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A Review of Theories in Knowledge Dissemination

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ABSTRACT

Knowledge Management has become an important tool for organisations in the current competitive scenario. Knowledge Dissemination is a vital component of Knowledge Management, and consists of Knowledge Sharing and Knowledge Transfer. This paper builds upon the concept of Knowledge and Knowledge Management and puts forth the important theories of Knowledge Dissemination i.e. of Knowledge sharing and Knowledge transfer.

Keywords: knowledge management, knowledge dissemination, knowledge sharing, knowledge transfer

Introduction

Knowledge management, the ability of an organization to effectively process knowledge of its products, processes and people to increase workplace productivity, is currently at the forefront of corporate strategy. As firms seek to build competitive advantage in increasingly competitive markets, they are turning to a previously untapped resource: their employees' knowledge. This knowledge would be efficiently used in an organisation if it could be disseminated among individuals and groups within the organisation. Knowledge dissemination theories which would be the theories of Knowledge Sharing and Knowledge transfer in total would serve to give a better understanding of the purposeful flow of knowledge.

Knowledge

Knowledge and its efficient management constitute the key to success and survival for organizations in the highly dynamic and competitive modern world. Knowledge, however, should not be confused with information, as knowledge is more complex than information (Davenport & Prusak, 1998). Soliman and Spooner (2000) defined knowledge as the ability to sustain the coordinated deployment of assets and capabilities in a way that helps the firm achieve its goals. Davenport & Prusak (1998) defined Knowledge as a set of experiences, values, skills and information related to expert viewpoints that provides a frame for combination and evaluation of information and new experiences. According to Drucker (1993) the basic economic resource in the means of production is no longer capital, natural resources or labour but it is primarily knowledge. Knowledge gives the capability of evaluating data and information

before making decisions based on evaluations to initiate changes. Knowledge is organized, combined or summarized information to improve understanding, awareness and comprehension. Hence, the most important feature of knowledge is its dynamism, its sociality and its relevance, which in turn emphasizes the importance of the transfer and sharing of knowledge in the processes of knowledge management.

Knowledge Management

Knowledge management is primarily focused on ensuring that the right knowledge is available in the right form to the right processor at the right time for the right cost. Knowledge management (KM) is concerned with capturing a firm's stock of expertise through creation, collection, storage and application (Bollinger and Smith, 2001). It means identifying and harnessing the collective knowledge of the organization gained through experience and competencies. In simple terms, KM can be seen as the process of turning Data (raw material) into information (semi processed goods) and thereafter into Knowledge (finished goods). Knowledge Management is the systematic, explicit, and deliberate building, renewal, and application of knowledge to maximize an enterprise's knowledge-related effectiveness and returns from its knowledge assets (Wiig, 1997). KM may be understood as the practice of capturing and developing, individual and collective knowledge within an organization for the purpose of using it to promote innovation through the transfer of knowledge and continuous learning (Hallin & Marnburg, 2008). KM is the process of gathering, managing and sharing employees' knowledge capital throughout the organisation. KM uses knowledge to gain competitive advantage (Davenport & Prusak, 1998). KM is a critical business strategy which enables an organisation to leverage its most precious resources, collective knowhow, talent and experiences to accelerate the rate at which it handles new market challenges and opportunities (Koulopoulo & Frappaalo, 1999)

KM and Knowledge Dissemination

KM consists of different processes such as 1.creation and sourcing. 2. Compilation and transformation 3. Dissemination and 4.Application and Value realisation (Wiig, 1993). Probest et al (2000), proposed processes such as Identification, capture, development, sharing, dissemination, application and storage to be a part of KM. According to Parikh (2001), KM consists of Knowledge creation, Knowledge organization, Knowledge dissemination and Knowledge application. Lawson (2003) added and additional process to KM and called it Knowledge capture

Knowledge Dissemination

KM literature has not been quite clear about the definition of knowledge dissemination. At times, it has been used in place of knowledge sharing or knowledge transfer. Dissemination could be described as the delivery and receipt of a message, the engagement of an individual in a process, or the transfer of a process or product. Dissemination serves three broadly different purposes: awareness, understanding, and action. Effective dissemination of knowledge will most likely require that it satisfies all three with the ultimate objective of utilization of the Knowledge.

