



# Developing an integrated model of TQM and HRM on KM activities

Developing  
an integrated  
model

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## Abstract

**Purpose** – The purpose of this paper is to develop an integrated model of total quality management (TQM) and human resource management (HRM) to elucidate the influence of TQM and HRM practices on knowledge management (KM) activities.

**Design/methodology/approach** – The theory of KM serves as a starting-point to develop the integrated conceptual model linking TQM and HRM aspects. Based on an extensive review of the current literature, three practices of TQM and three practices of HRM are integrated in an organized manner to examine the influence of TQM and HRM practices on KM activities.

**Findings** – These findings provide a basis for developing a model to advance the HRM, TQM and KM research literature.

**Practical implications** – The practical implication of this study could be useful for business managers, who want to enhance organizational KM activities through implementing HRM and TQM practices that support their organization's KM efforts.

**Originality/value** – This paper makes a significant contribution by developing an integrated HRM and TQM model as a methodological example which can be useful for tracking the degree of HRM and TQM effects on KM activities. Organizations could use this framework to do a pre-test baseline measurement, and then periodically re-assess the effects of any HRM and TQM change.

**Keywords** Total quality management, Human resource management, Knowledge management

**Paper type** Conceptual paper

## Introduction

During the past few decades, total quality management (TQM) and human resource management (HRM) have been important topics in management and business research due to their potential to impact a range of organizational and individual performance (Ooi *et al.*, 2007). Previous empirical research (e.g. Boselie and Wiele, 2002) suggests a range of significant impact of HRM and TQM on an organization's performance. Most of the research on HRM and TQM focuses on the effects of these approaches at the organizational level (e.g. Boselie and Wiele, 2002; Choi and Eboch, 1998; Arthur, 1994).

Despite the increasing volume of literature on HRM and TQM, relatively little attention has been focused on the effect of these two perspectives towards knowledge management (KM). Although the relationship between HRM and TQM in KM



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(Adamson, 2005; Yahya and Goh, 2002) and organizational learning (Love *et al.*, 2000) has been previously proposed, the study of the relationship of HRM and TQM with KM activities has not been studied in any greater depth (Molina *et al.*, 2004). Correctly managing HRM and TQM towards achieving KM value change activities are strategically and tactically important for gaining a competitive advantage (Molina *et al.*, 2004; Yahya and Goh, 2002; Decaloris and Deeds, 1999) and for serving as resources to sustain development (Gloet, 2006). Their importance, both theoretically and practically, is highlighted by the fact that organizations' advantages over markets and other organizations when managing HRM and TQM towards achieving KM activities are seen as vital when explaining the existence of the organization (Ju *et al.*, 2006; Hsu and Shen, 2005; Molina *et al.*, 2004; Kogut and Zander, 1995). Thus, studying their relationship is relevant to the literature on HRM and TQM since it provides a theoretical base to explain the manner in which HRM and TQM affect an organization's competitive advantage (Molina *et al.*, 2004). In order to bridge the gap and provide organizations with practical assistance in dealing with HRM and TQM's effects on KM activities, this paper proposes a set of HRM and TQM practices and develops an integrated model to examine whether the influence of HRM and TQM practices result in an improvement of KM activities.

This research paper is structured as follows. In the next section, we provide a review of the literature pertaining to the process of KM activities, followed by the relationship between HRM and TQM in KM activities. This foundation leads to the propositions developed in this study. We then focus on the development of the conceptual research framework, followed by conclusions.

## Literature review and hypotheses development

### *Theory about KM*

Although many authors have written about the significance of knowledge in management, relatively little interest has been focused on how knowledge is created. In order to understand KM, it is important to first define knowledge. There have been various definitions of knowledge. Knowledge is a multifaceted concept with multilayered meanings and is defined as a justified true belief that increases an entity's capacity for effective action (Nonaka, 1994). Bhatt (2001) stated that data are raw facts and when they are processed and organized, they become information, and knowledge is the meaningful information. The differences between data, information and knowledge could only be distinguished between a user's perspectives or external means (Bhatt, 2001).

Knowledge can be conceptualized as tacit knowledge and explicit knowledge (Nonaka, 1994; Gupta *et al.*, 2000). Tacit knowledge is the knowledge for which we do not have words (Smith, 2001). Tacit knowledge is automatic and needs minimum or no time or thought, and it helps organizations to determine how they make decisions and influence the collective behavior of their members (Liebowitz and Beckman, 1998; Smith, 2001). Tacit knowledge is a structural concept, describing a relation between different kinds of knowledge and implies "unknown principles of operation" (Mooradian, 2005).

