

THE IMPACT OF HUMAN RESOURCE MANAGEMENT PRACTICES ON INNOVATION THROUGH HUMAN CAPITAL AND SOCIAL CAPITAL OF SMALL AND MEDIUM ENTERPRISES IN VIETNAM

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ABSTRACT

This study aims to examine the relationship between human resources management (HRM) practices and innovation, the links between human and social capital as well as the mediating role of human and social capital. Using data taken from small and medium sized enterprises in Vietnam by Central Institution for Economic Management in 2011, 2013 and 2015, we have tested the hypotheses and the findings show that HRM practices have a positive effect on innovation, human capital and social capital. Based on the results, we make some discussions and implications for companies to foster innovative outcomes.

Keywords: Human Capital, Human Resource Management Practices, Innovation, Small and Medium Enterprises, Social Capital

1. INTRODUCTION

There has been a dramatic shift in Vietnam towards knowledge-based economy. This process particularly depends on small and medium enterprises (SMEs) which accounted for approximately 98% of total Vietnamese enterprises (GSO, 2017). The knowledge creation and transfer between and within borders is, as a result, becoming increasingly crucial than ever. Many prior researchers regarded innovation as one of the most important aspects of knowledge creation (Collinson, 2000).

From an organizational perspective, innovative activities closely rely on its intellectual capital (Subramaniam & Youndt, 2005). To generate intellectual capital assets and improve innovation ability of an organization, managers should develop effective human resources management (HRM) practices (Swart & Kinnie, 2010). Companies can influence and shape the behaviors and skills of individuals to achieve organizations' goals (Chen & Huang, 2009). This study will

specifically focus on human capital and social capital, which are two components of intellectual capital. This is because human capital is based on individual knowledge and skills and social capital is based on the relationships between employees, companies and other organizations, all of which might be affected by HRM practices (Donate et al, 2015).

The relationship between innovation and HRM practices has been widely studied, but the impact of HRM practices would not be directly reflected in innovative performances (Hatch & Dyer, 2004; Intan-Soraya & Chew, 2010). Thus, our paper will take mediating variables, human capital and social capital, into consideration when examining how HRM practices affect innovation outcomes.

This paper is organized as follows. Firstly, we will provide brief literature review of innovation, human capital, social capital and HRM practices; and research hypotheses of this study will be presented. Secondly, the data and analysis will be shown with the results of the research. Finally, we will discuss the results of the study as well as suggesting some implications for managers and policy makers.

2. LITERATURE REVIEW AND HYPOTHESIS

2.1. Innovation

At the enterprise level, innovation is a widely discussed topic and it is increasingly receiving interest in today's knowledge economy (Chen et al., 2014). The definition of innovation does not easily agree in innovation literature as those for technology innovation capacity. The first studies in the administrative field mentioned innovation as a change in organizational structure and human resource development activities (Ettlie & Reza, 1992). However, the following studies suggest that this definition does not reflect the accurate and complete innovation activities of enterprises (Battisti & Stoneman, 2010). Therefore, later scholars use the same definition as Tepic et., al (2013), in which innovation is seen as a process of introducing new products and new processes, opening up a new market and the commercialization of new combinations benefits businesses. This study also uses the definition above.

2.2. Human resource management practices (HRM practices)

HRM practices play an important role for each individual and closely related to the quality of the organization's activities. However, HRM practices are approached in many different ways. By function, based on the management model of Fombrun, Tichy & Devanna (1984) pointed out that HRM practices consist of four core functions of recruitment, performance evaluation, reward, and development. In fact, however, it is not always possible that HRM activities of enterprises can perform such functions effectively due to the impact of human and external

factors. Therefore, later studies define HRM practices based on small activities in it. Specifically, according to Minbaeva (2005), HRM practices are a process related to formal and deliberate planning on personnel, control, compensation, training, promotion and staff development. The following studies also used similar definitions and showed relevance in understanding HRM activities (Snape & Redman, 2010). Based on HRM-related data in the enterprise in Vietnam, we find that the approach of HRM concept as above is appropriate.

