

Jafari, Seyed Mohammadbagher; Suppiah, Mariyayee

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The effect of knowledge management practices on employees' innovative performance

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The Effect of Knowledge Management Practices on Employees' Innovative Performance

Seyed Mohammadbagher Jafari

¹Faculty of Management & Accounting, University of Tehran, Iran
sm.jafari@ut.ac.ir

Mariyayee Suppiah,
Shell Business Service Centre SdnBhd,
Cyberjaya,
Malaysia

mariyayee.suppiah@shell.com

Thiaku Ramalingam
Faculty of Graduate School of Management,
Multimedia University (Cyberjaya), Malaysia
thiaku@abnxcross.com

Abstract: The subject of innovation has been considered an important factor that contributes to both growth and survival of mankind. Given the importance lead by innovation, researches from multiple disciplines have attempted to answer to some critical questions like “what can be done to improve innovation at the workplace?” The management of knowledge is commonly recognized as an important antecedent towards innovation. The importance in finding the best process oriented approach as well as best industrial practices of knowledge management has surged steadily over the period due to rapid globalization and the need for organizations to seek competitive advantage. However, it is often argued that too much formalization of the best practice could actually hinder creativity and innovation within the organization. This research paper is aimed to explore the influence of knowledge management practices on employees' innovative performance in an organization perspective. Knowledge management practices within an organization can be defined by; knowledge acquisition, knowledge dissemination and finally responsiveness towards knowledge. In order to test the influence of these variables on employees' innovative performance, seven hypotheses were developed based on the theoretical research framework. The quantitative survey approach was selected as the method to evaluate the significance of each hypothesis. The data collection results were from 384 usable questionnaires that had been previously distributed to multiple manufacturing firms in Malaysia. The results obtained from this research conclude that knowledge management plays a vital role on supporting employees' innovative performance within organizations. It also revealed that two types of knowledge management subcategories; knowledge acquisition and responsiveness to knowledge plays more significant role on encouraging employees' innovative performance in comparison with knowledge dissemination. The managerial implications and limitations of current study were also discussed in the paper.

Keywords: Knowledge Management, Innovation, Employees' Performance, Best Practices, Malaysian Manufacturing Industries

1 Introduction

Currently, there exist various management tools deployed to facilitate in helping on business decision making that lead to enhanced processes, innovative products and better services. This contributes to improved organization performance and drives to increased profitability. Successful implementation of such tools requires deeper understanding on the strength and weakness of each tool as well developing the ability to creatively integrate the right tools, in the right way and ultimately at the right time (Hackett 2000)(Hackett, 2000b, Hackett, 2000a). Knowledge management has its roots deeply ingrained in the study of knowledge which has been a deeply contested issue since ancient times (Turban et al. 2007). Over the last decade, interest in finding the best practices of knowledge management in the industry has surged dramatically due to rapid globalization. Although the importance of knowledge to organizations were often discussed in the past, the knowledge-based-view of the firm brought new meaning to the value of organizational knowledge by identifying it as an important resource comparable to the need of capital investment for an organization (Conner & Prahalad 1996; Grant 1996; Spender 1996). Additionally, innovation has also been considered as important factor that contributes to growth and survival of mankind. On a organizational perspective, innovation has been established as a necessary aspect for firms that intend to remain competitive in the business or pursue of long-term competitive advantage (Hamel 1998; Roberts 1998). Given the importance of innovation, researches from a variety of disciplines have looked to answer to the critical question ‘What can be done to improve innovation at the workplace?’(Anderson & West 1996; Capon et al. 1992; Cooper & Kleinschmidt 2007; Freeman & Soete 1997). With the emergence of knowledge management and intellectual as key to new disciplines (Bontis, Keow & Richardson 2000), studies have started to appear in which these constructs add to the long list of possible antecedents of innovation (Andreeva & Kianto 2012; Carneiro 2000; Dove 1999; Laosirihongthong, Prajogo & Adebajo 2013; Nonaka 1995).

