

**Examining the Link between High Performance Human Resource Practices  
(HPHRP) and Organisational Performance: Evidence From the Jordanian  
Manufacturing and Financial Sectors**

Ms Shatha M. Obeidat\*

*Newcastle Business School*

*Faculty of Business and Law*

*The University of Newcastle,*

*NSW 2308, Australia*

*Office Phone: (612) (4921-6828)*

*Office Fax: (612) (4921-6911)*

Email: [Shatha.Obeidat@uon.edu.au](mailto:Shatha.Obeidat@uon.edu.au)

Professor Mark Bray

*Newcastle Business School*

*Faculty of Business and Law*

*The University of Newcastle,*

*NSW 2308, Australia*

*Office Phone: (612) (4921-5073)*

*Office Fax: (612) (4921-6911)*

Email: [Mark.Bray@newcastle.edu.au](mailto:Mark.Bray@newcastle.edu.au)

Dr. Rebecca Mitchell

*Newcastle Business School*

*Faculty of Business and Law*

*The University of Newcastle,*

*NSW 2308, Australia*

*Office Phone: (612) (4921-6828)*

*Office Fax: (612) (4921-6911)*

Email: [Rebecca.Mitchell@newcastle.edu.au](mailto:Rebecca.Mitchell@newcastle.edu.au)

\*Presenting Author

## **Examining the Link between High Performance Human Resource Practices (HPHRP) and Organisational Performance: Evidence From the Jordanian Manufacturing and Financial Sectors**

### **ABSTRACT**

*The purpose of this study is to examine the relationship between High Performance Human Resource Practices (HPHRP) and organisational performance. Moreover, the study attempts to provide empirical verification of the AMO (Ability, Motivation, and Opportunity) framework as a conceptual model concerning the core components of HPHRP. A cross sectional study was conducted on Jordanian private firms operating in both financial and manufacturing sectors. The final research sample consisted of 118 questionnaires. The study provides empirical support for the conceptualisation of HPHRP based on the AMO framework. Moreover, this study shows that HPHRP are associated with an increase in financial performance and employee productivity. Overall, these findings support previous claims that the adoption of HPHRP contributes to organisational success.*

### **Keywords**

Strategic Human Resource Management, Organisational Performance, Nesting, Factor Analysis.

Substantial work on the link between High Performance Human Resource Practices (HPHRP) and organisational performance has occurred worldwide in the 15 years since pioneering work took place (Huselid 1995; Arthur 1994; Becker and Gerhart 1996; Delery 1998). Authors have proposed many benefits that can be gained from adopting HPHRP (Tsai 2006; Delaney and Huselid 1996; Arthur 1994), compared with the more control-based personnel approach. For example, HPHRP allegedly enhances employees' ability by providing formal staffing processes and extensive training. Moreover, employees' motivation can be increased through the provision of formal performance appraisal and equitable pay (Huselid 1995). As a result, organisations should be more willing to adopt HPHRP than the more control-based approach.

In spite of the extensive research found in this area, most of the studies have been conducted in the western context, with little known of the applicability of these practices in non-western contexts.

Accordingly, there is a need for additional evidence to support the HPHRP-Performance link from outside western developed countries. Moreover, there is a lack of consistency between studies on the appropriate conceptualisation of HPHRP (Guest 1997). In order to address these issues and extend the lines of research, the aim of this study is to provide an empirical verification of the use of AMO (Ability, Motivation, and Opportunity) framework for identifying the core components of HPHRP, thereby providing appropriate conceptualisation for HPHRP. In addition, the current study seeks to examine the relationship between HPHRP and organisational performance in a non-western setting, namely Jordan, with the focus on the manufacturing and financial sectors.

### REVIEW OF THE LITERATURE

HPHRP is usually conceptualised in terms of a combination of HR practices geared toward improving organisational performance (Boselie, Dietz and Boon 2005). Martin-Tapia et al. (2009) identified the term as a system of HR practices designed to enhance employees' skills and commitment such that employees become a source of sustainable competitive advantage (2009). Consistent with previous definitions, this study refers to HPHRP as a comprehensive set of HR practices designed to enhance employees' skills, motivation and opportunity to participate, all of which aim to improve organisational performance.

