



HOW HIGH-COMMITMENT HRM RELATES TO ENGAGEMENT AND COMMITMENT: THE MODERATING ROLE OF TASK PROFICIENCY

CORINE BOON AND KARIANNE KALSHOVEN

In a multisource field study, we examine the relationship between employee perceptions of high-commitment human resource management (HRM), task proficiency, work engagement, and organizational commitment. Based on conservation of resources (COR) theory, we first propose that work engagement mediates the relationship between high-commitment HRM and organizational commitment. Second, we propose a mediated moderation model in which employees' task proficiency moderates the relationship between high-commitment HRM and work engagement, which in turn affects organizational commitment. Results indicate that the relationship between high-commitment HRM and organizational commitment was fully mediated by work engagement. Results also supported the mediated moderation model. A significant indirect effect was found from high-commitment HRM to commitment via engagement for low task proficiency, but not for high task proficiency. Implications and directions for future research are discussed. © 2014 Wiley Periodicals, Inc.

Keywords: high-commitment HRM, work engagement, commitment, task proficiency

Research in the field of strategic human resource management (SHRM) suggests that HR practices affect organizational performance by shaping employee attitudes and behaviors (Arthur, 1994; Huselid, 1995; Ramsay, Scholarios, & Harley, 2000; Whitener, 2001). Researchers have started to investigate

the relationship between different types of HR systems and employee attitudes and behaviors, such as commitment, satisfaction, social support, and citizenship behaviors (e.g., Kehoe & Wright, 2013; Liao, Toya, Lepak, & Hong, 2009; Sun, Aryee, & Law, 2007; Takeuchi, Chen, & Lepak, 2009; Takeuchi, Lepak, Wang, & Takeuchi, 2007).

Correspondence to: Corine Boon, Amsterdam Business School, University of Amsterdam, Plantage Muidergracht 12, 1018TV Amsterdam, the Netherlands, Phone: +31 20 5254181, E-mail: c.t.boon@uva.nl.

Human Resource Management, May–June 2014, Vol. 53, No. 3. Pp. 403–420

© 2014 Wiley Periodicals, Inc.

Published online in Wiley Online Library (wileyonlinelibrary.com).

DOI:10.1002/hrm.21569

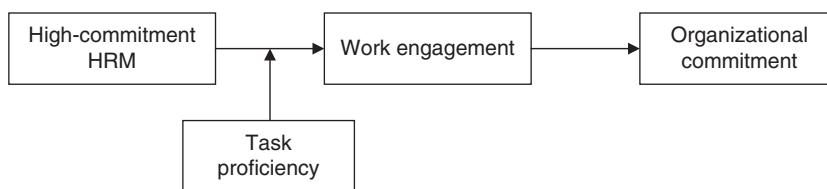


FIGURE 1. Research Model

In addition, researchers argue that in examining these individual-level effects of HRM, employee perceptions are important, as HR practices are not necessarily perceived as intended because of differences in interpretation and preferences (Kehoe & Wright, 2013; Liao et al., 2009; Nishii & Wright, 2008).

Here, we focus on employee perceptions of high-commitment HRM, which specifically aims to increase organizational effectiveness by influencing individual attitudes (i.e., commitment). Previous studies show that high-commitment HRM enhances employees' organizational commitment (e.g., Koster, 2011; Whitener, 2001). The current article builds on these studies and aims to further explore *how* and *when* high-commitment HRM is related to organizational commitment.

We extend current research by examining engagement as a mediator in the relationship between employee perceptions of high-commitment HRM and organizational commitment. Engagement encompasses a dedication and attachment toward the performance in one's job and offers organizations a competitive advantage nowadays (Bakker, 2009). According to the conservation of resources (COR) theory (Hobfoll, 1989), various types of resources such as organizational, job, and individual resources enhance engagement (Salanova, Agut, & Peiro, 2005). We argue that high-commitment HR practices represent organizational

resources (Kalshoven & Boon, 2012) and, therefore, enhance work engagement (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001; Mauno, Kinnunen, & Ruokolainen, 2007; Salanova et al., 2005). In turn, employees who experience high levels of engagement are expected to reinvest their excess resources back into the organization by showing commitment (Hobfoll, 1989). The first aim of this study is therefore to examine work engagement as a mediator between employee perceptions of high-commitment HRM and organizational commitment, applying COR theory.

Second, scholars argue that the effectiveness of HRM might differ among employees, as employees vary in their contribution to the organization, and differ in their need for HRM (Jackson, Schuler, & Rivero, 1989; Lepak & Snell, 1999). In the current article we propose a mediated moderation model in which task proficiency moderates the relationship between high-commitment HRM, work engagement, and organizational commitment. Using COR theory as our basis, we argue that employees with high task proficiency are likely to have sufficient individual resources, and thus depend less on organizational resources (i.e., high-commitment HRM) for enhancing their work engagement and, in turn, increase organizational commitment. This article thus aims to contribute to the current HRM literature by examining how and under which conditions perceptions of high-commitment HRM enhance organizational commitment. We examine work engagement as a mediator and task proficiency as a moderator in the relationship between high-commitment HRM and organizational commitment. Figure 1 depicts our model.

Using COR theory as our basis, we argue that employees with high task proficiency are likely to have sufficient individual resources, and thus depend less on organizational resources (i.e., high-commitment HRM) for enhancing their work engagement and, in turn, increase organizational commitment.

Background and Hypotheses

High-Commitment HRM and Organizational Commitment

HR practices and systems can be divided into control and commitment HRM (Arthur, 1994). Control-focused HR practices aim to reduce labor costs and increase efficiency, and focus on controlling work procedures, whereas commitment-focused HR practices aim to increase organizational performance by enhancing employee commitment (Arthur, 1994; Whitener, 2001). The difference between control and commitment HRM represents a buy versus make decision of human capital (Lepak & Snell, 2002). High-commitment HRM is the main focus of the current article. High-commitment HRM is related to the concepts of high-performance work systems and high-involvement work systems. A high-performance work system contains HR practices that lead in some way to high organizational performance (Boxall & Macky, 2009). High-involvement and high-commitment HRM have more specific aims (Boxall & Macky, 2009); high-involvement HRM has a focus on involving employees more effectively in organizational decision making, whereas the core objective of high-commitment HRM is to generate among employees a psychological bond to the organization (Boselie, Dietz, & Boon, 2005). While more empowering HR practices adopted by high-involvement strategies are expected to enhance commitment, high-commitment HRM does not necessarily include high-involvement practices, as other ways of enhancing commitment besides high involvement are possible, for example, by focusing on internal development or enhancing procedural justice perceptions (Boxall & Macky, 2009).

High-commitment HRM aims to “develop committed employees who can be trusted to use their discretion to carry out job tasks in ways that are consistent with organizational goals” (Arthur, 1994, p. 672). High-commitment HR practices focus on internal development and on stimulating organizational commitment in order to create a

long-term relationship between the organization and the employee (Arthur, 1994; Lepak & Snell, 1999, 2002; Tsui, Pearce, Porter, & Tripoli, 1997). It creates a work environment in which employees feel committed and work hard in order to achieve organizational goals (Arthur, 1994; Whitener, 2001), and communicate that employees’ interests are taken seriously (Gould-Williams, 2003; Guzzo & Noonan, 1994) through HR practices such as continuous training, high job security, empowerment, job rotation, a focus on learning and developmental feedback, variable pay, and an extensive benefits package (Lepak & Snell, 2002; Whitener, 2001).

