theories against each other. Wood et al. (2012) focus on involvement, contrasting mutual-gains theory, which assumes high-involvement management benefits both employees and employers, with two other theories: a conflicting outcomes approach and a counteracting effects theory. In the former, high-involvement management increases the intensity of work – a type of management by stress – and its positive effect on anxiety mediates its relationship with performance gains. In the latter, the positive effect of high-involvement management on performance is again at the expense of employee well-being, but this does not explain the positive effect – the mediation effect is in the opposite direction, so that increased anxiety reduces the performance effects.

More limited in scope, Gardner et al. (2011) set out alternative possibilities for one of the three AMO dimensions they explore, skill-enhancing practices. Their effect on voluntary turnover, they hypothesise, may be either to bind people into the organisation, meaning commitment may mediate the practice-performance link, or to make them more employable in the labour market, meaning affective commitment may not explain the relationship.

## **Results**

The results of the studies are uniformly positive – HRM constructs are related to performance and hypothesised mediations are confirmed in all studies. Where multiple

mediations are posited, in some cases a mediator is found not to be significant. Elorza et al. (2011) found the mediation path through commitment reduced absenteeism but did not increase productivity. For one of Gong et al.'s (2009) types of HRM – performance-oriented HR – affective commitment mediated its relationship with performance, but the other, maintenance-oriented HR, was related to commitment but not performance. In studies differentiating between subsystems of high-performance groupings, results differ between the subsystems (Liao et al., 2009; Raineri, 2017). Fu et al., (2017), for example, found human capital mediated skill-enhancing practices, social capital mediated motivation- and opportunity-enhancing practices, and organisational capital mediated opportunity-enhancing practices.

Wood et al.'s (2012) tests of competing theories found role- and organisational-involvement management to be discrete dimensions of high-involvement management, and that mutual-gains theory applied to role-involvement management as increasing job satisfaction, explained its performance effects. Additionally, organisational-involvement management was related to performance but was not mediated by job satisfaction or anxiety–comfort. Neither of the conflicting-outcomes or counteracting-effects mediation theories were supported.

The other study posing alternative theories (Gardner et al., 2011) found support for a positive relationship between skill-enhancing-practices and turnover, independent of any effect on commitment. This suggests such practices increase employability.

## Overview

This analysis of the mediation studies in the HRM–performance research stream has revealed that they treat the black-box studies as a homogeneous set, have not been particularly conscious of the need to correct past misalignments of hypotheses and tests, and vary greatly in the practices emphasised in discussions and included in measures. There has been no greater proliferation of evaluative items compared with the black-box studies, even though employees have been used in more studies.

Through addressing the mediators of the HRM–performance relationship, the studies have developed the field. But, while the selection of mediators may reflect some theoretical underpinning, the theoretical foundation of the field has not altered substantially – social exchange theory's increased prominence is perhaps the most significant change. Given the variety of mediators and the ubiquity of positive mediating effects, we have, unfortunately, no means to assess which mediators or theories are more telling than others.

The review has revealed a crystallisation around the holism concern and the concept of high-performance work systems. Perceptions of diversity continue to be largely confined to the practices used in studies, which is seen as reflecting a lack of consensus over practices included in the high-performance work system. The deeper problems of the black-box studies have been reproduced in many studies: misalignment between the use of additive indexes and theory of synergistic relationship, confusion over analysis methods, under-representation of involvement practices, and inadequate justification of practice selection (partly reflecting the use of measures from black-box studies). The rare studies centred on high-involvement management, in contrast, are more consistent with

the theory. They measure a coherent approach to management centred on employee involvement using involvement practices or supports for these, and use an appropriate statistical method, latent variable statistical analysis.

## **Discussion**

The early reviewers of the black-box studies highlighted the consistency in their results – positive associations between their HRM system and performance – and effectively considered this to trump the diversity in their approaches. We could view the mediation studies in the same way, interpreting Boon et al.'s (2019) conclusion that all we know is 'investments in some broad set of HR practices yields returns' as only meaning that more work is needed to identify the HRM set's critical ingredients and their joint effects, and that we need greater standardisation to kick-start the stream's next phase (p. 2516). The implication of my review is that this prescription needs extending to the standardisation of theory, but more fundamentally it has reinforced the importance of Wood's (2020) identification of the divide between the high-involvement and high-performance work system perspectives. This implies differentiation not standardisation.

Rescuing high-involvement management from its Cinderella status first requires acknowledgement of its distinctiveness – that in AMO terms, the O is the fulcrum of high-involvement, while the A and M are its supports, whereas, assuming involvement is not neglected, the high-performance work systems perspective gives the O equal status to the A and M. The next step for the high-involvement management perspective is the reestablishment of role involvement's bedrock status in high-involvement management, and of the complementary role of organisational involvement. In the high-performance work systems perspective, inclusion of involvement practices within the set of best practices is required to rectify a relative neglect of the O.

However, the differences go beyond the emphases placed on types of practices. High-involvement management entails a set of principles that guide not just the design of practices, but also reactions to key events and everyday leadership behaviours. The practices must be consistent with these principles, but their precise nature may vary. The properties of practices, and not just its effect (as is the case in a synergistic model), will be transformed when they are designed to reflect a high-involvement orientation and to fit with each other.