Explicit knowledge is technical or academic data or information that is described in formal language (Smith, 2001). Examples of explicit knowledge include manuals, mathematical expressions, copyright and patents (Smith, 2001). Explicit knowledge has also been described as an expressed knowledge that is communicated to others (Stover, 2004). Tacit knowledge is rooted in action, commitment and involvement in a specific context whereas explicit knowledge is the knowledge that is transmissible in formal, systematic language (Nonaka, 1994). Both tacit knowledge and explicit

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knowledge operate together in a “stereo effect” (Gray, 2000). All forms of knowledge have both of these components. These components should be combined holistically and managed together but each in its own way (Gray, 2000). For many organizations, it is important to convert their knowledge so that the knowledge can become part of the organization’s knowledge network (Herschel *et al.*, 2001). There are four modes of knowledge conversion (Nonaka, 1994):

- (1) Socialization: from tacit knowledge to tacit knowledge; e.g. managers collect information from production and sales departments, interact with and share experiences with suppliers and customers.
- (2) Externalization: from tacit knowledge to explicit knowledge; e.g. managers facilitate discussions and encourage the involvement of the industrial experts in the project team to improve the organization’s productivity.
- (3) Combination: from explicit knowledge to explicit knowledge; e.g. managers engage in the planning and implementation of presentations to disseminate newly created concepts.
- (4) Internalization: from explicit knowledge to tacit knowledge; e.g. managers engage in activities with functional departments and share management visions and values through communications with employees of the organization.

This model has been defined as the SECI model, which describes knowledge creation as a spiral process of interactions between explicit and tacit knowledge (Nonaka, 1994). In recent years, many companies have started to understand the need to integrate both types of knowledge to improve their productivity. Thus, some organizations are now developing effective methodologies to convert tacit knowledge into explicit knowledge that can be codified, stored, transmitted and used by others. This idea has been recognized and expedited the development of KM.

KM is a systematic approach to improve an organizations’ ability to mobilize knowledge to enhance decision-making in formulating business strategy (Hsu and Shen, 2005; KPMG, 2003; Horwitch and Armacost, 2002). KM is the process that creates or locates knowledge and manages the sharing, dissemination and use of knowledge within the organization (Darroch and McNaughton, 2003). When knowledge is used, learning takes place, which in turn, improves the stock of knowledge available to the organization. Simple KM activities consist of three activities: knowledge acquisition, knowledge dissemination and responsiveness to knowledge (Darroch, 2003). Holsapple and Singh (2001) proposed a knowledge chain model which included both primary and secondary activities that are comparable with Porter’s (1995) value chain (Ju *et al.*, 2006). After a comprehensive review of the KM literature, the framework used by Darroch (2003) was selected to represent the core of KM activities in this study. Their model has been accepted by several well-known scholars such as Shin *et al.* (2001), Holsapple and Singh (2001) and Ju *et al.* (2006).

#### *Relationship between HRM and TQM in KM activities*

The focus of both HRM and TQM is directed towards creating a high performance culture or system. In order to obtain a sustainable competitive advantage for an organization, the introduction of so-called “best practices” or high performance work practices (HPWP) can be introduced (Ooi *et al.*, 2007; Boselie and Wiele, 2002). HPWP goes by different names in the literature; they include flexible work systems and high commitment management (Chow, 2005; Van Buren and Werner, 1996; Arthur, 1994).

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HRM and TQM uses HPWP type practices. Creating sustained competitive advantage through HPWP such as performance appraisal, selective hiring process, reward systems, leadership, customer focus as well as training and development are elemental dimensions of HRM and TQM. The existence of such forms of HPWPs, that drive organizations to excellent performance, is underlined by both TQM and HRM (Boselie and Wiele, 2002; Ooi *et al.*, 2007).

TQM has received considerable attention and much has been written about the “hard” or “technical” aspects of TQM, but the “soft” aspects have received less attention (Wilkinson, 1992). Thus, the need to set pragmatic criteria for HR practices to be congruent with quality management principles is one aspect of this study. TQM is translated into staffing requirements through HR plans and staff can be hired and selected in accordance with the organizational values established in a TQM program (Simmons *et al.*, 1995). We propose a carefully designed appraisal and performance pay system that can be used effectively with TQM notwithstanding the analysis of Deming and others. It would need to take consideration on the aspects of employees’ contributions into a few manners such as towards teams, process improvements and inputs and not just individual achievements (Simmons *et al.*, 1995). In a professional TQM program, greater demands on employees, especially in terms of understanding and improving processes are indisputable. Extensive and focused training of staff needs to be undertaken for the whole program to be effective and towards its distinction (Simmons *et al.*, 1995). Current views and practices with regard to the link between HRM and TQM have been established in the literature (Institute Personnel Management, 1993; Marchington, *et al.*, 1993; Ooi *et al.*, 2007; Soltani *et al.*, 2004). Issues range from an analysis of the quality management literature to what practices and skills are required by HRM in order to enhance its role in the development of successful quality initiative. It has been argued that HR participation in TQM programmes is not optional, but is an essential component if quality management is to reach its full potential (Soltani *et al.*, 2004; Ooi *et al.*, 2007). Consequently, many of the recent empirical studies in the HRM literature address the interaction between personnel management issues and quality management, and they have focused on practices that improve quality performance through other HRM functions (Soltani *et al.*, 2004; Redman and Mathews, 1998; Wilkinson, 1992).