HR practices communicate messages to employees and can be seen as signals of the organization (Guzzo & Noonan, 1994), which employees are likely to interpret in different ways (Den Hartog, Boselie, & Paauwe, 2004). How employees perceive HR practices is likely to be more strongly related to their attitudes than the actual HR practices, as people do not react to their actual “objective” environment, but rather to their (subjective) perception of it (Guest, 1999; Nishii & Wright, 2008; Purcell & Hutchinson, 2007). Therefore, we focus on employee perceptions of high-commitment HRM and their relationship with organizational commitment.

Organizational commitment is defined as “a psychological state that (a) characterizes the employee’s relationship with the organization and (b) has implications for the decision to continue or discontinue membership in the organization” (Meyer, Allen, & Smith, 1993, p. 539). Specifically, we focus on affective commitment, defined as affective attachment to the organization, as high-commitment HRM aims to enhance affective attachment (Arthur, 1994; Gould-Williams, 2003). So far, social exchange theory (SET) (Blau, 1964) has been generally used in the HRM literature to explain why (perceptions

*How employees
perceive HR
practices is likely
to be more strongly
related to their
attitudes than the
actual HR practices,
as people do not
react to their
actual “objective”
environment,
but rather to
their (subjective)
perception of it.*

of) HR practices are associated with employee commitment. We add to that work by using COR theory to explain why perceptions of high-commitment HRM are associated with employee commitment, focusing on the motivational role of organizational resources provided by HRM.

Conservation of Resources Theory

COR focuses on the investment, development, and protection of resources. Resources are defined as “objects, personal characteristics, conditions, or energies that are valued by the individual” (Hobfoll, 1989, p. 516)—for example, material, social, personal, or energetic resources (Hobfoll, 1989, 2001). COR theory states that resources may be located at the level of the organization, referring to the organizational aspects of a job that are functional in achieving work goals, reducing job demands and associated physiological and psychological costs, and stimulating personal growth, learning, and development (Demerouti et al., 2001; Kalshoven & Boon, 2012). Support that comes from an organizational system such as high-commitment HRM, which focuses on employee development and commitment, can be seen as an organizational resource (Wheeler, Halbesleben, & Shanine, 2013).

Several studies have pointed to the motivational potential of resources. COR theory states that resources may potentially be motivating in their own right through the creation, maintenance, and accumulation of resources (Hobfoll, 1989). More specifically, Hobfoll and Shirom (2000) have disputed that: (a) individuals bring in resources in order to prevent the loss of other resources, (b) individuals with a greater pool of resources are less vulnerable to resource loss, (c) individuals who do not have access to strong resource pools have a greater likelihood to experience increased loss (“loss spiral”), and (d) individuals who have access to strong resource pools are more likely to seek opportunities to risk resources for increased resource gains (“gain spiral”). According to COR theory, resources that are obtained from the organization, such as resources provided by high-commitment HR practices, are often

reinvested in the organization (Hobfoll, 2001). In line with this, high-commitment HRM can induce a gain spiral and motivate employees to contribute to the organization. In turn, employees who receive resources through high-commitment HRM are expected to reinvest their obtained resources back into the organization by being committed to the organization (Hobfoll, 2001; Salanova et al., 2005). In line with this, empirical research has shown that high-commitment HR practices such as selection, extensive training, career development, and performance appraisal are positively related to organizational commitment (Kuvaas, 2008; Whitener, 2001).

The Mediating Role of Work Engagement

Building on COR theory, the current article introduces work engagement as a mediator in the relationship between high-commitment HRM and organizational commitment. HRM researchers have argued that HRM—and particularly high-commitment HRM, as it invests in long-term employee development—might affect employee attitudes through making employees feel good, happy, and energetic at work (Gould-Williams, 2003; Lepak & Snell, 1999; Whitener, 2001). Work engagement is defined as a positive, fulfilling, work-related state of well-being characterized by a high level of energy (Bakker & Leiter, 2010), and is seen as the positive opposite of burnout (Maslach & Leiter, 1997; Schaufeli & Bakker, 2001, 2004). Work engagement is characterized by vigor, dedication, and absorption (Schaufeli, Salanova, González-Romá, & Bakker, 2002). Vigor refers to high energy levels, the willingness to invest effort in one’s job, and persistence in difficult situations. Dedication refers to a strong involvement in one’s work, and a sense of significance, enthusiasm, inspiration, pride, and challenge. Absorption is characterized by total concentration, being happy and immersed in one’s work, with time passing quickly, and having difficulties detaching oneself from work (Schaufeli et al., 2002).

Work engagement differs from related concepts such as organizational commitment and

job involvement. While organizational commitment represents an attitude and attachment toward the organization, engagement encompasses a dedication and attachment toward the performance in one's job. Job involvement is also directed at the job; it reflects the degree to which individuals are absorbed in their daily work activities and psychologically identify with their job (Elloy, Everitt, & Flynn, 1991; Kanungo, 1982). It differs, however, conceptually from work engagement, as unlike work engagement, job involvement is not related to (ill) health, and is seen as primarily dependent on intrinsic factors. Also, research has shown that work engagement can be discriminated theoretically and empirically from job involvement and organizational commitment (Hallberg & Schaufeli, 2006).

COR theory (Hobfoll, 1989, 2001) has been used to explain antecedents and consequences of work engagement (e.g., Salanova et al., 2005). Support that comes from an organizational system such as high-commitment HRM can be seen as an organizational resource (Wheeler et al., 2013) and is therefore likely to affect employees' energy levels and enthusiasm (i.e., increasing work engagement). COR theory states that employees experience stress or are less engaged when losing resources, and therefore they are strongly incentivized to invest their resources in order to gain more resources or to prevent resource loss (Hobfoll, 1989, 2001; Wheeler et al., 2013). Employees manage their resources through hoarding excess resources (Hobfoll, 2001), which they invest to gain more resources. This starts off a positive spiral of resources, which positively affects their work engagement. In contrast, a lack of resources can start off a negative spiral, which leads to more and more resource loss and thus to a decrease in work engagement. Furthermore, empirical evidence suggests that HR-related job resources, such as rewards, participation, job control, and performance feedback (Demerouti et al., 2001), training and autonomy (Salanova et al., 2005), and perceptions of resources in general (Kahn, 1992) are positively related to work engagement. In line with this, we expect that high-commitment HRM is positively related to work engagement. As mentioned, according to COR

theory, resources that are obtained from the organization, such as HR practices, are often reinvested in the organization (Hobfoll, 2001). In line with this, employees who are engaged in their work are expected to reinvest their obtained resources back into the organization by being committed to the organization (Hobfoll, 2001; Salanova et al., 2005). Combining these arguments, we expect that organizational resources in the form of high-commitment HRM will increase commitment through increasing work engagement (Hakanen, Schaufeli, & Ahola, 2008; Schaufeli & Bakker, 2004). Therefore, we expect:

We expect that organizational resources in the form of high-commitment HRM will increase commitment through increasing work engagement.