2.3. Human capital (HC)

Human capital refers to the skills, abilities and knowledge of individuals (Becker, 1964). In general, human capital is an important source of competitive advantages for organizations and nations. Sullivan & Sheffrin (2003) defined human capital as a source of energy, knowledge and personal attributes that reflect the ability to perform labor to create economic value. Human capital represents self-made investors or their organizations to improve their economic productivity (Fatoki, 2011). In addition, according to Hessels & Terjesen (2008), entrepreneurial human capital refers to knowledge, skills and personal experience related to business operations. Entrepreneurial human capital is very important to the development of entrepreneurs. Our research approaches human capital in terms of organization, so human capital is understood to include the knowledge, skills and behavior of employees to meet the ongoing work in the enterprise (Castrol et al, 2011).

2.4. Social capital (SC)

Social capital is ‘the sum of the actual and potential resources embedded within, available through, and derived from the network of relations possessed by an individual or social unit’ (Nahapiet & Ghoshal 1998, p243). The difference between human and social capital is that human capital is only in an individual and focuses on the specialized repository accumulated by an individual (Halpern 2005). Social capital includes resources that exist in the relationship between people and networks. It is in social connections. At the organizational level, social capital has shown its contribution to knowledge sharing and innovation (Hansen 1999). In general, social capital is formed and developed when individuals participate and contribute to networks, and at the same time they also benefit from that participation. This is evident in OECD's conception (2001), arguing that social capital is networks, norms, values and common understandings that facilitate cooperation among groups. In this definition, networks act as real links between groups or individuals.

2.5. The relationship between human resource management practices and innovation

The relationship between HRM and innovation is not a new topic in research. Laursen and Foss (2003) provided some theoretical arguments about why HRM practices are beneficial for

innovation. An outstanding feature of many HRM practices is that when they are implemented effectively, they will bring absolute efficiency to improve the operations of the business, especially innovation. Experimental studies demonstrate that HRM affects mechanisms such as intellectual capital development and exploitation, creating knowledge and developing new products and organizational learning (Collins & Smith 2006). On the other hand, Van der Vegt & Janssen (2003) argued that the diversity of employees is positively related to innovation performance because innovation is an interactive process in which employees interact in groups and developing, discussing, modifying and realizing new ideas.

On the basis of a sample of industrial companies in Spain, Jimenez-Jimenez and Sanz Valle (2005) demonstrated a link between performance evaluation, incentive-compensation and multiplication systems and internal career opportunities with innovation. At the same time, it is speculated that it is the impact of HRM practices on employee involvement providing innovation opportunities. In the same respect, Shipton et al. (2005) provided evidence that the combination of training, appraisal and induction affects the different stages of the organization's learning cycle (creation, sharing and knowledge implementation). Furthermore, a study by Shipton et al. (2006) showed that not only induction, appraisal, and induction impact training, but the effects of these practices may vary according to the types of innovation activities in the enterprise.

Hypothesis 1: HRM practices have a positive impact on innovation.

2.6. The relationship between human resource management practices and human capital

The philosophy of HRM and the core values of employees definitely affects the management practices of a company. Research in the case of Vietnam, Thang & Quang (2005) said that if a company considers HR as an important source of production capacity to achieve the company's efficiency and performance, the company has ability to apply HRM practices to use human capital as fully as possible. Furthermore, research by Thang & Quang (2005) also mentioned that companies can increase their human capital by recruiting employees from the labor market. Good recruiting helps companies have better access to qualified candidates from which a valid selection process allows them to select the most suitable candidates to recruit, which is being applied in many types of Vietnamese enterprises and shows positive effects.

For a business, Becker & Huselid (1998) argued that an internal and coherent HRM system will focus on solving problems and implementing the company's competitive strategy. Proving this, Guthrie & Olian (1991) have shown that selection practices have a significant influence on the characteristics of managers and employees selected to work. Moreover, salaries and benefits for employees (rewards) help attract and recruit highly skilled individuals. If the most skillful people enjoy a high level of compensation, they are more likely to stay in the company longer and the

company's human capital is not reduced (Shaw et al., 2013). In addition, extensive training is also needed to update knowledge and skills, and improve the company's ability to perform specific tasks to help employees have the opportunity to learn and develop skills (Donate et.al, 2015).

