Winter 12-8-2019

Knowledge Seeking: The New Horizon on Knowledge Management

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(Full Paper)

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ABSTRACT

This study reviews the definition and development of Knowledge Management (KM) and discusses the differences of knowledge sharing and knowledge seeking in KM. Knowledge sharing has long been regarded as the most important factor in Knowledge Management implementations. However, this research discussed the three barriers of existing knowledge sharing in KM. Based on this discussion, it is proposed by authors that it is the knowledge seeking rather than knowledge sharing that plays the crucial role in KM.

Key words: Knowledge Management; knowledge sharing; knowledge seeking.

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INTRODUCTION

According to Szulanski (2000, p10), "the mere possession of potentially valuable knowledge somewhere within an organization does not mean that other parts of the organization benefit from this knowledge". Based on this kind of assumption, many researchers or practitioners thus emphasise the importance of knowledge transfer within the organization or between organizations (such as Li-Hua, 2006). As a result, knowledge sharing, as the major method of knowledge transfer, becomes the starting point of knowledge management. It has become one of the main goals of KM initiatives to encourage and improve knowledge sharing within organizations. Many organizations have invested large amounts of time and money to develop knowledge management systems employing state-of-the-art technologies to facilitate important knowledge sharing activities. However, according to Babcock (2004), this investment results in huge financial losses among Fortune 500 companies due to the failure of sharing knowledge. It is thus reasonable to ask some fundamental questions around knowledge sharing: Is knowledge sharing the fundamental means of knowledge management? This led the authors to explore new approaches promoting knowledge management in organizations.

After the discussion of the knowledge sharing barriers based on the review of the KM definition and development, this research proposes that it is knowledge seeking rather than knowledge sharing, among others, that makes knowledge transfer or knowledge creation possible. This implies that it is not enough just to emphasize the knowledge sharing and stress on the knowledge sharer or pushing side. We should pay more attention to the opposite side of knowledge sharing, to those who actively seek solutions for the problems or challenges they meet at work, namely 'knowledge seeking'. Obviously, knowledge management could be remarkably improved if we are able to understand knowledge seeking process.

BACKGROUND OF THE KM DEVELOPMENT

The rapid development of KM is attributed to three key drivers, namely economic driver, social driver, and organizational driver.

The Economic Driver For KM

From an economist's perspective, there are many factors contributing to economic or productivity growth. Early economic growth models mainly focused on the capital factors, until Solow (1956) proposed his economic growth model: a neoclassical growth model. According to Solow (1956), the main inputs, including labour and capital, only have short run implications for economic growth. The long-run rate of growth will be exogenously determined by the rate of technology progress. Solow's model takes technological advancement into account and regards the level of technology as a parameter in it. Since then, knowledge and technological advancement have become more and more important in economists' theories.

After Solow (1956), many economists have expanded his model and developed many new models, which endogenize technology and knowledge factors, and thus are named as endogenous economic growth models (such as Romer, 1986; Grossman & Helpman, 1990). This evolution in the new economic growth models demands technological advancement. They regarded technological change or the introduction of new technology as the foundation of economic growth. Therefore, research and development (R&D), technological advancement, and innovation have become a main theme in economic growth and business, which becomes the economic driver for KM.

The Social Driver For KM

According to Hislop (2009), the theoretical foundations or key assumptions on which knowledge management literatures are typically based are the conceptions of the knowledge society (Drucker, 1966; 1969) or post-industrial society (Bell, 1974). The concept of the 'knowledge worker' introduced by Drucker (1966) distinguishes the 'knowledge worker' from the traditional 'manual worker'. Drucker (1969) also described a knowledge society, and employed the concept of 'discontinuity' to depict the major changes in the underlying social and cultural reality. These emergent changes or 'discontinuity' include the rapid emergence of new technologies, and the knowledge economy. It is proposed that management should respond to this transition to fit the characteristics of knowledge work. Namely, these social changes call for new approaches from managers and knowledge workers. The concept of the 'post-industrial society' introduced by Daniel Bell (1974) depicts the social change from the middle of the nineteenth century. According to Bell, an industrial society is mainly based on manufacturing and fabrication; while in a post-industrial society, the biggest source of employment is no longer the manufacturing sector, but the service sector, in which knowledge and information play a more important role. For Bell, the professional service work will become critical in a post-industrial society as it dramatically demands the application of knowledge.

All in all, the nature of work has changed and knowledge has become the key asset for contemporary business organizations. This largely demands the employment of knowledge workers and the effective management of the knowledge in organizations. It is such a revolutionary change in our society and it explains the growth of interest in knowledge management since the 1990s.

The Organizational Driver for KM
'Competitive Advantage' has long been discussed by researchers and managers alike. Porter (1985) defined competitive advantage as the ability to earn returns on investment consistently above the average for the industry. From the perspective of 'resource-based theory', organizational sustained superior performance lies in its inimitable resources. A firm's resources include not only physical, or tangible resources, but also intangible resources. According to Halawi et al. (2005), valuable, uncommon, and poorly imitable resources comprise a firm's unique competencies and therefore present a lasting competitive advantage. In addition, intangible resources are normally more likely to gain this advantage than tangible sources. It is reasonable to argue that distinct knowledge should give the firm a competitive advantage. As stated by McEvily and Chakravarthy (1997, p1), "knowledge is presented as a particularly important resource in this regard". It has been generally proposed that sustainable competitive advantage is no longer rooted in physical assets or financial capital, but intellectual capital or knowledge (Sveiby & Risling, 1986; Drucker, 1993; Roos, et al., 1997; Koenig, 2002). Thus, how to manage knowledge inside an organization to gain competitive advantages becomes very important, especially in today's fiercely competitive business environment. This has become an organizational driver for the development of knowledge management.