Hackett (2000) stated that ‘best practices’ simply indicated the process of turning tacit knowledge into explicit knowledge which is part of the continuous cycle of learning, sharing, reflection, and use of that knowledge. However, most knowledge management efforts have focused mainly on improving efficiency by sharing of internal ‘best practices’. It is also important to understand that intense level formalization of the ‘best way’ could hinder the progress of implementing creativity and innovative thinking among the employees. Therefore, the research attempted to answer the question if knowledge management best practices will lead to better employees’ innovative performance at work?

In Malaysia, knowledge management had been identified to be a key factor in ensuring organizational success (Gan, Ryan & Gururajan 2006). However, there are few empirical studies available that explores the relationship between the structures of a firm’s knowledge management practices and its effect on the firm employees’ innovative performance. Thus, the objective of the research paper is to evaluate the hypotheses drawn with respect to knowledge management as the independent variables and employees’ innovative work performance as the dependent variable by studying empirically on Malaysian manufacturing industries.

2 Theoretical framework and hypotheses development

Previous literatures emphasized on the importance of intangible assets for attaining superior performance and achieving sustainable competitive advantage (Grant 1996). Among intangible assets, knowledge is arguably the most important resource an organization controls (Liebeskind

1999). It is suggested that knowledge is an integral input towards innovation process (Rosenkopf & Almeida 2003).

On the other hand, innovation represents by definition something new and therefore adds to existing knowledge collection. Many authors use the concept of knowledge creation and knowledge production by referring to technological knowledge resulting to technical innovation as the output of that process (Antonelli 1999; Nonaka 1995).

However, it is safe to iterate that innovation within a firm cannot be materialized when innovative ideas from the employees are not captured, taken note or even recorded for future reference. While there are many extensive researches on innovation, few literatures appear convincingly with empirical evidence that portrays knowledge acquisition to positively affect innovation. Nevertheless, mixed evidence do surface on knowledge dissemination or responsiveness to both knowledge and innovation as mentioned in some researches that the level of impact contributed by knowledge dissemination and responsiveness to knowledge appears to be more significant compared to knowledge acquisition (Darroch, Jenny 2005).

Studies on knowledge acquisition have found a positive link between acquiring market knowledge or also known as knowledge from employees and innovation ideas suggested by the employees (Cooper 1979; Li & Calantone 1998; Tang 1998). Furthermore, when knowledge is implemented, learning takes place, which in turn, improves the stock of knowledge available within the firm. Knowledge transfer among organizations create opportunities for mutual learning and cooperation that stimulates the creation of new knowledge and, at the same time contributes towards these organizations' ability to continue to innovate (Miller, Fern & Cardinal 2007; Sankowska 2013).

Thus, an organization that effectively manages knowledge is also likely to be a learning organization (Sinkula, Baker & Noordewier 1997). Notable evidence exists on the importance of knowledge management that contributes to success of innovation at any types of organizations. Numerous academicians have recognized the importance of the relationships between knowledge management and innovation (Chourides, Longbottom & Murphy 2003; Davenport & Pruzak 2000; Gopalakrishnan & Bierly 2001; Hall & Andriani 2003; Nonaka 1995; Yamin, Gunasekaran & Mavondo 1999).

At the same time, there exists studies which indicated that knowledge management capable of leading an idea to the next innovation level (Forrester 2000; Gopalakrishnan & Bierly 2001; Hung et al. 2010). Knowledge management is emerging as an important subject; often cited as an antecedent of innovation going back to earlier years of 1990s' (Lin & Lee 2005; Nonaka 1995).

According to Gloet and Terziovski(2004), the humanist approach towards knowledge management and innovation performance are significant and positively related. Knowledge application is the facilitator of successful innovation output (Gilbert & Cordey-Hayes 1996).

Following the study by Darroch(2003), in this research the knowledge management is divided into three parts: knowledge acquisition, knowledge, dissemination and responsiveness to knowledge. Based on the literatures by Darroch (2003) and Darroch (2005), this study assumes a positive relationship between the three knowledge management components. A firm with access to a greater pool of knowledge would present better-developed knowledge dissemination and responsiveness to knowledge behaviors thru its practices. Similarly, an organization with better-developed knowledge dissemination behaviors and practices will be more responsive towards knowledge. Therefore, the following hypotheses were developed:

H1; Knowledge acquisition positively affects employees' knowledge dissemination in the organization.