Beyond definitional matters, there is a lack of theoretical foundation to the HPHRP-performance link. In particular, there is lack of consistency with regard to the conceptualisation of HPHRP. Guest's (1997) review of the HRM and performance link concluded that '*only when we make progress in measuring the independent and dependent variables can we begin to give full attention to the way in which they are linked*' (1997, p. 274). Accordingly, appropriate conceptualisation and operationalisation of both the independent and dependent variables are required so that scholars can adequately validate the efficacy of such practices on influencing organisational performance.

#### Conceptualisation of HPHRP

As Boselie et al. (2005), amongst others, have noted, there is little consistency between studies in conceptualising HPHRP and no widely accepted theoretical rationale for selecting the practices that are to HPHRP. While the identification of the components of HPHRP has varied, the problem can be

resolved by identifying a set of underlying dimensions of HPHRP. The influential work of Applebaum et al. (2000) provides a basis for these dimensions in their Ability-Motivation-Opportunity (AMO) framework.

According to Applebaum et al. (2000), HR practices influence performance in relation to employee ability, motivation and opportunity to participate. Therefore, HPHRP can be classified into three underlying dimensions: ability-enhancing practices, motivation-enhancing practices, and opportunity-enhancing practices. These three dimensions broadly represent the domain of HPHRP. In particular, HR practices of staffing and training directly influence employees' ability to perform by affecting their knowledge, skills and abilities at work (Katou and Budhwar 2010). Also, a well developed HR practices, such as formal performance appraisal and rigorous compensation systems, tap the motivation of employees (Boxall and Purcell 2003). Furthermore, employees need to take part in the decision-making process through participation and involvement (Tsai 2006) as well as through extensive communication and feedback (Guest 1997).

The use of AMO framework as a model for conceptualising HPHRP is theoretically acceptable and has been used by scholars in empirical research since its emergence in 2000 (Boselie et al. 2005). Despite this history, there has been no factor analytic work that has confirmed the validity of the AMO framework. Specifically, scholars have suggested an alternative single factor model (Martin-Tapia et al. 2009) or two-factor model (Shih, Chiang and Hsu 2006) for the conceptualisation of HPHRP. It can be concluded, therefore, that there is a lack of confirmation in previous studies regarding the conceptualisation of HPHRP based on the AMO framework. According to this, this study hypothesises that the conceptualisation of HPHRP can be based on the AMO framework, as follows:

*H 1: the three-factor AMO based model will best reflect HPHRP when compared to a one or two-factor model.*

### **The Impact of HPHRP on Performance**

Previous lines of research have provided reasonable evidence to underpin the HPHRP-Performance link. In particular, many empirical studies have shown positive HPHRP influence on a range of

indicators of organisation performance, including: financial performance (Guest, Michie, Conway and Sheehan 2003; Huselid 1995; Shih et al. 2006), employee productivity (Huselid 1995; Guthrie 2001), turnover rate (Arthur 1994; Vandenberg, Richardson and Eastman 1999) and absence rate (Wood and De Menezes 1998; Marks, Mirvis, Hackett and Grady 1986).

The pioneering work of Huselid (1995), for example, provides evidence that high performance high practices result in greater productivity and financial performance and in lower employee turnover. Delery and Doty (1996) found supporting evidence for the influence of strategic HR practices on financial performance. In more recent studies, Shih et al (2006) provided similar results, finding significant a positive relationship between high performance work systems and organisational performance.

In summary, the above discussion indicates that a positive relationship exists between HPHRP and organisational performance. Accordingly, this study hypothesises that ability-enhancing, motivation-enhancing and opportunity-enhancing practices positively influence an organisation's financial performance and employee productivity. Therefore, the proposed theoretical model (see Figure 1) focuses on the impact of these three underlying dimensions of HPHRP on two indicators of organisational performance. This theorising is summarised in the following hypotheses:

*H 2: There is a positive relationship between ability-enhancing practices and perceived financial performance.*

*H 3: There is a positive relationship between motivation-enhancing practices and perceived financial performance.*

*H 4: There is a positive relationship between opportunity-enhancing practices and perceived financial performance.*

*H 5: There is a positive relationship between ability-enhancing practices and perceived employee productivity.*

*H 6: There is a positive relationship between motivation –enhancing practices and perceived employee productivity.*

*H 7: There is a positive relationship between opportunity -enhancing practices and perceived employee productivity.*