Knowledge dissemination is distributing knowledge to those who may need it and is a crucial part of KM. Knowledge dissemination consists of knowledge sharing as well as knowledge transfer. Yang (2008) defined Knowledge dissemination as knowledge exchange management in the organization for encouraging innovation; increasing the awareness of great past procedures and making users adopt better procedures for their future decision-making. The degree of participation of the personnel in knowledge dissemination affects new products quality. The knowledge exchange could basically happen in two ways. Knowledge sharing and knowledge transfer. Knowledge dissemination is the distribution of knowledge to those who may need it; therefore it is a crucial part of KM. In the modern scenario, it has been modified to also mean the distribution of knowledge to those who are authorised or entitled to it only. Paulin(2013) was clear in asserting that the overarching term knowledge dissemination consists of the two more commonly used terms, i.e. knowledge transfer (KT) and knowledge sharing (KS)

Knowledge Sharing

KS has been identified as a major focus area for knowledge management. Davenport and Prusak (1998) defined knowledge sharing as a process of knowledge exchange between individuals and groups. Schwartz (2006) elaborated the KS concept as the exchange of knowledge between and among individuals, and within and among teams, organizational units, and organizations. This exchange may be focused or unfocused. KS can also be defined as the process by which individuals mutually exchange their (tacit and

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explicit) knowledge and jointly create new knowledge (van den Hooff & de Ridder, 2004). KS activities are known to help communities of people work together, facilitate exchange, enable learning oriented capabilities and increase their ability to achieve individual and organisational goals (Dyer and Nobeoka, 2000). Connelly and Kelloway (2003) describe it as a set of behaviours that involves the exchange of information or assistance to others. Knowledge sharing is a people-to-people process (Ryu et al., 2003). It is the process where individuals mutually exchange their knowledge (Truch et al., 2002); thus it is a two-way process that consists of both the supply of new knowledge and the demand for new knowledge.

KS occurs when an individual is willing to both- assist as well as learn from others the development of new competencies. Knowledge could increase its value when it is shared with, and transferred to others. Knowledge interflow amongst individuals enables them to enhance their competency and to mutually generate new knowledge to the benefit of both individuals and organisations (Sveiby, 2001). Hence, enabling knowledge sharing among individuals in organizations is fundamental to innovation and organizational success. Behavioral variables of individual level play an important role in the KS in organizations. KS seeks to link the individual level, where knowledge resides, and the organizational level, where knowledge is applied and attains value. While behavior does not happen accidentally, it depend on different variables in the levels of individual, group (team, communication, power, leadership, etc.), and organization (structure, culture, technology, etc.). Therefore, consideration of relationships among these variables with KS and the prioritization of them would help KS diffusion in organizations.

Yang (2009) did an exhaustive study on the media for KS preferred by individuals and the content of KS in Hotels in Taiwan. The study found that the most popular approach that was used to share knowledge was a conversation medium, but that sufficient time was not allowed for this to occur. The study suggested that it could be helpful for top management staff who shared operational knowledge, to put more effort into sharing strategic knowledge for the creation of future competitive advantage, rather than engaging in daily routines, i.e. a more strategic focus for the whole hotel would improve long-term success. KS throughout the organisation enhances existing organisational business processes, introduces more efficient and effective business processes and removes redundant processes (Bhojaraju, 2005).