Hypothesis 2: HRM practices positively impact on human capital.

2.7. The relationship between human resource management practices and social capital

In any case, building social capital requires an organizational environment where knowledge and information can flow as freely as possible, eliminating barriers to encourage employees to connect and exchange opinions (Youndt & Snell, 2004). Gittel et al. (2010) pointed out that in the past few years, significant progress has been made in identifying work arrangements that affect the development of relationships among employees. Furthermore, Gittel (2000) showed that some HRM activities impact the coordination of relations and social capital of employees in the organization. Based on eliminating barriers between employees, cross-choice, flexible work design or functional conflict resolution will help the network of employees to expand. Evans & Davis (2005) also argued that HRM activities such as group work, flexible job assignment, open communication, selective training or compensation affect the construction of relationship networks.

HRM activities also affect both the diversity and quality of social capital networks of organizational staff. Giannetti & Madia (2013) emphasized the role of some HRM activities such as flexible work arrangements, specific assignment of tasks in a group to exchange knowledge that will broaden the diversity of social networks. In addition, effective implementation of HRM activities allows teams of employees to be linked together to achieve common goals. In addition, promoting employees to communicate smoothly or willing to share work will help build a strong and persistent network of contacts (Salas et al., 2000). Finally, group-based performance rewards encourage work coordination and commitment, and particularly motivate employees to improve the quality of networks (Gittel et al., 2010).

Hypothesis 3: HRM practices have a positive impact on social capital.

2.8. The relationship between human capital and innovation

Many scholars have argued that human capital is an important source of competitive advantage for companies and countries. In fact, human resources play a fundamental role for innovation at the enterprise level, because they benefit the development of new knowledge and support the ability to acquire knowledge of companies (Smith et al., 2005). In developed countries, Schneider et al. (2010) argued that an enterprise-level approach is needed to better understand

the relationship between human capital and innovation. Their empirical results show that better trained employees will provide companies with more creative output. Similarly, in the context of developing countries, Mahemba & Bruijn (2003) showed the importance of training for companies' innovation activities, while Robson et al (2009) found no relationship between training and innovation in Ghana.

There is the fact that people with good knowledge and expertise tend to create better ideas than those with limited knowledge. This also makes them more self-employed in businesses and have many opportunities to develop and express their own capabilities (Romijn & Albaladejo, 2002). At the same time, Hitt et al. (2002) said that highly skilled employees will be able to learn new knowledge faster, more efficiently and make more creative decisions, which plays a significant role to innovate the organization comprehensively. In addition, formal training and providing employees with a time limit are ways to improve the human capital in the company. Thus, these practices positively affect the innovation performance of companies, especially SEMs (Van Uden et al., 2016).

Hypothesis 4: Human capital positively impacts innovation.

2.9. The relationship between social capital and innovation

At the organizational level, social capital has shown its contribution to knowledge sharing and innovation (Zheng, 2008). In the twentieth century, Hansen's research (1999) on an electronic company showed that units that gained existing knowledge from partners through the affiliate network completed their projects faster. Research by Tsai & Ghoshal (1998) in a multinational electronics company revealed that social interactions and beliefs affect resource exchange and product innovation. At the individual level, social capital can impact information and resources available for individual success.

Later studies once again confirmed the supporting role of social capital with innovation in businesses. Specifically, the decline or loss of social capital causes serious concern for companies in the process of innovation and knowledge management (Laursen et al., 2012) because networks in social capital are the starting point for innovation through enabling individuals to have the opportunity to share information and access useful resources (Nguyen Van Phuc & Nguyen Le Hoang Thuy To Quyen, 2014). This relationship is confirmed by research by Miguelez et al. (2011), social capital among individuals and organizations plays an important role in encouraging innovations in technology and knowledge application, which improves the organization's operations in all aspects and offers a wider range of innovative access opportunities in the future.