## METHOD

### Participants

A large self-administered survey was conducted in the Jordanian manufacturing and financial sectors in the period from March until June in 2009. Participants were recruited from the 176 organisations in these sectors with more than 100 employees. The questionnaires were completed by one person from each organisation, the most senior manager responsible for the HR function. Of the 176 questionnaires distributed, 121 questionnaires were returned. In total, 118 completed and usable questionnaires were used in the analysis, with a 44% response rate of the total population. In terms of organisational characteristics, the majority of organisations (74.5%) employed between 100 and 300 employees. Also, 58.5% of the organisations operated in the manufacturing sector and most of the organisations (88%) were locally owned. As for personal characteristics of respondents, the majority were male (82%). Only 7.6% of the respondents had more than 10 years of experience in the same organisation.

### Instruments

The questions used in the survey were drawn from surveys used in previous research. In particular, the survey questions used to measure HPHRP, organisational performance and control variables were all taken from previously published surveys. The double-back translation method was used whereby the questionnaire was developed in English language and then translated into Arabic by a certified translator, and then back-translated into English. The questionnaire was then evaluated by a number of independent researchers in order to ensure content validity.

### Measures of high performance HR practices

Nine items were used to measure ability-enhancing practices, particularly staffing (i.e. formal job analysis, recruitment and selection) and training and development practices. In terms of motivation-enhancing practices, three scale items were used to measure performance management practices and

another three items to measure compensation practices. Finally, six items were used to measure the opportunity-enhancing practices dimension. All items measuring HPHRP were adopted from survey items used by Huselid (1995), Flood et al. (2008) and Snell and Dean (1992). Scale items used to measure HPHRP were assessed on a 7-point Likert scale.

### **Measures of Organisation performance**

Two measure of organisational performance were used in this study: financial performance measures and employee productivity. This study adopted the quasi perceptual measures of performance which evaluates performance in objective terms (e.g. return on equity, sales growth, and profitability), but seeks to measure performance through the perception of managers (Ketkar and Sett 2009). Self-perception based measures of performance are widely used in the literature (e.g. Shih et al. 2006; Macky and Boxall 2008). Measures of financial performance were taken by asking respondents to compare their company's performance with that of similar companies operating in the same sector over the past one to three years. Responses were taken on a 7-point Likert scale ranging from 1 (0%) to 7 (100%). Furthermore, employee productivity was measured using two scale items adopted from Way (2002).

### **Measures of control variables**

Consistent with previous studies on performance effect of HPHRP (Huselid 1995; Guthrie 2001; Arthur 1994), four control variables were considered: company size, company age, company ownership, and the sector within which the company operated. Control variables were measured using a categorical scales.

## **RESULTS**

Confirmatory Factor Analysis (CFA) using AMOS 17.0 was performed in order to specify causal relationships between the observed variables (items) and the underlying theoretical constructs. The purpose of CFA is to specify the relations of the observed measures to their posited underlying constructs, with the constructs allowed to intercorrelate freely (Anderson and Gerbing 1988). CFA was conducted in order to obtain the best fit of items that represent each construct.

Assessment of model fit was based on multiple criteria, which reflect theoretical and statistical considerations (Byrne 2001). In general, there is no agreement between researchers on the best indices

to use for testing model fit. This study adopts the most widely used indices found in the literature: the Chi-square ( $\chi^2$ ), Root-Mean-Square Error of Approximation (RMSEA), Goodness-of-Fit Index (GFI), Adjusted goodness-of-fit index (AGFI), and Comparative fit index (CFI) (Kline 2005; Hox 2002).

If the goodness-of-fit index is below the acceptable range of model fit, model modification is necessary in order to achieve a better fitting model (Schumacker and Lomax 2004). In order to find a better fitting model, two techniques are used. First, an examination of the standardized residuals covariance matrix, which gives clues as to which original covariances or correlations are not well accounted for by the model (Schumacker and Lomax 2004). Any values in this matrix that exceed a magnitude of 2.58 (Byrne 2001) indicate that the model is failing to account for much of the shared variance between particular item pairs. The second technique considers an inspection of the modification indices (MIs), the expected value that the chi-square would decrease by when the corresponding parameter is estimated (Hair, Anderson, Tatham and Black 1998). For example, the initial measurement model for ability-enhancing practices showed a misfit ( $\chi^2 = 64.57$ ,  $df = 27$ ,  $p = .00$ ,  $GFI = .89$ ,  $AGFI = .81$ ,  $RMSEA = .11$ ,  $CFI = .93$ ). In order to achieve better fit, item 3, which intended to measure 'extent of extensive recruiting efforts', was removed. The decision to remove item 3 was based on modification indices (MIs) values. The removal of this item is also theoretically justified, as changes based only on MIs are purely statistically driven. The provision of extensive recruitment within organisations may not be a necessary condition to achieve high performance as organisations can depend on internal recruitment to fill vacant positions. Moreover, many scholars (for example: Huselid 1995; Macky and Boxall 2007) did not include 'extensive recruitment' as part of the high performance HR practices, when they examined their link with organisation performance.