Knowledge Transfer

Argote and Ingram (2000) defined Knowledge transfer in organizations as the process through which one unit (e.g., group, department, or division) is affected by the experience of another. This definition is similar to definitions of transfer at the individual level of analysis in cognitive psychology. Although knowledge transfer in organizations involves transfer at the individual level, the problem of knowledge transfer in organizations transcends the individual level to include transfer at higher levels of analysis, such as the group, product line, department or division. Knowledge transfer, as it has been formally studied, reflects intended unidirectional exchange, as when an enterprise resource planning (ERP) systems consultant transfers implementation knowledge to a potential user of a system, or when a franchiser's training team transfers knowledge about how to operate a franchise to a franchisee's team (King, 2011). Such knowledge transfers have a focus, a clearly identified objective are occurs between a clearly defined source and a recipient. Schwartz (2006) defined knowledge transfer as the focused, unidirectional communication of knowledge between individuals, groups, or organizations such that the recipient of knowledge (a) has a cognitive understanding, (b) has the ability to apply the knowledge, or (c) applies the knowledge."

According to Szulanski & Cappetta (2003) knowledge transfer defines the exchange of knowledge (how to do work, skills and technical information) from one person or position to other persons or situation. Thus, knowledge transfer affects an individual or department through the experience of other people or sectors (Argote & Ingram, 2000) through the systematic exchange of information and skills (McInerney, 2010). However, knowledge in an organization will get transferred whether or not it is managed. Targeting knowledge transfer may ensure we enjoy the optimum benefits knowledge and knowledge transfer can offer (Davenport & Prusak, 1998)

Theories of Knowledge Sharing

1. Theory of Reasoned Action (TRA)

TRA is a socio-psychology model that has been widely used to determine behavioral intentions

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and/or behavior (Ajzen and Fishbein, 1980). TRA states that behavioral intentions leading to the actual behavior are a function of salient information or beliefs about the likelihood that performing a particular behavior would lead to a specific outcome. Fishbein & Ajzen (1975) stated that the beliefs leading to behavioral intentions are of two conceptually distinct sets: behavioral and normative. Behavioral beliefs are beliefs about the expected consequences of a specified behavior and the favorable or unfavorable evaluation of the consequences. Normative beliefs determine subjective norms about the perceived social pressure from important referent group whether to perform a specified behavior or not. Normative beliefs together with the motivation to comply with these referent group expectations determine subjective norm. This theory represents the attitude and subjective norms that influences the individual intention of knowledge sharing behavior. Here, attitude can be defined as a disposition to respond favorably or unfavorably to the self, others and the environment (Ajzen, 1985) while subjective norm is defined as the way individuals think and have expectations from others towards individual actions. Figure 1 explains the linkage between the components of the theory of reasoned action.Davis et al (1989) adopted TRA to draw up the technology acceptance model which sought to explain an individual's computer usage behavior. Bock and Kim (2002) proved that positive attitude toward knowledge sharing led to positive intention to share knowledge and, thereafter to actual knowledge sharing behaviors thereby confirming TRA.
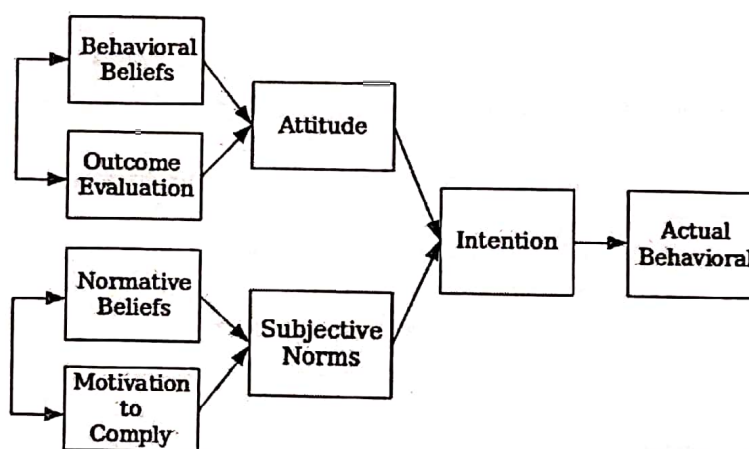
Figure 1.   Components of the Theory of Reasoned Action

2. Theory of Planned Behaviour (TPB)

The theory of planned behavior (TPB) proposed by Ajzen (1991) is perhaps the most influential and popular social-psychological model for explaining and predicting human behavior in specific contexts .TPB is an extension of the earlier theory of Reasoned Action (TRA) and includes perceived behavioral control as an additional determinant of intentions.