This literature suggests that TQM requires a particular approach to a “soft aspect” or “HR strategy” if it is to be successfully implemented and sustained (Redman and Mathews, 1998). Now, we face challenges posed for HRM and TQM practices by the growth of interest in improving KM activities among followers. Several dimensions of HRM and TQM practices are selected from the previous studies in relation to the KM activities, namely performance appraisal (Oldham, 2003; Morris *et al.*, 2002), a selective hiring process (Cabrera and Cabrera, 2005; Chatman, 1991), reward systems (Ipe, 2003; Zarraga and Bonache, 2003), leadership (MacNeil, 2001; Ellinger and Bostrum, 1999), customer focus (Ju *et al.*, 2006), training and development (Pangil and Nasurdin, 2005; Robertson and Hammersley, 2000). This study focuses on the above HRM and TQM practices as they serve as a platform for inducing KM activities.

### **Performance appraisal**

Appraisal is considered as an important step towards the development of human resources and their performance (Khoury and Analoui, 2004). A well designed performance appraisal system is also able to support the benefits of KM activities (Cabrera and Cabrera, 2005). Recognizing KM activities in performance appraisals may

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send a strong signal to the employees that the organization values knowledge-sharing activities (Cabrera and Cabrera, 2005).

Performance appraisal systems, based on organizational performance or group and stock ownership programs, will reinforce collective goals and mutual cooperation that should lead to a higher level of trust necessary for knowledge exchanges (Cabrera and Cabrera, 2005; Morris *et al.*, 2002). Individuals who anticipate “developmental evaluation” share their creative ideas more than those who expect to receive more critical evaluations (Cabrera and Cabrera, 2005; Oldham, 2003). Recognizing knowledge-sharing behaviors in performance appraisal may also help to reduce the perceived cost of these behaviors (Husted and Michailova, 2002). Employees are reluctant to spend time on knowledge sharing, and this is one of the reasons often cited for not contributing to knowledge repositories. They believe that they should spend their limited time on what they recognize to be more productive activities. When these behaviors are directly evaluated, employees are more likely to view them as an essential part of their job responsibilities. If this is the case, the time spent on KM activities will not be considered an opportunity cost that could have been spent on more productive activities (Cabrera and Cabrera, 2005). Therefore, we make the following proposition:

- P1.* The greater emphasis on performance appraisal will lead to a greater amount of KM activities (i.e. knowledge acquisition, knowledge dissemination and responsiveness to knowledge) among followers.

### **Selective hiring process**

Person-organization fit is a hiring practice that focuses on the compatibility between organization and employee characteristics (Cabrera and Cabrera, 2005; Chatman, 1991). It is often measured in terms of the congruence between patterns of organizational values and patterns of individual values (Chatman, 1991). Hence, selective hiring process should take into consideration the candidates' values (Chatman, 1991).

In the context of KM activities, “fit” is vital during the process of socialization. This process may be especially vital for KM activities cultures not only because it creates a community of shared values, but also because the values can specifically include the importance of learning and developing more knowledge (Pangil and Nasurdin, 2005; Cabrera and Cabrera, 2005; Morris *et al.*, 2002). Moreover, in a climate in which the organization wants to cultivate a culture that embraces KM activities, the selection process must emphasize hiring individuals who value KM activities (Pangil and Nasurdin, 2005). A case study conducted by Currie and Kerrin (2003) has confirmed the behavior of a wrong selection process on knowledge sharing. Hence, the perception that one is employed because there is similarity between his/her values and the organization's values (i.e. valuing knowledge sharing) will affect one's attitude towards knowledge sharing because he/she realizes how vital knowledge-sharing activities are to the organization. Thus, the following proposition is proposed:

- P2.* The greater emphasis on selective hiring process will lead to a greater amount of KM activities (i.e. knowledge acquisition, knowledge dissemination and responsiveness to knowledge) among followers.

### **Reward systems**

Reward systems specify the organizational values and they shape individuals' behaviors and attitudes (Cabrera and Bonache, 1999). Having the right reward and

reward systems is also vital in making every employee involved in the process of knowledge sharing, knowledge acquisition and knowledge dissemination. In general, there are two purposes of any organizational compensation scheme, namely, employees will be rewarded by performing knowledge-sharing practices in organization, and incentives are given to those who continue to perform the desirable practices (Pangil and Nasurdin, 2005). For the above reasons, reward systems are vital for KM activities (Pangil and Nasurdin, 2005; Ipe, 2003; Zarraga and Bonache, 2003). Thus, any reward systems implemented by an organization must reward and motivate people to be involved in the KM process (Pangil and Nasurdin, 2005).