The improved CFA model for ability-enhancing practices parameter showed better fit ( $\chi^2 = 26.52$ ,  $df = 20$ ,  $p = .14$ ,  $GFI = .95$ ,  $AGFI = .91$ ,  $RMSEA = .05$ ,  $CFI = .98$ ). Moreover, the improved CFA models for both motivation-enhancing practices ( $\chi^2 = 10.70$ ,  $df = 5$ ,  $p = .06$ ,  $GFI = .96$ ,  $AGFI = .89$ ,  $RMSEA = .09$ ,  $CFI = .98$ ) and opportunity-enhancing practices ( $\chi^2 = 5.14$ ,  $df = 5$ ,  $p = .40$ ,  $GFI = .98$ ,  $AGFI = .95$ ,  $RMSEA = .02$ ,  $CFI = .99$ ) provided good fit. Finally, the CFA model of organisational performance measures were modified in order to achieve model fit ( $\chi^2 = 3.57$ ,  $df = 4$ ,  $p = .47$ ,  $GFI = .99$ ,  $AGFI = .96$ ,  $RMSEA = .00$ ,  $CFI = 1.00$ ).



Following this stage, reliability and validity assessments of the underlying constructs were undertaken. The scale reliability Cronbach  $\alpha$  of the ability-enhancing practices, motivation-enhancing practices, opportunity-enhancing practices, financial performance, and employee performance were .90, .87, .86, .78, and .69 respectively. These reliability coefficients values were above the recommended .70 value (Hair et al. 1998), except for employee productivity measures which was very close to this value.

### **Tests of Hypotheses**

In order to illustrate the relationships between measures, Table 1 shows the correlations between the composite scores of the items remaining in the modified measurement models.

[Insert Table 1 Here]

In order to verify the proposed three-factor model of HPHRP, three-factor CFA model fit indices were computed. This model consisted of three first-order latent factors with each indicator loading into one of the three interrelated latent factor. As shown in Table 1, results indicated an acceptable fit for the model.

The proposed HPHRP three-factor model was then compared with alternative models through the nested model comparison method. The nested method is a popular approach for comparing the fit of two nested models (Steiger, Shapiro and Browne 1985) and has been relied upon to overcome some of the problems with the chi-square test (Cagli 1984). The nested models include parameter restrictions as compared to a full model. Chi-square difference tests measure the significance of the difference between nested and full models (Kumar and Sharma 1999).

As shown in Table 2, the chi-square difference tests indicated that the proposed three-factor model showed the best fit indices compared with the alternative models ( $\chi^2 = 183.40$ ,  $df = 132$ ,  $p = .00$ ,  $CFI = .96$ ,  $RMSEA = .06$ ,  $GFI = .85$ ,  $AGFI = .81$ ). Thus, hypothesis H1 was accepted. According to this, HPHRP is constructed according to the premises of the AMO framework.

[Insert Table 2 Here]

Hypotheses H2 to H7 were tested using Multiple Regression Analysis. In order to test these hypotheses, each dependent variable was regressed on the independent variables, while controlling for

company size, company age, company ownership, and sector. In order to avoid any multi-collinearity problem between the independent variables, each independent variable was tested in a separate model.

[Insert Figure 1 Here]

Figure 1 illustrates the regression results for the influence of HPHRP on organisation performance. The results indicated that HPHRP dimensions (namely, Ability-enhancing, Motivation-enhancing, and Opportunity-enhancing practices) were significantly and positively related to organisational performance indicators (namely, financial performance and employee productivity). Accordingly, all hypotheses from H2 to H7 were supported, as shown in Table 3.