TPB states that the primary determinants of an individual's behavioral action are intention and perceived behavioral control. Intention is an indication of the readiness of an individual to engage in a behavior. Intention is a function of attitude of an individual towards a behavior, subjective norm and perceived behavioral control with each determinant weighted for its significance in relation to the behavior and population in question. Behavioral beliefs determine the Attitude towards a behavior. Behavioral beliefs are the underlying influences on the attitude of an individual towards performing the behavior while normative beliefs are the influences on an individual's subjective norms about performing the behavior. Normative beliefs together with the motivation to comply with these referent group expectations determine subjective norm. Control beliefs determine perceived behavioral control. Control beliefs are beliefs about the perceptions of the presence or absence of factors that may facilitate or impede the performance of behavior in interest. Control beliefs together with the perceived power of each factor determine the perceived behavioral control. Perceived behavioral control boosts intention as an individual is not motivated to undertake tasks at which he fails and is expected to influence actual behavior, especially, when there is an agreement between an individual's perceptions of behavior control and the actual control. Greater the belief of an individual of possessing resources and opportunities, Fewer are the

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impediments anticipated by the individual and thus has greater perceived control over the behavior. Figure 2 explains the linkage between the components of the theory of planned behavior. Chennamaneni (2006) has proved the relevance of TPB in knowledge sharing in organisations.

Figure 2. Components of the Theory of Planned Behavior

3. Social Exchange Theory (SET)
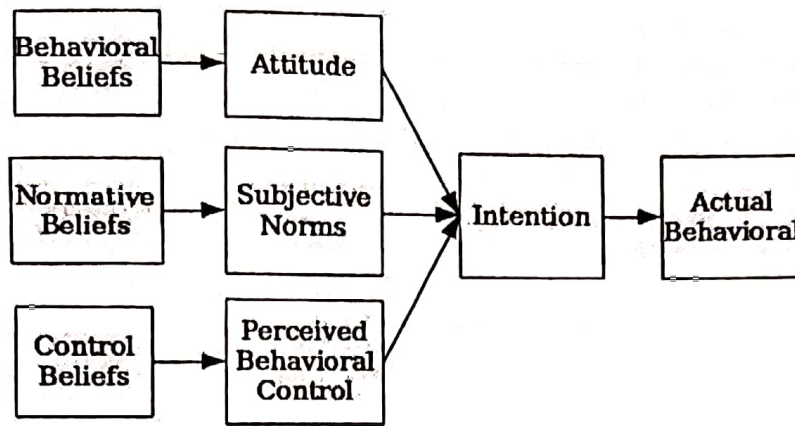
Knowledge sharing is a type of social interaction among people. Two principal theories which explain the social interaction of people are social exchange theory and economic exchange theory. Social exchange theory, is a psychological concept suggesting that humans make social decisions based on their own perceptions about the costs and benefits that could be gained by action or, conversely, by *inaction*. Social exchange theory (SET) is basically defined as an exchange of a valuable resource between two parties that is expected to be mutually beneficial. According to Blau (1964), this theory seeks to maximize the benefit and reduce the cost due to individual actions. According to the antecedent of SET, it is a theory that describes the rational behaviour of the individual to perceive the possibility of rewards that they would gain from the social exchange. There must be an actor that has his own perception to another and has a belief to create the other's perceptions needs (Razak et al, 2016). Social exchange theory can be categorised into two i.e. rewarding and social relations exchange. Blau, (1964) conceptualized the rewards into four types: (i) Money, (ii) Social approval, (iii) Self- esteem and (IV) Compliances. As per the study, money might influence an individual exchange for a particular need of an individual, but social approval, self-esteem and compliance were found to be more influential towards the social relations exchange. This finding is in consonance with the social exchange theory wherein self-interested appraisal of the intrinsic benefits is the basis for individuals to interact with each other