Hypothesis 5: Social capital positively impacts innovation.

2.10. The relationship between social capital and human capital

Social capital and human capital are all aspects of intellectual capital, the foundation of innovation. These two variables have a great interaction in research models. According to Donate et al (2015), the high level of social capital can enhance the individual's skills, abilities and behavioral capacity (ie, improvement of human capital). Mosey & Wright (2007) demonstrated that the power of relationships (in terms of social capital relations) can positively affect knowledge creation at the individual level. In particular, human capital aspects can be improved by emphasizing weak links (meaning improving one side of social capital) with industry and non-industry actors (Davidsson & Honig, 2003). Moreover, weak links can sometimes be transformed into strong links, leading to closer relationships and greater interdependence among individuals in society.

Thus, it can be seen that social capital and human capital are closely related. Social capital of individuals affects their family members and the relationships around them. This means they can learn more from their own relationships and improve their human capital. Promoting social capital will help businesses improve human capital thoroughly.

Hypothesis 6: Social capital have a positive impact on human capital.

3. METHOD

3.1. Measurements

Table 1: Variable measurements

Variable		Measurement
Innovation		Innovation is a dummy variable which equals 1 if firm has one of innovative activities including: introduce new product, improve existing product, apply new manufacturing process, equals 0 if the company has none of those.
<i>HRM</i>	Fringe benefits	Whether the firm provides fringe benefits for their employees (1= Yes, 0= No)
	Union	Whether the firm has company union (1= Yes, 0= No)
	Job rotation	Whether operators rotate across jobs or tasks on the line (1= Yes, 0= No)
	Training	Whether the company provided regular training activities for at least 50% of new recruited workers (1=Yes, 0= No)

<i>SC</i>	Number of network partners	The total of number of people that a firm is in regular contact with, including: firms in the same industry, business partners, bank officers, government officers and others.
	Diversity of the network	The total number of groups which firms in regular contact with, including: firms in the same industry, business partners, bank officers, government officers and others.
	Density of the network	The total number of times that firms get help from relationships of regular business networking
<i>HC</i>		= Value added/ Total labor cost
<i>Control variables</i>	Export	Whether the firm exports their goods (1=Yes, 0= No)
	Labor	Ln (the total number of firms' employees)
	Ownership	Ownership is divided into 5 forms: households, private sectors, cooperatives, limited companies, joint-stock companies.

3.2. Data

The data source of this study is from SMEs surveys. SMEs surveys are jointly carried out for every two years by University of Copenhagen, General Statistics Office (GSO) of Vietnam, Vietnamese Institute of Labor Science and Social Affairs (ILSSA), and Central Institute for Economic Management (CIEM) of Vietnamese Ministry of Investment and Planning. The sample includes about 2600 firms located in 10 Vietnamese provinces including Ha Noi, Phu Tho, Ha Tay, Hai Phong, Nghe An, Quang Nam, Khanh Hoa, Lam Dong, Ho Chi Minh City and Long An. For example, the 2011 survey consists of 2552 firms while the figures for 2013 and 2015 surveys are 2575 and 2649 firms, respectively.

Table 2: Descriptive analysis

Variable		Observations	Mean	Standard deviation
Innovation (INNO)		4,812	.3534913	.4781032
HRM	Fringe benefits	4,812	.2869909	.4524043
	Union	4,812	.1016209	.3021806
	Job rotation	4,812	.0434331	.2038511
	Training	4,812	.0931006	.2906035
SC	Number of network partners	4,812	36.90482	52.7079
	Diversity of the network	4,812	3.574813	1.081204

	Density of the network	4,812	279.4339	778.4237
HC		4,812	27.07081	47.65225
Control variables	Export	4,812	.0644223	.2455292
	Labor	4,812	1.892969	1.150693
	Ownership	4,812	1.862635	1.34322

Resource: Calculation of authors

From the summary statistic of the sample represented in table 2, for training activities, only about 9.31% of firms from the whole sample provided the training for their new recruited employees. In addition, the figures for union, job rotation and fringe benefits are 10.16%, 4.34% and 28.69% respectively. Regarding to export, there is just roughly 6.44% firms exported their goods to other countries. Moreover, the average number of people that a firm in regular contact is roughly 37 individuals. When it comes to the variety of regular business networking, a firm usually contact with 3 to 4 different kinds of group. Next, the figures for the average times a firm receiving help from their relationship network is around 280 times within a year. Finally, on average, when a firm increases 1000 VND of their labor cost, they will gain 27000 VND value added.