[Insert Table 3 Here]

## DISCUSSION

The search for a relationship between HPHRP and organisational performance has dominated SHRM research for over two decades and is receiving increasing support among practitioners (Boxall and Macky 2007). A growing body of research has found empirical support for the relationship between HPHRP and employee productivity as well as financial performance (Shih et al. 2006; Huselid 1995; Guest et al. 2003; Guthrie 2001).

Deeper confirmation of the HPHRP-performance link, however, requires proper conceptualisation of HPHRP. This study provided empirical verification of the AMO framework as a conceptual model of the core components of HPHRP when hypothesis H1 was supported. The hypothesis was tested using the nested model comparison approach, which is considered as one of the most commonly used method for comparing the fit of the proposed and alternative models (Steiger et al. 1985). While no previous work was found to provide empirical verification for the three-factor model of HPHRP, the findings of this study are consistent with previous studies in which authors have utilised similar categories of HR practices based on the AMO framework (Huselid 1995; Shih et al. 2006; Wood and De Menezes 2008).

Despite this qualification, support for the AMO-based HPHRP architecture has significant research implications. In particular, measurement issues relating to the choice of HR practices have made the comparison of results across studies and interpretations of findings difficult (Dyer and Reeves 1995).

Accordingly, the adoption of this framework by researchers will facilitate comparative research and enable easier evaluation of practices, thus, solving one of the problems experienced in seeking to assess the extent to which HPHRP impact on organisational performance (Purcell and Kinnie 2007).

Moreover, this study hypothesised that there is a positive relationship between HPHRP and financial performance (hypotheses H2, H3, and H4). The results showed that hypotheses H2, H3, and H4 were all supported. In particular, regression results showed significant and positive relationships between ability-enhancing practices, motivation-enhancing practices, and opportunity-enhancing practices and financial performance. The positive influence of HPHRP on financial performance indicates that the more an organisation invests in HR practices to acquire, maintain and develop highly qualified human resources, the greater the financial gains for that organisation. This result is in line with results of previous studies such as Delery and Doty (1996), Huselid (1995), Katou and Budhwar (2010), and Vandeberg et al. (1999).

Moreover, this study hypothesised that there is a positive relationship between HPHRP and employee productivity (hypotheses H5, H6, and H7). The results showed good support for hypotheses H5, H6, and H7. In particular, regression results showed significant and positive relationships between ability-enhancing practices, motivation-enhancing practices, and opportunity-enhancing practices and employee productivity. These results are consistent with previous findings (Huselid 1995; Chenevert and Tremblay 2009).

In sum, the results contribute to the body of literature by providing support to the relationship between HPHRP and financial performance as well as employee productivity in non-western context, particularly the Jordanian context.

### **Limitations and Future Directions**

This study makes a contribution to the body of SHRM literature. However, it also has several limitations which need to be acknowledged. Firstly, this study examines the relationship between HPHRP and performance based on cross-sectional research, which can lead to issues of common method variance (Guthrie 2001). Second, one common limitation in survey-based research is the single-respondent bias. This study, like many earlier studies (e.g. Shih et al. 2006; Huselid 1995),

collected data on HPHRP and organisation performance from single respondent, the senior HR manager in the organisation. In such instances, the potential problem of common method variance (Podsakoff, Mackenzie, Lee and Podsakoff 2003) may arise as managers who report that they have adopted a wide range of HPHRP may also report good organisational performance. In order to overcome the possibility of common method variance, gaining a clearer understanding of the relationship between HPHRP and organisation performance would require conducting longitudinal research.

A third limitation concerns the generalisability of findings. This empirical study was conducted in the Jordanian context, in both the financial and manufacturing sectors, and thus findings may only reflect the sectors under study. Accordingly, future empirical studies of different sectors in different organisational contexts are needed in order to gain further insight on the HPHRP-Performance link.

The study findings suggest future research directions. While the current study provided evidence of the HPHRP-Performance link, there is still a need to more fully examine the mechanisms through which HPHRP influence organisation performance. Future research could build on the current study by focusing on the factors which are intermediary variables in this relationship. Moreover, while this study provides empirical verification of the AMO framework to conceptualise HPHRP, future research should confirm the validity of the framework in other settings.

