

HIGH PERFORMANCE HUMAN RESOURCE PRACTICES AND CORPORATE ENTREPRENEURSHIP: THE MEDIATING EFFECT OF MIDDLE MANAGERS KNOWLEDGE COLLECTING AND DONATING BEHAVIOUR

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ABSTRACT

This study develops a mediation model in which high-performance human resource practices affect corporate entrepreneurship through two dimensions of knowledge sharing: knowledge collecting and knowledge donating. In a sample of 292 middle managers from Malaysia, we find that high-performance human resource practices relate positively to corporate entrepreneurship, and this relation is mediated by knowledge sharing. The results suggest that the willingness of middle managers to engage in knowledge sharing serves as a partial mediator to attenuate this positive relationship. However, an interesting outcome from this study is that although high-performance human resource practices are positively related to the willingness of middle managers to collect and donate knowledge, only middle managers' willingness to donate knowledge was found to partially mediate the relationship between high-performance human resource practices and corporate entrepreneurship. We discuss the theoretical and managerial implications for human resource management research and practice.

Keywords: High-performance human resource practices, knowledge sharing, corporate entrepreneurship, middle managers

INTRODUCTION

Malaysia, a growing economy in Southeast Asia, faces the challenges of sustaining and improving firm competitiveness in an era of globalisation (Osman, Ho, & Galang, 2011). Corporate entrepreneurship (CE) can allow Malaysian firms to innovate, develop new businesses, and transform themselves to meet the rising challenges of dynamic and highly globalised environments. Remaining competitive in such environments requires organisational practices and policies

that enhance competitiveness. Although the importance of Human Resource (HR) practices as a source of competitive advantage has long been established in Western organisations, many countries in Southeast Asia still lack appreciation for its value (Othman & Teh, 2003; Bennington & Habir, 2003).

Studies have consistently found a positive relationship between high-performance HR practices (HPHRP) and various firm outcomes, including CE (Datta, Guthrie, & Wright, 2005; Subramony, 2009; Zhang & Ma, 2008; Zhang & Jia, 2010). High-performance HR systems are defined as "groups of separate but interconnected human resource (HR) practices designed to enhance employees' skills and effort" (Takeuchi, Lepak, Wang, & Takeuchi, 2007, p. 1069). Increased globalisation and competition has further emphasized the importance of well-designed HR practices, which foster organisational environments conducive to knowledge sharing, to Malaysian firms (Osman et al., 2011). While it is conceptually reasonable to expect HPHRP to reinforce CE, the underlying mechanisms supporting this relationship remain unclear, especially within the Malaysian context (Fong, Ooi, Tan, Lee, & Chong, 2011).

Knowledge sharing involves the mutual exchange of knowledge and has been shown to contribute to increased organisational competitiveness and CE (Hayton, 2005; Van den Hooff & Van Weenen, 2004). Furthermore, organisations are becoming increasingly dependent on individual employees' knowledge sharing behaviour to contribute to organisational effectiveness and CE (Kuratko, Ireland, Covin, & Hornsby, 2005; Hornsby, Kuratko, Shepherd, & Bott, 2009; Zhang & Ma, 2008). Studies have long emphasised middle managers and their discretionary behaviours as critical antecedents to CE (Hornsby et al., 2009; Nonaka & Takeuchi, 1995). Through their knowledge sharing behaviours, middle managers can facilitate knowledge application, innovation, and ultimately CE (Jackson, Chuang, Harden, & Jiang, 2006; Hayton, 2005; Nonaka & Takeuchi, 1995).

Despite the importance of middle managers and knowledge sharing in stimulating CE, there is little empirical evidence concerning specific knowledge sharing behaviours that support CE. To address this gap, we focus on middle managers' knowledge collecting and donating behaviours as key behavioural actions through which CE is stimulated. We suggest that the relationship between HPHRP and CE is mediated by middle managers' knowledge collecting and donating behaviours. We test our model on a sample of 292 middle managers from Malaysia.

Our study contributes to the existing literature in several ways. First, we address a vacancy in the literature with respect to the mediating mechanisms of HPHRP that affect organisational outcomes. Second, we contribute to existing knowledge

by empirically testing middle managers' knowledge sharing behaviours that may link HPHRP to CE. Finally, the data collected from this study allows us to test the HR-CE relationship in the Asian context, providing an opportunity to create actionable knowledge that may benefit practitioners and academics alike.

THEORETICAL BACKGROUND AND CONSTRUCTS

High-Performance HR Practices

There is a growing interest in understanding how HR practices contribute to organisational outcomes and competitive advantages (Chen & Huang, 2009; Combs, Liu, Hall, & Ketchen, 2006; Montoro-Sánchez & Soriano, 2011; Subramony, 2009; Zhang & Jia, 2010). Substantial research in the HRM field has sought to pinpoint the characteristics of an optimal HR system for attaining competitive advantage, and support for a high-performance approach to HR management has emerged from these examinations. High-performance HR practices are bundles of HR practices that enhance the skills of the workforce, encourage participation in decision-making, and motivate employees to expend discretionary effort (Sun, Aryee, & Law, 2007).