3.3. Data processing

Although, the data is generally structured as a cross-sectional structure for each year, a subgroup of SME firms is repeatedly interviewed from year to year. This advantage enables us to construct a panel sample of manufacturing firms from 2011 to 2015 for this study, which includes 4 steps

- Firstly, the data was collected from three different SMEs surveys taken place in 2011, 2013 and 2015
- Secondly, we calculated and extracted necessary indicators for the study based on the given data sources
- Next, we eliminate observations which have insufficient information and negative value added (VA)
- Finally, due to the studied period from 2011 to 2015, we select companies have been working continuously during the given time

Therefore, the final data includes 1604 firms from each survey, which means there are 4812 researched organizations in total.

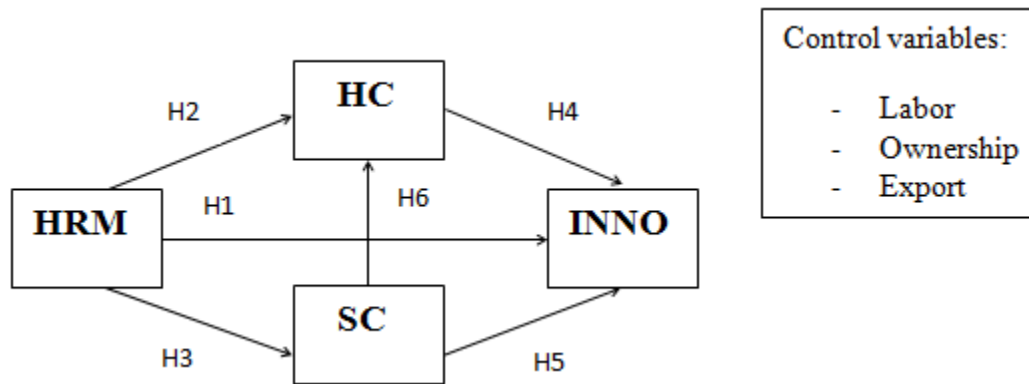


Figure 1: Model of studied relationship

While $INNO_{i,t}$ measures the output of innovation activities for a firm i and a year t , the $HRM_{i,t}$ denotes a HRM practices that are employed by a firm i , in a year t . HRM practices include a wide range of HRM practices that are carried out by a firm over the previous years. $HC_{i,t}$ and $SC_{i,t}$ illustrate human capital and social capital within a firm over the previous year.

Additionally, the $CONTROL_{i,t}$ is a vector of control variables for firm characteristics from the main specification. In particular, control variables include (1) whether a firm exports their products (2) the total number of workers (3) the form of ownership.

In order to appraise the effects of HRM practices, human capital and social capital on innovation at the same time, GSEM (Generalized Structural Equation Modeling) considered is appropriate to use.

To run GSEM, first of all, reliability tests should be executed. However, the data source is extracted from SMEs surveys, measurements are built scientifically without any adjustment and are applied by several researchers. Therefore, running reliability test is unnecessary for this study.

The study uses 2 latent variables (HRM and SC) which cannot be observed directly in SMEs surveys; thus, authors decided to use EFA (Exploratory Factor Analysis) to check convergence of those before executing GSEM.

Table 3: Result of EFA test

	Factor 1	Factor 2
Diversity of the network		0.3556
Density of the network		0.7741
The number of network partners		0.7702
Training	0.6116	
Job rotation	0.4930	
Union	0.7309	
Fringe benefits	0.7468	

Barlett test P_value: $0.000 < 0.05$

KMO test: $KMO = 0.650 > 0.5$

Resource: Calculation of authors

From table 3, the result of Barlett and KMO indicates that while DD, CLML and QMML are suitable for measuring SC; DT, LC, CD and PC are acceptable for HRM's measurement. In addition, HRM and SC are estimated based on the EFA result.