In addition, future research could utilise more qualitative studies to gain better understanding of the configuration of high performance HR practices in specific organisational settings. This type of research may be particularly useful in the Jordanian context where the implementation of HPHRP by firms is a relatively recent phenomenon. Also, it is critical to take the local national culture into consideration to further examine the HPHRP-Performance link in the Jordanian context. This will generate potentially interesting results which allow for cross cultural comparisons, especially with studies conducted in Western settings.

## References

- Anderson, JC & Gerbing, DW (1988) Structural equation modeling in practice: A review and recommended two-step approach, *Psychological Bulletin* 103: 411-423.
- Appelbaum, E, Bailey, T, Berg, P & Kalleberg, A (2000) *Manufacturing Advantage: Why high performance work system pay off*, Ithaca, NY, Cornell University Press.
- Arthur, J (1994) Effects of human resource systems on manufacturing performance and turnover, *Academy of Management Journal* 37: 670-687.
- Becker, B & Gerhart, B (1996) The impact of human resource management on organizational performance: progree and prospects, *Academy of Management Journal* 39: 779-798.
- Boselie, P, Dietz, G & Boon, C (2005) Commonalities and contradictions in HRM and performance research, *Human Resource Management Journal* 15: 67-94.
- Boxall, P & Macky, K (2007) High-performance work systems and organizational performance: Bridging theory and practice, *Asia Pacific Journal of Human Resources* 45: 261-270.
- Boxall, P & Purcell, J (2003) *Strategy and Human Resource Management*, Basingstoke, Palgrave Macmillan.
- Byrne, BM (2001) *Structural Equation Modeling With AMOS: Basic concepts, applications, and programming*, Mahwan, New Jersey, Lawrence Erlbaum Associates, Publishers.
- Cagli, U (1984) Nested model comparison with structural equation approaches, *Journal of Business Research* 12: 309-318.
- Chenevert, D & Tremblay, M (2009) Fits in Strategic Human Resource Management and Methodological Challenge: empirical evidence of influence of empowerment and compensation practices on human resource performance in Canadian firms, *The International Journal of Human Resource Management* 20: 738-770.
- Delaney, J & Huselid, M (1996) The Impact of Human Resource Management Practices on Perceptions of Organizational Performance, *Academy of Management Journal* 39: 949-969.
- Delery, J (1998) Issues of fit in strategic human resource management, *Human Resource Management Review* 8: 289-309.
- Delery, J & Doty, DH (1996) Modes of Theorizing in Strategic Human Resource Management: test of universalistic, contingency, and configurational performance predictions, *Academy of Management Journal* 39: 802-835.
- Dyer, L & Reeves, T (1995) Human Resource Strategies and Firm Performance: what do we know, where do we need to go?, *international Journal of Human Resource Management* 6: 657-667.
- Flood, P, Mkamwa, T, O'Regan, C, Guthrie, J, Liu, W, Armstrong, C & MacCurtain, S (2008) New Models of High Performance Work System: the business case for strategic HRM, partnership and diversity and equality system. *National Centre for Partnership and Performance*.
- Guest, D (1997) Human Resource Management and Performance: A review and research agenda, *International Human Resource management* 8: 263-276.
- Guest, D, Michie, J, Conway, N & Sheehan, M (2003) Human resource management and corporate performance in the UK, *British Journal of Industrial Relations* 41: 291.
- Guthrie, JP (2001) High-involvement work practices, turnover, and productivity: evidence from New Zealand, *Academy of Management Journal* 44: 180-191.
- Hair, JF, Anderson, RE, Tatham, RL & Black, WC (1998) *Multivariate Data Analysis*, Upper Saddle River, New Jersey, Prentice Hall.
- Hox, J (2002) *Multilevel Analysis: techniques and applications*, Mahwah, New Jersey, Lawrence Erlbaum Associates, Inc.