KNOWLEDGE MANAGEMENT DEVELOPMENT
Knowledge management practices have been around for a long time. Even in our ancient society, many KM techniques have been employed among teachers, writers, or librarians, such as some form of narrative repository, knowledge sharing by means of meetings, workshops, mentoring sessions, and so on. As stated by Dalkir (2005, p12), "the primary technology used to transfer knowledge consisted of the people themselves". Clearly, KM has been practiced implicitly as long as the human beings have thought seriously about their work.

However, the actual concept of KM has arrived relatively recently. It became popular only after the 1990s. Especially since 1998, KM practices and research have been booming rapidly (Grant and Grant, 2008). If we regard the notion of the 'knowledge worker' by Drucker () as the beginning of knowledge management (KM), the introduction of the concept of 'management of knowledge' at a European management conference in 1986 (Wiig, 1997) could be seen as the start of KM research. From then on, KM practices and research became a central management topic throughout most of the world.

Actually, many disciplines have informed KM development. As it has developed so rapidly and even a little chaotically, it is not easy to see a linear development in this area. The research in 'Intellectual Capital' by Sveiby and Risling (1986) has been seen as the start or origin of the KM movement (Grant & Grant, 2008; Koenig, 2002; Wiig, 1997; Martensson, 2000). This perspective regards knowledge as a kind of resource that exists outside human and social systems, like land or oil. These resources include skills, information, copyright, R&D, and other intangible assets. Peters (1992) argues that KM concerns leveraging these intellectual capitals. This kind of viewpoint can be found in many other research, such as Brooking (1997), Roos, et al. (1997), and Edvinsson (1997).

Now that knowledge is strategically valuable for organizations, it is natural that advanced technologies can be employed to store and share it. The rapid development of information communication technology thus enabled good opportunities for knowledge management, especially since the 1990s when the personal computer and the internet were widespread. Based on the perspective of 'intellectual capital' and information management, knowledge management mainly refers to the employment of information and communication technology to facilitate the acquisition, storage, and sharing knowledge. Many types of software, such as Lotus Notes, and many so-called knowledge management systems have been developed since 1990s. This approach to KM has been called the 'IT-track' of knowledge management (Sveiby, 2001; Mason & Pauleen, 2003; Gao et al., 2008; Vorakulpipat & Rezgui, 2008; Grant & Grant, 2008).

Compared to the 'IT-track', another origin of knowledge management can be regarded as the 'Soft-track' of KM, which emphasises the social nature of knowledge, and mainly focuses on the management of people and social processes. There are three main influential works informing this 'soft' aspect of knowledge management: the 'learning organization' by Senge (1990), 'community of practice' by Lave and Wenger (1991), and the SECI model by Nonaka (1995).

The concept of the learning organization (LO) is usually connected to organizational learning (OL). There is also big confusion around these two concepts. Firestone & McElroy (2004) regard the LO as the 'normative aspect' of OL. Although the idea of organizational learning emerged earlier (such as Argyris & Schon, 1978), the major turning point was the work of Senge (1990), which is the most popular and foundational work in the area. The central themes of both OL and LO is whether learning can be managed and how. However, compared to the training and human resources literature, which mainly stress individual learning and staff development, OL and LO are concerned with collective learning. As Senge (1990) argues, the LO is where people are continually learning to see the whole together. Further discussion of organizational learning will be presented in Chapter Four.

Lave and Wenger (1991) introduced another concept, community of practice (CoP), into knowledge management. The CoP is defined as a set of relations among persons, activity, and world, over time and in relation with other tangential and overlapping communities of practice. In such a community, members are informally bound by what they do together. The CoP fulfils lots of functions with respect to the creation, accumulation, and diffusion of knowledge in an organization. Compared to the database and other repository, knowledge is retained in a 'living' way by a CoP (Kakabadse, 2003).

Nonaka's work and his SECI model (1995) can be regarded as one of the origins of KM because of its significant and influential role in this area, which has been evidenced by the fact that their work has become the most referenced material in this field. Referring to Polanyi's (1966) distinction between tacit and explicit knowledge, Nonaka focused on how knowledge was converted among the two different types. According to Nonaka (1995), in a knowledge creating company, tacit knowledge and explicit knowledge can be transferred through a spiral model which includes four steps: socialization, externalization, internalization, and combination. Apparently, Nonaka realised the social architecture of knowledge, and suggested that an appropriate environment should be created in organizations to provide a platform to share and create knowledge. He named this platform as a 'Ba'.

KNOWLEDGE SHARING IN KM

Why Knowledge Sharing

As stated by Kakabadse et al. (2003), there are various disciplines that have influenced and informed the field of KM thinking and practices including: philosophy, cognitive science, social science, management science, artificial intelligence, and so on. Consequently, there are lots of definitions of knowledge management and different KM practices.