Rewards can be categorized as being either extrinsic or intrinsic (Goh, 2006; Wood *et al.*, 1998). It is found that both intrinsic and extrinsic rewards have significant and positive influences on organizational knowledge acquisition, knowledge dissemination and the use of knowledge activities (Goh, 2006; Yu *et al.*, 2004). Several scholars, however, have found that intrinsic rewards, such as recognition, may be more effective than extrinsic reward for attracting employees in knowledge-sharing activities (O'Dell and Grayson, 1998; Goh, 2006). Bartol and Srivastava (2002) suggested the use of rewards based on team performance such as profit sharing, and stock ownership plans and the use of merit pay plans that include assessment and explicit recognition of KM activities at the individual and team levels. Regardless of what rewards system implemented, individuals must perceive the relationship between their KM activities and team performance, and rewards. It is argued that if employees perceive that the rewards system is tied to the performance of their teams, they will have more positive attitudes towards their KM activities, and it is proposed that:

- P3. The greater emphasis on reward systems will lead to a greater amount of KM activities (i.e. knowledge acquisition, knowledge dissemination and responsiveness to knowledge) among followers.

### **Leadership**

Leadership in an organization can be defined as the ability of a role player to affect a team of employees to follow his instruction or mission that is assigned to them in order to achieve objectives that have been set by the organization (Goh, 2006; Robbins, 2003). Management leadership plays a key role in the process of managing organizational KM activities (Bryant, 2003) and influencing the success of KM behaviors (Wong, 2006; Horak, 2001; Holsapple and Joshi, 2000; Ribiere and Sitar, 2003). They provide vision, mission, motivation, systems and structures at all activities of the organization that facilitate the exchange of knowledge into competitive advantages (Bryant, 2003) as well as the key decision makers encouraging employees to share their ideas by creating a climate that is receptive to new ideas (Lin and Lee, 2004; Bryant, 2003).

The role of management leadership as a facilitator encouraging KM activities, such as knowledge sharing, knowledge acquisition and documentation of knowledge in teams, is vital for developing and cultivating the collective learning capability of organizations (Ellinger and Bostrum, 1999). They should, for example, exhibit a willingness to share their knowledge freely with others in the organization, conveying the importance of KM to employees, maintain their moral and creating a culture that promotes knowledge sharing and creation (Wong, 2006). Management leadership establishes the necessary conditions for effective KM (Holsapple and Joshi, 2000; Wong, 2006). Previous empirical studies have shown that leadership is significantly

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positively correlated to KM activities in organizations (Bryant, 2003; Crawford, 2003; MacNeil, 2001; Ellinger and Bostrum, 1999). Therefore, the following proposition is proposed:

- P4. A greater emphasis on KM activities by leadership will lead to a greater amount of KM activities (i.e. knowledge acquisition, knowledge dissemination and responsiveness to knowledge) among followers.

### **Customer focus**

Customer focus can be defined as the extent to which an organization continuously satisfies customer requirements and expectations (Philips Quality, 1995). A successful organization recognizes the need to place the customer as the first priority in every decision made (Zhang, 2000). The main objective of an organization is to maintain a close relationship with the customer. For instance, including customers' suggestions in knowledge creation activities, storing knowledge that is valuable to customers, reviewing customer complaints and applying that knowledge to fulfil customer needs and enhance customer satisfaction (Ju *et al.*, 2006). Bassi and Van Buren (1999) asserted that the intellectual assets of an organization are not just employees' know-how, but also business process and customers' knowledge as well. Liao (2006) explained that sharing the information and knowledge about customer needs among co-workers or leaders could act as a competitive advantage to the company. Fast learning and knowledge transfer from an individual to another is what an organization must do extremely well in order to maintain the products and services ahead of the needs and expectation of customers (Pfister, 2002).

Stankosky (2001) indicated that organizations must understand that their customer's problems and needs are supreme and that they are the key driver of continuous improvements and innovation. The customer-focused knowledge strategy focuses on capturing knowledge about customers, understanding of customers' needs and bringing the knowledge of the organization to bear on customer problems (O'Dell *et al.*, 1999). A case study conducted by O'Dell *et al.* (1999) found that Dow Chemical Company measures its value through its customer success. It is one of the key drivers that make up the company's core values. In identifying the intellectual capital associated with this factor, Dow tries to find the stream and logic that leads to the individual component that affects that customer's success. In a related study conducted by O'Dell *et al.* (1999), they found that USAA, one of the leading insurance companies, implemented a comprehensive customer feedback that quantified the feedback and improved overall knowledge of its customer base. Thus, we make the following proposition:

- P5. The greater emphasis on a customer focus will lead to a greater amount of KM activities (i.e. knowledge acquisition, knowledge dissemination and responsiveness to knowledge) among followers.

### **Training and development**

Training and development is considered to be particularly vital to professionals and knowledge workers (Robertson and Hammersley, 2000). Training is a "planned and systematic effort to develop knowledge through learning experience in order to achieve effective performance in an activity or range of KM activities" (Buckley and Caple,

1992, p. 17). It is also crucial in the context of knowledge sharing, knowledge acquisition, as well as the responsiveness to knowledge because it provides an opportunity for people to, not only gain or create new knowledge, but also to share their knowledge flow (Pangil and Nasurdin, 2005).