Theorists continue to lament the lack of understanding of key mechanisms linking the utilisation of HPHRP to firm outcomes (Becker & Huselid, 2006; Chadwick & Dabu, 2009). In short, researchers have fairly strong evidence that HPHRP "work," but are less clear as to exactly how this relationship functions. Organisational outcomes do not stem from the HR practices themselves, but rather from the human efforts arising from these HR practices (Way, 2002). Thus, HPHRP systems are effective to the extent that they positively affect employees and inspire them to contribute to important organisational outcomes.

Employee contributions to organisational outcomes are partially dependent on the extent to which employees display discretionary behaviours leading to organisational effectiveness. Recent empirical evidence suggests that HPHRP affect organisational outcomes through a range of discretionary behaviours, such as job satisfaction, affective commitment (Gong, Law, Chang, & Xin, 2009; Takeuchi, Chen, & Lepak, 2009), service-oriented citizenship behaviours, turnover (Sun et al., 2007; Zhang, Wan, & Jia, 2008), and social exchanges (Takeuchi et al., 2007). However, such studies have continued to provide limited insight into the effects of HPHRP on more proximal employee behaviours (Nishii & Wright, 2008; Sun et al., 2007), thereby leading to gaps in our understanding of the mechanisms linking HPHR to organisational outcomes.

In this study, we focus on one type of discretionary behaviour: knowledge

sharing. In keeping with a relational view of knowledge sharing (Collins & Smith, 2006), we suggest that a supportive work environment facilitates knowledge sharing. Accordingly, employees' perceptions of HPHRP are likely to foster their perception of a supportive organisational environment, thus motivating knowledge sharing behaviours.

Knowledge Sharing

Knowledge sharing is an important factor in successfully fostering CE (Argote & Ingram, 2000; Hayton, 2005). Knowledge sharing has been studied at the organisational, group, and individual levels (Jackson, et al., 2006). In this study, we focus on individual knowledge sharing behaviours. Arguments linking HR practices and CE often refer to the importance of individual-level mechanisms—that is, individuals' motivations, cognition, and behaviours – and the interaction among those individuals (Felin & Foss, 2006; Hayton, 2005).

Knowledge sharing involves mutual exchanges among individuals, including sending and receiving knowledge. It is a relational act that incorporates communicating one's knowledge to others as well as receiving knowledge from others (Van De Hoof & Van Weenen, 2004). Knowledge is often highly personal and not easily expressed, making it difficult to share (Kogut & Zander, 1992; Szulanski, 1996). Therefore, employee motivations for sharing knowledge cannot be taken for granted (Cabrera & Cabrera, 2005; Osterloh & Frey, 2000). While researchers have given consideration to the issue of knowledge sharing and organisational outcomes such as innovation and CE, they have seldom considered the role of individual employees in this process.

Scholars have argued that HR practices are likely to have the desired consequences on employee attitudes and behaviours only to the extent that they are consistently experienced and perceived by employees as intended (Bowen & Ostroff, 2004). Thus, studies have distinguished between different classes of management and knowledge sharing behaviour. While such studies have examined the knowledge sharing behaviours of top and operational-level managers (Chen, Chang, & Wang, 2008; Lin & Lee, 2004), few empirical studies exist on middle managers' knowledge sharing behaviours. There are even fewer studies that consider the knowledge sharing behaviours of middle managers in the Malaysian context. Given Malaysia's bid to be an economic powerhouse by 2020 (Jabatan Perangkaan Malaysia, 2006), there is a need for Malaysian firms to identify key HPHRP and individuals that contribute to competitiveness.

Middle Managers and Corporate Entrepreneurship

Sharma and Chrisman (1999, p. 262) define CE as the "process wherein an

individual or a group of individuals, in association with an existing organisation, create a new organisation or instigate renewal or innovation within that organisation". Managers at all organisational levels have critical strategic roles to fulfil in pursuit of CE (Kuratko et al., 2005; Ireland, Hitt, & Vaidyanath, 2002). Middle managers, whose roles and tasks differ from those of top and operational-level managers, have been identified in the literature as key organisational actors in fostering innovation and CE (Hornsby et al., 2009; Kuratko, et al., 2005). Middle managers' strategic roles focus on the effective communication of information between the firm's internal stakeholders (Kuratko et al., 2005). This communication of knowledge and information between the firm's internal stakeholders is the foundation through which middle managers can support CE.

A key element of middle managers' information communication roles is their knowledge sharing behaviour (Hornsby et al., 2009). Nonaka and Takeuchi (1995) suggest that middle managers' central positioning in the firm allows them to actively and diligently collect knowledge within and outside the firm. Middle managers are frequently involved in parcelling and integrating knowledge and transferring it to others in the organisation (Nonaka & Takeuchi, 1995). Such behaviours could lead to increased innovation and firm performance, including sales growth and revenue from new products and services (Collins & Smith, 2006; Lin, 2007; Mesmer-Magnus & DeChurch, 2009). Despite scholarly efforts, there is still a lack of understanding regarding middle managers' knowledge sharing behaviour in support of CE and how such behaviour emerges. Therefore, in this particular study we focus on specific two aspects of middle managers' knowledge sharing behaviours in fostering CE: knowledge collecting and donating.

HYPOTHESIS DEVELOPMENT

High Performance HR Practices and CE

The management of CE is distinct from traditional management because of its greater uncertainty and knowledge intensity (Kanter, 1985). Fostering CE requires an enlightened approach to management, including decentralisation of authority, participation in decision-making, cooperation, avoidance of bureaucracy and encouragement of risk taking and creativity (Hornsby, Kuratko, & Montagno, 1999; Hayton, 2005).