According to Sveiby (2001), there are two broad approaches (or two tracks of activities) to knowledge management among the extant literature. One is IT-Track KM. It is based on the so-called 'hard' aspect, which focuses on the deployment and use of information technology. While the other one is People-Track KM. It is based on the so-called 'soft' aspect, which focuses on the capture and sharing of knowledge from the knowledge person to knowledge seekers. The first categorization of KM focuses on the management of information, while the second one centres on the management of people (Sveiby, 2001). The second categorization of KM takes an epistemological view of knowledge and regards knowledge as a social process. This scientific and philosophical view of the nature of knowledge itself has been accepted by many KM gurus, such as Nonaka and Takeuchi (1995), Davenport and Prusak (1998), Lave and Wenger (1991), and so on.

Arguably, all knowledge is personal. How can we manage the knowledge effectively and leverage it for the benefit of the organization? What if the staff leave the organization, such as through retirement, redundancy, resignation? How can we extract knowledge from individuals? These types of question lead many KM researchers and practitioners to think of knowledge sharing in the first place, to encourage people who have knowledge of the work in the organization to share their knowledge with other members of the organization. According to Szulanski (2000, p10), "the mere possession of potentially valuable knowledge somewhere within an organization does not mean that other parts of the organization benefit from this knowledge". Based on this kind of assumption, many researchers or practitioners thus emphasise the importance of knowledge transfer within the organization or between organizations (such as Li-Hua, 2006).

As a result, knowledge sharing, as the major method of knowledge transfer, becomes the starting point of knowledge management. It has become one of the main goals of KM initiatives to encourage and improve knowledge sharing within organizations. As stated by Wang and Noe (2010, p115), "knowledge sharing is the fundamental means through which employees can contribute to knowledge application, innovation, and ultimately the competitive advantage of the organization". For the most part, they normally focus on identifying the factors influencing individuals share their knowledge with others. These factors are normally from two major areas: organizational contexts, and individual & interpersonal factors. Factors from the organizational context include organizational structure, hierarchies, formal processes, leadership, and cultures (Sondergaard et al. 2007; Al-Alawi et al., 2007; McDermott & O'Dell, 2001). Research addressing individual & interpersonal factors mainly focus on staff's attitudes, behaviours, or individual personalities and dispositions on knowledge sharing (such as Judge and Bono, 2001; Cabrera et al., 2006; Lin, 2007); or motivational factors (such as Wasko & Faraj, 2000; Hew & Hara,

2007); or interpersonal relationship and social networks (such as Robinson, 1996; Abrams et al., 2003; Regans & McEvily, 2003; Cross & Cummings, 2004).

Through knowledge sharing, it is argued that individual knowledge will be transferred among members of organizations and become organizational knowledge in the end. According to Yang & Wu (2008), if staff can share their individual knowledge, the organization and individuals can both develop. This is the basic argument in many KM perspectives, although different ways to share might be suggested (such as Nonaka's SECI model, Lave and Wenger's CoP, and so on). Much of the KM literature about knowledge sharing mainly addresses these factors impacting the knowledge sharing process, which derive from two major areas: the organizational context, and individual and interpersonal factors. Research addressing the latter mainly focus on staff's attitudes, behaviours, or individual personalities and dispositions on knowledge sharing (such as Judge and Bono, 2001; Cabrera et al. 2006; Lin, 2007); or motivational factors (such as Wasko & Faraj, 2000; Hew& Hara, 2007); or interpersonal relationships and social networks (such as Robinson, 1996; Abrams et al. 2003; Regans & McEvily, 2003; Cross & Cummings, 2004).

Knowledge sharing research addressing the organizational context mainly focus on management support (such as Cabrera et al., 2006; Lee et al., 2006; Kulkarni et al., 2006), rewards and incentives (such as Bock et al., 2005; Kankanhalli et al., 2005; Yao et al., 2007), organizational structure (such as Kubo et al., 2001; Jones, 2005; Kim & Lee, 2006), and organizational culture. There is general agreement that a supportive organizational culture should be created for knowledge sharing (Davenport & Prusak, 1998; Park et al., 2004). Many organizational cultural dimensions have been linked to successful knowledge sharing, among which trust has become the most popular one (Park et al., 2004; Kankanhalli, et al. 2005). There has also been some research into multinational cultural issues around knowledge sharing (such as Ford & Chan, 2003; Lai & Graham, 2009).

KNOWLEDGE SHARING DILEMMAS

Many organizations have invested huge time and money to develop knowledge management systems employing state-of-the-art technologies to facilitate the knowledge sharing activities. However, according to Babcock (2004), this investment has resulted in huge financial losses among Fortune 500 companies, at least $31.5 billion per year, due to a failure to share knowledge. It is also widely accepted that there are many barriers and problems with knowledge sharing, in addition to the factors discussed in the previous section. Bearing this in mind, it is reasonable to ask some fundamental questions around knowledge sharing: why should the individual share their knowledge? Is knowledge sharing the fundamental means of knowledge management? The following section will critically explore these knowledge sharing dilemmas.