The high-performance work systems approach, in contrast, is a technocratic methodology that posits a preformed set of practices, the extent of their adoption determining performance, through aligning the recruitment and subsequent behaviours of employees with the strategic goals of the organisation. High-performance work systems are defined by their constituent practices – in Sun et al.'s (2007) terms they 'are defined by their combination of single practices that collectively affect organizational performance' (p. 580). If the concept is to make sense, practices must be assumed to be best in class, each practice playing a unique role that others do not. The practices are not altered by being a part of a system, construction of which involves implementing practices simultaneously, with no process of unification through their design. It is possible, but not inevitable, that the effects of practices are enhanced by the effect of others – that synergy exists.

The two perspectives therefore involve different theories of performance. High-involvement management implies that the enactment of the approach explains the

performance effect – the principles explain performance, not the practices. In contrast, in the high-performance work systems perspective, performance effects are the direct result of using a set of practices in a coherent way.

I will now draw out the implications for developing HRM research of acknowledging the distinction between high-performance work systems and high-involvement management.

### *Implications for mapping the HRM–performance field*

The analysis suggests homogeneous portrayals of the research stream are misplaced. Firstly, within both the black-box studies and the mediation studies there are sufficient studies focused on high-involvement management to identify them as a distinctive group (De Menezes and Wood, 2006; Fernandez and Moldogaziev, 2013; Guerrero and Barraud-Didler, 2004; Vandenberg et al., 1999; Wood, 1999b; Wood and Albanese, 1995; Wood and De Menezes, 1998, 2008). Secondly, we can distinguish studies of high-performance work systems by the set of practices included. This is consistent with Lepak et al. (2006) differentiation of types of high-performance work system according to their aims. We can, for example differentiate a commitment-based high-performance work system from an involvement-based one on the basis that the former is dominated by motivational practices such as job-security guarantees, and the latter by involvement practices such as idea-capturing schemes. However, it is important to differentiate both from high-involvement management, as they are forms of high-performance work system.

While studies continue to use the high-commitment management concept, it is not clear it is distinctive. Its use in the mediation studies is closer to the high-performance work systems concept than to high-involvement management as it is conceived as covering the range of AMO practices, though not necessarily measured comprehensively (Allen et al., 2103: 164). Walton's original formulation of it is, however, akin to Lawler's high-involvement concept as it places job design as the building block of participation, and high-involvement management is a better term for his approach. Treating Walton's and Lawler's concepts as the same may encourage users of the high-commitment management term to clarify its referent: is it high-involvement management or a commitment type of high-performance management?

Similarly, we can question the use of Human Resource Management to refer to a set of high-performance practices in mediation studies (Farouk et al., 2016; Paul and Anantharaman, 2003). Since all organisations have human resource systems, it does not define a particular approach, and the term is best used generically to describe all personnel management approaches or systems. Other terms in the HRM–performance stream may have specific uses, but can be connected to high-performance work systems. For example, in Gong et al.'s (2009) differentiation between maintenance- and performance-oriented systems, the former help maintain the workforce and have no effect on performance, while the latter do have such an effect and are therefore the high-performance work practices.

### *Implications for correcting past errors*

The problems identified in the black-box studies have, as we have seen, been duplicated in the mediation studies: the misalignment of tests and theory, the misspecification of

measures of the system, the variety of practices and neglect of involvement. The importance and method of correcting them, however, differs between the high-involvement and high-performance work systems perspectives.

The errors are less evident in the high-involvement studies. Involvement is not neglected, and using practices as manifest variables to construct latent variables that identify and measure the underlying orientation means the measurement model is aligned with the object of study. Similarly, regressing performance against such measures is an appropriate test of the hypothesised performance premium resulting from adherence to it – the principles determine performance in high-involvement management. Moreover, the logic of the methodology used by Wood and his colleagues is that high-involvement management may not always be an identifiable phenomenon, and that its manifested form may change. Adopting such a methodology requires assessing whether a set of involvement practices are correlated, as if they are not, no associations exist that could be explained by the assumed common factor of a high-involvement orientation. The next step is to test whether the model structure is consistent with the correlation matrix of the practices included, rather than the principal component analysis approach of starting with an examination of these correlations (Bollen, 2007: 227). If a model can be fitted, the resulting latent variable scores can be used as a reflective scale that measures high-involvement management to assess its association with organisational performance in regression models.

In contrast, misalignments remain in the high-performance work system studies, arising from a conflation of the nature of the system with its performance effects, and the stress on synergistic relationships that are not tested in the empirical analysis of the system. Inconsistency between the use of additive indexes and the conception of the practices as synergistic and mutually reinforcing is perpetuated.

One can either adjust the theory or develop appropriate tests for it. My outline of the theory identified the system as a combination of best practices with independent effects that cohere to form a sophisticated personnel management system. Using more practices leads to better performance. Any exponential performance effect means it is disproportionately greater the closer one gets to the perfect system, as may be case if its effect is through signalling that the employer cares for employees.

Rather than continuing to use indexes of the high-performance work system based on the number of practices used or average scores on the extent of use of each practice, we can treat the system as a formative latent construct (Bollen and Lennox, 1991), and test whether a particular set does indeed form a system. We would thus be using latent modelling as a diagnostic tool, much as Wood and his colleagues use latent reflective models.

