An Integration of Knowledge Transfer and Knowledge Storage: An Holistic Approach

Sajjad M. Jasimuddin

School of Management, University of Southampton & Department of Management Studies, University of Dhaka

smj1@soton.ac.uk

Abstract The importance of integrating storage of knowledge with knowledge transfer has been ignored in the knowledge management, particularly knowledge transfer, literatures. Knowledge is regarded as a primary source of value creation in an organization. However, knowledge is distributed asymmetrically in any firm. As a result, distributed knowledge has to be integrated through knowledge transfer process. Moreover, the storage of knowledge repositories is also crucial for future use and reference. After having the transfer of knowledge through social interaction, the Web based technology is a powerful means for communication between organizational members in order to transfer knowledge regardless of their location. Such technology also allows for the storage of the transferred knowledge. Using the insights from the existing studies, this paper addresses an issue relating to the linkage of the knowledge transfer and the knowledge storage. The main contribution of this paper is the adoption of a holistic and integrated approach that supports the connectivity of knowledge transfer and storage through social and technological networks, when developing a framework for the successful accomplishment of knowledge transfer. This discussion is actually taken a first step towards developing some arguments about such interaction in order to broaden our understanding of the notion of knowledge transfer.

1. Introduction

Knowledge transfer within an organization or between organizations has become a hotly debated topic within information and knowledge management literatures. Knowledge transfer has actually risen to the top of many corporate agendas because knowledge is crucial for a firm to gain and sustain competitive advantage ([1], [2], [3], [4], [5]). Knowledge is distributed asymmetrically in any firm. However, knowledge transfer has inadequate value if knowledge is not retained – in some form – for present and future use. Similarly, an organization that stores its knowledge but but does not use it is simply wasting its resources and thereby neglecting opportunities to gain competitive advantage. Therefore, the interaction of knowledge transfer and knowledge storage is crucial for successful knowledge management application.

The importance of integrating storage of knowledge with knowledge transfer has been ignored in the knowledge management literature. A few researchers (eg., Gray and Chan [6], Argote and Ingram [3], Douglas [7], Connelly and Kelloway [8], Kalling [9]) have acknowledged the importance of having an approach that integrates
knowledge transfer and knowledge storage in some isolated descriptions. Using the insights from their studies and other empirical studies, this paper focuses such a linkage when developing a framework for the successful accomplishment of knowledge transfer.

This paper is organized as follows. Section 2 starts by describing ways in which knowledge can be meaningfully transferred. Section 3 illustrates the locations where the organizational knowledge resides. An overview of the importance of integrating knowledge transfer and storage is shown in Section 4. Section 5 suggests a holistic and integrated approach to link the two critical issues of knowledge management (e.g., knowledge transfer and knowledge storage). Section 6 concludes with directions for future research.

2. Knowledge Transfer

Knowledge transfer is the process by which knowledge of one actor is obtained by another. Several scholars, most notably Lind and Seigreth [10], Argote and Ingram [3], Hendricks [11], Kalling [9], Lind and Persborn, [12], Bender and Fish [13], and Albino et al. [2], argue that the process of knowledge transfer is the dissemination of knowledge from one individual or group to another within the organization or between organizations. Kalling [9] argues that the organization’s success can be based on its ability to transfer the knowledge from one organization unit to another. In line with this view, Hendricks [11] contends that knowledge transfer provides the opportunity to enhance the organization’s competitive advantage. Argote and Ingram [3], for instance, contend that knowledge transfer is a basis for competitive advantage in organizations. Reflecting this view, Cohen and Levinthal [1] stress that transfer of knowledge in organizations is a critical factor to rapidly respond to change, innovate and achieve competitive success. In the emerging knowledge-based society, the ability to transfer knowledge within an organization has been found to contribute to the performance of the organization. Cohen and Levinthal [1] suggest that the transfer of knowledge is a critical factor in the ability of an organization to innovate.