Why Should I Share? The Root Of The Barriers

Based on a resource-based perspective or knowledge-based perspective to organizations, knowledge is seen as an important strategic asset or resource in organizations. Where knowledge is viewed as a kind of resource for organizations, knowledge sharing has been frequently explained by economic theories. Since knowledge sharing takes place in organizations, and among people, it has also been explored via social or behavioural theories. Whatever perspectives or theories we follow, the barriers to knowledge sharing are fundamental and from the root. As argued by Pfeffer (1997), the most fundamental question in organizational studies is how we understand the causes of behaviour. So what could cause people to share their knowledge?

From an economic perspective, the primary motivation of behaviour is self-interest. Knowledge sharing is similar to other traditional economics of tangible resources, which can be explained by a cost-benefit analysis. Based on this perspective, the scarcity of knowledge decides its value. Those who own the scarce knowledge will have a great advantage within or among organizations. These people would seek great benefit from the receivers or the organizations since they might lose their advantage or their benefit might be damaged if they share their knowledge with others. Why should they share their scarce knowledge? Various exchange theories have been introduced to explain the knowledge sharing behaviours.

Christensen (2005) argues that knowledge sharing is an exchange process where the individuals offer something of value while receiving something of value. In other words, the motivation for sharing knowledge is actually with the expectation of receiving something in return, such as more knowledge, money, or gratitude. Different exchange models try to explain how and when the returns are made. Some assume that all economic exchanges like this rest on the schema of giving and returning the equivalence, for example, Fiske (1991), Ferrary (2003), Boer, Van Baalen, and Kumar (2004). Christensen (2005) proposes three kinds of exchanges in knowledge sharing, namely financial, organizational, and social exchange. In financial exchange, the knowledge sharer receives a return with monetary rewards. Organizational exchange refers to the return by promotions or other measures related to organizational identities. Social exchange is mainly based on informal exchange of personal commitment and relationships.

Similar to exchange theory, social dilemma theory has been introduced to explain the knowledge sharing dilemmas. Social dilemma theory argues the paradoxical situations between individuals and the public (Cabrera, 2002). In this perspective, the sharing of knowledge between individuals is seen as one of the processes underlying collective knowledge. This collective knowledge is seen as a kind of public good, or the commons. The collective knowledge, as a kind of shared property, is open to every individual. There is an apparent benefit in letting as many individuals as possible share with the collective knowledge. However, if every individual just took from the collective knowledge without contributing to it, the commons would be damaged until nobody was able to benefit from it. This is named the tragedy of the commons, as everybody tries to maximize

individual payoff (Cabrera, 2002). As a consequence, collective damage will result. In other words, this is the paradox: individual rationality leads to collective irrationality (Kollock, 1998).

Since there is no restriction on access to the commons, namely the collective knowledge, individuals tend to enjoy the commons without contributing to it or exchanging with it. If you take from the commons without contributing or exchanging, you are enjoying the goods for free. Who does not like free things? It is a rational thought. However, if everyone acts like this rationally, nobody would cooperate, and eventually everybody will suffer this 'tragedy of the commons'.

This takes us back to the starting point: how can we encourage or facilitate people to share their knowledge, as they cannot be forced to do so. The willingness of individuals becomes critical here. Another kind of perspective, focusing on the intentions of behaviour, has been introduced to analyse knowledge sharing: the theory of reasoned action (TRA). According to Fishbein and Ajzen (1975), an individual's behaviour is determined by their intention to action, whilst this intention is determined jointly by their attitudes towards, and the subjective norms regarding their behaviour. Based on this framework, Bock, Zmud, Kim, and Lee (2005) propose three motivational drivers influencing individual attitudes towards knowledge sharing, namely, (1) anticipated extrinsic rewards from an economic perspective, (2) anticipated reciprocal relationships and sense of self-worth from a social psychological perspective, and (3) fairness, innovativeness, and affiliation from a sociological perspective.

The above discussion has illustrated the fundamental barriers existing in knowledge sharing. However, most current research about knowledge sharing tends to regard it as a linear, one-way process, in which the knowledge flows from the sharer to the receiver. This SRMC model normally includes a sender, a receiver, the message, and the context. This kind of model is able to illustrate the flow of knowledge and that the knowledge has been transferred. It does not demonstrate the whole process of how knowledge is shared, since knowledge sharing is a kind of exchange. In other words, it is an interactive process. Both giving and receiving should take place in the knowledge sharing process. In actuality, it is difficult to request people to simply share their knowledge because we are asking people to do what they do not want to do. We can only to encourage, provide incentives, or facilitate the knowledge sharing behaviours or processes, since the barriers are fundamental.

Existing Knowledge Versus New Knowledge
According to the perspective of knowledge sharing, individuals have knowledge in mind, and this knowledge should be shared and transferred in organizations (Yang & Wu, 2008; Wang & Noe, 2010). If knowledge cannot be effectively shared, then it is likely to fade away. Where face-to-face communication is not possible, we can rely on some technologies to capture this knowledge first. Then, we can find and utilize the knowledge later when we need it. Arguably, the sharing of existing knowledge within organizations will help them to effectively utilise available resources. This implies that 'knowledge sharing' is dealing with the existing knowledge in organizations. However, is the existing knowledge up to date, or has it been validated in a changing environment? Can the existing knowledge be utilized with a 'one size fits all' mentality? Will the people who receive the existing knowledge learn or create new knowledge? Can knowledge sharing alone help organizations gain or maintain their competitive advantages?