It is generally believed that when HR practices are internally consistent they reinforce one another so that their sum is a synergistic influence upon desired employee behaviours (Hayton, 2005). More specifically, Hayton (2005) and Zhang and Jia (2010) have noted the importance of discretionary and spontaneous

behaviours that are beyond explicit role requirements but essential for CE. From a social exchange perspective (Blau, 1964), the positive benefits of a supportive work environment obligate employees to reciprocate with behaviours that benefit the organisation. Similarly, Leana and Van Buren (1999) argued that employment practices akin to HPHRP foster high-quality exchange relationships, leading employees to assume the role of good organisational agents. Accordingly, we expect HPHRP to encourage employees to devote themselves to the organisation by contributing innovative ideas (Chen & Huang, 2009; Paul & Anantharaman, 2003). Supporting our contention is evidence linking HR practices to the creation of organisational environments that encourage discretionary entrepreneurial and risk-taking behaviours by employees (Sun et al., 2007; Zhang & Jia, 2010). Therefore, we propose the following:

H1: High-performance HR practices are positively related to CE.

High-performance HR Practices and Middle Managers' Knowledge Sharing

Numerous studies have demonstrated knowledge sharing as an essential component in enabling organisations to enhance their innovation performance and reduce redundant learning efforts (Chen & Huang, 2009; Currie & Kerrin, 2003; Scarbrough, 2003; Wright, Dunford, & Snell, 2003). According to Van den Hooff and Van Weenen (2004), knowledge sharing consists of both knowledge collecting and donating actions. Knowledge donating refers to beliefs and behavioural routines related to the spread of learning among different individuals or organisational units, while knowledge collecting refers to the process of consulting colleagues to encourage them to share their intellectual capital (Van den Hooff & Van Weenen, 2004). An important challenge for organisations is to identify processes and factors that influence both of these actions (Jantunen, 2005).

Lepak, Liao, Chuk, and Harden (2006) argue that employees who believe that their efforts are an integral part of an organisation are more likely to engage in extra-role behaviours, such as sharing knowledge. Accordingly, studies have found combinations of HR practices that encourage employees' knowledge sharing behaviours (Foss et al., 2009; Cruz et al., 2009). Middle managers will likely regulate their knowledge sharing behaviours based on self-interested cost-benefit analysis and the existence of trust (Currie & Kerrin, 2003; Davenport & Prusak, 2003; Foss, 2007). Previous studies have shown HPHRP to be a form of organisational inducement that can affect how employees perceive the quality of the employee-organisation relationship (Zhang & Jia, 2010; Cohen & Keren, 2008). Accordingly, HPHRP foster a supportive work environment that includes trust and cooperation, which can encourage middle managers to share their knowledge (Wang & Noe, 2010). Therefore, we argue that HPHRP will facilitate

middle managers' knowledge collecting and donating behaviours. We propose the following hypotheses:

H2a: High-performance HR practices are positively related to middle managers' knowledge collecting behaviour.

H2b: High-performance HR practices are positively related to middle managers' knowledge donating behaviour.

Middle Managers' Knowledge Collecting and Donating Behaviour and CE

Hayton (2005) highlighted the importance of internal knowledge exchanges in fostering CE. Knowledge represents a critical organisational resource that provides a sustainable competitive advantage in a competitive and dynamic economy (Davenport & Prusak, 1998; Jantunen, 2005). From a social exchange perspective, middle managers' are more appropriately positioned than lower- or senior-level managers to collect and donate knowledge. We predict that middle managers' knowledge collecting and donating behaviours will be positively related to CE. When middle managers donate their knowledge to others in the organisation, collective learning and synergistic benefits are likely to be generated. This can result in production cost savings, faster turnaround times for new product development, individual entrepreneurial behaviour, and firm innovation (Collins & Smith, 2006; Chen & Huang, 2009).

Similarly, middle managers' knowledge collecting behaviours provide the organisation with the opportunity to modify its knowledge stock, increasing the potential for new innovative and entrepreneurial practices. Hansen (1999) suggested that knowledge collecting represents a key aspect of successful project completion, especially for organisations actively involved in innovation projects (Yli-Renko, Autio, & Sapienza, 2001). When middle managers are simultaneously involved in the collecting and donating of knowledge, firms can reduce uncertainty and achieve administrative and technological advantages (Li & Calantone, 1998). This leads not only to product and process innovation but also to strategic renewal. Therefore, the following hypotheses are proposed:

H3a: Middle managers' knowledge collecting is positively related to corporate entrepreneurship.

H3b: Middle managers' knowledge donating is positively related to corporate entrepreneurship.

The Mediating Role of Middle Managers' Knowledge Collecting and Donating Behaviours

As argued in the preceding sub-sections, HPHRP positively influence middle managers' knowledge collecting and donating behaviours, which in turn are important antecedents to CE. Therefore, middle managers' knowledge sharing behaviour is likely to mediate the relationship between HPHRP and CE. This implicitly suggests that although both knowledge collecting and donating behaviours would be positive to CE, middle managers' central positioning (i.e., they have access to both top- and bottom-level knowledge) make their knowledge sharing essential to CE.