4. Economic Exchange Theory

Interaction among people results in knowledge sharing. The social interaction theory postulates that individuals behave by rational self-interest thereby sharing knowledge when rewards exceed costs (Kelley and Thibaut, 1978; Constant et al., 1994). Many researchers have propagated incentive based systems for successful knowledge management. This implies that if employees believe that they would be benefited with extrinsic rewards such as monetary benefits, promotion, educational opportunity, social welfare enhancement or retirement benefits from their knowledge sharing, they would develop a more positive attitude toward knowledge sharing.

5. Social Cognitive Theory

A person's attitude and behavior depends upon both intrinsic or self-produced factors and external stimuli. Among the types of knowledge that employees can derive from self-reflection, none is more central than the employees' judgment of their capabilities to deal effectively with different environmental realities (Stajkovic & Luthans, 1998). Bandura (1986) defined this 'self-efficacy' as 'people's judgments of their capabilities to organize and execute courses of action required to attain designated types of performances'. Hence an individual's judgment of his capabilities to contribute to the organizational performance can be considered as the driving force affecting knowledge sharing. Thus if employees believe that they could make contributions to the organization's performance, they would develop a more positive attitude toward knowledge sharing and be more self motivated.

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Bock and Kim (2002) used the social cognitive theory to explain why people's attitudes about expected contributions lead to intentions to knowledge sharing. Swap et al. (2001) used the theory to explain mentoring and storytelling as appropriate mechanisms for sharing knowledge and elaborated on the conditions necessary for effective learning to occur from the recipient's perspective.

6. Communication Theory

According to the Communication theory, successful knowledge flow require a. the ability and motivation to communicate from the informer's side, b. the communication channels, whether face-to-face, over the telephone, or computer-mediated communication, and c. the ability and motivation to receive the message from the recipient's side. This theory is relevant for both KS as well as KT. KT ends with the communication from the informer through the communication channel to the recipient. While in KS, the communication would then continue back from the recipient, who would now be the informer through the same channel but opposite direction to the informer who would now be the recipient. Gupta and Govindarajan (2000) investigated the efficiency of the Communication Theory to explain knowledge flow within a company and found that most part of it held true.

Theories of Knowledge Transfer

Nokes (2009) proposed three theories of knowledge transfer which he called Mechanisms of Knowledge Transfer.

1. Analogical transfer (Gick & Holyoak, 1980, 1983; Gentner, 1983; Gentner, et al 2001).

Analogical transfer consists of three sub processes: a. retrieving a prior knowledge exemplar, b. creating a mapping between it and the current problem or situation, and c. using the mapping to generate new knowledge structures relevant to the application context. The transferred knowledge is typically assumed to be a declarative representation, but it can also include procedural attachments

(Carbonell, 1986; Anderson & Thompson, 1989; Chen, 2002). There is extensive empirical evidence for analogical mapping (Gentner & Toupin, 1986, Catrambone & Holyoak, 1989). However, according to Catrambone (2002) and Ross & Kilbane (1997) evidence also shows that although people are capable of mapping deep relational structures, the retrieval of an analogue is heavily dependent upon matches between the surface or structural features of the current problem and prior problem solving experiences. Surface features are matching object features and context while structurally features would mean matching relations between objects. This is the simplest knowledge transfer mechanism and is suited for near transfer than for far transfer.