However, if the theory is not adjusted and the emphasis remains on how practices reinforce and strengthen each other's effect, examination of the interaction effect of pairs or even larger combinations of practices is required. Assessing the existence of an exponential relationship between the index of practice-use and performance (as in Godard, 2001) is not sufficient: it reveals a non-linear relationship that may be consistent with theories other than the synergistic one, such as signalling theory to which I referred above. It is unlikely that all combinations of practices will have significant interaction effects, meaning abductive reasoning would be required to decide on the status and nature of the high-performance management system.

One objection to this approach is the claim that use of multiplicative indices or interactions to test synergies will mean that the overall measure will be zero if a single HRM practice is not in place (Chadwick 2010; Delery, 1998; Hauff, 2019). This is mistaken. Considering the case of two practices measured dichotomously, each is included as a main effect and then the interaction between each will yield scores of 1 or 0 – 1 where both practices are used and 0 if none or one is used. This is what is required to compare the situation where both exist against where one or none exist. If we expand the model to include six practices, for example, we have a six-way interaction where a value of 1 means all six practices are in place, and 0 means less than six are in place. All other, smaller, combinations will also need to be in the model, otherwise different combinations of practices will be conflated. For example, for a three-way interaction, the three combinations of two-way interactions and the three main effects must be included alongside the three-way interaction itself.

### *Implications for the choice of practices*

Many of the mediation studies make reference to the lack of consensus over high-performance work practices as if it is a matter of personal choice rather than theory. Most authors do not justify their selection of practices. In some cases, the AMO framework is espoused to identify practices, but even then, as we have seen, not all dimensions are covered. In contrast, in the high-involvement management studies, Lawler's (1986) framework is used to identify involvement practices.

A key issue is the level of specificity. As practices in the high-involvement management perspective reflect an orientation, the exact ones included will not alter the meaning attributable to the underlying construct, assuming they relate to involvement. But the practices require a high degree of specificity. For example, in Wood and De Menezes' (2008) study, the specification for their measure of attitude surveys includes the stipulation that employees receive feedback, so the survey feedback method – rather than the more general attitude survey – is the practice included in the study. In contrast, perhaps mistakenly, Wood and De Menezes did not seek the same level of detail for employee appraisal by asking whether appraisal is a two-way discourse or for development rather than monitoring purposes, which would be more consistent with the high-involvement approach (Pichler et al., 2020).

The practices included in high-involvement studies can vary. If the practices reflect a common underlying variable in statistical terms, they are substitutable, although they may not be functional substitutes. To capture the distinctiveness of high-involvement management and differentiate between role-involvement and organisational involvement practices, the measures designed and pretested for Britain's 2004 workplace employment relations survey used by Wood et al. (2012) offer a good starting point. The organisational-involvement practices concerned with the idea-capturing schemes are particularly important, as its frequency of inclusion in studies across the field is low (Posthuma et al., 2013), and they can be assumed to be a key element in nurturing employees' proactivity. Gittell et al.'s (2010) emphasis on cross-functional practices, which aid relational coordination, should be incorporated in the design of some of the measures, as it is at the right level of specificity – but defining such practices must ensure the outcome of relational coordination is not built into them.



The inclusion or otherwise of payment systems in the supporting practices is a moot point. Guerrero and Barraud-Didler (2004) included them in their black-box high-involvement study, but Wood's various studies found variable pay for performance was not correlated with core high-involvement practices. In theory, individualised systems are antithetical to such practices, and should display a negative correlation with them. However, they may coexist with high-involvement management, since managements may be reluctant to change pay systems when developing high-involvement management, as this may add conflict when the aim is to foster harmony (Wood, 1996). Collective forms of performance pay (e.g. based on team or organisational performance) may, however, act as supports to involvement, and be related to it.

The choice of practices is crucial in the case of the high-performance work systems perspective, as they define the object being measured. However, the level of specification need not be high. The theory implies that they will have a level of sophistication and intensity. For example, all organisations carry out selection, but the implication is that it is done in a detailed and professional way, following the most advanced procedures. Similarly, organisations pay their employees, but in high-performance work systems the key is the link between pay and performance, individual or collective. The restoration of involvement into the high-performance work systems arena would require similar practices to those used in high-involvement management models, but the degree of specificity may be lower. For example, it may be sufficient to include formal appraisal in a high-performance work systems model.

Intuitively, as Cappelli and Neumark (2001) assert, to have any genuine meaning a high-performance work system must operate through a set of practices that have 'already been identified as associated empirically with superior performance on some dimension' (p. 738). However, this causes a problem if the synergistic effects are strong, as simple correlational analysis of an individual practice's effects on performance may produce weak results in the absence of the supporting practices. More significantly, there is a chicken-and-egg problem: we have to choose practices ahead of our inductive process in order to test their effects.

Boon et al. (2019) specify six core practices on which future studies might concentrate – training and development, incentive compensation, performance evaluation, selection, job design and participation/autonomy – on the basis of popularity in the studies of the performance and antecedents of HRM. These may not therefore predict performance, and there is a tension between treating frequency of appearance in past studies as the criterion for selecting domains for coverage in future work and the authors' message of a lack of clarity and under-theorisation of the focal concept(s) in the studies. Nonetheless, Boon et al.'s six practices cover all three dimensions of AMO, and two are involvement practices and we might expect that if such a set of practices is used consistently, a firmer picture of their right to be designated as high-performance work systems may emerge.