Middle-managers' knowledge sharing behaviour can be strongly shaped by their perceptions of the organisation's internal environment (Cabrera, Collins, & Salgado, 2006; Lin, 2007). Our earlier discussions suggest that HR practices can develop an internal environment conducive to employee knowledge sharing (Podsakoff & MacKenzie, 1997). Hence, we argue that extensive knowledge collecting and donating by middle managers is unlikely to occur without HPHRP, and CE is therefore likely to be ineffective. Thus, we propose the following hypotheses:

H4a: Middle managers' knowledge collecting mediates the relationship between high-performance HR practices and CE

H4b: Middle managers' knowledge donating mediates the relationship between high-performance HR practices and CE.

METHODOLOGY

Data Collection and Sample

We employed a questionnaire survey design to test the validity of our research model and hypotheses. Participants were recruited from public and private Malaysian university continuing education/training programs for middle managers. The participants held middle-management positions in their respective firms. The authors distributed 600 questionnaires over a three-month period in 2011. Of the 323 returned questionnaires, 31 were incomplete, leaving 292 valid and complete questionnaires for analysis. This represented a response rate of 48.7%. Of the 292 respondents, 49.0% were male and 51.0% were female. The mean age of respondents was 32.41 (s.d. = 8.30). The most frequently occurring industry classifications for this sample were Manufacturing (43.3%), Service

(including finance and real estate; 22.6%), and Retail (17.6%). Table 1 provides the demographics of the sample respondents.

Table 1
Demographic characteristics of sample

	N = 292	%
Gender		
Males	143	49.00
Females	149	51.00
Marital Status		
Single	162	55.50
Married	114	39.00
Separated/Divorced	7	2.40
Skipped Question	9	3.10
Highest Educational Attainment		
Diploma	22	7.50
Bachelor's Degree	189	64.70
Masters Degree	69	23.60
PhD	6	2.10
Skipped Question	6	2.10
Years of Experience		
Less than 1 year	17	5.80
1–5 years	90	30.80
6–10 years	82	28.10
More than 10 years	103	35.30
Organisational Tenure		
Less than 1 year	57	19.50
1–5 years	161	55.10
6–10 years	44	15.10
More than 10 years	30	10.30

Measures

In addition to the control variables, corporate entrepreneurship (the dependent variable), HPHRP (the independent variable) and knowledge collecting and donating (the mediator variables) were all measured using a five point Likert scale (1 = strongly disagree to 5 = strongly agree).

High-performance human resource practices

High-performance HR practices were measured using Sun, Aryee and Law's (2007) 27-item scale. The scale measures eight dimensions: selective staffing, extensive training, internal mobility, employment security, broad job design, results-oriented appraisal, rewards, and participation. Example items were provided, such as *"Very extensive efforts are made in selection."* We used an additive index to reflect a single comprehensive measure of an HR system (Batt, 2002). Becker and Huselid (1998) suggested that the strategic HR management resource literature demonstrates a preference for a "unitary index that contains a set of theoretically appropriate HRM practices derived from prior work" (1998, p. 63). This study reported an overall Cronbach's α of 0.92. Individual subscale Cronbach's α values were 0.84 for selective staffing, 0.83 for extensive training, 0.69 for internal mobility, 0.72 for employment security, 0.85 for broad job design, 0.81 for results-oriented appraisal, 0.59 for rewards, and 0.81 for participation.

Middle managers' knowledge collecting and donating

Knowledge sharing was measured using a 14-item scale developed by Van den Hooff and Van Weenen (2004). The scale consists of two dimensions: knowledge collecting and donating. Knowledge collecting was measured using eight items. Example items included, such as *"Knowledge sharing with my colleagues outside of my department is considered a normal thing."* Knowledge donating was measured using six items. Example items included, such as *"Knowledge sharing with colleagues within my department is considered a normal thing."* The Cronbach's α values for knowledge collecting and knowledge donating were 0.88 and 0.85, respectively.

Corporate entrepreneurship

Corporate entrepreneurship was measured using Covin and Slevin's (1991) nine-item scale. The scale measured a firm's tendencies towards innovation, risk-taking and proactiveness. Specifically, innovation is creating and introducing new products, production processes and organisational methods. Venturing is expanding operations into existing or new markets, while strategic renewal is changing the scope of the business and its competitive approaches. Respondents were asked to categorise their firm's strategic posture in terms of these nine items. The mean ratings on these items were used as the firm's strategic posture. The higher the score is, the more entrepreneurial the strategic posture of the firm. This study reported a Cronbach's α of 0.88.

Controls

The number of years of working experience and current length of job tenure were both included in this study as control variables.

RESULTS

Descriptive Analysis

The descriptive statistics and reliability coefficients for HPHRP, knowledge collecting and donating and CE are presented in Table 2.

Table 2
Means, SDs, reliability coefficients

Variables	Mean	SD	α	Skewness	Kurtosis
High Performance Human Resource Practices (HPHRP)	93.72	3.41	0.92	-0.21	0.35
Knowledge Collecting	27.32	4.01	0.88	-0.32	0.52
Knowledge Donating	21.33	4.10	0.85	-0.19	-0.13
Corporate Entrepreneurship	3.20	0.80	0.88	-0.37	0.08

This study used variance inflation factors (VIF) to examine the effect of multicollinearity. The values of the VIF associated with the predictors show a range from 1.00 to 1.61, which fall within acceptable limits (Hair, Anderson, Tatham, & Black, 1998), suggesting no need for concern with respect to multicollinearity. Table 3 presents the zero-order correlations among the study variables. As shown in Table 3, HPHRP were related to CE, knowledge collecting and donating, thus supporting H1, H2a and H2b. Both knowledge collecting and donating were related to CE, thereby supporting hypotheses 3a and 3b.