2. Knowledge Compilation (Neves & Anderson, 1981; Anderson, 1982, 1983, 1987)

This computational mechanism operates through the deliberate and explicit, step-by-step interpretation of a declarative statement that generates new production rules as a side effect. The rules generated are then optimized via rule composition and the result is a procedural representation of the content of the declarative knowledge to give a specific goal (Nokes, 2004).

The knowledge compilation mechanism can be understood as a translation device that translates or interprets declarative knowledge (e.g. advice, instructions and strategies) into a set of procedures and actions that can be used to solve problems. Knowledge compilation operates through the sequential interpretation of declarative knowledge. Hence it can be used in a wide variety of application contexts as it is yet to be proceduralized, or tied to a particular problem solving context. This transfer involves the transfer of knowledge in a similar but previously unknown scenario relying on the procedures and actions related to declarative knowledge. This mechanism has a wide applicability across many contexts but requires a complicated and lengthy application process to translate the declarative knowledge into a set of actions.

3. Constraint Violation Mechanism (Ohlsson & Rees, 1991; Ohlsson et. al. 1992; Ohlsson, 1996).

Constraint Violation Mechanism is also a declarative-to-procedural type of transfer with different cognitive processes. Constraint violation theory has declarative and procedural components that operate in parallel. Declarative knowledge seeks to constrain possible problem solutions. Declarative knowledge helps the learner identify and correct one's own errors. When incomplete or faulty procedural knowledge generates undesirable outcomes, they are recognized as violations of those constraints and the rules

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(procedures) responsible for the undesirable outcomes are revised accordingly. This theory is basically a 3 step process consisting of generation, evaluation and revision of transfer of knowledge. According to this theory, the learner generates an initial solution based on general problem-solving strategies and then evaluates that solution with respect to prior knowledge of the domain constraints. If a constraint is violated, the learner attempts to revise the faulty procedure(s) and generate a new solution. This process is repeated until a correct solution is found that satisfies all of the constraints.

This mechanism has wide applicability as the constraints can be applied to a variety of problems that may require different strategies or sequences of actions to produce the correct solution. The constraint violation theory supports the design of successful tutoring systems (Mitrovic & Ohlsson, 1999). This transfer involves the transfer of knowledge in a completely unknown scenario with scope for identifying errors (undesirable outcomes) and correcting the errors based on the constraints set by the declarative knowledge.

Each transfer mechanism besides using different cognitive processes has also been hypothesized to operate on specific types of prior knowledge structures. Analogy uses exemplar knowledge that consists of a declarative representation that may also have procedural attachments (Gentner, 1983). Knowledge compilation uses declarative knowledge such as instructions, advice, or tactical knowledge (Anderson, 1983). Error correction uses declarative knowledge of the constraints for a particular problem domain (Ohlsson, 1996). Each mechanism has been associated with a particular kind of transfer scenario that specifies the conditions necessary for transfer (i.e., type of prior knowledge and application context).

Nokes (2009) in his quest to propose a general theory of knowledge transfer proposed that people often use a mixture of multiple transfer mechanisms for a given situation. Therefore, what changes is the relative mix or proportion of transfer processes triggered depending on the characteristics of one's prior knowledge and the task environment. This theory of multiple mechanisms and adaptive shifting is essentially a cognitive economy theory of transfer. A given mechanism is triggered to the degree that its utility is optimised based on the current knowledge of the learner and the properties of the task. The selected mechanism is the one that requires the least amount of cognitive effort to achieve the highest utility.

Conclusion

This review discusses Knowledge management from the very basics. Knowledge dissemination would determine the outcome of the depth of Knowledge Management in organizations. Knowledge Dissemination consists of both Knowledge sharing and knowledge Transfer. It has been agreed that Knowledge Transfer is unidirectional in nature and Knowledge is directed from the Knowledge Possessor to the recipient, while Knowledge sharing is bidirectional. This review will help in determining Knowledge dissemination and its components; it also clearly differentiates knowledge sharing from Knowledge Transfer and the theories thereof.

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