Hypothesis 1: Work engagement mediates the relationship between employee perceptions of high-commitment HRM and organizational commitment.

The Moderating Role of Task Proficiency

Our next aim is to expand our knowledge of when high-commitment HRM is related to organizational commitment in a mediated moderation model. Besides an intermediary mechanism that explains this relationship (examining work engagement as mediator), a second question in this study is in which situations high-commitment HRM is most strongly related to organizational commitment via work engagement. Building on COR, we examine task proficiency as a moderator. In SHRM research, little attention has been paid to examining individual-level conditions under which HRM affects employee attitudes (Evans & Davis, 2005; Wu & Chaturvedi, 2009). Lepak and Snell (1999, 2002) argue that the effectiveness of HRM depends on the type of contribution employees make to the organization. Employees vary in their level of skills and knowledge, and thus the HR practices that are needed to effectively manage them might vary as well (Jackson et al., 1989). Therefore, we propose that the extent to which high-commitment

HRM is associated with work engagement, and organizational commitment, depends on employees' task proficiency.

COR theory states that besides organizational resources, employees may have important individual resources in the form of valuable skills and abilities (i.e., high task proficiency). Employees with high task proficiency are therefore likely to be better able to gain additional resources, creating a positive spiral of resources (Hobfoll, 1989; Mauno et al., 2007). Also, task proficiency is likely to have a motivating effect on individuals (Lawler & Porter, 1967; Locke & Latham, 1990), and can ensure employees' confidence in their skills and abilities (Dreher, 1982), as well as fulfilling their need for competence (Deci, 1971).

Thus, employees with high task proficiency may be better able to obtain resources than employees with low task proficiency.

*We propose
a mediated
moderation model
and expect that the
indirect relationship
between high-
commitment HRM
and commitment
through engagement
is weaker for
individuals with high
task proficiency than
for individuals with
low task proficiency.*

We propose that the relationship between high-commitment HRM and work engagement will be weaker for high task proficiency than for low task proficiency. Employees with high task proficiency are likely to be intrinsically motivated and possess more individual resources such that they are able to acquire extra resources and start off a positive spiral of resources themselves (Piccolo & Colquitt, 2006). In this case, high-commitment HRM may be less strongly related to work engagement. In contrast, employees with low task proficiency have insufficient individual resources, and are therefore less likely to succeed in acquiring extra resources, and may even experience resource loss (Hobfoll, 2001). Thus, when task proficiency is low, high-commitment HRM is likely to be more strongly related

to work engagement. In line with this, we expect that either individual resources (in case of low perceptions of high-commitment HRM) or perceptions of high-commitment HRM (in case of low task proficiency) will enhance work engagement. In turn, as mentioned, we expect

that the excess resources associated with work engagement will be reinvested in the organization by showing organizational commitment. Thus, we propose a mediated moderation model and expect that the indirect relationship between high-commitment HRM and commitment through engagement is weaker for individuals with high task proficiency than for individuals with low task proficiency.

Hypothesis 2: Task proficiency will moderate the indirect relationship between employee perceptions of high-commitment HRM on work engagement and, in turn, organizational commitment, such that the mediated relationship will be weaker under high task proficiency than under low task proficiency.

Method

Sample and Procedure

Graduate students from a Dutch university voluntarily provided contact details of supervisors working in a wide range of international organizations across countries. Data were requested from supervisors (313) in 313 different organizations and their direct reports (625). Participating supervisors were asked to select two subordinates to complete a survey, one whose surname was first and one whose surname was last in the alphabet to create a random sample. Survey packets were sent to the supervisors and contained a letter for each respondent explaining the importance and purpose of the study, the voluntary nature of participation and assuring confidentiality. Respondents were able to contact researchers for questions. Surveys were returned to the researchers in stamped envelopes. Supervisors rated followers' task proficiency, and employees were asked to rate high-commitment HRM, work engagement, and organizational commitment. The employee and supervisor surveys were linked using a matching code. The total sample consisted of 270 supervisor-employee dyads. This matched dyad sample includes 270 employees, rated by 151 direct supervisors, which translates into response rates of 48 percent and 43 percent, respectively. The average age of supervisors was 43

years ($SD = 9.89$); 33 percent were women. The average age of employees was 34 ($SD = 9.81$); 45 percent were women. Participants work in sectors such as health care, education, government, insurance, logistics, IT, non-profit, finance, agricultural, and construction located in the Netherlands (87 percent), Germany, Austria, Greece, Switzerland, the United Kingdom, and the United States. Translation and back-translation procedures were followed to convert the items to Dutch by bilingual researchers in the management field (Brislin, 1980). Respondents in Dutch organizations received Dutch questionnaires, and respondents in other countries (working in international organizations) received an English version of the questionnaire.

Measures

Unless otherwise indicated, all items were rated on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

High-Commitment HRM

Employees completed the 22-item high-commitment HRM scale developed by Lepak and Snell (2002). Employees were asked to assess to what extent they agreed with specific statements related to five HR practices in their workplace (job design, recruitment and selection, training and development, performance appraisal, and compensation). The statements were not focused on the practices themselves, but on the specific use of these practices, which were in line with the focus of high-commitment HRM on creating a long-term relationship with employees, such as high job security, promotion from within, training to increase long-term productivity, performance appraisals that emphasize employee learning, and rewards that focus on long-term performance. Sample items are: "Employees have a high degree of job security" (job design), "The recruitment/selection process for employees emphasizes promotion from within" (recruitment and selection), "Our training activities for employees are comprehensive" (training and development), "Performance appraisals for employees are based on input from multiple sources" (performance appraisal), and

"Compensation/rewards for employees provide incentives for new ideas" (compensation). The Cronbach's alpha was .84.

Work Engagement

For assessing employees' work engagement, we used the 15-item Utrecht Work Engagement Scale (UWES), which consists of three subscales (vigor, dedication, and absorption) and is developed and validated by Schaufeli et al. (2002). Sample items are: "When I get up in the morning, I feel like going to work" and "When I am working, I forget everything else around me." All items were scored on a seven-point frequency rating scale ranging from 0 (never) to 6 (always). The Cronbach's alpha was .92.

Organizational Commitment

Employees' organizational commitment was measured with the five-item scale for affective organizational commitment, which was validated in Dutch by De Gilder, Van den Heuvel and Ellemers (1997), and based on the scale developed by Meyer et al. (1993). A sample item is: "This organization has a great deal of personal meaning for me." The Cronbach's alpha was .84.

Task Proficiency

Supervisors completed the four-item scale of in-role behavior from Van Dyne and LePine (1998) to assess employee task proficiency. A sample item is: "This employee performs the tasks that are expected as part of the job." The Cronbach's alpha was .88.

Control Variables

We controlled for gender (male = 1, female = 2), age in years, and tenure with both the leader and the organization in years.

Measurement Model

We tested a measurement model at the item level to verify whether scale items were adequate indicators of their underlying construct. The measurement model showed four latent factors (i.e., high-commitment HRM, work engagement, organizational commitment,

and task proficiency) and provided a good fit to the data ($\chi^2(1008) = 1,490.885$, $p < .01$; CFI = .909; RMSEA = .042; SRMR = .068). Conceivable alternative models with fewer factors did not fit our data. For example, a three-factor model that comprised work engagement and organizational commitment into one factor fitted significantly worse ($\chi^2(1011) = 1,808.256$, $p < .01$; $\Delta\chi^2 = 317.371$ (df = 3), $p < .01$; CFI = .849; RMSEA = .054; SRMR = .072), which suggests that work engagement and commitment are separate factors.