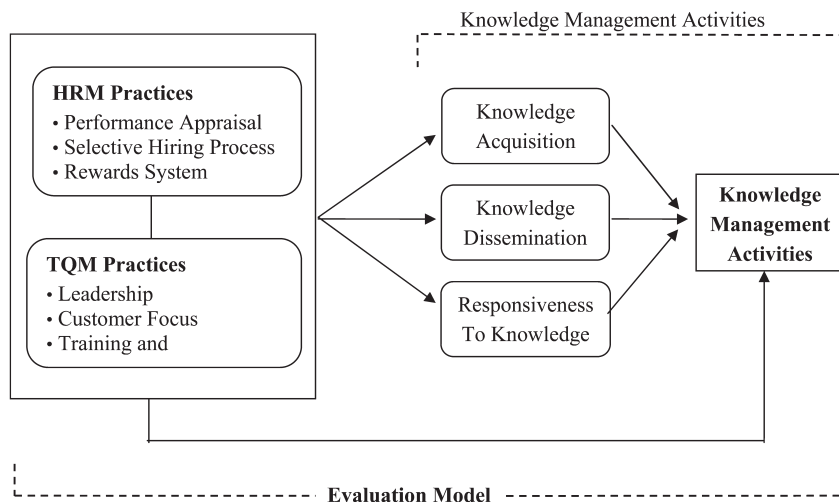
The use of extensive training and development programs should be able to enhance the general level of self-efficacy among organizational employees and as a result, employees will have enhanced competence, aptitude and the ability to exchange knowledge with others (Cabrera and Cabrera, 2005). Training in team building should enhance levels of cognitive, structural and relational social capital that will also help to motivate KM activities (Cabrera and Cabrera, 2005). Meanwhile, Goh (2002) reported that training in creativity and experimentation can help overcome some restrictions in knowledge acquisition, knowledge dissemination and knowledge sharing, such as a recipient's lack of motivation, absorptive capacity and retentive capacity. KM activities can happen effectively in formal training sessions (Wong *et al.*, 1999; Pangil and Nasurdin, 2005). Therefore, we make the following proposition:

- P6. The greater emphasis on training and development will lead to a greater amount of KM activities (i.e. knowledge acquisition, knowledge dissemination and the responsive to knowledge) among followers.

The review above indicates that an organization's HRM and TQM practices have significant effects on KM activities. Given that there is a limited amount of rigorous research in this aspect, this study examines the effects of HRM and TQM practices on KM activities.

**Conceptual research framework**

Based on the above literature review, a research framework is developed to examine the effects of HRM and TQM practices on KM activities. The link between HRM and TQM principles and the KM activities are illustrated in Figure 1. In this theoretical framework, HRM and TQM practices are independent variables and KM activities are dependent variables, respectively. According to Kitazawa and Sarkis (2000), a



**Figure 1.**  
An integrated model of TQM and HRM on KM activities



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conceptual model can be developed to be an exploratory channel for fieldwork. The present study thus attempts to bridge the gap by providing a basis for a thorough and insightful consideration of the influence of HRM and TQM on KM activities. The model suggests that the greater the extent to which these HRM and TQM practices are present, the higher will be the KM activities of the followers.

### **Managerial implications**

In today's business environment, knowledge-based activities can enable organizations to gain competitive advantages over their rivals (Valkokari and Helander, 2007). Many organizations are starting to implement KM activities. The practical contributions of this research are that organizations planning to implement KM, within their own organizations, will be able to know whether HRM and TQM practices are able to have an impact in the KM activities. Although many organizations have practiced TQM and HRM activities, there is a need to develop, model and empirically evaluate what types of practices from TQM and HRM can contribute towards KM activities implementation.

### **Academic implications**

Given the emergence of KM as a research area, many studies have increasingly focused on the best ways for improving the implementation of KM activities. Although past studies have attempted to study the relationships between theories from HRM and TQM and KM, there is still a lack of study in the relationship of HRM and TQM with KM activities. This study proposed a new integrated model which includes practices from both HRM and TQM theories to examine if these practices will result in improved KM activities.

### **Conclusion**

In conclusion, this paper has attempted to fill a gap in the literature on the topic of the relationship of HRM and TQM with KM activities. We have proposed a conceptual model for HRM and TQM adoption in measuring KM activities. To foster HRM and TQM practices that are positive towards KM activities, organizations should design a performance appraisal system to encourage KM behaviors, implement selective hiring process that emphasize "fit" between the employees and the organization, design reward systems that rewards sharing of knowledge flow, provide extensive training and development to their employees, develop transformational and charismatic leadership theory in order to provide a foundation for facilitating the KM process, and design a good customer complaints system towards fulfilling customer needs and enhance customer satisfaction.

The study has sought to advance the HRM and TQM and KM research literature and provides practitioners and academicians with a better understanding of the association between HRM and TQM practices in KM activities. The findings also make a contribution by developing an integrated HRM and TQM model as a methodological example deemed useful to track the degree of HRM and TQM effects on KM activities. Organizations could use this framework to do a pre-test baseline measurement, and then periodically re-assess the effects of any HRM and TQM change (Ooi *et al.*, 2007). Further survey and research will be conducted using multivariate analysis to validate and enhance the model, so that it can establish itself in practice.