Knowledge sharing implies the transferring of some knowledge from one person to another (Al-Hawamdeh, 2003). This process results in the copying of knowledge, not the creation of new knowledge. However, as pointed out by Coulson-Thomas (2004, p88), "copying and sharing commodity knowledge is not the route to market leadership". New knowledge is increasingly important for organizations, as it is the source of competitive advantage (Porter, 1985; Conner, 1991; Halawi et al. 2005). Knowledge management, as a new management concept, helps organizations to create and leverage new knowledge to gain or maintain competitive advantage (Sveiby, 1986; Drucker, 1993). According to Coulson-Thomas (2004), KM should be an end-to-end process, from identifying knowledge requirements, to knowledge creation, sharing, and application, to enable innovation and deliver additional income streams. Most KM initiatives focus exclusively on the knowledge sharing part of the process, while knowledge creation and exploitation tend to be missing.

Knowledge creation, as a concept, was mainly introduced by Nonaka (1995). According to Nonaka (1995), in a knowledge creating company, knowledge is created through the interaction and intersection between tacit and explicit knowledge. This is a cyclical process in the form of a spiral and includes four steps: socialization, externalisation, internalisation, and combination. Although knowledge sharing, as a term, is not used in Nonaka's model, knowledge sharing activities have been stressed. For example, the socialisation phase and combination phase in the model actually refer to the sharing or tacit knowledge and explicit knowledge among colleagues respectively. According to Nonaka, it is such sharing of knowledge that makes knowledge creation become possible in organizations. In other words, knowledge sharing is a prerequisite of knowledge creation in organizations, and they are positively related.

This perspective has been questioned recently by Tatiana Andreeva (2009). According to Andreeva (2009), knowledge creation is usually expected to bring new knowledge or innovation compared to knowledge sharing which refers to copying or replication. To explore the relationships between knowledge sharing and knowledge creation, Andreeva (2009) conducted research in some knowledge-intensive companies in Russia. She found that individuals have preferences towards either new knowledge creation or existing knowledge sharing. Furthermore, a person cannot be inclined to both processes at the same time. The findings imply some contradictions between the knowledge sharing and knowledge creation processes. Thus the two processes are not positively related, as Nonaka proposed.

The differences between knowledge sharing and knowledge creating illustrate the different emphases on existing knowledge or new knowledge to be found within organizations. Although there are different viewpoints about these two knowledge related processes (i.e. positively related or not), they can be regarded as two independent processes both of which should be taken into account. When we are faced with a changing environment and today's modern society, new knowledge is crucial for gaining and maintaining competitive advantages, whilst sharing existing knowledge alone is apparently not enough.

Knowledge: Pull Versus Push
The main aim of knowledge sharing is to encourage people to contribute their knowledge, to transfer knowledge from the sharer to the receiver, so that knowledge can be effectively utilized. The problem here is what makes this transfer process happen in the first place when knowledge is still in the knowledge sharer's mind. Is it the sharer who initiates the knowledge transfer process or the receiver? In other words, is it the sharer, who pushes the knowledge to the receiver, or a seeker, who pulls the knowledge to himself, triggering the knowledge transfer process? Actually, this question has leaded to two different approaches in knowledge management: knowledge push (or supply-driven) approaches and knowledge pull (or demand-driven) approaches (Scarbrough et al., 1998).

According to Alavi and Leidner's (2001), knowledge push approaches aim to increase the knowledge flow in organizations by capturing, codifying, and transmitting knowledge. This is actually another form of knowledge sharing: The sharer's knowledge is captured and codified in some format and then is transferred to the seeker. In contrast, knowledge pull approaches are concerned with the problems of engaging employees in the process of searching for and applying knowledge. The knowledge sharing perspective or knowledge push approaches tend to dominate the KM literatures. Much of them give emphasis to the employment of information technology to enhance knowledge capture, knowledge codification, and knowledge storing, especially the creation of knowledge databases, such as expert systems, or knowledge repositories.

Although knowledge is really important for organizations and has been regarded as a kind of asset, it is not really an object or entity like other assets. It is necessary to understand how knowledge is created or gained by people. As discussed in Chapter Four, knowledge is special and personal. It is embodied and resides in the heads of those who developed or constructed it. Thus, within practice-based perspective there is no fully explicit knowledge. All knowledge or knowing is personal, and cannot be disembodied from people. Knowledge is only developed by people themselves when they carry out activities and gain experiences. Within this perspective, there is no knowledge transfer process but instead a knowledge construction process or learning process. Bearing in mind the discussion about data, information, and knowledge, what is transferred is not knowledge but some form of data or information, which will help other people to learn or to construct knowledge that in turn belongs to themselves.

For instance, somebody shares his knowledge with you by giving you his notebook about solving some problems. However, you will never get that 'knowledge' in the notebook if you are not interested in it, or do not read it and learn from it. As the knowledge has been reduced to data or information when it was expressed or recorded (e.g. in the notebook) by the 'sharer', it is thus the 'seeker' who will construct the knowledge with the help of the data or information from the sharer or, even more, from others. Knowledge will not be 'shared' if the 'seeker' cannot or does not construct the knowledge by themselves. A similar situation in a classroom could serve as another example. The students are taught by the same teacher in the same way at the same time. However, the results could be quite varied, as there will be students of different abilities. In other words, the teacher is sharing his knowledge with the students in the same way, but the results of the knowledge sharing process will be different as a result of the different knowledge seekers (among some other factors). Therefore, in the knowledge sharing or transfer process, the key aspect is not the 'sharer' but the 'seeker' side as the nature of knowledge. The next question concerns how the 'seeker' starts to learn. Or, in other words, what triggers us to learn? The answer could also help us to understand what initiate the knowledge sharing or transferring process.