To check for the presence of common method variance in our model, we used Harman's one-factor test, based on suggestions of Podsakoff, MacKenzie, Lee, and Podsakoff (2003). CFAs were performed to compare the fit of a single (common method) factor model with the proposed measurement model. None of the fit measures of the one-factor model were acceptable ($\chi^2(1014) = 3,194.670$, $p < .01$; CFI = .587; RMSEA = .089; SRMR = .125), whereas as mentioned earlier, the proposed four-factor model did provide an acceptable fit to the data, which is significantly better than the one-factor model ($\Delta\chi^2 = 1,703.785$ (df = 6), $p < .01$). Thus, common method variance was not considered a problem in our data.

Analytic Strategy

We performed multilevel analysis, controlling for potential nonindependence between observations, because of the hierarchical structure of the data, and the fact that significant between-group variance was found for work engagement (ICC = .16) and organizational commitment (ICC = .21). All variables in our model were at level 1 (individual level) and grand-mean centered. We used multilevel structural equation modeling in Mplus to test our hypotheses, which allows for simultaneous estimation of different regression equations, and for testing the significance of indirect effects. Maximum-likelihood estimation was used. We report chi-square statistics and significance for each analysis. As chi-square significance is heavily influenced by sample size and the size of the correlations between study variables (Nye &

Drasgow, 2011), we also used Hu and Bentler's (1999) fit criteria, including the comparative fit index (CFI), root mean square error of approximation (RMSEA), and standardized root mean square residual (SRMR). Well-fitting models were defined as those that had a SRMR below .08 and met at least one of the following criteria: RMSEA below .06 or CFI above .95 (Hu & Bentler, 1999). All variables were checked for outliers and normality of distribution before analyses were performed. For missing data we used maximum-likelihood estimation, which uses all available data in the analysis. Studies have shown that this method generally outperforms other methods to deal with missing data (Allison, 2003; Kline, 2005).

Results

Table I presents the means, standard deviations, and correlations among the variables. High-commitment HRM, work engagement, and organizational commitment are significantly related, and all three variables are not significantly correlated with task proficiency.

In Hypothesis 1, we theorized that work engagement mediates between high-commitment HRM and organizational commitment. We tested this hypothesis in a two-level path model. Results are reported in Table II. The hypothesized model fits the data well ($\chi^2(24) = 41.699$, $p < .05$; CFI = .951; RMSEA = .053; SRMR = .038). Preacher and Hayes (2004) suggest a strategy for testing mediation, in which the following two conditions need to be met. First, there should be an effect to be mediated, and second, the indirect effect should be statistically significant in the direction predicted by the hypothesis. The first condition is that high-commitment HRM should relate to organizational commitment. Table II (second column) shows a significant relationship between high-commitment HRM and organizational commitment ($\beta = .21$, $p < .01$), supporting the first condition. Second, results reveal a positive relationship between high-commitment HRM and work engagement ($\beta = .33$, $p < .01$) and a positive relationship between work engagement and organizational commitment ($\beta = .51$,

TABLE I Means, Standard Deviations, and Correlations

Variable	M	SD	1	2	3	4	5	6	7	8
1. Age	33.77	9.81								
2. Gender (male = 1, female = 2)			-.01							
3. Tenure with leader	3.16	1.14	.28**	.08						
4. Tenure with organization	3.78	1.18	.49**	.11	.64**					
5. High-commitment HRM	3.13	.51	-.04	-.11	-.05	-.10	(.84)			
6. Work engagement	4.13	.88	.21**	.01	.10	.18**	.28**	(.92)		
7. Org. commitment	3.23	.78	.08	.05	.07	.14*	.20**	.53**	(.84)	
8. Task proficiency	3.99	.67	-.06	.14*	.03	.02	-.03	.12	.11	(.88)

Correlations represent within-level correlations. *N* varies from 219 to 269 due to missing values. Alphas are in parentheses.

* $p < .05$ (one-tailed).

** $p < .01$ (one-tailed).

TABLE II Results of Multilevel Path Analysis Testing Mediation

	Work Engagement	Org. Commitment	Org. Commitment
Age	.18*	-.01	-.10
Gender	.05	.06	.04
Tenure with leader	.04	.02	.00
Tenure with organization	.04	.13	.11
High-commitment HRM	.33**	.21**	.05
Work engagement			.51**
R^2	.16**	.07	.29**

N = 267. Standardized coefficients are presented.

* $p < .05$.

** $p < .01$.

$p < .01$). The indirect effect of high-commitment HRM on organizational commitment through work engagement is significant and positive ($\beta = .16$, $p < .01$). Thus, work engagement fully mediates the relationship between high-commitment HRM and commitment, providing support for Hypothesis 1.

Hypothesis 2 proposes a mediated moderation model. Mediated moderation refers to an effect of the independent variable on the dependent variable, which is different depending on the level of a moderator variable, and a mediator variable is shown to be responsible for the moderation (Edwards & Lambert, 2007; Muller, Judd, & Yzerbyt, 2005). In other words, mediated moderation analyses help us identify whether individuals high and low on task proficiency benefit differently from high-commitment HRM (Donaldson, 2001; West & Aiken, 1997).

Conventional methods of treating moderation and mediation separately suffer from various methodological problems, thereby undermining accuracy and utility (Edwards & Lambert, 2007; Preacher, Rucker, & Hayes, 2007). Therefore, we tested mediation and moderation simultaneously using multi-level structural equation modeling. We followed the recommendations by Edwards and Lambert (2007), exploring the moderating role of task proficiency not only for the first stage (between high-commitment HRM and engagement), but also for the second stage (between engagement and commitment). First, work engagement was regressed on the control variables, high-commitment HRM, task proficiency, and the interaction term (HRM $\times$ task proficiency). Second, organizational commitment was regressed on the control variables, high-commitment HRM,

TABLE III Results of Multilevel Path Analysis Testing Mediated Moderation

	Work Engagement	Org. Commitment
Age	.22**	-.09
Gender	.02	.03
Tenure with leader	.03	-.09
Tenure with organization	.08	.18
High-commitment HRM	.26**	.08
Task proficiency	.17**	.08
HRM $\times$ Task proficiency	-.14*	-.10
Work engagement		.42**
Work engagement $\times$ Task proficiency		.06
R^2	.21**	.26**

N = 267. Standardized coefficients are presented.

* $p < .05$.

** $p < .01$.

task proficiency, the interaction term (HRM $\times$ task proficiency), work engagement, and the interaction term of work engagement and task proficiency. The independent and moderator variables were mean-centered, and multiplying the centered variables created the interaction term, following suggestions of Aiken and West (1991). We estimated these equations simultaneously in MPlus. The model fitted the data well ($\chi^2(49) = 71.574$, $p < .05$; CFI = .924; RMSEA = .046; SRMR = .052). Table III presents the results.

