Does knowledge retrieval improves work efficiency? An investigation under multiple systems use

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**Abstract**

Organizations encourage active knowledge retrieval from knowledge management systems; however, this does not always lead to higher work efficiency. Anchoring on uses and gratifications theory and psychology of sunk cost, this study investigates knowledge workers’ knowledge retrieval behavior and its subsequent impact on their work efficiency under three knowledge management systems, which differ in the creators of the systems and their related contents. Survey and interview data were collected from an IT call-center company. The results show knowledge workers who actively retrieved knowledge from the organization-created system that contains self-created content exhibited higher work efficiency. The results also show they obtained gratifications from actively retrieving knowledge from a self-made system; however, due to the workers’ biased perceptions toward that system, knowledge retrieval from a self-made system did not induce higher work efficiency. The findings provide organizations suggestions for designing knowledge management systems and their related contents.

1. Introduction

Even when an organization mandates the use of a specific IT application, individuals retain considerable discretion regarding use of the application in accomplishing their work activities (Hartwick & Barki, 1994). This behavior is called post-adoptive behavior, which is the myriad feature-use behaviors and feature extension behaviors of individual users after an IT application has been made accessible to them (Jasperson, Carter, & Zmud, 2005). Among the commonly researched IT applications for its post-adoptive behavior is the knowledge management system (KMS) (Alavi & Leidner, 1999). The extremely challenging proposition faced by knowledge workers in contributing their knowledge to the KMS has led many organizations to auto-populate the content of their KMS. Even so, organizations still face challenges in motivating knowledge workers to retrieve knowledge from the KMS. After so much effort populating knowledge to the KMS, if the knowledge stored is not being retrieved and used in daily work activities, it is of no value.

Previous studies provide suggestions to organizations on how to motivate knowledge retrieval from the KMS. For instance, motivation may come through the bottom-up social influence across hierarchical levels (Wang, Meister, & Gray, 2013), by establishing collaborative norms in the organization (Bock, Kankanhalli, & Sharma, 2006), and by ranking the knowledge stored in the KMS (Sutanto & Jiang, 2013). The commonality of these studies is that they examined knowledge retrieval behavior in the context of a specific KMS provided by the focal organizations. Knowledge workers also store knowledge, such as information about customers, marketing research and plans, and knowledge about company products and services, by creating folders and files in local storage (e.g., local drives, thumb drives, etc.), and these local storages are accessed when particular knowledge is needed. When researching about knowledge retrieval, researchers should investigate not only the organization-created KMS but also the employees’ self-created KMS.

In fact, there are two main components of a KMS: the system and the content. Considering system creation and content creation, we can distinguish three types of KMS: 1) the organization-created system with auto-populated knowledge content and/or knowledge stored by employees other than the target knowledge seekers; 2) the knowledge seekers’ self-created systems and content; and 3) the organization-created system that contains knowledge stored by the knowledge seekers themselves. Most studies have examined knowledge retrieval from the first or third type of KMSs, and the impact of such KMS usage on work efficiency has not always been found to be positive (Ko & Dennis, 2006).
Having access to alternative KMS is important to identify those systems and holistically examine the impacts of knowledge retrieval activities on work efficiency from the different types of KMS.

Building on uses and gratification theory (Rubin, 1985) and psychology of sunk cost (Ares & Blumer, 1985), this study aims to holistically examine the extent of knowledge retrieval activities from the different types of KMSs and their impacts on knowledge seekers’ work efficiency. According to uses and gratification theory, individuals continue using a medium because they derive process and content gratifications from using it. One of the important process gratifications from retrieving knowledge from a KMS is the simplicity in doing so (Watson & Hewett, 2006). Content gratification, on the other hand, concerns the satisfaction with the knowledge retrieved from the KMS (He, Fang, & Wei, 2009; Kankanhalli, Tan, & Wei, 2005). When the process of retrieving knowledge from a KMS is straightforward and the resultant knowledge search is satisfactory, knowledge workers should be motivated to continue seeking knowledge from that particular KMS. However, because the gratifications derived from a KMS are subjective, according to the psychology of sunk cost, there is a tendency to continue an endeavor once an investment in effort and time has been made (Ares & Blumer, 1985). Therefore, although in reality, the process of retrieving knowledge from the self-created KMS may not be simple and the resultant knowledge search may not be satisfactory, the knowledge workers may perceive it as simple to use and as producing satisfactory results and thus continue retrieving knowledge from their self-created KMS in their daily work activities.

To achieve the study objective, which is to holistically examine the extent of knowledge retrieval activities from the different types of KMSs and their effects on the knowledge seekers’ work efficiency, we collaborated with an IT call-center company. The company had implemented two KMSs, hereby referred to as KMSone and KMStwo. KMSone is embedded in the call-center’s employees’ daily work activities, such as the employee having to log into the system every day and insert customer complaints in the system’s predefined fields. These inputs serve as knowledge contributions to KMSone. Hence, KMSone is an organization-created KMS that contains knowledge stored by the knowledge seekers themselves. In contrast, the knowledge stored in KMStwo is entered by the second-level support employees, who have received forwarded unsolved customer complaints from the call-center employees. The motivation behind the implementation of KMStwo is to provide the call-center employees access to more advanced knowledge to minimize the amount of call forwarding. Hence, KMStwo is an organization-created KMS that contains knowledge stored by employees other than the target knowledge seekers. In addition to these two types of organization-created KMSs, each call-center employee creates and maintains their own localized KMS in their local drives, hereby referred to as LocalKMSs. These LocalKMSs, range from a Notepad file to sorted folders of Word-document files, are knowledge seekers’ self-created KMSs and contents.