To test H4a and H4b, we conducted a mediated regression analysis following the procedure outlined by Barron and Kenny (1986). First, we established the relationship between HPHRP and the mediators (knowledge collecting and donating). The regression results are presented in Table 4. HPHRP and the control variables accounted for significant variance in knowledge collecting ($R^2 = .06$, $F = 7.57$, $p < .01$) and donating ($R^2 = .13$, $F = 15.53$, $p < .01$).

Table 3
Zero ordered correlations among study variables

Variables	1	2	3	4	5
1. Experience					
2. Tenure	0.58**				
3. HPHRP	-0.06	0.06			
4. Knowledge collecting	-0.03	0.08	0.25**		
5. Knowledge donating	0.04	0.10	0.37**	0.57**	
6. CE	0.04	0.04	0.46**	0.30**	0.18**

** $p < .01$

Table 4
Multiple regression analysis of knowledge sharing dimensions

Variable	Knowledge collecting	Knowledge donating
	<i>B</i>	<i>B</i>
Experience	-0.41	-0.04
Tenure	0.57	0.41
HPHRP	0.10**	0.15**
R ²	0.06	0.13
F	7.57**	15.53**

** $p < .01$

Second, we established the relationships between HPHRP, knowledge collecting, donating and CE by entering the IV (high performance human resource practices) along with the controls (experience and tenure) in block 1 and the two mediators (knowledge collecting and donating) in block 2. The regression results are presented in Table 5.

In block 1, HPHRP and the control variables accounted for significant variance in the DV ($R^2 = .20$, $F = 25.94$, $p < .01$) and the coefficient was significant ($b = 0.04$, $p < .01$). In block 2, the mediators added significant variance to the DV ($R^2 = .22$, $F = 17.36$, $p < .01$). Knowledge donating was a significant predictor of CE ($b = 0.03$, $p < .05$), but knowledge collecting was not ($b = -0.02$, $p > .05$). When the mediators were entered in block 2, the coefficient for the IV decreased to $b = 0.03$ ($p < .01$), suggesting a partial mediation.

Table 5
Multiple regression analysis of corporate entrepreneurship

Variable	B	R ²	ΔR ²
Step 1		0.21**	0.21**
Experience	0.06		
Tenure	-0.03		
HPHRP	0.04**		
Step 2		0.22**	0.01**
Experience	0.06		
Tenure	-0.04		
HPHRP	0.03**		
Knowledge collecting	-0.00		
Knowledge donating	0.03*		

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

We tested the model of knowledge collecting and donating as mediators of the relationship between HPHRP and CE using 5,000 bootstrapping resamples (Preacher & Hayes, 2004, 2008; Preacher, Rucker, & Hayes, 2007). Mediation is said to be significant if the 95% Bias-corrected and accelerated (BCa) confidence intervals (CI) for the indirect effect do not include zero (Preacher & Hayes, 2004, 2008; Preacher et al., 2007). Bootstrap results showed that after controlling for the effect of years of experience ($b = .06$, $SE = .05$, $p = .29$) and tenure ($b = -.04$, $SE = .06$, $p = .49$), HPHRP had a significant total effect ($b = .04$, $SE = .01$, $p < .01$) and a significant residual direct effect ($b = .03$; $SE = .01$, $p < .01$) on CE. The combined mediators partially mediated the relationship between HPHRP and CE (*i.e.* lower 95% CI = .0010, upper 95% CI = .0089). However, a deeper examination of the specific indirect effects indicated that only knowledge donating was a partial mediator because its 95% BCa bootstrap CI [0.0010, 0.0094] did not contain zero. Knowledge collecting did not contribute to the indirect effect above and beyond knowledge donating. The Sobel test further supported the finding that knowledge donating was a significant partial mediator ($z = 2.30$, $p = .02$). Thus, H4a is supported, but H4b is not.

DISCUSSION

We found high performance HR practices to be positively related to middle managers' knowledge collecting and donating behaviours as well as to CE. However, only middle managers knowledge donating partially mediated the

relationship between HPHRP and CE. Several theoretical contributions emerge from our findings.

At a broad level, this study contributes to strategic HRM scholarship by revealing critical "black box" elements linking HPHRP to organisational outcomes. Our results suggest that the attitudes and behaviours of individual actors have the potential to be affected by the system of HR practices employed by the organisation and to affect important organisational outcomes. Our results are consistent with Bowen and Ostroff's (2004) intermediate model of the linkages between HR systems and outcomes. More specifically, our study joins the existing conversation linking HR practices to CE. Our findings suggest that the effects of HPHRP may partially operate through a path connecting middle managers' discretionary behaviours and ultimately CE. Because previous studies have not adequately explained how HPHRP influences CE, this study investigated whether middle managers' knowledge collecting and donating behaviours mediate the HR-CE relationship.