The essence of knowledge transfer is related to working out with whom to transfer (agents involved), what is to be transferred (content and context of knowledge), and how it can best be transferred (mechanisms). Explicit knowledge which can be easily articulated in words is usually transferred via Information and Communication Technologies (ICTs), whereas on the other hand, since tacit knowledge is hard to codify, the ways through which such knowledge is exchanged is by means of communities of practice, narratives and storytelling, and most specifically through face-to-face interaction.

Enterprises are investigating ways in which knowledge can be meaningfully transferred. Argote [14] suggests several mechanisms that exist for transferring knowledge: training of organizational members, observation of the performance of experts, and communication between members. However, much of the early literature suggests that ICTs could play a central role in the transfer of an organization’s
knowledge (Scarborough et al. [15], Storey and Barnett [16], Alavi and Leidner [17], Broendsted and Elkjaer [18], Bhatt [19], Ezingeard et al. [20], Newell et al. [21], Huber [22]). Organizations have turned towards ICT as an enabling mechanism to promoting their knowledge transfer activities. Huber [22], for example, explains that group support systems, groupware, computer-assisted communications technologies including the Internet, Intranets, Email, voice mail, video conferencing, and electronic bulletin boards can be employed for knowledge sharing.

3. Knowledge Storage

It is essentially important to deepen the understanding of knowledge storage through explaining organizational memory. El Sawy, et al. [23] define Memory as “a hidden repository of details of past decisions and their perceived results, past surprises and the organization’s responses, rules of thumb and other unwritten decisions that regulate current decisions and actions”. Reflecting this view, Probst et. al. [24] describe memory as “a system of knowledge and skills that preserves and stores perceptions and experiences beyond the moment when they occur, so that they can be retrieved at a later time.”

Olivera [25] contends that an organization’s ability to preserve knowledge has important consequences for its performance. In this regard, Argote, et al. [26] state that stored knowledge can effectively safeguard the organization from the distracting effects of turnover. Furthermore, it can also assist in framing and solving problems [27].

Viewing knowledge as a crucial resource, organizations recognize the value of knowledge storage for present and future use. The preservation of knowledge (which is popularly referred to as “organizational memory”) seems to be a major building block in implementing knowledge management so as to re-use and create knowledge. This section gives an overview of the key concepts of organizational memory. One important point to mention is that the term organizational memory and knowledge storage will be used synonymously throughout the paper. Knowledge that is transferred among the organizational members is more useful than it remains in a human brain. Moreover, such transferred knowledge needs to be stored and retained in a repository so that other members of the organization could retrieve it for future use without an interaction with the person who possesses such knowledge in the first place. One point got to be taken into account is the fact that all knowledge of the organization should not be preserved and retained in a knowledge repository. Because if irrelevant part of knowledge is stored then knowledge storage will be filled up with garbage. So knowledge, which is perceived current, relevant and correct, should be stored into and should also be retrievable from the storage bins and consequently the storage of such knowledge could yield more benefit to the organization.

The fact is that knowledge in organizations resides in multiple repositories or retention bins ([28], [29], [30]. Walsh and Ungson [28], for example, use the term ‘storage bins or retention facilities’ that are capable of storing knowledge which are
five internal bins (i.e., individuals, culture, transformations, structures, and ecology) and one external bin around which both acquisition and retention of knowledge take place.

It may be mentioned that tacit knowledge resides with individuals. Simon [31] points out that people are perhaps the most effective means for storing the organization’s experience. Individuals, in the process of doing their work, generate knowledge that largely remains in their heads. Although no one particular member of an organization is likely to be the sole repository of an organization’s memory, networks of individuals can be a powerful medium of storage and retrieval of the organization’s explicit knowledge [25]. Hence, several researchers, most notably Allen [32], Granovetter [33], Krackhardt [34], and Hansen, et al. [34], argue that social networks can play an important role in accumulating and storing knowledge about the organization’s experience and allowing individuals to locate and access this knowledge. However, little theoretical or empirical work has been done to study their role in preserving organizational knowledge [25].