### *Implications for the nature and source of information on practices*

Assuming that the research stream will continue to use practices as their manifest variables, the priority in both perspectives should be on descriptive statements of practices. Avoiding questions that require evaluations or go beyond practices is a priority. Evaluative



statements may have a role in analysis if they are treated as measuring precisely what they are: assessments of practices. Accordingly, the significance of the call for a greater use of employees for acquiring information on practices depends firstly on whether the aim is to gain accounts of practices or evaluations of practices and secondly the perspective.

Managers' accounts of whether a practice is used are appropriate for high-involvement management. All employees in the workplace are treated as subject to this managerial orientation, although variations in implementation will exist. Employees' perceptions of management's approach and practices are different constructs from managerial orientations under this perspective. They are employees' judgements on the extent to which management is encouraging involvement in their jobs or the wider organisation. Nevertheless, employees' accounts of organisational involvement practices – using the referent shift approach to composing the organisational-level practice measures (Chan 1998) – have been used (Fernandez and Moldogaziev, 2013; Vandenberg et al., 1999). But employees may have limited knowledge of some practices.

Similarly, in the case of high-performance work practices, if the aim is to measure management's intended system, managers' accounts are relevant. However, if it is to measure the actual system, then the argument for data from employees (as in Bonias et al., 2010; Latorre et al., 2016) may be more salient; it would allow for differences in the relevance of practices to individual employees. This is especially important if managers heed the suggestion of Becker and Huselid (2006) that they might vary their use of practices across occupations. If we use these practices to construct an organisational-level system measure – the direct compositional approach (Chan, 1998) – then we are assuming that the constructs have equivalent meanings at different levels, that is isomorphism between the individual- and organisational-level constructs. We need, however, to test this assumption to guarantee that we have a valid measure of the organisational-level system (Wood et al., 2019). Multilevel factor analysis is the appropriate method for such a test (Tay et al., 2014).

Evaluative statements, such as managers' judgements about effective implementation of practices or employees' perceptions of the value of them, are best considered as potential moderators of the relationship between HRM and any mediators, regardless of which perspective is taken (Wood, 2020). Choi and Lee (2013) use this approach, justifying it on the basis of social exchange theory. Focusing on the A in AMO, they argue that if high-performance work practices are perceived to aid job accomplishment, employees will feel obliged to reciprocate with high performance to a greater extent. The effects of high-performance work practices on job satisfaction, their mediator, will be higher where they are perceived as effective, which their tests supported. To give another example, performance-related pay may be used, but if it is perceived as targeting outcomes out of employees' control (e.g. profit when it is heavily affected by exchange rates), employees' approach to it will limit its motivational impact. A similar argument might apply to employees' perceptions of the genuineness of management's high-involvement orientation. If, for example, employees are sceptical that their ideas will be implemented or rewarded fairly, this will reduce the orientation's capacity to increase potential mediators such as proactivity or job satisfaction.

### *Implications for aligning mediators to theory*

Across the mediation studies there is some relationship between the mediator and a theory – for example, human capital is widely linked to resource-based theory. But, the

theoretical justification for mediators remains underdeveloped, and it is here that future effort appears most required. The starting point must be that the theories relevant to the two perspectives are different.

In the high-involvement management perspective, the object being mediated is the involvement orientation, not the practices themselves. Empowerment or involvement is the mechanism explaining any performance effects. As Fernandez and Moldogaziev (2013) state, an association is expected with employees' actual empowerment, which they define as a 'motivational construct akin to a state or mind or set of cognitions'. The cognitive dimension is important, as high-involvement management is more than enhancing people's energy and motivation levels (as in the vogue for staff engagement). Wood et al. (2012) see high-involvement management as 'concerned with the development of broader horizons among all workers, so that they can think of better ways of doing their jobs, connect what they do with what others do, and react effectively to novel problems' (p. 421). Measuring such concepts is required through capturing employees' usage of the discretion in their jobs and of organisational-involvement mechanisms. This is distinct from any evaluation (or reporting) by employees of involvement practices or management's intentions. The three mediators prominent in the high-involvement studies – job satisfaction/well-being (Wood et al., 2012; Wood and Ogbonnaya, 2018), innovativeness/proactivity (Fernandez and Moldogaziev, 2013) and relational coordination (Gittell et al., 2010) – are all significant effects of employee involvement. They align with theory, although psychological empowerment – which has thus far been used only in high-performance work systems studies – may also be considered a mediator.