H2; Knowledge dissemination positively affects employees' responsiveness to knowledge in the organization.

H3; Knowledge acquisition positively affects employees' responsiveness to knowledge in the organization.

It is argued that knowledge management is capable of lead an idea to innovation level (Forrester 2000; Gopalakrishnan & Bierly 2001; Hung et al. 2010). Thus, it is proposed that each component of knowledge management has positive effect on innovation. In order for innovation to take place, managers first need to have the necessary knowledge on the internal and external forces that affect the firm – the more knowledge, and the greater the variety of knowledge, the better. Secondly, knowledge must flow freely around the organization– the better the dissemination of knowledge the greater the likelihood of innovation as more people within different levels and departments of the organization are exposed to new knowledge that interacts with the knowledge already held. Lastly, an innovative organization by definition is responsive. In fact, innovation is a response by itself. Therefore, the more responsive and agile an organization, it is more likely to be innovative as well (Darroch, Jenny 2005). Thus, the relevant hypotheses were developed:

H4; Knowledge acquisition positively affects employees' innovative performance in the organization.

H5; Knowledge dissemination positively affects employees' innovative performance in the organization.

H6; Responsiveness to knowledge positively affects employees' innovative performance in the organization.

Based on the literature review, it is evident that effective knowledge management is a worthwhile activity for managers to emphasize on innovation efforts to boost organizational performance. In order to encourage the implementation of innovation, managers need to develop the knowledge management behaviors and practices (Brand 1998; Carneiro 2000; Chourides, Longbottom & Murphy 2003). Thus, knowledge management construct is presented as positively affecting employees' innovative performance. The following hypotheses were developed:

H7; Knowledge acquisition, knowledge dissemination and responsiveness to knowledge positively affect employees' innovative performance.

Figure 1 illustrates the research framework.

3 Method

3.1 Population and sample

In order to test the hypothesized relationships proposed in the research framework, data was collected from Malaysian manufacturing industries. Based on the statistics compiled from the Annual Survey of Malaysian Manufacturing Industries conducted in 2010 (JPM 2010), employees working in the manufacturing industries were 1,693,154. Therefore, based on the Krejcie and Morgan's (1970) sample size formula, the required sample for testing the research model would be 384.

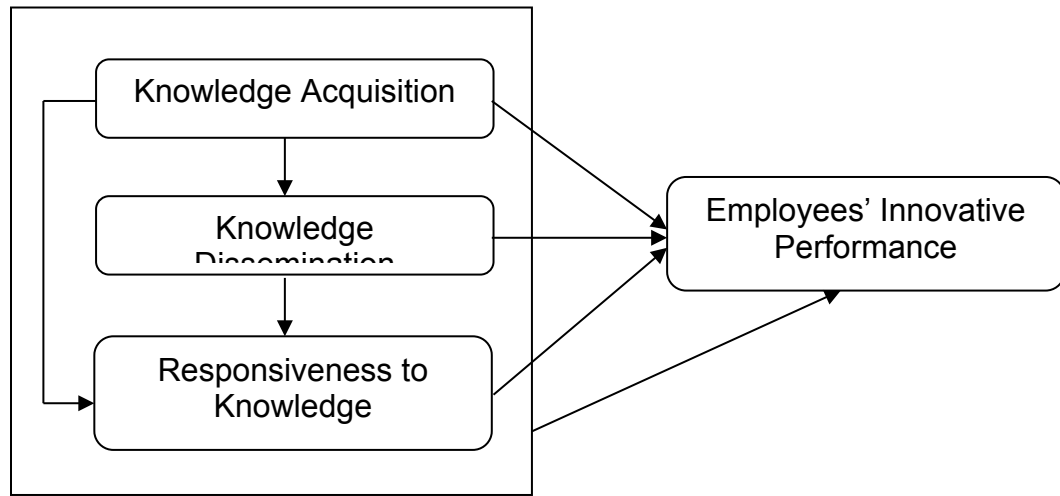


Figure 1: Research Framework

3.2 Measures

The items selected to build the questionnaire were adopted from various sources. Table 1 shows the items adoption breakdown.