A surprising finding to emerge from our study was that only middle managers' knowledge donating behaviour partially mediated the relationship between HPHRP and CE. As middle managers begin to sense greater commitment from their organisation as expressed via HPHRP, they are likely to engage in knowledge sharing behaviours that help the organisation. Middle managers' knowledge donating behaviours can provide critical task information and know-how to help and collaborate with others to solve problems, develop new ideas, or implement policies or procedures (Cummings, 2004; Pulakos, Dorsey, & Borman, 2003). Additionally, middle managers' knowledge donating is likely to have continued positive effects on the organisation. It bears noting that individual knowledge donating can generate collective learning and synergistic benefits for the organisation.

We also contribute to the strategic HRM literature highlighting the importance of assessing the role of the human element in HRM (Gerhart, 2005). Gerhart (2005) argues that strategic HRM research should refocus its efforts on determining the effects of employee attitudes on outcomes and how HR systems can contribute to such processes. Although prior studies have generally suggested that middle managers' information communication roles are important in enabling CE (Hornsby, Kuratko & Zahra, 2002; Hornsby et al., 2009), few studies have empirically examined it. By examining the mediating effect of middle managers' knowledge collecting and donating behaviours, this study improves our understanding of how middle managers' behaviours promote CE. Doing so also addresses calls "to further delineate the roles of all managerial levels in the CE process" (Kuratko et al., 2005, p. 711).

Finally, we contribute to research on CE in developing market contexts. Existing studies on CE are limited to Western developed markets, and only a few studies have been conducted in emerging and developing contexts (Zhang et al., 2009). While a small number of scholars have demonstrated the importance of CE in transition economies such as China (Chen & Huang, 2008), this line of research has mainly focused on firms in general. Thus, we have little understanding of how or what types of individual discretionary behaviours contribute to CE in such contexts.

CONCLUSION

This study examined the mediating effect of middle managers' knowledge collecting and donating behaviour on the relationship between HPHRP and CE. Our results extend the HPHRP and CE literatures by demonstrating the importance of employment relationship factors for HPHRP. Although our findings are interesting, they are not without their limitations. The main limitation is the use of a cross-sectional research design. Although the results are consistent with theoretical reasoning, the cross-sectional design may not rule out causality concerning the hypothesised relationships. Future research might address this issue by using longitudinal designs to draw causal inferences. Second, all metrics were borrowed from Western countries, modified slightly, and applied to middle managers in Malaysia. In the future, more efforts should be made to develop indigenous metrics, which will be more valuable for research in Malaysia and the Asian region.

Finally, prior studies have suggested that HPHRP can encourage commitment and discretionary behaviours (Sun et al., 2007). This study focused only on middle managers' knowledge donating and collecting behaviours. Examining other types of middle manager behaviours (such as risk-taking, perceived organisational support and affective commitment) may help further unlock the "black box" explaining the relationship between HPHRP and outcomes.

REFERENCES

- Argote, L., & Ingram, P. (2000). Knowledge transfer: A basis for competitive advantage in firms. *Organizational Behavior and Human Decision Processes*, 82, 150–169.
- Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51(6), 1173–1182.

- Batt, R. (2002). Managing customer services: Human resource practices, quit rates, and sales growth. *The Academy of Management Journal*, 45(3), 587–597.
- Becker, B. E., & Huselid, M. A. (2006). Strategic human resources management: Where do we go from here? *Journal of Management*, 32(6), 898–925.
- Becker, B. E., & Huselid, M. A. (1998). High performance work systems and firm performance: A synthesis of research and managerial implications. *Research in Personnel and Human Resource Management*, 16, 53–102.
- Blau P. M. (1964). *Exchange and power in social life*. New York: Wiley.
- Bowen, D. E., & Ostroff, C. (2004). Understanding HRM-firm performance linkages: The role of the "strength" of the HRM system. *Academy of Management Review*, 29(2), 203–221.
- Cabrera, E. F., & Cabrera, A. (2005). Fostering knowledge sharing through people management practices. *International Journal of Human Resource Management*, 16, 720–735.
- Cabrera, A., Collins, W., & Salgado, J. (2006). Determinants of individual engagement in knowledge sharing. *International Journal of Human Resource Management*, 17(2), 245–264.
- Chadwick, C., & Dabu, A. (2009). Human resources, human resource management and competitive advantage of firms: Towards a more comprehensive model of linkages. *Organization Science*, 20(1), 253–272.
- Chen, G. D., Chang, C. K., & Wang, C. Y. (2008). Ubiquitous learning website: Scaffold learners by mobile devices with information-aware techniques. *Computers & Education*, 50, 77–90.
- Chen, C. J., & Huang, J. W. (2009). Strategic human resource practices and innovation performance: The mediating role of knowledge management capacity. *Journal of Business Research*, 62(1), 104–114.
- Cohen, A., & Keren, D. (2008). Individual values and social exchange variables: Examining their relationship to and mutual effect on in-role performance and organizational citizenship behavior. *Group & Organization Management*, 33(4), 425–452.
- Collins, C. J., & Smith, K. G. (2006). Knowledge exchange and combination: The role of human resource practices in the performance of high-technology firms. *Academy of Management Journal*, 49(3), 544–560.
- Combs, J., Liu, Y., Hall, A., & Ketchen, D. (2006). How much do high-performance work practices matter? A metaanalysis of their effects on organizational performance. *Personnel Psychology*, 59(3), 501–528.
- Covin, J. G., & Slevin, D. P. (1991). A conceptual model of entrepreneurship as firm behavior. *Entrepreneurship Theory and Practice*, 16, 7–24.
- Cruz, N. M., Perez, V. M., & Cantero, C. T. (2009). The influence of employee motivation on knowledge transfer. *Journal of Knowledge Management*, 13(6), 478–490.
- Cummings, J. N. (2004). Work groups, structural diversity, and knowledge sharing in a global organization. *Management Science*, 50(3), 352–364.
- Currie, G., & Kerrin, M. (2003). Human resource management and knowledge management: Enhancing knowledge sharing in a pharmaceutical company. *International Journal of Human Resource Management*, 14(6), 1027–1045.