According to Larson (1991), as a kind of informal and incidental learning, workplace learning occurs most often when the learner is faced with an event or situation that is recognised as disconcerting or non-routine. As argued by Cseh, Marsick and Watkins (1999), a new life experience tends to provide a challenge, a problem to be resolved, informal and incidental learning normally begins with such kind trigger. This is to say that in a workplace, learning is normally triggered by a challenge or problem to be resolved. Then we tend to learn to solve the problem or meet the challenge. This kind of perspective is also similar to action learning. According to Revans (1982), learning is initiated when people question their own direct experience. In Revans' (1982) learning equation, learning is programmed knowledge plus questioning insight, which implies that individuals in the workplace learn from experience through reflection and action, usually to solve problems they meet at work. In other words, learning occurs in the process of finding solutions to problems in the workplace.

Based on this, the problem we meet is actually the trigger of a learning process. The person who encounters a problem or a challenge will then become a seeker to actively learn, or 'pull' the knowledge (if we see knowledge as an object) to solve the problem. At this time, if anyone would like to share his knowledge with the seeker, then a so-called knowledge sharing or transferring process will be started. Apparently, it is not the knowledge sharer, but the opposite side, the knowledge seeker, who is trying to seek or pull knowledge to solve the problem. It is the pull not the push that makes learning or knowledge transferring take place. This implies that simply 'pushing' the 'knowledge' to others does not mean a knowledge transfer

process will happen. Knowledge sharing can only provide help to others who want to learn or actively seek. Only when we are actively 'pulling', namely learning, can the knowledge be shared with or transferred to us.

KNOWLEDGE SEEKING IN KM

The above discussion about the dilemmas of knowledge sharing has demonstrated three fundamental problems. The authors researcher firmly stand on this point that it is knowledge seeking rather than knowledge sharing that makes knowledge transfer or knowledge creation possible. This implies that it is not enough just to emphasize knowledge sharing and give emphasis to the knowledge sharer or push side. We should pay more attention to the opposite side of knowledge sharing, to those who actively seek solutions for the problems or challenges they meet at work, namely 'knowledge seeking'. Thus, there is an apparent need to explore how knowledge seeking will take place, and what factors might be involved in this process.

Firstly, what is knowledge seeking? Some researchers have studied in this area, but it seems that there are different understandings of knowledge seeking. Various notions have been employed, each with a different focus, referring to the knowledge seeking process, such as knowledge acquisition, knowledge sourcing, knowledge creation and, even, information seeking. In some literatures they are even used in an overlapping way. For example, in Motwani's (2006) study knowledge acquisition, information acquisition, information gathering, and knowledge creation are used alternately referring to the same thing. Before a definition is given to knowledge seeking in this research, the related literature will be briefly reviewed.

Existing Research Related To Knowledge Seeking

There is not much research using the notion of knowledge seeking. Knowledge seeking mainly refers to behaviours associated with seeking knowledge from Electronic Knowledge Repositories (EKR). Apparently, these studies regard knowledge as an object or entity, and individuals can find it out when they need it. Kankanhalli, Tan, and Wei (2001) found that people can use the EKR as both contributors and seekers of knowledge. Prior researches mainly focused on the contributors, exploring how people share their knowledge to the system. So they conducted their research to formulate and test a theoretical model explaining an individual's knowledge seeking behaviour with the EKR. Three major factors were considered in their study, namely technology related factors (such as the quality of output, the use of EKR system), organization related factors (such as policies and procedures in the organization, and the reward systems), and task factors (such as task interdependence, knowledge tacitness). After analysis of the data collected from more than 100 knowledge workers, they concluded that technology characteristics and organizational characteristics have direct impact on knowledge seeking behaviour, while task characteristics play a moderating role in the knowledge seeking process.

Kankanhalli and Tan et al (2005) repost on further research to test the model relating potential antecedents to EKR usage. Their study reveals that perceived output quality, resource availability, task tacitness and interdependence, and incentives affect EKR usage for knowledge seeking. Following Kankanhalli, Tan, and Wei's (2001) study, Sanjeev and Gee-Woo (2005) employed the Decomposed Theory of Planned Behaviour and Technology Acceptance Model to investigate the factors influencing an individual's knowledge seeking behaviour in EKR, providing an understanding of the underlying psychological processes in knowledge seeking. Many factors have been identified as influential in knowledge seeking behaviour in EKR: perceived usefulness, seeking effort, trust, and information asymmetry.

To encourage knowledge transfer in organizations, collaboration has been regarded as very important in knowledge management. Bock, Kankanhalli, and Sharma (2006) conducted research to explore how collaborative norms in an organization influence knowledge seeking with regard to the EKR. According to them, collaborative norms positively influence individuals' knowledge seeking from EKR.