Table 1: Measures

Variable	Source
Knowledge Acquisition	Darroch(2005)
Knowledge Dissemination	Darroch (2005)
Responsiveness to Knowledge	Darroch (2005)
Employees' Innovative Performance	De Jong and Den Hartog (2007), Fernandez and Moldogaziev (2011)

The Likert scale was selected to examine how strong subjects agree or disagree with the statements on a five-point scale from “strongly disagree” to “strongly agree”.

A questionnaire was developed with all the items and there was a total of 27 items (excluding demographic information). The questionnaire was initially distributed to two experts specialized

in questionnaire design and three scholars in knowledge management field for pre-testing purposes. After improving the questionnaire based on the the suggestions and feedback from the experts, a pilot study was conducted with 30 respondents. The reliability test was conducted on the data from the pilot study. The Cronbach’s alpha scores for all the constructs are shown on Table 2. All the results were found to have exceed value of 0.7 to indicate high reliability of the instruments used (Hair et al. 2006). Based on the feedback, there were no significant changes to the items enlisted on the questionnaire.

Table 2: Reliability statistics

Variable	Cronbach’s Alpha
Knowledge Acquisition	.767
Knowledge Dissemination	.734
Responsiveness to Knowledge	.845
Employees’ Innovative Performance	.874

The online survey tool was preferred as the data collection method. The electronic questionnaire is probably the most widely used data collection technique for conducting surveys in this fast moving environment. Electronic questionnaire and survey design questionnaire were elected because they can reach across a widely distributed population. Global research is now vastly facilitated by electronic systems (Sekaran & Bougie 2010). The targeted firms or organizations were located in various parts of Peninsular and East Malaysia. Therefore, Web based survey was a good tool to reach these respondents. Based on the survey conducted and output collected, we managed to gather 420 replies. The evaluation of questionnaires by checking their completeness resulted in eliminating some cases. After it, 384 good and useable questionnaires were selected for data analysis.

4 Results

4.1 Descriptive statistics

The characteristics of the respondents are: (1) 38% were males and 62% were females, (2) the highest frequency in age group which is more than 50% is for those who fall under age group 31 – 40 years old. The combination of age group 31 – 40 years category and age group 21 – 30 years category brings to a total of 91% of respondents, (3) in the case of the level of qualification, 82% of respondents hold bachelor degree and above, (4) most of the participation came from ‘executive’ level with almost 46%. This statistic is followed with ‘manager’ position holders; 17% and ‘analyst’ position holders around 17%. Opinions from executives are crucial as they belong to elite group who will not easily accept the existing working methods of their organizations. There would have fresh ideas which are vital for the improvement of their organization’s business growth (Van Clieaf 1992). And finally, (5) 63% of the respondents have more than 5 years work experience that shows they have enough experience for providing valuable comments via the survey questions.

4.2 Correlation analysis

Table 3 provides the results of the correlation analysis among variables. As it can be seen, all correlations between knowledge management subcategories and employees' innovative performance were positive and significant.

Table 3: Correlations analysis

	KA	KD	RK	EIP
Knowledge Acquisition (KA)	1			
Knowledge Dissemination (KD)	.672**	1		
Responsiveness to Knowledge (RK)	.672**	.674**	1	
Employees' Innovative Performance (EIP)	.585**	.619**	.667**	1

**Correlation is significant at $p < 0.01$

4.3 Testing of hypotheses

In order to test the hypothesized relationships in research model, linear regression analysis was conducted among the variables using SPSS software version 20. The summary of the result is shown in Table 4. As it shown in Table 4, all hypotheses were supported by the empirical data.

5.0 Discussion

This research was conducted to address the following question: what is the effect of knowledge management practices on employees' innovative performance? In order to answer this question, seven hypotheses were developed based on the literature review. The results illustrated that all the hypothesized relationships in the research model were supported by the empirical data. This research has several significant findings. First, the relationships between knowledge acquisition and knowledge dissemination ($\beta=0.672$, $p\text{-value}= 0.000$) was supported. It means a firm with access to a greater pool of knowledge will have better-developed knowledge dissemination. The relationship between knowledge dissemination and responsiveness to knowledge ($\beta=0.674$, $p\text{-value}= 0.000$) was also established based on the survey data. The firms which better disseminates their knowledge will get better responsiveness to knowledge in the workplace. Moreover, as the relationship between knowledge acquisition and responsiveness to knowledge ($\beta=0.670$, $p\text{-value}= 0.000$) was supported, it shows that a firm with access to a greater pool of knowledge will have better responsiveness towards its knowledge behaviors and practices.