- Datta, D. K., Guthrie, J. P., & Wright, P. M. (2005). Human resource management and labor productivity: Does industry matter. *Academy of Management Journal*, 48, 135–145.
- Davenport, T. H., & Prusak, L. (1998). *Working knowledge*. Boston: Harvard Business School Press.
- Felin, T., & Foss, N. (2006). Individuals and organizations: Thoughts on a micro-foundations project for strategic management and organizational analysis. In D. J. Ketchen, & D. D. Bergh (Eds.). *Research methodology in strategy and management* (Vol. 3, pp. 253–288). Bingley, UK: Emerald Group Publishing Limited.
- Fong, C. Y., Ooi, K. B., Lee, V. H., & Chong, A. Y. L. (2011). HRM practices and knowledge sharing: An empirical study. *International Journal of Manpower*, 32(5-6), 704–723.
- Foss, N. J. (2007). The emerging knowledge governance approach: Challenges and characteristics. *Organization*, 14(1), 29–52.
- Foss, N., Minbaeva, D., Pedersen, T., & Reinholt, M. (2009). The impact of autonomy, task identify and feedback on employee motivation to share knowledge. *Human Resource Management*, 48(6), 871–893.
- Gerhart, B. (2005). Human resource systems. In Ostroff, C. and Judge, T. (Eds). *Perspectives on Organizational Fit*. San Francisco: Jossey-Bass.
- Gong, Y., Law, K.S., Chang, S., & Xin, K.R. (2009). Human resources management and firm performance: The differential role of managerial affective and continuance commitment. *Journal of Applied Psychology*, 94(1), 263-275.
- Hair Jr, J. F., Anderson, R.E., Tatham, R. C., & Black, W. C. (1998). *Multivariate data analysis*. Upper Saddle River, NJ: Prentice-Hall.
- Hansen, M. (1999). The search-transfer problem: the role of weak ties in sharing knowledge across organizational subunits. *Administrative Science Quarterly*, 44(1), 83–111.
- Hayton, J. C. (2005). Promoting corporate entrepreneurship through human resource management practices: A review of empirical research. *Human Resource Management Review*, 15, 21–41.
- Hornsby, J. S., Kuratko, D. F., Shepherd, D. A., & Bott, P. A. (2009). Managers' corporate entrepreneurial actions: Examining perception and position. *Journal of Business Venturing*, 24(3), 236–247.
- Hornsby, J. S., Kuratko, D. F., & Zahra, S. A. (2002). Middle managers' perception of the internal environment for corporate entrepreneurship: Assessing a measurement scale. *Journal of Business Venturing*, 17(3), 49–63.
- Hornsby, J. S., Kuratko, D. F., & Montagno, R. V. (1999). Perception of internal factors for corporate entrepreneurship: A comparison of Canadian and U.S. managers. *Entrepreneurship Theory and Practice*, 24(2), 9–24.
- Ireland, R. D., Hitt, M. A., & Vaidyanath, D. (2002). Alliance management as a source of competitive advantage. *Journal of Management*, 28(3), 413-446.
- Jabatan Perangkaan Malaysia. (2006). *Rancangan Malaysia ke-9, 2006–2010*. Kuala Lumpur: Percetakan Nasional Malaysia Berhad.