**References**

- Adamson, I. (2005), "Knowledge management – the next generation of TQM", *Total Quality Management*, Vol. 16 Nos. 8-9, pp. 987-1000.
- Arthur, J.B. (1994), "Effects of human resource systems on manufacturing performance and turnover", *Academy of Management Journal*, Vol. 13 No. 37, pp. 670-87.
- Bartol, K.M. and Srivastava, A. (2002), "Encouraging knowledge sharing: the role of organizational reward systems", *Journal of Leadership and Organizational Studies*, Vol. 9, pp. 64-76.
- Bassi, L.J. and Van Buren, M.E. (1999), "Valuing investments in intellectual capital", *International Journal of Technology Management*, Vol. 18 Nos. 5-8, pp. 414-32.
- Bhatt, G.D. (2001), "Knowledge management in organisations: examining the interaction between technologies, techniques, and people", *Journal of Knowledge Management*, Vol. 5 No. 1, pp. 68-75.
- Boselie, J.P.E.F. and Wiele, A.V. (2002), "Employee perceptions of HRM and TQM, and the effects on satisfaction and intention to leave", *Managing Service Quality*, Vol. 12 No. 3, pp. 165-72.
- Bryant, S.E. (2003), "The role of transformational and transactional leadership in creating, sharing, and exploiting organizational knowledge", *Journal of Leadership and Organizational Studies*, Vol. 9 No. 4, pp. 32-44.
- Buckley, R. and Caple, J. (1992), *The Theory and Practice of Training*, Kogan Page Ltd, London, ISBN 978-0749407995.
- Cabrera, E.F. and Bonache, J. (1999), "An expert HR system for aligning organizational culture and strategy", *Human Resource Planning*, Vol. 22 No. 1, pp. 51-60.
- Cabrera, E.F. and Cabrera, A. (2005), "Fostering knowledge sharing through people management practices", *The International Journal of Human Resource Management*, Vol. 16 No. 5, pp. 720-35.
- Chatman, J.A. (1991), "Matching people and organizations: selection and socialization in public accounting firms", *Administrative Science Quarterly*, Vol. 36, pp. 459-84.
- Choi, T.Y. and Eboch, K. (1998), "The TQM paradox: relations among TQM practices, plant performance, and customer satisfaction", *Journal of Operations Management*, Vol. 11 No. 17, pp. 59-75.
- Chow, I.H. (2005), "High performance work systems in Asian companies", *Thunderbird International Business Review*, Vol. 47 No. 5, pp. 575-99.
- Crawford, C.B. (2003), "Exploring the relationship between knowledge management and transformational leadership", paper presented to ALE Conference, Anchorage, AK, 16-19 July 2003.
- Currie, G. and Kerrin, M. (2003), "Human resource management and knowledge management: enhancing knowledge sharing in a pharmaceutical company", *The International Journal of Human Resource Management*, Vol. 14, pp. 1027-45.
- Darroch, J. (2003), "Developing a measure of knowledge management behaviour and practices", *Journal of Knowledge Management*, Vol. 7 No. 5, pp. 41-54.
- Darroch, J. and McNaughton, R. (2003), "Beyond market orientation knowledge management and the innovativeness of New Zealand firms", *European Journal of Marketing*, Vol. 37 Nos. 3-4, pp. 572-93.
- Decaloris, D.M. and Deeds, D.L. (1999), "The impacts of stocks and flows of organizational knowledge on firm performance: an empirical investigation of the biotechnology industry", *Strategic Management Journal*, Vol. 20, pp. 953-68.
- Ellinger, A.D. and Bostrum, R.P. (1999), "Managerial coaching behaviours in learning organizations", *Journal of Management Development*, Vol. 18 No. 9, pp. 752-71.

