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An Investigation of Knowledge Management within a University IT Group

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In today's competitive global economy characterized by shorter product life cycles, increased employee turnover, and ubiquitous information technologies, an organization's ability to manage knowledge may be the only remaining source of competitive advantage (Drucker, 1995; 1999). Even though a number of researchers have outlined the importance of adopting knowledge management (KM) practices (Argyris & Schon, 1996; Davenport, 1994; Davenport, DeLong, et al., 1998; Davenport, Jarvenpaa, et al., 1996; Malhotra, 2000a; 2000b; 2000c; Nonaka & Takeuchi, 1995; Senge, 1990) and many organizations have given lip service to the term, there is still some ambiguity concerning what KM actually is (Malhotra, 2000b) and little attention has been paid to factors that enable effective KM to occur (Nonaka, et al., 1995). This research uses technical and human-centric approaches combined with Holsapple and Joshi's (1998) Kentucky Initiative to investigate KM within a small information technology group. Based on the findings of our case study, we propose some factors that seem to enable effective KM and a modification to Holsapple and Joshi's architecture of a KM episode.

INTRODUCTION

In today's competitive global economy characterized by shorter product life cycles, increased employee turnover, and ubiquitous information technologies, an organization's ability to manage knowledge may be the only remaining source of competitive advantage (Drucker, 1995, 1999). Even though a number of researchers have outlined the importance of adopting knowledge management (KM) (Argyris, et al., 1996; Davenport, 1994; Davenport, et al., 1998; Davenport, et al., 1996; Malhotra, 2000a, 2000b, 2000c; Nonaka, et al., 1995; Senge, 1990) and many organizations have given lip service to the term, there is still some ambiguity concerning what KM actually is (Malhotra, 2000b) and little attention has been paid to factors that enable effective KM to occur (Nonaka, et al., 1995). Some researchers and practitioners hold an information processing view of KM, seeing KM as a computer system that helps an organization manage knowledge; others take more of a human-centric view seeing KM as primarily a social process. The purpose of this research project is to explore how KM actually occurs within a small IT group (Figure 1) and to identify some factors that appear to enable effective KM within the IT group.

This project stemmed from discussions between industry representatives on Texas A&M University's Center for the Management of Information Systems (CMIS) advisory board and researchers. Centering on the KM "buzz", discussion soon turned to debate as information processing views and human-centric views of KM clashed. The information processing view, which has been popular in the trade press and widely implemented in practice (Davenport, et al., 1998; Hansen, Nohria, et al., 1999; Malhotra, 2000a), sees KM as archiving explicit knowledge of individuals in technology based repositories (Applegate, Cash, et al., 1988). The human-centric approach (Churchman, 1971; Davenport, 1994; Malhotra, 2000a; 2000c; Mitroff & Linstone, 1993) incorporates organizational, social, and individual dimensions into KM, purporting that "current technology cannot replace the imagination and creativity in human minds, tap the tacit dimensions of knowledge creation, and translate information into meaning" (Malhotra, 2000c, p.10).

Because of this debate, the practitioners and researchers at the CMIS meeting decided that exploring KM concepts in a real setting would help everyone better understand what KM is and how KM occurs. We chose the IT group at Texas

A&M University's Mays College of Business as the subject for this case study.

The remaining three sections of this paper consist of a discussion of the research method and Holsapple and Joshi's (1998) KM framework. Next, we explain how KM occurs within the IT group and pose some enablers of KM within the group. Finally, the conclusion discusses limitations, avenues for future exploration, and managerial/theoretical implications.

THEORETICAL BACKGROUND

Before explaining how KM occurs within the IT group, we must clarify the meaning of KM and our framework for organizing the discussion of KM. This research project adopts and is organized according to Holsapple and Joshi's explanation of an organizational KM episode (Figure 1) as "the application of knowledge manipulation skills in performing knowledge manipulation activities that operate on the organization's knowledge resources to achieve organizational learning and projection; this process is both facilitated and constrained by KM influences and is triggered by a knowledge need" (Holsapple & Joshi, 1998, pp. 3-4).

KM influences, (box A in Figure 1), "govern how the conduct of KM unfolds in an organization" (Holsapple, et al., 1998, p. 4). The Holsapple and Joshi framework identifies managerial, resource, and environmental influences. "Governed by KM influences, organizational participants execute knowledge manipulation activities, (box C in Figure 1), as an expression of their knowledge manipulation skills" (Holsapple, et al., 1998, p. 10). Knowledge selection, knowledge acquisition, knowledge generation, internalization, and externalization are all knowledge manipulation activities, which operate on knowledge resources, (box F in Figure 1), to create organizational value. Knowledge resources include schema and content resources; schema resources consist of purpose, strategy, culture, and infrastructure; content resources consist of participant knowledge and artifacts. Organizational value is the result of achievement of organizational learning and projection. "Organizational learning is a process that results in enhancement of internal competencies whereas projection results in enhancement within an organization's environment" (Holsapple & Joshi, 1998, p.4).

INVESTIGATION METHODOLOGY

Our case study (Emerson, 1983; Emerson, Fretz, et al., 1995; Gubrium & Holstein, 1997; Strauss & Corbin, 1998; Yin, 1994) consisted of focused interviews with each of the five full-time members of the IT group at the Mays College of Business. A case study method was most appropriate for this research because it provides a deeper understanding of the KM process within a real-world context, allowing us to see if this group's KM episodes follow Holsapple & Joshi's model and allowing us to see what enables KM within the IT group. In addition, we chose the IT group within the Mays College because the small group size would allow us to investigate the entire KM process.

Each interview was approximately ninety minutes long. Holsapple & Joshi's Kentucky Initiative was used to help us formulate interview questions, which sought to uncover how KM occurs within the group. We considered both human-centric and technical components. A combination of the OSI model and the general top down business model for information systems provided a supplemental framework for analyzing KM from the technical perspective (Goldman, 1998). To achieve validity, each interviewer prepared and shared interview notes and perceptions with the other interviewers (Kilmann, 1999). We corroborated interview data with internal written documentation. Follow-up interviews, electronic communication, and review by members of the IT group helped clarify issues and validate observations (Lawler, Mohrman et al., 1999; Leonard & Anslem, 1973).

Formed in early 1996, the IT group is primarily responsible for maintaining the computing infrastructure within the Mays College of Business. The group is organized in a flat organizational hierarchy with three full-time employees who report directly to the associate dean and one full-time employee who reports indirectly to the associate dean. Although the associate dean is responsible for a number of other programs within the Mays College of Business, in his role as the administrative head of the IT group his responsibilities include determining and enabling the overall direction. In analyzing the duties of each role in the operational IT group, there is a strong interrelationship between the four operational roles. For instance, the systems analyst II and the network administrator equally share responsibilities for five of the ten major responsibility areas and all but three major

Figure 1: Architecture of a KM Episode During the Conduct of KM Adapted from (Holsapple, et al., 1998)