Table 4: Hypotheses results

Hypothesis	Standardized Regression Weights (β)	Hypothesis supported?
H1: Knowledge Acquisition \rightarrow Knowledge Dissemination	0.672*	Yes
H2: Knowledge Dissemination \rightarrow Responsiveness to Knowledge	0.674*	Yes
H3: Knowledge Acquisition \rightarrow Responsiveness to Knowledge	0.670*	Yes
H4: Knowledge Acquisition \rightarrow Employees' Innovative Performance	0.585*	Yes
H5: Knowledge Dissemination \rightarrow Employees' Innovative Performance	0.619*	Yes
H6: Responsiveness to Knowledge \rightarrow Employees'	0.667*	Yes

Innovative Performance		
H7: Knowledge Acquisition, Knowledge Dissemination and Responsiveness to Knowledge → Employees' Innovative Performance	0.250*, 0.151*, 0.397*	Yes

* Significant at $p < 0.01$

The findings also showed that all the knowledge management elements including knowledge acquisition ($\beta=0.585$, $p\text{-value}= 0.000$), knowledge dissemination ($\beta=0.619$, $p\text{-value}= 0.000$) and responsiveness to knowledge ($\beta=0.667$, $p\text{-value}= 0.000$) have positive relationships to employees' innovative performance. This is insupport of the previous literatures that emphasize on the role of knowledge management as an element of innovation in organization. Knowledge management is capable of lead an idea to innovation level (Forrester 2000; Gopalakrishnan & Bierly 2001; Hung et al. 2010).

The support of the last hypothesis that examined the relationship between three elements of knowledge management (knowledge acquisition, knowledge dissemination and responsiveness to knowledge) and employees' innovative performance ($\beta_1=0.250$, $p\text{-value}= 0.005$, $\beta_2=0.151$, $p\text{-value}= 0.000$, $\beta_3=0.397$, $p\text{-value}= 0.000$) also is in line with previous literatures that knowledge management is now can be considered as an important concept which is often cited as an antecedent of innovation.

Moreover, the result of the multiple linear regression analysis showed that two types of knowledge management subcategories; knowledge acquisition and responsiveness to knowledge are statistically more significant antecedents for employees' innovative performance than knowledge dissemination. This could be because of the important role of knowledge acquisition on capturing employees' new ideas that affects their innovative performance. Besides that, the important role of responsiveness to knowledge is an implication that the more responsive to knowledge the employee is; the more likely he or she is to be innovative.

In conclusion, the study attempted to provide answer to the research question: Will knowledge management best practices influence an employee's innovative skills during work performance? Too much formalization of the 'best way' could actually lead to less creativity and innovation thinking of employees. However, the result showed that without good knowledge management practices, the innovative ideas of employees will not be captured completely or there will be high possibility the innovative idea might not surface which could be due to ineffective approach of knowledge management practices by employers. Therefore, knowledge management practices will not lead to less creativity and innovation; otherwise it will provide the required infrastructures and tools for capturing the creative ideas of employees for further action toward innovation in work.

6.0 Limitations and conclusions

There are a few limitations of this study. First, the results of this research are based on a cross-sectional study on a small number of respondents from a small country, Malaysia. Therefore, we cannot establish the causal effect between constructs and a longitudinal study is required to establish such an effect. Moreover, such studies have to be conducted in different countries and contexts or in a specific industry to get better insight.

This research found that organizations effectively managing knowledge or having sound knowledge sharing tools within their organizations' were also more innovative and their employees performed better regarding the innovation aspect of their work. The implementation

of knowledge management practices is necessary for enhancing the employees' innovative performance. Future research is required to firmly establish this statement by further examining the supporting role of knowledge management practices. It is hoped that future research will provide further confirmation of the results reported in this study and identify other consequences of effective knowledge management practices.

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