- Huselid, M (1995) The impact of human resource management practices on turnover, productivity, and corporate financial performance, *Academy of Management Journal* 38: 635-672.
- Katou, AA & Budhwar, PS (2010) Causal Relationship between HRM Policies and Organizational Performance: Evidence from the Greek manufacturing sector, *European Management Journal* 28: 25-39.
- Ketkar, S & Sett, PK (2009) HR Flexibility and Firm Performance: Analysis of a Multi-Level Causal Model, *The International Journal of Human Resource Management* 20: 1009-1038.
- Kline, R (2005) *Principles and practice of structural equation modeling* New York, The Guilford Press.
- Kumar, A & Sharma, S (1999) A metric measure for direct comparison of competing models in covariance structure analysis, *Structural Equation Modeling: A Multidisciplinary Journal* 6: 169 - 197.
- Macky, K & Boxall, P (2007) The relationship between 'high-performance work practices' and employee attitudes: an investigation of additive and interaction effects, *The International Journal of Human Resource Management* 18: 537-567.
- Macky, K & Boxall, P (2008) High-involvement work processes, work intensification and employee well-being: A study of New Zealand worker experiences, *Asia Pacific Journal of Human Resources* 46: 38-55.
- Marks, M, Mirvis, P, Hackett, E & Grady, J (1986) Employee participation in a Quality Circle Programs: Impact on Quality of Work Life, Productivity, and Absenteeism, *Journal of Applied Psychology* 71: 61-69.
- Martin-Tapia, I, Aragon-Correa, A & Guthrie, J (2009) High Performance Work System and Export Performance, *The International Journal of Human Resource Management* 20: 633-653.
- Podsakoff, P, Mackenzie, S, Lee, J & Podsakoff, N (2003) Common method bias in behavioral research: A critical review of the literature and recommended remedies, *Journal of Applied Psychology* 88: 879-903.
- Purcell, J & Kinnie, N (2007) HRM and Business Performance, in Boxall, P, Purcell, J & Wright, P (Eds.) *The Oxford Handbook of Human Resource Management*, Oxford University Press, Oxford.
- Schumacker, RE & Lomax, RG (2004) *A Beginner's Guide to Structural Equation Modeling*, Mahwah, New Jersey, Lawrence Erlbaum Associates, Publishers.
- Shih, HA, Chiang, YH & Hsu, CC (2006) Can high performance work systems really lead to better performance, *International Journal of Manpower* 27: 741-763.
- Snell, S & Dean, J (1992) Integrated Manufacturing and Human Resource Management: A human Capital Perspective, *Academy of Management Journal* 35: 467-504.
- Steiger, JH, Shapiro, A & Browne, MW (1985) On the Multivariate Asymptotic Distribution of Sequential Chi-Square Statistics *Psychometrika* 50: 253-264.
- Tsai, C-J (2006) High performance work systems and organizational performance: an empirical study of Taiwan's semiconductor design firms, *International Journal of Human Resource Management* 17: 1512-1530.
- Vandeberg, RJ, Richardson, HA & Eastman, LJ (1999) The Impact of High Involvement Work Processes on Organizational Effectiveness: A second order latent variable approach, *Group & Organization Management* 24: 300-339.
- Way, S (2002) High performance work systems and intermediate indicators of firm performance within the US small business sector, *Journal of Management* 28: 765-785.

- Wood, S & De Menezes, L (1998) High commitment management in the U.K.: Evidence from the workplace industrial relations survey, and employers' manpower and skills practices survey, *Human Relations* 51: 485-515.
- Wood, S & De Menezes, L (2008) Comparing perspectives on high involvement management and organizational performance across the British economy, *The International Journal of Human Resource Management* 19: 639-683.

**Table 1: Means, Standard Deviations, and Correlations For All Variables**

Variables	Mean	SD	1	2	3	4	5	6	7	8
1 Financial performance	3.98	.96								
2 Employee Productivity	4.08	.82	.45**							
3 Ability-enhancing practices	4.42	.86	.62**	.52**						
4 Motivation-enhancing Practices	4.18	.92	.60**	.40**	.75**					
5 Opportunity-enhancing Practices	4.25	.94	.56**	.26**	.65**	.74**				
6 number of employees	2.35	.65	.55**	.37**	.41**	.37**	.30**			
7 number of years in the company	3.21	.77	.39**	.25**	.33**	.21*	.14	.59**		
8 company ownership	2.15	.50	.01	.08	.05	.15	.08	-.01	-.11	
9 company sector	1.42	.49	.07	.13	-.02	.06	.02	.13	.15	.19*

Notes:  $N = 118$ ; \*\*Correlation is significant at the .01 level (2-tailed); \*Correlation is significant at the .05 level (2-tailed).