The intentions entailed in the high-involvement orientation, and the autonomy and psychological empowerment associated with it, foster innovation and proactivity while enhancing the fulfilment of the three basic needs as defined by self-determination theory – autonomy, competence and relatedness. Employee well-being, a mediator in Wood et al.'s (2012, 2018) studies, is distinct from job satisfaction. High-involvement management will influence well-being, not just through need fulfilment but also via other processes such as increasing employees' self-efficacy and self-esteem. While well-being has predominantly been associated with pleasure and need-satisfaction within HRM, Wood (2020) suggests the meaningful dimension of happiness associated with a sense of purpose should also be explored. Organisational-involvement management may have a greater effect on this than does role-involvement management, and its effect on well-being is greater than that on need-satisfaction. It is also more likely to affect innovativeness or proactivity (Evans and Davis, 2015) and relational coordination. The enhanced coordination in the organisation arises from employees connecting what they do with what others do, developing shared understandings, and helping or learning from each other (Wood and Ogbonnaya, 2018). Consideration of reciprocal relationships between this triad of possible mediators – proactivity, satisfaction/well-being and relational coordination – may be fruitful. For example, the autonomy provided by role-involvement management may contribute to improved coordination of activities. Alternatively, the improved coordination derived from organisational-involvement management may increase employees' social satisfaction and well-being.

Possible negative effects of high-involvement management, highlighted by Wood et al. (2012), must be considered. Organisational-involvement management was

associated with higher anxiety levels in one of their studies, but this did not explain its association with performance, nor reduce its effect. Nonetheless, should such anxiety occur in other cases – for example because it leads employees to question their own competence and psychological security – it may reduce the observed performance effect.

Finally, since involvement does not inevitably follow high-involvement management; mediated relationships may be moderated by constraints on its realisation or facilitators of it, such as the qualifications and motivations of employees and line managers. For example, even where top management is pursuing high-involvement management, individual line managers may be leading in ways that are antithetical to it and curtailing the discretion of their subordinates.

In the high-performance perspective, if the theory is that the totality of practices influences performance, the total set of practices is the object whose effect is being mediated. An explanation is required for the effect of their combined use over and above the effect of each practice. The social exchange theory of the performance effects, more prominent in the mediation than the black-box studies, is perhaps the most relevant. Applying signalling theory, HRM practices have a symbolic effect through conveying the employer's concern for employees, and this leads to a 'a mutual bond' (Riaz, 2016: 425) and an equitable social exchange relationship between employee and employer (Liao et al., 2009; Messersmith et al., 2011). The psychological contract is then based on 'reciprocal obligations'. Mediators consistent with this theory are measures of social exchange, as used by Riaz (2016) and Takeuchi et al. (2007), and organisational commitment, the most prevalent across the high-performance studies (Elorza et al., 2011; Hauff et al., 2018; Mansour et al., 2014; Messersmith et al., 2011). Other mediators used in conjunction with social exchange theory are employee involvement (Allen et al., 2013), psychological empowerment, and job satisfaction (Messersmith et al., 2011; Riaz, 2016). The added value of the wholesale use of practices may also result in a qualitative change in the performance of individuals, in particular their willingness to exercise extra-role behaviour, and this is captured by organisational citizenship behaviour, as in Sun et al. (2007).

The focus in the high-performance mediation studies thus far has been on mediation chains constituted of one mediator, or of independent mediators if more than one is included. Potential causal links between them may exist, akin to those suggested when discussing the triad of mediators in the high-involvement literature, so sequential, mediated processes should be examined. Examination of potential negative effects might include excessive workloads, as examined in the high-performance work systems–employee outcomes literature (Boxall and Macky, 2014).

Finally, if high-performance practices have synergistic effects, they are likely to be specific to each combination of practices. For example, the interaction between appraisals and training might be explained by more targeted training and organisation-specific skills (Wood, 2020: 14), and a three-way interaction including this pair and performance-related pay might be similarly explained, with the addition that the payment system enhances employees' motivation to apply the training and utilise the skills in ways that enhance the fulfilment of organisational goals. It is necessary to specify the elements of a mediation chain that are moderated by another practice. For example, if the interaction of training and performance-related pay has a positive effect on labour productivity through human capital, is it that training's relationship with human capital is stronger in

organisations with performance-related pay, or is it that the effects of human capital on performance will be stronger in such organisations?

## **Conclusion**

The problems across the black-box studies of the HRM–performance identified by recent reviewers have been largely reproduced in the studies examining the mediators of this relationship. Their introductions have continued to present the studies as heterogeneous, with the exception of the diversity in the practices included in the measures. The majority focus on the value of using multiple practices and a holistic approach to HRM. This has been at the expense of the issue of employee involvement which was central to the modernisation of HRM that impelled the research area. The studies focusing on high-involvement management are in some respects more developed than those on high-performance work systems. This reinforces the call to treat these as distinct. The diversity in the HRM–performance literature reflects substantive – and not just methodological – differences between studies. Acknowledgement of this needs to be the starting point for the next phase, and different routes in all aspects of the research process – the theory and research questions, research design, and analysis procedures – will be required depending on the perspective.

The two perspectives also imply different routes for policy. The high-involvement approach suggests that management should adopt a particular orientation and recruit and develop managers accordingly, ensuring that they have the ability to design and operate practices that reflect this orientation. The high-performance systems perspective implies that a specific set of practices must be adopted. It is a literal, evidence-based approach, suggesting a formulaic methodology for the management of employees, and not the adoption of certain values as required by high-involvement management.

The high-performance systems perspective may on the surface be easier for management to adopt, as high-involvement management entails managers internalising a value set and the forensic design of practices to a high degree of specificity. On the other hand, the nature of high-involvement management is more assured and theoretically grounded.

## **Acknowledgement**

The author would like to thank Nick Catley for his editorial assistance.