Table III shows that task proficiency acts as a moderator in the relationship between high-commitment HRM and engagement ($\beta = -.14$, $p < .05$). This interaction effect was plotted for one standard deviation below and above the mean of task proficiency in Figure 2, which shows a significant positive relationship for low task proficiency and a nonsignificant relationship for high task proficiency (see also Table IV), which is in line with Hypothesis 2. The interaction term of work engagement and task proficiency was not significantly related to commitment, which indicates that no second-stage moderation was found, which is in line with the expectations. However, results show that engagement is significantly related to commitment ($\beta = .42$, $p < .01$).

Following suggestions of Edwards and Lambert (2007) and Preacher et al. (2007), we estimated conditional coefficients (i.e., simple effects) for the first stage (path from

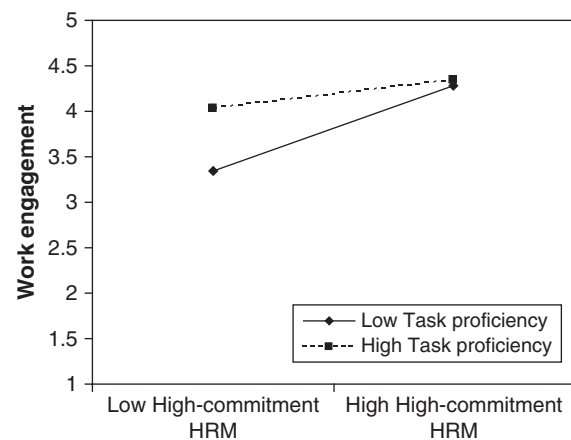


FIGURE 2. The Moderating Role of Task Proficiency in the Relationship Between High-Commitment HRM and Work Engagement

high-commitment HRM to engagement), second stage (path from engagement to commitment), direct (path from high-commitment HRM to commitment), indirect, and total effects across levels of task proficiency (see Table IV). As hypothesized, Table IV shows that high-commitment HRM is significantly positively related to engagement for low (-2 SD: $B = .63$, $p < .01$; -1 SD: $B = .48$, $p < .01$) and mean scores on task proficiency ($B = .32$, $p < .01$), and nonsignificant for high task proficiency. Furthermore, results show a significant indirect effect from high-commitment HRM to commitment via engagement for low (-2 SD: $B = .24$, $p < .01$; -1 SD: $B = .18$, $p < .01$)

TABLE IV
Analysis of Simple Effects

Moderator	Value	Stage		Effect		
		First	Second	Direct	Indirect	Total
Task proficiency	-2 SD	.63** (.20)	.38** (.08)	.31 (.20)	.24** (.09)	.55* (.23)
	-1 SD	.48** (.14)	.38** (.08)	.20 (.13)	.18** (.07)	.38* (.15)
	Mean	.32** (.10)	.38** (.08)	.09 (.08)	.12* (.05)	.22* (.09)
	+1 SD	.16 (.12)	.38** (.08)	-.01 (.09)	.06 (.05)	.05 (.11)
	+2 SD	.00 (.18)	.38** (.08)	-.12 (.14)	.00 (.07)	-.12 (.18)

N = 267. Unstandardized coefficients are presented, standard errors in parentheses.

**p* < .05.

***p* < .01.

and mean task proficiency ($B = .12, p < .05$), whereas no significant indirect effect is found for high task proficiency. Overall, these results provide support for Hypothesis 2.

To strengthen the support for the directions of the relationships in our hypothesized model, we tested two alternative models; one alternative mediation model in which commitment mediates the relationship between high-commitment HRM and engagement, and an alternative mediated moderation model in which task proficiency moderates the indirect relationship between high-commitment HRM and engagement through commitment. Results for the alternative mediation model show that while the indirect effect of high-commitment HRM on organizational commitment through work engagement is significant and positive ($\beta = .163, p < .01$), the indirect effect of high-commitment HRM on work engagement through organizational commitment is considerably weaker ($\beta = .095, p < .01$), which provides stronger support for the hypothesized model than for the alternative model. Results for the alternative mediated moderation model show that task proficiency does not act as a moderator in this model, and thus this model is not supported by the data. Taken together, these results provide additional support for our proposed model.

Discussion

We used COR theory to examine how and when high-commitment HRM is related to organizational commitment, by examining

work engagement as a mediator and task proficiency (rated by supervisors) as a moderator in this relationship. As hypothesized, we found a (full) mediating role of work engagement in the relationship between high-commitment HRM and organizational commitment. We also found support for our mediated moderation model. Results showed that high-commitment HRM relates to work engagement, which in turn affects organizational commitment when employees have low task proficiency. In cases of high task proficiency, no relationship between high-commitment HRM, work engagement and organizational commitment was found.

Theoretical Implications and Future Research

Overall, this study responds to the call for more research that bridges HRM and individual outcome variables (Wright & Boswell, 2002) by studying a model that includes both the process and context in which perceptions of high-commitment HRM are related to organizational commitment. When looking into the process through which perceptions of HRM are related to employee attitudes, the focus so far has been generally on mediators such as trust, satisfaction, justice, and perceived organizational support (e.g., Macky & Boxall, 2007; Meyer & Smith, 2000; Whitener, 2001). We add to the literature on perceptions of HRM, as our results suggest that high-commitment HR practices are perceived as organizational resources that positively relate to employees' energy level and enthusiasm at

work (i.e., work engagement) and, in turn, organizational commitment. Focusing on perceptions of high-commitment HRM as resources implies a focus on both the content and the process through which high-commitment HRM is implemented (Bowen & Ostroff, 2004). In order for employees to perceive high-commitment HRM as useful resources, not only the resources (i.e., the HR practices) themselves, but also clear and consistent implementation and communication of high-commitment HRM is important. HR practices that are intended by the organization as valuable resources might not be perceived as such if flaws in the implementation occur. Research suggests that employee per-

When employees perceive high-commitment HRM, this seems to help in gaining additional resources, and enhancing work engagement. Future research might build on our study and further explore how other HRM systems affect work engagement.

ceptions of high-commitment HRM are likely to differ from intended high-commitment HR practices, as employees' preferences and interests, and communication of high-commitment HRM are involved in forming perceptions (Bowen & Ostroff, 2004; Den Hartog et al., 2004). Future research could include both intended and perceived high-commitment HRM and study how both affect work engagement and organizational commitment. Furthermore, this study contributes to the work engagement literature, which has so far focused mainly on job and personal resources as predictors of work engagement (Bakker, 2009; Bakker & Demerouti, 2007). Our study suggests that organizational-level resources relate to work engagement as well. When employees perceive high-commitment HRM, this seems to help in gaining additional resources, and enhancing work engagement. Future research might build on our study and further explore how other HRM systems affect work engagement.

Turning to the role of task proficiency in our mediated moderation model, results suggest that for low task proficiency, the relationship between high-commitment HRM and work engagement is stronger than

for high task proficiency. In line with COR theory, this suggests that when employees receive sufficient resources (either individual or organizational resources) to increase their work engagement, they invest their excess resources back into the organization by being committed, regardless of the source of the resources (individual or organizational). Our results thus suggest an interplay between organizational and individual resources in affecting work engagement and organizational commitment (Hobfoll, 2001).