Various impersonal bins such as computer and other artefacts are used to store explicit knowledge which can also be retrievable mostly using technologies. A few scholars, namely Ackerman and McDonald [36], Anand et al, [37], Huber [22], Stein and Zwass [38], Olivera [25], maintain that computer-based technologies play a key role in how enterprises store large amounts of knowledge and make it accessible. These technologies such as shared electronic databases and electronic bulletin boards are widely used examples of such systems in order to collect, store and make explicit knowledge accessible. Furthermore, Lotus Notes also provides one of the primary tools for storing document-based information and for facilitating virtual groups [39].

4. A Linkage Between Knowledge Transfer and Knowledge Storage

Having discussed the importance of knowledge transfer and knowledge storage in an organization, the relationship between knowledge sharing and knowledge storing will be explored below. As noted earlier, knowledge is distributed asymmetrically in organizations. It is said that an enterprise is fundamentally a distributed system of knowledge, in which knowledge is embedded within particular contexts and communities [40]. However, it is a common practice among organizational members to store their individual knowledge - in whatever manner - and reuse it. It is also argued that the mere possessions and usage of potentially valuable knowledge by an organizational member does not necessarily mean that the organization holistically benefit from that knowledge. Such knowledge has to be transferred to other members of the organization in the first place. As mentioned earlier, knowledge that is transferred has limited value. Its value increases when it is available in storage bins for present and future use. Again, if such stored knowledge is not transferred for further use within the organization it is simply wasting organizational resources.

We notice that the literatures on knowledge transfer and knowledge storage have largely developed independently of each other. While there is much more
attention among researchers to comprehending knowledge transfer and knowledge storage, there are still many gaps in the clear-cut understanding of their integration. Most of the studies mentioned above seem to have consciously or unconsciously failed to link knowledge transfer with knowledge storage. However, a few studies (e.g., Davenport, et al. [40], Gray and Chan [6], Argote and Ingram [3], Douglas [7], Connelly and Kelloway [8], Kalling[9]) that really exist are some isolated descriptions of the significance of having the interaction between knowledge transfer and knowledge storage.

Davenport, et al [40], for instance, point out that the mere existence of knowledge somewhere in an organization is of little benefit; it becomes a valuable corporate asset only when it is stored and accessible, its value increases with the level of its accessibility. Parallel to this, Stein [27] suggests that the frequency of use of an organization’s knowledge can be applied as an indicator of the effectiveness of stored knowledge.

In parallel with it, Douglas [7] comments that “knowledge that is in the head of a person has limited value, while the value of knowledge can increase exponentially when it is networked, stored, and reused, and quickly integrated into business practices and processes”. Reflecting this view, Connelly and Kelloway [8] observe that many organizations are striving to increase knowledge sharing among their employees through the creation of a database or ‘knowledge repository.’

Ruggles [42] argues along similar lines describing organizational members contribute their expertise electronically to the organization in a way that can be accessed by other employees. Argote and Ingram [3] suggest that the knowledge repositories play a dual role in knowledge transfer in organizations: “on the one hand, the knowledge repositories are changed when knowledge transfer occurs. Thus, changes in the knowledge repositories reflect the outcomes of knowledge transfer. On the other hand, the state of the knowledge repositories affects the processes and outcomes of knowledge transfer.”

The underlying relationship between knowledge transfer and knowledge storage can be conceptualized by the “bathtub” metaphor coined by Dierickx and Cool [43] which illustrates the connections between knowledge stocks and flows. They maintain that the level of water (flow of knowledge) in a tub indicates the stock of water (stock of knowledge) in the bathtub. This stock of water is the cumulative result of flows of water into the tub. Along similar lines, DeCarolis and Deeds [44] argue noting that stocks of knowledge are accumulated by knowledge assets which are internal to the organization and flows of knowledge are represented by knowledge streams into the organization or various parts of the organization which may be assimilated into stocks of knowledge. Similarly, our understanding is that the interactions between knowledge contributor and knowledge user may result in stock of knowledge into a corporate storage bin. Again other users may look back for knowledge in the knowledge repository. After such flow of knowledge, the user may preserve it with new context as accumulated knowledge assets into the corporate bin.