## **Funding**

The author received no financial support for the research, authorship and/or publication of this article.

## **ORCID iD**

Stephen Wood  <https://orcid.org/0000-0002-6910-9907>

## **Supplemental material**

Supplemental material for this article is available online.

## References

Articles included in the mediation review are marked by an asterisk.

- \*Allen MR, Ericksen J and Collins CJ (2013) Human resource management, employee exchange relationships, and performance in small businesses. *Human Resource Management* 52: 153–174.
- Bailey T (1992) *Discretionary Effort and the Organization of Work: Employee Participation and Work Reform Since Hawthorne*. New York: Columbia University.
- \*Bartram T, Karimi L, Leggat SG, et al. (2014) Social identification: Linking high performance work systems, psychological empowerment and patient care. *International Journal of Human Resource Management* 25: 2401–2419.
- Batt R (2002) Managing customer services: Human resource practices, quit rates, and sales growth. *Academy of Management Journal* 45: 587–598.
- Becker BE and Gerhart B (1996) The impact of human resource management on organizational performance: Progress and prospects. *Academy of Management Journal* 39: 779–801.
- Becker BE and Huselid MA (1998) High performance work systems and firm performance: A synthesis of research and managerial implications. In: Ferris GR (ed.) *Research in Personnel and Human Resources Management*, vol. 16. Stamford, CT: JAI Press, pp.53–101.
- Becker BE and Huselid MA (2006) Strategic human resource management: Where do we go from here? *Journal of Management* 32: 898–925.
- Beijer S, Peccei R, Van Veldhoven M, et al. (2019) The turn to employees in the measurement of human resource practices: A critical review and proposed way forward. *Human Resource Management Journal*. Epub ahead of print 27 February 2019. DOI: 10.1111/1748-8583.12229
- \*Beltrán-Martín I, Roca-Puig V, Escrig-Tena A, et al. (2008) Human resource flexibility as a mediating variable between high performance work systems and performance. *Journal of Management* 34: 1009–1044.
- Bollen KA (2007) Interpretational confounding is due to misspecification, not to type of indicator: Comment on Howell, Breivik and Wilcox (2007). *Psychological Methods* 12: 219–228.
- Bollen KA and Lennox R (1991) Conventional wisdom on measurement: A structural equation perspective. *Psychological Bulletin* 110: 305–314.
- \*Bonias D, Bartram T, Leggat SG, et al. (2010) Does psychological empowerment mediate the relationship between high performance work systems and patient care quality in hospitals? *Asia Pacific Journal of Human Resources* 48: 319–337.
- Boon C, Den Hartog DN and Lepak DP (2019) A systematic review of human resource management systems and their measurement. *Journal of Management* 45: 2498–2537.
- Boselie P, Dietz G and Boon C (2005) Commonalities and contradictions in HRM and performance research. *Human Resource Management Journal* 15: 67–94.
- Bowen DE and Lawler E (1992) The empowerment of service workers: What, why, how and when. *Sloan Management Review* 33: 31–39.
- Boxall P and Macky K (2014) High-involvement work processes, work intensification and employee well-being. *Work, Employment and Society* 28: 963–984.
- Cafferkey K and Dundon T (2015) Explaining the black box: HPW and organisational climate. *Personnel Review* 44: 666–688.
- Cappelli P and Neumark D (2001) Do ‘high performance’ work practices improve establishment-level outcomes? *Industrial and Labor Relations Review* 54: 737–775.
- Chadwick C (2010) Theoretic insights on the nature of performance synergies in human resource systems: Toward greater precision. *Human Resource Management Review* 20: 85–101.
- Chan D (1998) Functional relations among constructs in the same content domain at different levels of analysis: A typology of composition models. *Journal of Applied Psychology* 83: 234–246.