Further, Figure 2 suggests that employees who experience high-commitment HRM seem to receive a sufficient amount of resources from the organization and, in turn, feel more engaged in their work, which holds for both low and high task proficiency. However, in cases of low levels of high-commitment HRM, levels of work engagement differ between high and low task proficiency. Building on the work engagement literature, studies have demonstrated that several individual resources, such as self-efficacy and organization-based self-esteem, are related to work engagement (Mauno et al., 2007; Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2007). These personal resources are usually self-rated constructs (Bakker & Demerouti, 2007) and are positive self-evaluations that are linked to resiliency and refer to individuals' sense of their ability to control and impact upon their environment successfully (Hobfoll, Johnson, Ennis, & Jackson, 2003). Here we show that employees with high task proficiency, rated by supervisors, seem to depend less on the motivating potential of high-commitment HRM as an organizational resource to positively relate to work engagement and organizational commitment. These employees are likely to be motivated and able to acquire and create their work resources because of their high level of individual resources. Their colleagues with low task proficiency are less likely to experience the motivating effect of having sufficient individual resources, and to succeed in acquiring additional resources themselves. Therefore, employees with low task proficiency (i.e., few individual resources) who perceive few organizational resources (i.e.,

HRM) may feel less engaged in their work, as they need to restore their resources level.

While it may be that employees with high task proficiency have more positive perceptions of high-commitment HRM because they received positive evaluations from their supervisors, our data show that this is not the case; there is no significant difference in perceived organizational resources between proficient and less proficient employees.¹ Although high task proficiency may motivate employees, it does not seem to affect their perception of the organizational resources offered through high-commitment HRM. So, perceptions of high-commitment HRM may not depend on individual competences as perceived by their direct supervisor. Every job has certain demands, which can be any physical, psychological, social, or organizational aspect of a job that requires physical or psychological effort of employees (Demerouti et al., 2001). Job demands are associated with costs, which can be compensated by providing sufficient job resources in order to enhance work engagement (Demerouti et al., 2001). Perhaps employees high on task proficiency also experience high demands, as a result of which their perception of high-commitment HRM does not differ from less proficient employees. Future research could study HRM from the perspective of organizational resources as well as organizational demands. For example, control-focused HR practices such as performance appraisal focused on short-term results might be perceived as demands rather than resources.

The results also respond to the call for more research in SHRM that takes into account differences between (groups of) employees (Jackson et al., 1989; Lepak & Snell, 1999). The different findings for low and high proficiency imply that the level of task proficiency of employees needs to be taken into account when considering how to use high-commitment HRM in order to enhance work engagement and organizational commitment. It may be that employees who are rated high on task proficiency have enough resources to be engaged, but high-commitment HRM also provides direction for employees; it stimulates employees to carry out job tasks in ways

that are consistent with organizational goals (Arthur, 1994). Therefore, some parts of high-commitment HRM might still be important for this group in order for the organization to fully benefit from their efforts. Future research could build on our results and examine HR systems and how they affect both groups. This could be a challenge for HRM, as it requires identifying individual needs and specific resources to maintain engaged and committed employees. Leaders could play an important role in satisfying these individual needs (Kalshoven & Boon, 2012).

Limitations

The current research has several limitations. First, data were collected at one point in time.

This makes it impossible to draw causal conclusions or rule out the possibility of reverse causality. Although to our knowledge studies investigating the relationship between work engagement and organizational commitment using COR theory argue that work engagement leads to organizational commitment, it might also run from organizational commitment to work engagement. We did, however, find empirical (see Results section) as well as theoretical (based on COR theory; Hakanen, Bakker, & Schaufeli, 2006; Llorens, Bakker, Salanova, & Schaufeli, 2006; Schaufeli & Bakker, 2004) support for our hypothesized model.

Second, the results for Hypothesis 1 are based on self-reported questionnaire data causing common method concerns. This way of measuring is difficult to avoid when assessing perceptual, attitudinal, and engagement variables as we used in this study. We did not measure the relationship between intended or actual HR practices and perceptions of HRM. HRM data were based on participants' own perceptions. Future research might

It may be that employees who are rated high on task proficiency have enough resources to be engaged, but high-commitment HRM also provides direction for employees; it stimulates employees to carry out job tasks in ways that are consistent with organizational goals.

consider also including actual HR practices. Furthermore, supervisors rated task proficiency, so the mediated moderation model was tested using multisource data. We minimized the common method variance by using reliable and valid constructs as well as by performing confirmatory factor analyses, which indicate that the variables were distinct, indicating mono-method variance has not heavily influenced the observed relationships.

Next, who rates task proficiency may make a difference. Peer ratings may be of interest, as the supervisor does not observe all work behavior best. For instance, literature on multisource behavior ratings shows that employees evaluate their own behavior differently than their supervisors or peers (e.g., Harris & Schaubroeck, 1988). Finally, recognition of the limits of the generalizability of the study is important. We used a sample of employees in various industries covering a broad geographic area. Future research may use a more focused setting to replicate the findings.

*High-commitment
HRM seems to
particularly provide
useful resources for
individuals with low
task proficiency, as
these individuals are
likely to have fewer
individual resources
to become engaged
in their work.*

Practical Implications

Our findings may have important implications for practice. First, our study showed that high-commitment HRM is effective in enhancing work engagement and organizational commitment of employees. Organizations could use high-commitment HRM, such as high job security, promotion from within, training to increase

long-term productivity, performance appraisals that emphasize employee learning, and rewards that focus on long-term performance in order to increase work engagement and organizational commitment. Second, our results show that high-commitment HRM has different relationships with engagement and commitment for employees rated high on task proficiency than on those rated low on task proficiency. High-commitment HRM

seems to particularly provide useful resources for individuals with low task proficiency, as these individuals are likely to have fewer individual resources to become engaged in their work. Given the central role played by task proficiency in the effectiveness of high-commitment HRM, organizations may distinguish in their HR policy between levels of task proficiency, as for both high and low task proficiency, high-commitment HRM may be effective, but in different ways. Perceptions of the direct supervisors can be used to rate task proficiency of employees, which may also help supervisors in distinguishing between high and low proficiency in managing their subordinates, as they are the ones who have to implement high-commitment HRM. In line with that, the importance of employee *perceptions* of high-commitment HRM in this regard implies that organizations should pay attention to consistent implementation and communication of HR practices in order to positively influence how employees see these practices. Consistent implementation and clear communication can make sure that HR practices as designed are also perceived as such, in order for the intended effects of these practices to occur.

Conclusion

The present study aimed to add to the discussion on how and under which conditions high-commitment HRM enhances organizational commitment by exploring a model that examines the relationship between employee perceptions of high-commitment HRM, work engagement, and organizational commitment, and the moderating role of employees' task proficiency in this mediating relationship. Results show that work engagement mediates the relationship between high-commitment HRM and organizational commitment. Task proficiency was found to moderate the relationship between high-commitment HRM, work engagement, and organizational commitment. In other words, this mediation was found only for employees low on task proficiency.

Note

1. We ran a *t*-test to compare the perceptions of high-commitment HRM of respondents with above-average scores on task proficiency with respondents with below-average scores on task

proficiency. This *t*-test shows no significant difference in HRM perceptions between these two groups ($t = .139, n.s.$), which suggests that there is no difference in organizational resources between proficient and less proficient employees.