There are some other notions used in KM literature similar to the meaning of knowledge seeking, for example, knowledge creation and knowledge sourcing. Nonaka and Takeuchi (1995) argue that knowledge will be created when tacit and explicit knowledge is interconverted in organizations. Gray and Meister (2004, 2005) use 'knowledge sourcing' to describe the activities in organizations in which individuals intentionally access each other's expertise, experience, insights, and opinions. According to them, knowledge sourcing methods refers to the specific mechanism by which an individual accesses another's knowledge, including those recently proposed in the KM literature (such as knowledge repositories) and well-established organizational practices (such as meetings). They classified three different types of knowledge sourcing, and argue that each method may support multiple forms of knowledge sourcing: dyadic knowledge sourcing, published knowledge sourcing, and group knowledge sourcing.

Gray and Meister (2004) propose a general model of knowledge sourcing, which includes contextual, dispositional antecedents, and learning outcomes. They attempted to identify knowledge sourcing effectiveness based on these three aspects. They concluded, from a survey, that knowledge sourcing explains a significant proportion of individuals' learning outcomes. In 2005, they made further efforts to explore whether different classes of knowledge sourcing methods produced different kinds of performance outcomes (Gray and Meister, 2005). This study revealed that different classes of methods were not as interchangeable as the KM literature might suggest. At the same time, they found that technology-based methods are not inherently superior or inferior to traditional methods.

Knowledge acquisition is another term related to knowledge seeking. Beveren (2002), for example, presented a model to describe the knowledge acquisition process. According to him, knowledge is different from information, and knowledge can only be created from the processing of information in our brain. Thus, the knowledge acquisition process is divided into two separate processes: outside and inside our brains. When we acquire knowledge, we acquire information through the sensors at the first stage. Then this information is processed in the brain by using prior knowledge, during which new knowledge may be acquired or created. Apparently, this perspective on knowledge acquisition is based on information processing learning theory, which regards information processing as a black box, a psychological process in the brain.

Zhou (2004) related tacit knowledge acquisition to the study of intelligence. He argues that practical intelligence concerns problem solving, problem finding and knowledge acquisition. Assimakopoulos and Yan (2006) explored how Chinese software engineers acquired codified and tacit knowledge in their daily work. They argue that knowledge acquisition refers to a series of activities, such as seeking advice, learning to solve technical problems and so on. Some sources of knowledge seeking have been identified in their study: for example, technical books and online searching, local community of practice, and personal networks.

Knowledge acquisition also appears in the computing science literatures in the field of knowledge-based systems or expert systems. Brewster, Ciravegna and Wilks (2001, p1) argue that, "for knowledge to be managed it must first of all be captured or acquired in some useful form, e.g. stored in an ontology". According to Gebus and Leiviska (2007), knowledge acquisition implies how we extract knowledge from experts and represent it in a knowledge-based system, and this activity is normally carried out by a knowledge engineer. From a computing science perspective, the research in knowledge acquisition focuses on how to employ or develop new techniques to extract knowledge, how to define the ontology in the database, and how to automate the knowledge acquisition process to reduce time or cost, and so on.

Knowledge Seeking Is A Learning Process

To define knowledge seeking, the meaning of knowledge needs to be clarified. Many learning theories have been developed to explain how knowledge is created, from the behaviourist theories in the early stages, like Pavlov, which emphasizes the principle of 'stimulus-response', to the cognitive theories, like Bandura and Weiner, which focus on the internal processes of the mind and view the learner as an information processer. Developed from cognitive theory, the constructivist view of learning argues that individuals construct knowledge through an interpretative interaction with the social world they experience. Knowledge is actively received either through the senses or by way of communication (Von Glasersfield, 1989). According to Vygotskian's (1978) cognitive development perspective, the construction of knowledge is mediated by the socio-cultural context of its acquisition. Billett (1995, p21) argues that "appropriation involves an interpretative appraisal and construction of knowledge by individuals, rather than being a faithful representation of externally-derived stimuli". Knowledge is a subjective concept and is always contextual. Jakubik (2007) argues that knowledge cannot exist in a vacuum and is not static, but is instead a dynamic concept created in social interactions. Therefore, the cognising subject actively constructs knowledge.

As a kind of adult learning, learning in the workplace is different from student learning. Conlon (2004) pointed out that much of what we learn in the workplace occurs during informal practice, namely, informal learning or incident learning. In Chapter Four, workplace-learning theories were reviewed, such as experiential learning, action learning, and situated learning. Apart from this, the most common way to describe knowledge is to distinguish it from data and information. Compared to information, knowledge is the product of the individual mind and it is subjective in the ontological sense (Searle 1996). As Stankosky (2006) argues, knowledge is 'people based' rather than 'bits based' and is about a 'capacity to take action'. Knowledge is personal and is thought to be 'internal in me', while information is thought to be 'external and outside me' (Stankosky, 2006, p50).

If a person, with the help of information, is able to develop conceptual systems for the part of the environment acting as guidance, this person has developed knowledge (Johannessen et al, 2002). Maturana & Varela (1992) point out that all knowing depends on the structure of the knower and, without the existence of the knower, knowledge does not exist. "Knowledge is knowledge till it resides in the minds of people; once it is outside the human mind, it is information" (Al-Hawamdeh, 2003 in Singh 2007, p170). Only when information is actively processed in the mind of an individual through reflection, enlightenment, learning, or doing, can it be called knowledge. In other words, the known and knower are indivisible. This kind of perspective can also be found in many other literatures (Wilson, 2000; Jakubik, 2007; Hassell, 2007).