- \*Chen C-J and Huang J-W (2007) Strategic human resource practices and innovation performance – the mediating role of knowledge management capability. *Journal of Business Research* 62: 104–114.
- \*Choi J-H and Lee K-P (2013) Effects of employees' perceptions on the relationship between HR practices and firm performance for Korean firms. *Personnel Review* 2: 573–594.
- \*Chow IHS (2012). The roles of implementation and organizational culture in the HR–performance link. *International Journal of Human Resource Management* 15: 3114–3132.
- Datta DK, Guthrie JP and Wright PM (2005) HRM and labor productivity: Does industry matter? *Academy of Management Journal* 48: 135–145.
- Delery JE (1998) Issues of fit in strategic human resource management: Implications for research. *Human Resource Management Review* 8: 289–309.
- Delery JE and Doty DH (1996) Modes of theorizing in strategic human resource management: Tests of universalistic, contingency, and configurational performance predictions. *Academy of Management Journal* 39: 802–835.
- De Menezes LM and Wood S (2006) The reality of flexible work systems in Britain. *International Journal of Human Resource Management* 17: 1–33.
- Dyer L and Reeves T (1995) Human resources strategies and firm performance: What do we know and where do we need to go? *International Journal of Human Resource Management* 6: 656–670.
- \*Elorza U, Aritzeta A and Ayestarán S (2011) Exploring the black box in Spanish firms: The effect of the actual and perceived system on employees' commitment and organizational performance. *International Journal of Human Resource Management* 22: 1401–1422.
- Evans WR and Davis WD (2015) High-performance work systems as an initiator of employee proactivity and flexible work processes. *Organizational Management Journal* 12: 64–74.
- \*Farouk S, Abu Elanain HM, Obeidat SM, et al. (2016) HRM practices and organizational performance in the UAE banking sector. *International Journal of Productivity and Performance Management* 65: 773–791.
- \*Fernandez S and Moldogaziev T (2013) Employee empowerment, employee attitudes, and performance: Testing a causal model. *Public Administration Review* 73: 490–506.
- Fleetwood S and Hesketh A (2006) HRM – Performance research: Under-theorized and lacking explanatory power. *International Journal of Human Resource Management* 17: 1977–1993.
- \*Fu N, Flood PC, Bosak J, et al. (2015) How do high performance work systems influence organizational innovation in professional service firms? *Employee Relations* 37: 209–231.
- \*Fu N, Flood PC, Bosak J, et al. (2017) High-performance work systems in professional service firms: The practices-resources-uses-performance linkage. *Human Resource Management* 56: 329–352.
- \*Gardner TM, Wright PM and Moynihan LM (2011) The impact of motivation, empowerment and skill-enhancing practices on aggregate voluntary turnover. *Personnel Psychology* 64: 315–350.
- Gerhart B (2012) Construct validity, causality, and policy recommendations: The case of high performance work practices systems. *Human Resource Management Review* 22: 157–160.
- \*Gittell JH, Seidner R and Wimbush J (2010) A relational model of how high-performance work systems work. *Organization Science* 21: 490–506.
- Godard J (2001) High performance and the transformation of work? The implications of alternative work practices for the experience and outcomes of work. *Industrial and Labor Relations Review* 54: 776–805.
- \*Gong Y, Law KS, Chang S, et al. (2009) Human resources management and firm performance: The differential role of managerial affective and continuance commitment. *Journal of Applied Psychology* 94: 263–275.



- Guerrero S and Barraud-Didler V (2004) High-involvement practices and performance of French firms. *International Journal of Human Resource Management* 15: 1408–1423.
- Hauff S (2019) Analytical strategies in HRM systems research: A comparative analysis and some recommendations. *International Journal of Human Resource Management*. Epub ahead of print 7 February 2019. DOI: 10.1080/09585192.2018.1547779
- \*Hauff S, Alewell D and Hansen NK (2018) Further exploring the links between high-performance work practices and firm performance: A multiple-mediation model in the German context. *German Journal of Human Resource Management* 32: 5–26.
- \*Heffernan M, Harney B, Cafferkey K, et al. (2016) Exploring the HRM-performance relationship: The role of creativity climate and strategy. *Employee Relations* 38: 438–462.
- Huselid MA (1995) The impact of human resource management practices on turnover, productivity, and corporate financial performance. *Academy of Management Journal* 38: 635–672.
- Jiang K, Lepak DP, Hu J, et al. (2012) How does human resource management influence organizational outcomes? A meta-analytic investigation of mediating mechanisms. *Academy of Management Journal* 55: 1264–1294.
- \*Katou AA and Budhwar PS (2010) Causal relationships between HRM policies and organisational performance: Evidence from the Greek manufacturing sector. *European Management Journal* 28: 25–39.
- Kazlauskaite R, Buciuniene I and Turauskas L (2012) Organisational and psychological empowerment in the HRM-performance linkage. *Employee Relations* 34: 138–158.
- Khoreva V and Wechtler H (2018) HR practice and employee performance: The mediating role of well-being. *Employee Relations* 44: 227–243.
- \*Latorre F, Guest D, Ramos J, et al. (2016) High commitment HR practices, the employment relationship and job performance: A test of a mediation model. *European Management Journal* 34: 328–337.
- Lawler E (1986) *High-Involvement Management*. San Francisco: Jossey-Bass.
- Lepak DP, Liao H, Chung Y, et al. (2006) A conceptual review of human resource management systems in strategic human resource management research. *Research in Personnel and Human Resource Management* 25: 217–271.
- \*Liao H, Toya K, Lepak DP, et al. (2009) Do they see eye to eye? Management and employee perspectives of high-performance work systems and influence processes on service quality. *Journal of Applied Psychology* 94: 371–391.
- \*Lopez-Cabrales A, Pérez-Luño A and Cabrera RV (2009) Knowledge as a mediator between HRM practices and innovative activity. *Human Resource Management* 48: 485–503.
- \*Mansour N, Gara E and Gaha C (2014) Getting inside the black box: HR practices and firm performance within the Tunisian financial services industry. *Personnel Review* 43: 490–514.
- \*Martínez-del-Río J, Céspedes-Lorente J and Carmona-Morena E (2012) High-involvement work practices and environmental capabilities: How HIWPS create environmentally based sustainable competitive advantages. *Human Resource Management* 51: 827–850.
- \*Messersmith JG, Patel PC, Lepak DP, et al. (2011) Unlocking the black box: Exploring the link between high-performance work systems and performance. *Journal of Applied Psychology* 96: 1105–1118.
- \*Patel PC, Messersmith JG and Lepak DP (2013) Walking the tightrope: An assessment of the relationship between high-performance work systems and organizational ambidexterity. *Academy of Management Journal* 56: 1420–1442.
- Patterson M, Rick J, Wood S, et al. (2010) Systematic review of the links between human resource management practices and performance. *Health Technology Assessment* 14(51): 1–334, iv.