CORINE BOON is an assistant professor of human resource management at the University of Amsterdam Business School in the Netherlands. She received her PhD from Erasmus University Rotterdam in the Netherlands. Current research interests include strategic human resource management, fit in HRM, and person-environment fit. Her work has been published in journals such as the *Journal of Management*, *Human Resource Management Journal*, and the *International Journal of Human Resource Management*.

KARIANNE KALSHOVEN is the founder of the Amsterdam Center for Integrity and Leadership. She has been active as a coach, inspirator, teacher, and scientific researcher in the field of ethics and leadership for several years now. Her aim is connecting people and ethics within their work context. Dr. Kalshoven has developed a tool for measuring ethical leadership within organizations, which has been published in *The Leadership Quarterly*, the so-called Ethical Leadership at Work (ELW) questionnaire, which has been used by organizations and researchers around the world.

References

- Aiken, L. S., & West, S. G. (1991). Multiple regression: Testing and interpreting interactions. Thousand Oaks, CA: Sage.
- Allison, P. D. (2003). Missing data techniques for structural equation modeling. *Journal of Abnormal Psychology*, 112, 545–557.
- Arthur, J. B. (1994). Effects of human resource systems on manufacturing performance and turnover. *Academy of Management Journal*, 37, 670–687.
- Bakker, A. B. (2009). Building engagement in the workplace. In C. Cooper & R. Burke (Eds.), *The peak performing organization* (pp. 50–72). Oxon, UK: Routledge.
- Bakker, A. B., & Demerouti, E. (2007). The job demands-resources model: State of the art. *Journal of Managerial Psychology*, 22, 309–328.
- Bakker, A. B., & Leiter, M. P. (2010). Where to go from here: Integration and future research on work engagement. In A. B. Bakker & M. P. Leiter (Eds.), *Work engagement: A handbook of essential theory and research* (pp. 181–196). Hove, East Sussex, UK: Psychology Press.
- Blau, P. M. (1964). *Exchange and power in social life*. New York, NY: Wiley.
- Boselie, P., Dietz, G., & Boon, C. (2005). Commonalities and contradictions in HRM and performance research. *Human Resource Management Journal*, 15(3), 67–94.
- Bowen, D. E., & Ostroff, C. (2004). Understanding HRM-firm performance linkages: The role of “strength” of the HRM system. *Academy of Management Review*, 29, 203–221.
- Boxall, P., & Macky, K. (2009). Research and theory on high-performance work systems: Progressing the high-involvement stream. *Human Resource Management Journal*, 19(1), 2–23.
- Brislin, R. W. (1980). Translation and content analysis of oral and written material. *Handbook of Cross-Cultural Psychology*, 2, 389–444.
- De Gilder, D., Van den Heuvel, H., & Ellemers, N. (1997). Het 3-componentenmodel van commitment [A three-component of organizational commitment]. *Gedrag en Organisatie*, 10, 95–106.
- Deci, E. L. (1971). Effects of externally mediated rewards on intrinsic motivation. *Journal of Personality and Social Psychology*, 18, 105–115.
- Demerouti, E., Bakker, A., Nachreiner, F., & Schaufeli, W. (2001). The job demands-resources model of burnout. *Journal of Applied Psychology*, 86, 499–512.

- Den Hartog, D. N., Boselie, P., & Paauwe, J. (2004). Performance management: A model and research agenda. *Applied Psychology: An International Review*, 53, 556–569.
- Donaldson, S. I. (2001). Mediator and moderator analysis in program development. In S. Sussman (Ed.), *Handbook of program development for health behavior research and practice* (pp. 470–496). Thousand Oaks, CA: Sage.
- Dreher, G. F. (1982). The role of performance in the turnover process. *Academy of Management Journal*, 25, 137–147.
- Edwards, J. R., & Lambert, L. S. (2007). Methods for integrating moderation and mediation: A general analytical framework using moderated path analysis. *Psychological Methods*, 12, 1–22.
- Elloy, D. F., Everett, J. E., & Flynn, W. R. (1991). An examination of the correlates of job involvement. *Group and Organization Studies*, 16, 160–177.
- Evans, W. R., & Davis, W. D. (2005). High-performance work systems and organizational performance: The mediating role of internal social structure. *Journal of Management*, 31, 758–775.
- Gould-Williams, J. (2003). The importance of HR practices and workplace trust in achieving superior performance: A study of public-sector organizations. *International Journal of Human Resource Management*, 14, 28–54.
- Guest, D. E. (1999). Human resource management—The worker's verdict. *Human Resource Management Journal*, 9, 5–25.
- Guzzo, R. A., & Noonan, K. A. (1994). Human resource practices as communications and the psychological contract. *Human Resource Management*, 33, 447–462.
- Hakanen, J. J., Bakker, A. B., & Schaufeli, W. B. (2006). Burnout and work engagement among teachers. *Journal of School Psychology*, 43, 495–513.
- Hakanen, J. J., Schaufeli, W. B., & Ahola, K. (2008). The job demands-resources model: A three-year cross-lagged study of burnout, depression, commitment, and work engagement. *Work & Stress*, 22, 224–241.
- Hallberg, U. E., & Schaufeli, W. B. (2006). "Same same" but different? *European Psychologist*, 11, 119–127.
- Harris, M. M., & Schaubroeck, J. (1988). A meta analysis of self supervisor, self peer, and peer supervisor ratings. *Personnel Psychology*, 41, 43–62.
- Hobfoll, S. E. (1989). Conservation of resources. *American Psychologist*, 44, 513–524.
- Hobfoll, S. E. (2001). The influence of culture, community, and the nested self in the stress process: Advancing conservation of resources theory. *Applied Psychology*, 50, 337–421.
- Hobfoll, S. E., Johnson, R. J., Ennis, N., & Jackson, A. P. (2003). Resource loss, resource gain, and emotional outcomes among inner city women. *Journal of Personality and Social Psychology*, 84, 632–643.
- Hobfoll, S. E., & Shirom, A. (2000). Conservation of resources theory: Applications to stress and management in the workplace. In R. T. Golembiewski (Ed.), *Handbook of organization behavior* (2nd ed., pp. 57–81). New York, NY: Dekker.
- Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, 6, 1–55.
- Huselid, M. A. (1995). The impact of human resource management practices on turnover, productivity, and corporate financial performance. *Academy of Management Journal*, 38, 635–672.
- Jackson, S. E., Schuler, R. S., & Rivero, J. C. (1989). Organizational characteristics as predictors of personnel practices. *Personnel Psychology*, 42, 727–786.
- Kahn, W. (1992). To be fully there: Psychological presence at work. *Human Relations*, 45, 321–349.
- Kalshoven, K., & Boon, C. (2012). Ethical leadership, employee well-being and helping: The moderating role of HRM. *Journal of Personnel Psychology*, 11, 60–68.
- Kanungo, R. N. (1982). Measurement of job and work involvement. *Journal of Applied Psychology*, 67, 341–349.
- Kehoe, R. R., & Wright, P. M. (2013). The impact of high performance human resource practices on employees' attitudes and behaviors. *Journal of Management*, 39, 366–391.
- Kline, R. B. (2005). *Principles and practice of structural equation modeling*. New York, NY: The Guilford Press.
- Koster, F. (2011). Able, willing, and knowing: The effects of HR practices on commitment and effort in 26 European countries. *International Journal of Human Resource Management*, 22, 2835–2851.
- Kuvaas, B. (2008). An exploration of how the employee–organization relationship affects the linkage between perception of developmental human resource practices and employee outcomes. *Journal of Management Studies*, 45, 1–25.
- Lawler, E. E., & Porter, L. W. (1967). The effect of performance on job satisfaction. *Industrial Relations*, 7(1), 20–28.