Most KM perspectives focus on the integration and coordination of the individual's knowledge. They acknowledge the differences between information and knowledge and give emphasis to the social and cognitive attributes of knowledge. However, they view knowledge as a noun and try to capture and store it outside the human mind and share it in organizations. Given knowledge is a cognitive process in a human's mind, how can it be codified, transferred and shared by technologies? The concepts of information and knowledge appear to be used in a confusing or overlapping manner in much of the research in the KM field. As stated by Wilson (2000, p50), "knowledge is knowable to the knower…it cannot be transmitted…only information about the knowledge can be recorded and accessed by another person". Knowledge is different from information in that knowledge is always embodied and is always the experience of some individuals in a society (Hassell, 2007).

Even in Nonaka and Takeuchi's SECI model, the application of the dualistic distinction of knowledge, tacit and explicit, is overly simplistic. As stated by Mooradian (2005), the tacit/explicit distinction of knowledge is 'structural or relational'. They

cannot convert from one kind to another. Both kinds of knowledge actually support each other and 'allow them to be acts of knowing' (Mooradian, 2005). Given the definition of tacit knowledge, how can we externalise it easily? If it is created through doing, learning, and experience, how can tacit knowledge be 'converted' from another kind: explicit knowledge? Furthermore, knowledge is no longer real knowledge and is reduced to information for others, once it is divorced from one's mind. Even so-called explicit knowledge needs a cognitive learning process to 'convert' from information into knowledge.

As Churchman (1971) argues, knowledge resides in the user and not in the collection of information. This implies that having more information does not necessarily lead to enhanced knowledge creation. Simply delivering or 'pushing' information to a user's desktop may not be an effective approach to the management of knowledge, due to the lack of the user's attention that is required for processing this information and constructing it into knowledge. Knowledge is created or constructed on the basis of 'pull' by individuals. This clearly tells us that KM is essentially a deeply social process, and that knowledge seeking (demand pull), compared to knowledge sharing (supply push), is the core and foundation of knowledge management. Without this vital link in the cycle of knowledge management, how can we put KM approaches into practice? Those traditional KM concepts that mainly emphasise information technologies and knowledge sharing are thus too neat and simple to survive in the workplace.

Defining Knowledge Seeking
Based on this new understanding of knowledge and learning theories discussed above, this researcher regards knowledge seeking within organizations as: A learning process, or a process of constructing knowledge, which results in the improvement of the seeker's knowledge structure to solve problems or satisfy some goal.

This definition is placing emphasis on the cognitive process of knowledge construction within individuals, through information seeking, sense making, and learning by doing, by experiences, or by problem solving (see Figure 2). It is a learning process, which focuses on not only the meaning of the material (so-called data/information/knowledge) for the seekers in certain situational or organizational contexts, but also how they solve problems they meet, and what knowledge they gain or create eventually in their mind through this process. Without such a process, knowledge will not be constructed by individuals, and knowledge management will not demonstrate any difference to information management.
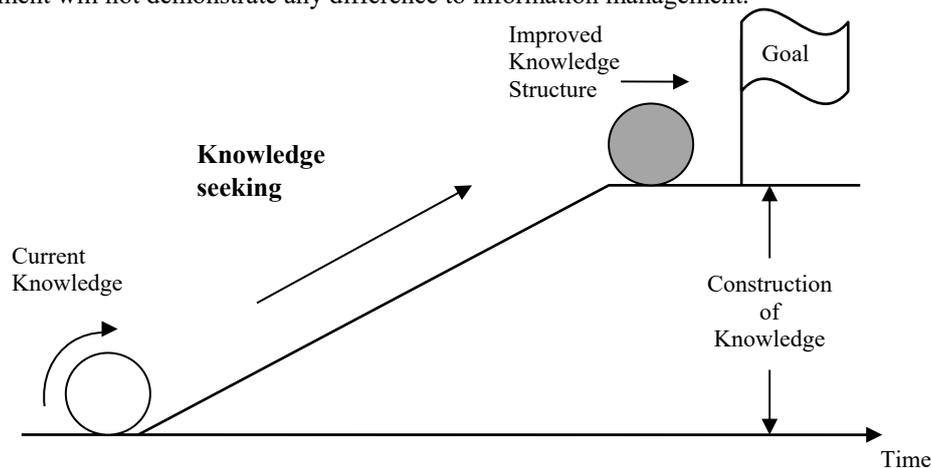

Figure 2: Knowledge construction in a workplace

Furthermore, the concept of 'knowledge seeking' here is different from knowledge sourcing, knowledge acquisition, information seeking, and knowledge seeking as found in literature. According to Wilson (2000), information seeking behaviour is the purposive seeking for information as a consequence of a need to satisfy some goal. This implies giving emphasis to what kind material or fodder the seekers are looking for in order to satisfy their goal. The concepts of knowledge sourcing, knowledge acquisition and knowledge seeking refer to finding out 'knowledge' from somewhere. As stated by King, Chung & Haney (2008), knowledge acquisition involves the search for, recognition of, and assimilation of potentially valuable knowledge, often from outside the organization. This viewpoint tends to regard knowledge as something existing somewhere and means to seek or find it out, which is no different to information seeking as described above.

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