5. The Framework that Links Knowledge Transfer and Storage

In this section a holistic and integrated approach is suggested to link the two critical issues of knowledge management (e.g., knowledge transfer and knowledge storage...
storage). In line with Connelly and Kelloway [8] and Argote and Ingram [3], it is considered that ‘knowledge storage’ needs to be incorporated within knowledge exchanging processes. Drawing from the literature on information systems, knowledge management, organizational learning, and strategy, it is suggested that knowledge transfer should not be limited to the externalization and internalization of knowledge from a contributor to a user through transfer mechanisms, but also via storage bins. The essence of this linkage is presented in Figure 1 and explains in the following paragraphs.

![Figure 1. Linkage between Knowledge Transfer and Knowledge Storage](image)

By looking at Figure 1, it is possible to identify three components which can be used for the systems analysis.

- the **actors** involved in the knowledge transfer process;
- the **storage bins** to retain and retrieve knowledge; and
- the **mechanisms** by which the knowledge transfer is carried out taking the nature of knowledge into consideration.

**Actors** are the human components of organizations in knowledge transfer process in which there should have at least two agents in the transferring process, i.e., knowledge contributor and knowledge user. And any of the party may be the initiator to start the knowledge transferring process. The user can seek required knowledge from another member of the organization or the person who possesses knowledge can contribute voluntarily to other members of his organization.

**Storage bins** manifest the multiple repositories or retention bins where knowledge in organizations resides. Although an individual himself is the most effective means for storage of knowledge, no one particular member of an organization is likely to be the sole repository of an organization’s memory. So there is a need to have company wide knowledge storage bin where each and every members of the organization should store their knowledge in somewhat articulated and codified form for future use. Such repository of an organizational memory will allow the knowledge user to do some home work before approaching a knowledge contributor for clarification of knowledge that he(she) stored earlier. Furthermore, it will help knowledge contributors save their time since they don’t have to be
interrupted in the middle of their work by knowledge seekers in providing similar or naive queries in the first place. Storage bin of knowledge can bring win-win situations for both the two agents (i.e., knowledge contributor and knowledge user) of knowledge transfer process.

Mechanisms are the media through which knowledge, be it tacit or explicit, is transferred. To date it seems that the personalized and impersonalized mechanisms, which Hansen et al [35] call personalization strategy and codification strategy, are being employed for knowledge transfer. Hansen et al [35] contend that the personalization strategy is an approach where knowledge is closely tied to the person who possesses it and is shared mainly through direct person-to-person interaction, while in the codification strategy knowledge is articulated and then stored in databases, where it can be accessed and used easily by an organizational member. Although there is considerable variation in the researchers’ views about the role of the two mechanisms of knowledge transfer in an organization, this paper suggests a symbiotic strategy which recognizes the interplay between the two mechanisms. It is argued that the symbiosis mechanism falls somewhere between the rather divergent mechanisms. The proposed symbiosis approach to knowledge transfer will provide powerful arguments for a more holistic view which is crucial for the effective knowledge transfer.

Reflecting this view, it is argued that ICTs can facilitate networks of individuals which in turn can be a powerful means of transfer of tacit and explicit knowledge, and also storage of the organization’s explicit knowledge. The Web based technology seems to be a powerful interactive medium for communication among the organizational members in order to transfer knowledge regardless of their location. It also allows for storage of the transferred knowledge simultaneously. However, Dixon [45] warns using technology to replace face-to-face interaction in knowledge transfer arguing that the use of technology to replace face-to-face conversation has only had limited success. Face to face conversation between knowledge contributor and user should be a starting point in any knowledge transfer process because knowledge which is distributed asymmetrically in the organization, is embedded within particular contexts and communities. The fact is that the use of Web based technology should follow the social interaction.