Table 4: GSEM result

		Coefficient	Std. Err	P_value
INNO	HRM	.0828702	.0263995	0.002
	HC	.0007929	.000449	0.077
	SC	.0446174	.0194288	0.022
	Export	.2365416	.0817149	0.004
	Labor	.1124777	.0250727	0.000
	Ownership	-.0050885	.0198439	0.798
	_const	-.6234857	.0512914	0.000
HC	SC	1.482872	.6940885	0.033
	HRM	3.123503	.6940885	0.000
	_const	27.07081	.6848331	0.000
SC	HRM	.1621384	.014225	0.000
	_const	4.77e-10	.0142235	1.000
Var(e.HC)		2256.811	46.00948	
Var(e.SC)		.9735088	.0198469	

Resource: Calculation of authors

From table 4, authors come to some significant conclusions:

Firstly, when it comes to the relationship between HRM and SC, it is proved that HRM has a positive influence on SC (coef = .1621384 >0), meaning that when a firm carries out their HRM practices sufficiently and effectively, it is to lead to an improvement of their social capital. Moreover, the conclusion has statistical meaning at 1%.

Secondly, based on the positive coefficients between SC, HRM and HC; it is obvious that both HRM practices and social capital play an important role in development of human capital within an organization. In addition, the conclusion has statistical meaning at 5%.

Thirdly, the result shows that HRM practices, human capital and social capital effect positively innovation activities within a firm through positive coefficients between innovation and other variables. Therefore, a firm can promote innovation activities by implementing HRM practices effectively and enhancing human capital and social capital. Besides, with an exception of statistical meaning between HC and INNO which is 10%, the figures for HRM and SC are at 5%.

Finally, it is noticeable that control variables also are proved to get positive influences on innovation. In terms of export, because of the coefficient = .2365416 >0, meaning that when a manufacturing firm exports their products to other countries, the feasibility it implements innovation is higher that without exporting. Regard to Labor, the coefficient = .1124777 > 0, which means that when a manufacturing firm employs one more worker, the possibility they carry out innovative activities is higher than before. Both of the conclusions have statistical meaning at 5%. However, unfortunately, the impact of Ownership on INNO is not proved yet when p_value >10%.

5. DISCUSSION AND CONCLUSION

The results of this study contribute to documenting strategic HRM by trying to understand in depth the case of companies to explain how intermediary variables can affect the relationship between activities. HRM and innovation of businesses. Previous research has shown intermediate factors between HRM systems and organizational innovation performance, such as culture (Ostroff & Bowen, 2000), market-oriented (Harris & Ogbonna, 2001), groups senior management (Collins & Clark, 2003) and human resource results (Whitener, 2001). However, our research has shown that intellectual capital variables, namely human capital and social capital, can also be a mediator to explain the impact of HRM on innovation, a measure to improve the competitiveness of businesses. This agrees with the research of Donate et al (2015).

Besides, from the results of the research, the research team offers a number of solutions to improve the innovation activities of small and medium enterprises in Vietnam. First, the HR

department in the enterprise should consider the intellectual property assets especially human capital and social capital to coordinate with HRM activities in a systematic way. This is to create, improve and utilize these resources for enterprise innovation. Managers should carefully examine available human and social capital to improve their companies, creative capabilities and performance (Chuang et al., 2013). Second, in a dynamic environment, companies should continually invest in both human and social capital through HRM systems so that the company can perceive and capture new business opportunities (Teece, 2009). Certainly, the lack of interest in both human and social capital investments can largely affect the ability to innovate and organizational performance. However, due to limitations in the data of this research, it is impossible to measure all the remaining HRM activities such as recruitment recruitment or salary. At the same time, the research has not yet evaluated the input innovation in enterprises, but only interested in the output elements. Therefore, subsequent studies should expand the way of measuring variables to achieve more positive and generalized results.

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