- Jackson, S. E., Chuang, C., Harden, E. E., & Jiang, Y. (2006). Toward developing human resource management systems for knowledge-intensive teamwork. In J. Martocchio (Ed.), *Research in Personnel and Human Resource Management*, 25, 27–70.
- Jantunen, A. (2005). Knowledge-processing capabilities and innovative performance: An empirical study. *European Journal of Innovation Management*, 8(3), 336–349.
- Kogut, B., & Zander, U. (1992). Knowledge of the firm, combinative capabilities, and the replication of technology. *Organization Science*, 3(3), 383–397.
- Kuratko, D. F., Ireland, R. D., Covin, J. G., & Hornsby, J. S. (2005). A model of middle-level managers' entrepreneurial behavior. *Entrepreneurship: Theory & Practice*, 29(6), 699–716.
- Leana, C. R., & Van Buren, H. J. (1999). Organizational social capital and employment practices. *Academy of Management Review*, 24, 538–555.
- Lepak, D., Liao, H., Chung, Y., & Harden, E. (2006). A conceptual review of human resource management systems in strategic human resource management research. *Research in Personnel and Human Resources Management*, 25, 217–271.
- Lin, H. F. & Lee, G. G. (2004). Perceptions of senior managers toward knowledge-sharing Behaviour. *Management Decision*, 42(1), 108–125.
- Lin, H. F. (2007). Knowledge sharing and firm innovation capability: An empirical study. *International Journal of Manpower*, 28(3/4), 315–332.
- Li, T., & Calantone, R. J. (1998). The impact of market knowledge competence on new product advantage: Conceptualization and empirical examination. *Journal of Marketing*, 62(4), 13–29.
- Mesmer-Magnus, J. R., & DeChurch, L. A. 2009. Information sharing and team performance: A meta-analysis. *Journal of Applied Psychology*, 94(2), 535–546.
- Nishii, L., & Wright, P. (2008). Variability within organizations: Implications for strategic human resource management. In Smith, D. B. (Ed.) *The people make the place: Dynamic linkages between individuals and organizations* (pp. 225–248). New York: Taylor and Francis Group.
- Nonaka, I., & Takeuchi, H. (1995). *The knowledge-creating company*. New York: Oxford University Press.
- Osman, I., Ho, T. C. F., & Galang, M. C. (2011). The relationship between human resource practices and firm performance: An empirical assessment of firms in Malaysia. *Business Strategy Series*, 12(1), 41–48.
- Osterloh, M., & Frey, B. S. (2000). Motivation, knowledge transfer, and organizational forms. *Organization Science*, 11(5), 538–580.
- Othman, R., & Teh, C. (2003). On developing the informed work place: HRM issues in Malaysia. *Human Resource Management Review*, 13(1), 393–406.
- Paul, A. K., & Anantharaman, R. N. (2003). Impact of people management practices on organizational performance: Analysis of a causal model. *International Journal of Human Resource Management*, 14, 1246–1266.
- Podsakoff, P. M. & Mackenzie, S. B. (1997). The impact of organizational citizenship behavior on organizational performance: A review and suggestions for future research. *Human Performance*, 10(2), 133–151.

- Preacher, K. J., & Hayes, A. F. (2004). SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behavior Research Methods, Instruments, & Computers*, 36, 717–731.
- Preacher, K. J., & Hayes, A. F. (2008). Contemporary approaches to assessing mediation in communication research. In A. F. Hayes, M. D. Slater, & L. B. Snyder (Eds.), *The Sage sourcebook of advanced data analysis methods for communication research* (pp. 13–54). Thousand Oaks, CA: Sage.
- Preacher, K. J., Rucker, D. D., & Hayes, A. F. (2007). Assessing moderated mediation hypotheses: Theory, methods, and prescriptions. *Multivariate Behavioral Research*, 42, 185–227.
- Pulakos, E. D., Dorsey, D. W., & Borman, W. C. (2003). Hiring for knowledge-based competition. In S. E. Jackson, M. A. Hitt, & A. S. Denisi, (Eds.), *Managing knowledge for sustained competitive advantage: Designing strategies for effective human resource management* (pp. 155–176). San Francisco: Jossey-Bass.
- Scarbrough, H. (2003). Knowledge management, HRM and the innovation process. *International Journal of Manpower*, 24(5), 501–516.
- Scarbrough, H., & Carter, C. (2000). *Investigating knowledge management*. London: Chartered Institute of Personnel and Development.
- Sharma, P., & Chrisman, J. (1999). Toward a reconciliation of the definitional issues in the field of corporate entrepreneurship. *Entrepreneurship Theory and Practice*, 23(3), 11–28.
- Subramony, M. (2009). A metaanalytic investigation of the relationship between HRM bundles and firm performance. *Human Resource Management*, 48(5), 745–768.
- 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(3), 558–577.
- Szulanski, G. (1996). Exploring internal stickiness: Impediments to the transfer of best practice within the firm. *Strategic Management Journal*, 17, 27–43.
- 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), 1–29.
- Takeuchi, R., Lepak, D. P., Wang, H., & Takeuchi, R. (2007). An empirical examination of the mechanisms mediating between high-performance work systems and the performance of Japanese organizations. *Journal of Applied Psychology*, 92(4), 1069–1083.
- Van den Hooff, B., & Van Weenen, F. D. L. (2004). Committed to share: commitment and CMC use as antecedents of knowledge sharing. *Knowledge and Process Management*, 11(1), 13–24.
- Wang, S., & Noe, R. A. (2010). Knowledge sharing: A review and directions for future research. *Human Resource Management Review*, 20(2), 115–131.
- Way, S. (2002). High performance work systems and intermediate indicators of firm performance within the US small business sector. *Journal of Management*, 28(6), 765–785.
- Wright, P. M., Dunford, B. B., & Snell, S. A. (2001). Human resources and the resource-based view of the firm. *Journal of Management*, 27(6), 701–721.

- Yli-Renko, H., Autio, E., & Sapienza, H. J. (2001). Social capital, knowledge acquisition, and knowledge exploitation in young technology-based firms. *Strategic Management Journal*, 22(6/7), 587–613.
- Zhang, J., & Ma, H. (2008). Adoption of professional management in Chinese family business: A multilevel analysis of impetuses and impediments. *Asia Pacific Journal of Management*, 25(2), 171–188.
- Zhang, Z., Wan, D., & Jia, M. (2009). Do high-performance human resource practices help corporate entrepreneurship? The mediating role of organizational citizenship behavior. *Journal of High Technology Management Research*, 19, 128–138.