The proposed integrated approach of knowledge transfer and knowledge storage is an interactive, ongoing, and dynamic process that cannot rest on a static body of knowledge, one particular mechanism to communicate or a single directional flow of knowledge. As noted previously, the notion of this integrated approach builds on previous theoretical frameworks ([2], [3], [8], [11], [9]. It can be said that knowledge transfer is embedded in the three basic elements of organizations (ie., actors, storage bins and mechanisms), and the various sub-networks are formed by combining or crossing the basic elements. It is important, however, to realize that these relationships may become somewhat more complicated as the dynamic interaction is predominant.

6. Conclusion

In the emerging knowledge-based society, an organization’s knowledge is viewed as the main source of its competitive advantage and knowledge transfer is
widely emphasized as a strategic issue for its competitive advantage. It is to be argued that organizations should recognize the need for and advantages of the interaction between knowledge transfer and knowledge storage in order to reuse knowledge for present and future business needs. This paper addresses the question of how we do deal with the complex interactions between transferred knowledge and stored knowledge. Consequently, the article highlights the integration of the knowledge transfer and the knowledge storage suggesting that organizations should adopt a holistic approach when resolving the issue.

Tacit knowledge can be transferred by means of training, communities of practice and storytelling which are crucial to understand the context of any knowledge. Such knowledge is also required to be articulated and codified in some form in order to store it using ICTs for future purpose. The Web based technology will then be more appropriate that will promise effective knowledge transfer and storage simultaneously regardless of the locations of knowledge contributor and user.

The main contribution of this paper is the adoption of a holistic and integrated approach that supports the connectivity of knowledge transfer and storage through social and technological networks, when developing a framework for the successful accomplishment of knowledge transfer. Our argument is that a contributor can transfer knowledge to an individual (knowledge user) and/or store it in a knowledge repository. Again, the knowledge that is available in a storage bin of the organization can be retrieved by a prospective user which means that transfer of stored knowledge has occurred. In other words, to gain competitive advantage of a firm there is a need for knowledge transfer between organizational members along with the storage of such knowledge in corporate repository that will allow the members to again transfer stored knowledge for future use and updating. Therefore, it can be argued that knowledge transfer and knowledge storage is an interactive, ongoing, and dynamic process that cannot rest on a static body of knowledge, one particular mechanism to communicate or a single directional flow of knowledge.

This discussion is actually taken a first step towards developing some arguments about the interaction between knowledge transfer and knowledge storage in order to broaden our understanding of the notion of knowledge transfer in a firm. Furthermore it intends to open up the possibility for a robust framework to be developed and advocated. It will encourage particularly vendors and software developers to designing new solutions that may allow them to promote knowledge transfer and storage concurrently.

The paper has some implications for prospective researchers. It will serve to stimulate more work on this interesting and strategically important topic. It does provide a ditch for exploring the issues raised that needs to be empirically validated. Furthermore, this paper also lays some groundwork for future research on why organizational members select a particular mechanism of knowledge transfer with an aim to help develop a robust model that integrates knowledge transfer and knowledge storage processes.
References


An Integration of Knowledge Transfer and Knowledge


©GESTS-Oct.2005


GESTS-Oct.2005
Biographical Note

Sajjad M. Jasimuddin (MPhil, University of Cambridge) is an Associate Professor of Management, University of Dhaka. He is currently a Doctoral Researcher and a part time lecturer at the School of Management, University of Southampton, UK. Mr. Jasimuddin is the author/co-author of 20 articles, book chapters, case studies, and research instruments. His articles were published, among others, in Management Decision, Journal of Business and Industrial Marketing, Asian Affairs, Journal of Management, Journal of Air Transportation, Journal of Air Transport Management, and Journal of Internet Banking and Commerce. His current research interests are in the areas of knowledge management and strategic management.