- Gloet, M. (2006), "Knowledge management and the links to HRM developing leadership and management capabilities to support sustainability", *Management Research News*, Vol. 29 No. 7, pp. 402-13.
- Goh, G.G.G. (2006), "Knowledge management practices in multimedia super corridor status companies in Malaysia", unpublished dissertation, Master of Business Information Technology, University of Southern Queensland, Toowoomba.
- Goh, S.C (2002), "Managing effective knowledge transfer: an integrative framework and some practice implications", *Journal of Knowledge Management*, Vol. 6, pp. 23-30.
- Gray, P. (2000), "Knowledge management overview", available at: [www.crito.uci.edu/itr/publications/pdf/km-overview-pgray.pdf](http://www.crito.uci.edu/itr/publications/pdf/km-overview-pgray.pdf) (accessed 24 February 2008).
- Gupta, B., Iyer L.S. and Aronson J.E. (2000), "Knowledge management: practices and challenges", *Industrial Management and Data Systems*, Vol. 100 No. 1, pp. 17-21.
- Herschel, R.T., Nemati, H. and Steiger, D. (2001), "Tacit to explicit knowledge conversion: knowledge exchange protocols", *Journal of Knowledge Management*, Vol. 5 No. 5, pp. 107-16.
- Holsapple, C.W. and Joshi, K.D. (2000), "An investigation of factors that influence the management of knowledge in organizations", *Journal of Strategic Information Systems*, Vol. 9 Nos. 2-3, pp. 235-61.
- Holsapple, C.W. and Singh, M. (2001), "The knowledge chain model: activities for competitiveness", *Expert Systems with Applications*, Vol. 20 No. 1, pp. 77-98.
- Horak, B.J. (2001), "Dealing with human factors and managing change in knowledge management: a phased approach", *Topics in Health Information Management*, Vol. 21 No. 3, pp. 8-17.
- Horwitch, M. and Armacost, R. (2002), "Knowledge management: helping knowledge management be all it can be", *Journal of Business Strategy*, Vol. 23 No. 3, pp. 26-31.
- Hsu, S.H. and Shen, H.P. (2005), "Knowledge management and its relationship with TQM", *Total Quality Management*, Vol. 16 No. 3, pp. 351-61.
- Husted, K. and Michailova, S. (2002), "Diagnosing and fighting knowledge-sharing hostility", *Organizational Dynamics*, Vol. 31 No. 1, pp. 60-73.
- Institute Personnel Management (1993), *Quality: People Management Matters*, IPM Research Series, Short Run Press Ltd, Exeter.
- Ipe, M. (2003), "Knowledge sharing in organizations: a conceptual framework", *Human Resource Development Review*, Vol. 2, pp. 337-59.
- Ju, T.L., Lin, B., Lin, C. and Kuo, H.J. (2006), "TQM critical factors and knowledge management value chain activities", *Total Quality Management*, Vol. 17, No. 3, pp. 373-93.
- Khoury, G.C. and Analoui, F. (2004), "Innovative management model for performance appraisal: the case of the Palestinian public universities", *Management Research News*, Vol. 27 Nos. 1-2, pp. 56-73.
- Kitazawa, S. and Sarkis, J. (2000), "The relationship between ISO 14001 and continuous source reduction programs", *International Journal of Operations and Production Management*, Vol. 20 No. 2, pp. 225-48.
- Kogut, B. and Zander, U. (1995), "Knowledge, market failures and the multinational enterprise: a reply", *Journal of International Business Studies*, Vol. 26, pp. 417-26.
- KPMG (2003), "Insights from KPMG's European knowledge management survey 2002/2003".
- Liao, L.F. (2006), "A learning organization perspective on knowledge sharing behavior and firm innovation", *Human System Management*, Vol. 25, pp. 227-36.
- Liebowitz, J. and Beckman, T. (1998), *Knowledge Organizations: What Every Manager Should Know*, CRC Press, Boca Raton, FL.

- Lin, H.F. and Lee, G.G. (2004), "Perceptions of senior managers toward knowledge-sharing behaviour", *Management Decision*, Vol. 42 No. 1, pp. 108-25.
- Love, P.E.D., Li, H., Irani, Z. and Faniran, O. (2000), "Total quality management and the learning organization: a dialogue for change in construction", *Construction Management and Economics*, Vol. 18 No. 3, pp. 321-31.
- MacNeil, C. (2001), "The supervisor as a facilitator of informal learning in work teams", *Journal of Workplace Learning*, Vol. 13 No. 6, pp. 246-53.
- Marchington, M., Wilkinson, A. and Dale, B. (1993), "Quality and the human resource dimension", *Quality, People Management Matters*, London Institute of Personnel Management, London.
- Molina, L.M., Montes, F.J.L. and Fuentes, M. (2004), "TQM and ISO 9000 effects on knowledge transferability and knowledge transfers", *Total Quality Management*, Vol. 15 No. 7, pp. 1001-15.
- Mooradian, N. (2005), "Tacit knowledge: philosophic roots and role in KM", *Journal of Knowledge Management*, Vol. 9 No. 6, pp. 104-13.
- Morris, S., Snell, S.A., Kang, S.C. and Collins, C.J. (2002), "Extending the human resource architecture: implications from social capital theory", *Academy of Management Meetings, Denver*.
- Nonaka, I. (1994), "A dynamic theory of organizational knowledge creation", *Organization Science*, Vol. 5 No. 1, pp. 14-37.
- O'Dell, C. and Grayson, J. (1998), "If only we know what we know: identification and transfer of internet best practices", *California Management Review*, Vol. 40 No. 3, pp. 154-74.
- O'Dell, C., Wiig, K. and Odem, P. (1999), "Benchmarking unveils emerging knowledge management strategies", *Benchmarking: An International Journal*, Vol. 6 No. 3, pp. 202-11.
- Oldham, G.R. (2003), "Stimulating and supporting creativity in organizations", in Jackson, S.E., Hitt, M.A. and Denisi, A.S. (Eds), *Managing Knowledge for Sustained Competitive Advantage*, Jossey-Bass, San Francisco, CA.
- Ooi, K.B., Arumugam, V., Safa, M.S. and Bakar, N.A. (2007), "HRM and TQM: association with job involvement", *Personnel Review*, Vol. 36 No. 6, pp. 939-62.
- Pangil, F. and Nasurdin, A.M. (2005), "Perceptions of human resource management practices and knowledge sharing behavior: a proposed framework", in *Proceedings of the Sixth Asian Academy of Management Conference, 9-12 December*, Vol. 1, pp. 77-84.
- Pfister, I. (2002), "Knowledge sharing in real time", *Natural Gas*, Vol. 18 No. 7, pp. 6-10.
- Philips Quality (1995), "Philips quality – let's make things better, corporate quality bureau", Philips Electronics N.V., Eindhoven, The Netherlands.
- Porter, M. (1995), *Competitive Advantage*, Free Press, New York, NY.
- Redman, T. and Mathews, B.P. (1998), "Service quality and human resource management: a review and research agenda", *Personnel Review*, Vol. 27 No. 1, pp. 57-77.
- Ribiere, V.M. and Sitar, A.S. (2003), "Critical role of leadership in nurturing a knowledge-supporting culture", *Knowledge Management Research and Practice*, Vol. 1 No. 1, pp. 39-48.
- Robbins, S.P. (2003), *Organizational Behaviour: Concepts, Controversies, Applications*, 11th ed., Prentice Hall, NJ.
- Robertson, M. and O'Malley Hammersley, G. (2000), "Knowledge management practices within a knowledge intensive firm: the significance of the people management dimension", *Journal of European Industrial Training*, Vol. 24, pp. 241-53.