**Table 2: Model Comparison Between Proposed and Alternative HPHRP Models**

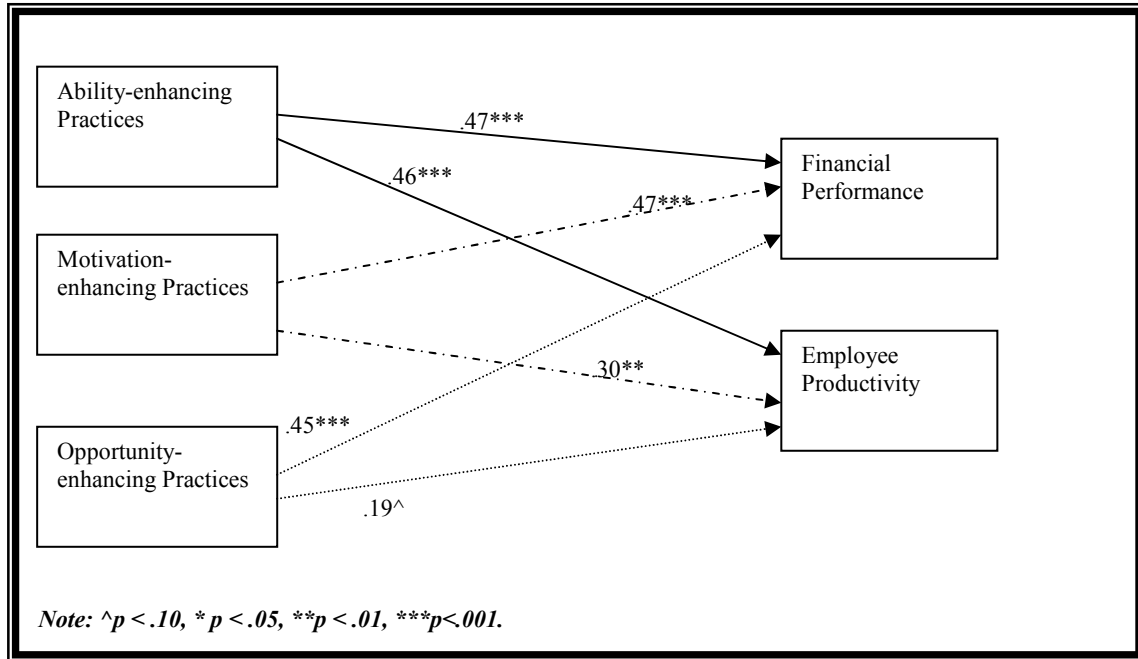
Model	$\chi^2$	df	P	CFI	RMSEA	GFI	AGFI	Model Comparison		
								$\Delta\chi^2$	$\Delta df$	P
Proposed HPHRP three-factor model (Combined ability-enhancing, motivation-enhancing, & opportunity-enhancing)	183.400	132	.002	.960	.058	.854	.810	-	-	-
Single factor model	211.040	135	.000	.940	.069	.838	.795	27.646	3	.000
Two factor (Combined ability-enhancing & motivation-enhancing)	209.710	133	.000	.940	.070	.838	.791	26.314	1	.000
Two factor (Combined motivation-enhancing & opportunity-enhancing)	193.830	133	.000	.952	.063	.844	.800	10.428	1	.001
Two factor (Combined ability-enhancing & opportunity-enhancing)	200.504	133	.000	.947	.066	.842	.797	17.107	1	.000

Notes:  $\Delta\chi^2$  is the difference in chi-square between the proposed model and the alternative model;  $\Delta df$  is the difference in degrees of freedom between the proposed and the alternative model.

Three decimal places were used in this table rather than only two in order to account for the differences for comparing between models and deciding which model provides better fit.



**Figure 1: An Illustration of the Relationship Between HRPRP and Organisation Performance**



**Table 3: Hypotheses Results of the Influence of HPHRP on Organisation Performance**

Hypothesis	$\beta$	t-value	Result
H 2	$.47^{***}$	6.30	Accepted
H 3	$.47^{***}$	6.45	Accepted
H 4	$.45^{***}$	6.24	Accepted
H 5	$.46^{***}$	5.30	Accepted
H 6	$.30^{**}$	3.33	Accepted
H 7	$.19^{\wedge}$	1.86	Accepted

Note:  $^{\wedge}p < .10$ ,  $*p < .05$ ,  $**p < .01$ ,  $***p < .001$ .