- Lepak, D. P., & Snell, S. A. (1999). The human resource architecture: Toward a theory of human capital allocation and development. *Academy of Management Review*, 24, 31–48.
- Lepak, D. P., & Snell, S. A. (2002). Examining the human resource architecture: The relationships among human capital, employment, and human resource configurations. *Journal of Management*, 28, 517–543.
- Liao, H., Toya, K., Lepak, D. P., & Hong, Y. (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.
- Llorens, S., Bakker, A. B., Salanova, M., & Schaufeli, W. B. (2006). Testing the robustness of the job demands–resources model. *International Journal of Stress Management*, 31, 378–391.
- Locke, E. A., & Latham, G. P. (1990). *Work motivation: The high performance cycle*. Hillsdale, NJ: Lawrence Erlbaum.
- Macky, K., & Boxall, P. (2007). The relationship between ‘high-performance work practices’ and employee attitudes: an investigation of additive and interaction effects. *International Journal of Human Resource Management*, 18, 537–567.
- Maslach, C., & Leiter, M. P. (1997). *The truth about burnout: How organizations cause personal stress and what to do about it*. San Francisco, CA: Jossey-Bass.
- Mauno, S., Kinnunen, U., & Ruokolainen, M. (2007). Job demands and resources as antecedents of work engagement: A longitudinal study. *Journal of Vocational Behavior*, 70, 149–171.
- Meyer, J. P., Allen, N. J., & Smith, C. A. (1993). Commitment to organizations and occupations: Extension and test of a three-component conceptualization. *Journal of Applied Psychology*, 78, 538–551.
- Meyer, J. P., & Smith, C. A. (2000). HRM practices and organizational commitment: Test of a mediation model. *Canadian Journal of Administrative Sciences*, 17, 319–331.
- Muller, D., Judd, C. M., & Yzerbyt, V. Y. (2005). When moderation is mediated and mediation is moderated. *Journal of Personality and Social Psychology*, 89, 852–863.
- Nishii, L., & Wright, P. M. (2008). Variability within organizations: Implications for strategic human resource management. In D. B. Smith (Ed.), *The people make the place: Dynamic linkages between individuals and organizations* (pp. 225–248). Mahwah, NJ: Routledge.
- Nye, C. D., & Drasgow, F. (2011). Assessing goodness of fit: Simple rules of thumb simply do not work. *Organizational Research Methods*, 14, 548–570.
- Piccolo, R. F., & Colquitt, J. A. (2006). Transformational leadership and job behaviors: The mediating role of core job characteristics. *Academy of Management Journal*, 49, 327–340.
- Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, 88, 879–903.
- Preacher, K. J., & Hayes, A. F. (2004). SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behavior Research Methods*, 36, 717–731.
- Preacher, K. J., Rucker, D. D., & Hayes, A. F. (2007). Addressing moderated mediation hypotheses: Theory, methods, and prescriptions. *Multivariate Behavioral Research*, 42, 185–227.
- Purcell, J., & Hutchinson, S. (2007). Front-line managers as agents in the HRM-performance causal chain: theory, analysis and evidence. *Human Resource Management Journal*, 17(1), 3–20.
- Ramsay, H., Scholarios, D., & Harley, B. (2000). Employees and high-performance work systems: Testing inside the black box. *British Journal of Industrial Relations*, 38, 501–531.
- Salanova, M., Agut, S., & Peiro, J. (2005). Linking organizational resources and work engagement to employee performance and customer loyalty: The mediation of service climate. *Journal of Applied Psychology*, 90, 1217–1227.
- Schaufeli, W. B., & Bakker, A. B. (2001). *Werk en welbevinden: Naar een positieve benadering in de Arbeids- en Gezondheidspsychologie [Work and well-being. Towards a positive approach in Occupational Health Psychology]*. Gedrag & Organisatie, 14, 229–253.
- Schaufeli, W. B., & Bakker, A. (2004). Job demands, job resources, and their relationship with burnout and engagement: A multi sample study. *Journal of Organizational Behavior*, 25, 293–315.
- Schaufeli, W. B., Salanova, M., González-Romá, V., & Bakker, A. (2002). The measurement of engagement and burnout: A two sample confirmatory factor analytic approach. *Journal of Happiness Studies*, 3, 71–92.
- Sun, L.-Y., Aryee, S., & Law, K. S. (2007). High-performance human resource practices, citizenship behavior, and organizational performance: A relational perspective. *Academy of Management Journal*, 50, 558–577.

- Takeuchi, R., Chen, G., & Lepak, D. P. (2009). Through the looking glass of a social system: Cross level effects of high performance work systems on employees' attitudes. *Personnel Psychology*, 62, 1–29.
- Takeuchi, R., Lepak, D. P., Wang, H. C., & Takeuchi, K. (2007). An empirical examination of the mechanisms mediating between high-performance work systems and the performance of Japanese organizations. *Journal of Applied Psychology*, 92, 1069–1083.
- Tsui, A. S., Pearce, J. L., Porter, L. W., & Tripoli, A. M. (1997). Alternative approaches to the employee-organization relationship: Does investment in employees pay off? *Academy of Management Journal*, 40, 1089–1121.
- Van Dyne, L., & LePine, J. A. (1998). Helping and voice extra-role behaviors: Evidence of construct and predictive validity. *Academy of Management Journal*, 41, 108–119.
- West, S. G., & Aiken, L. S. (1997). Toward understanding individual effects in multicomponent prevention programs: Design and analysis strategies. In K. J. Bryant, M. Windle, & S. G. West (Eds.), *The science of prevention: Methodological advances from alcohol and substance abuse research* (pp. 167–209). Washington, DC: American Psychological Association.
- Wheeler, A. R., Halbesleben, J. R. B., & Shanine, K. (2013). Exploring the middle range of person–environment fit theories through a conservation of resources perspective. In A. L. Kristof-Brown & J. Billsberry (Eds.), *Organizational fit: Key issues and new directions* (pp. 170–194). Chichester, West Sussex, UK: Wiley.
- Whitener, E. M. (2001). Do 'high commitment' human resource practices affect employee commitment? A cross-level analysis using hierarchical linear modeling. *Journal of Management*, 27, 515–535.
- Wright, P. M., & Boswell, W. R. (2002). Desegregating HRM: A review and synthesis of micro and macro human resource management research. *Journal of Management*, 28, 247–276.
- Wu, P.-C., & Chaturvedi, S. (2009). The role of procedural justice and power distance in the relationship between high performance work systems and employee attitudes: A multilevel perspective. *Journal of Management*, 35, 1228–1247.
- Xanthopoulou, D., Bakker, A. B., Demerouti, E., & Schaufeli, W. B. (2007). The role of personal resources in the job demands-resources model. *International Journal of Stress Management*, 14, 121–141.

Copyright of Human Resource Management is the property of John Wiley & Sons, Inc. and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.