- \*Paul AK and Anantharaman RN (2003) Impact of people management practices on organizational performance: Analysis of a causal model. *International Journal of Human Resource Management* 14: 1246–1266.
- Pichler S, Beenan G and Wood S (2020) Feedback frequency and appraisal reactions: A meta-analytic test of moderators. *International Journal of Human Resource Management* 31: 2238–2263.
- Piening EP, Blauch AM and Salge TO (2013) The relationship between employees' perceptions of human resource systems and organizational performance; examining mediating mechanism and temporal dynamics. *Journal of Applied Psychology* 98: 926–947.
- Posthuma RA, Campion MC, Musimova M, et al. (2013) A high performance work practices taxonomy: Integrating the literature and directing future research. *Journal of Management* 39: 1184–1220.
- \*Raineri A (2017) Linking human resource practices with performance: The simultaneous mediation of collective affective commitment and human capital. *International Journal of Human Resource Management* 28: 3149–3179.
- \*Riaz S (2016) High performance work systems and organizational performance: An empirical study on manufacturing and services organizations in Pakistan. *Public Organization Review* 16: 421–442.
- Rogg KL, Schmidt DB, Shull C, et al. (2001). Human resource practices, organizational climate, and customer satisfaction. *Journal of Management* 27: 431–449.
- Snell SA and Dean JW (1992) Integrated manufacturing and human resource management: A human capital perspective. *Academy of Management Journal* 35: 467–504.
- \*Sun L-Y, Aryee S and Law KS (2007). High-performance human resource practices, citizenship, and organizational performance: A relational perspective. *Academy of Management Journal* 50: 558–577.
- \*Takeuchi R, Lepak DP, Wang H, et al. (2007) An empirical examination of the mechanisms mediating between high-performance work systems and the performance of Japanese organizations. *Journal of Applied Psychology* 92: 1069–1083.
- Tay L, Woo SE and Vermunt JK (2014) A conceptual and methodological framework for psychometric isomorphism: Validation of multilevel construct measures. *Organizational Research Methods* 17: 77–106.
- Vandenberg RJ, Richardson HA and Eastman LJ (1999) The impact of high involvement work processes on organizational effectiveness. *Groups and Organization Management* 24: 300–399.
- Vlachos I (2008) The effect of human resource practices on organizational performance: Evidence from Greece. *International Journal of Human Resource Management* 19: 74–97.
- Wall TD and Wood S (2005) The romance of human resource management and business performance and the case for big science. *Human Relations* 58: 1–34.
- Walton R (1985) From 'control' to 'commitment' in the workplace. *Harvard Business Review* 63: 77–84.
- Wood S (1996) High commitment management and payment systems. *Journal of Management Studies* 33: 53–77.
- Wood S (1999a) Human resource management and performance. *International Journal of Management Reviews* 1: 367–413.
- Wood S (1999b) Getting the measure of the transformed high-performance organization. *British Journal of Industrial Relations* 37: 391–417.
- Wood S (2020) The HRM–performance research stream: Are we all on the same page? *International Journal of Management Reviews* 22: 408–426.
- Wood S and Albanese MT (1995) Can we speak of high commitment management on the shop floor? *Journal of Management Studies* 32: 215–247.

- Wood S and De Menezes L (1998) High commitment management in the UK: Evidence from the workplace industrial relations survey, and employers' manpower and skills practices survey. *Human Relations* 51: 485–515.
- Wood S and De Menezes LM (2008) Comparing perspectives on high involvement management and organizational performance across the British economy. *International Journal of Human Resource Management* 19: 639–683.
- Wood S, Ghezzi V, Barbaranelli C, et al. (2019) Assessing the risk of stress in organisations: Getting the measure of organisational-level stressors. *Frontiers in Psychology, Quantitative Psychology and Measurement*. 10: article 2776. DOI: 10.3389/fpsyg.2019.02776
- \*Wood S and Ogbonnaya C (2018) High-involvement management, economic recession, well-being, and organizational performance. *Journal of Management* 44: 3070–3095.
- \*Wood S, Van Veldhoven M, Croon M, et al. (2012) Enriched job design, high involvement management and organizational performance: The mediating roles of job satisfaction and well-being. *Human Relations* 65: 419–445.
- Wood SJ and Wall TD (2007) Human resource management and employee voice. *International Journal of Human Resource Management* 18: 1335–1372.
- Wright PM, Gardner TM and Moynihan LM (2003) The impact of HR practices on the performance of business units. *Human Resource Management Journal* 13: 21–36.
- Zacharatos A, Barling J and Iverson R (2005) High-performance work systems and occupational safety. *Journal of Applied Psychology* 90: 77–93.
- \*Zhang B and Morris JL (2014) High-performance work systems and organizational performance: Testing the mediation role of employee outcomes using evidence from PR China. *International Journal of Human Resource Management* 25: 68–90.
- \*Zhou Y, Hong Y and Liu J (2013) Internal commitment or external collaboration? The impact of human resource management systems on firm innovation and performance. *Human Resource Management* 52: 263–288.