We surveyed 158 call-center employees and followed that with interviews and focus groups. The call-center company is a unique setting where the employees’ work is time-critical, and their work efficiency is closely dependent on the sources they use to obtain the knowledge needed to answer customers’ questions. Under that circumstance, the following questions were asked: Why do they retrieve knowledge from any of the KMSs available? Does knowledge retrieval from the respective KMS actually improve their work efficiency? The answers to these questions can reveal whether there is a personal bias with respect to the self-created KMS and/or self-created knowledge content that leads to continuous knowledge retrieval, even though the choice may not actually improve the employees’ work efficiency.

We found that both the perceived process and content gratifications of a KMS affected the extent of knowledge retrieval activities from the respective KMSs. Moreover, we found that only the degree of knowledge retrieval from KMSone led to higher work efficiency. We discovered that most of the time, the knowledge workers were searching and retrieving knowledge from KMSone and LocalKMSs. They very rarely retrieved knowledge from KMStwo. Altogether, the findings from the survey which were corroborated with follow-up interviews and focus groups imply two things. First, the content and process gratifications in using an organization-created KMS that contains knowledge stored by employees other than the target knowledge seekers (i.e., KMStwo) are the lowest. Second, although the gratifications in using LocalKMSs are higher than KMStwo, searching knowledge from LocalKMS was not always associated with improved work efficiency. Hence, we found evidence of psychological sunk cost in the continued use of a self-created system and content.

This paper is structured as follow. In the next section, we will summarize the extant literature on knowledge retrieval from KMS, identify the research gaps, and highlight how our study contributes to the identified gaps. Subsequently, we will explain the theoretical foundations of our study, i.e., uses and gratifications theory and psychology of sunk cost. This is followed by a presentation of our research model and research methodology. In the following sections, we will describe and discuss our findings and conclude the paper by highlighting how our study contributes to research and what the implications of our findings to practitioners.

2. Literature review

Knowledge retrieval is an important aspect of effective knowledge management (Alavi & Leidner, 2001). Prior studies have examined the determinants of retrieving knowledge from a KMS and provided suggestions to organizations on how to motivate knowledge retrieval from a KMS (Cerchione & Esposto, 2017).

Knowledge seekers’ perceptions toward the characteristics of KMS affect their retrieval behavior. Perceived ease of use (Lai, 2009; Phang, Kankanhalli, & Sabherwal, 2009; Su & Contractor, 2011) and perceived usefulness (Chen, Hsieh, Van de Vliert, & Huang, 2015; Choi & Durcikova, 2014; Lai, 2009; He, Fang, & Wei, 2009) of KMS is positively related to the intention of knowledge use and retrieval. To be more specific, perceived searchability, actionability (Durcikova & Fadel, 2016), capability (Kankanhalli, Lee, & Lim, 2011), and usability (Phang et al., 2009) positively affect the knowledge retrieval behavior. The quality of the knowledge in a KMS is also essential: it has been found that perceived output quality (Durcikova & Gray, 2009; Kankanhalli et al., 2005), resource availability (Kankanhalli et al., 2011), expertise recognition of contributors (Su & Contractor, 2011), visibility, and result demonstrability (Hester, 2011) are positively related to knowledge retrieval. Thus, implementing rating-based knowledge rankings to recognize high quality knowledge could also positively influence knowledge retrieval (Sutanto & Jiang, 2013). However, even when the quality of knowledge content in a KMS can be assured, knowledge seekers’ perceived task-technology fit also affects their retrieval behavior (Lin & Huang, 2009). In order to encourage knowledge retrieval from a KMS, the value of a KMS should be demonstrated (Wang, Meister, & Gray, 2011; Watson & Hewett, 2006), and knowledge seekers’ satisfaction should be guaranteed (He, Fang, & Wei, 2009; Lai, 2009).

Knowledge seekers’ characteristics also affect their retrieval behavior. Intrinsic motivation is positively related to knowledge retrieval (Kankanhalli et al., 2011). Knowledge seekers with strong learning orientations or facing intellectual demands will engage in knowledge retrieval (Gray & Durcikova, 2005; Gray & Meister, 2004). Their self-efficacy of KMS (Bock et al., 2006; Lin & Huang, 2008; Lin & Huang, 2009) and personal outcome expectations (Lin & Huang, 2008) also positively affect their knowledge retrieval. However, risk-averse knowledge seekers (Gray & Durcikova, 2005) and knowledge seekers who perceive image loss when seeking knowledge from others (Wang et al., 2011) will not actively engage in knowledge retrieval.

Social influence can also affect knowledge retrieval behavior (Su & Contractor, 2011). Knowledge-seeking intention is based on the
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