- Shin, M., Holden, T. and Schmidt, R.T. (2001), "From knowledge theory to management practices: towards an integrated approach", *Information Processing and Management*, Vol. 37, pp. 335-55.
- Simmons, D.E., Shadur, M.A. and Preston, A.P. (1995), "Integrating TQM and HRM", *Employee Relations*, Vol. 17 No. 3, p. 75.
- Smith, E.A. (2001), "The role of tacit and explicit knowledge in workplace", *Journal of Knowledge Management*, Vol. 5 No. 4, pp. 311-21.
- Soltani, E., Gennard, J., Van der Meer, R.B. and Williams, T. (2004), "HR performance evaluation in the context of TQM: a review of the literature", *International Journal of Quality and Reliability Management*, Vol. 21 No. 4, pp. 377-96.
- Stankosky, M. and Baldanza, C. (2001), "A systems approach to engineering a KM system", in Barquin, R.C., Bennet, A. and Renez, S.G. (Eds), *Knowledge Management: A Catalyst for Electronic Government*, Management Concepts, Vienna.
- Stover, M. (2004), "Making tacit knowledge explicit: the ready reference database as codified knowledge", *References Services Review*, Vol. 32 No. 2, pp. 164-73.
- Valkokari, K. and Helander, N. (2007), "Knowledge management in different types of strategic SME networks", *Management Research News*, Vol. 30 No. 8, pp. 597-608.
- Van Buren, M.E. and Werner, J.M. (1996), "High performance work systems", *Business and Economic Review*, Vol. 43 No. 1, pp. 15-23.
- Wilkinson, A. (1992), "The other side of quality: self issues and the human resource dimension", *Total Quality Management*, Vol. 3 No. 3, pp. 323-9.
- Wong, K.Y. (2006), "Critical success factors for implementing knowledge management in small and medium enterprises", *Industrial Management and Data Systems*, Vol. 105, No. 3, pp. 261-79
- Wong, V., Shaw, V. and Sher, P.J. (1999), "Intra-firm learning in technology transfer: a study of Taiwanese information technology firms", *International Journal of Innovation Management*, No. 3, pp. 427-58.
- Wood, J., Wallace, J., Zeffance, R.M., Schermerhorn, J.R., Hunt, J.G. and Osborn, R.N. (1998), *Organizational Behaviour: an Asia Pacific Perspective*, John Wiley, Milton, MA.
- Yahya, S. and Goh, W.K. (2002), "Managing human resources toward achieving knowledge management", *Journal of Knowledge Management*, Vol. 6 No. 5, pp. 457-68.
- Yu, S.-H., Kim, Y.-G. and Kim, M.-Y. (2004), "Linking organizational knowledge management drivers to knowledge management performance: an exploratory study", paper presented at 37th Annual Hawaii International Conference on System Science, Hawaii, HI.
- Zarraga, C. and Bonache, J. (2003), "Assessing the team environment for knowledge sharing: an empirical analysis", *International Journal of Human Resource Management*, Vol. 14 No. 7, pp. 1227-45.
- Zhang, Z.H. (2000), "Implementing of total quality management: an empirical study of Chinese manufacturing firms", PhD thesis, University of Groningen, ISBN 90-72597-87-9, Groningen.

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