A case study approach to investigate academic perspective on knowledge and knowledge transfer issues

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Abstract

This research in progress study was conducted to satisfy two specific objectives. First to research the use of ICT used by academics within their work environment and second to investigate the human behaviours in the knowledge transfer process based on literature developed from theory. An appropriate research strategy had to be employed when the nature of the research is theory building and that the research propositions are seeking insights. For this purpose academics from University of Southern Queensland were considered. Focus group technique was employed to collect data from academics. The analysis of data indicated that while ICT tools are useful in disseminating knowledge to some extent, they are not that effective in creating the knowledge. A surprise factor that emerged was the lack of support for training factors as the group felt this is not important given the maturity of users in IT. Similarly, email and the Internet were considered to be knowledge collectors than knowledge transfer tools. The group also highlighted that knowledge can be categorised into administrative, procedural, organisation, personal and product knowledge.

INTRODUCTION

Of many definitions that can be found on Knowledge Management (KM), a definition provided by Swan et al., (1999) "any process or practice of creating, acquiring, capturing, sharing and using knowledge, wherever it resides, to enhance learning and performance in organizations" (p. 669) appears suitable to this paper as this definition addresses the needs of this paper. Thus it becomes imperative to understand what Knowledge is and why knowledge should be considered important to enhance learning and performance in an organisation. Discussions within KM literature identify knowledge as an important resource, as being multifaceted, ambiguous and two dimensional (i.e.) tacit and explicit. (Swan and Newell 2000; Garrick and Clegg 2000; Marshall and Brady 2001; Alavi and Leidner 2001;Darroch and McNaughton 2002; Zhou and Fink 2003). To this date, almost all research have placed an enormous emphasis on tacit knowledge as being vital for the generation of explicit knowledge but how to capture, transfer, create this tacit knowledge has been always a source of interest. Information Technology (IT) has provided many tools to encapsulate this knowledge. In the recent times, it is increasingly becoming visible that technology alone cannot inspire the success of knowledge management but people's involvement and process are as important as is IT (McDermott, 1999). Many KM initiatives with IT as a backbone have failed and these failures provides an insight that perhaps knowledge is not a thing or an object and maybe KM is not a system but an ephemeral, active process of relating (Stacey 2001).

SCOPE OF THIS PAPER

This paper while acknowledging that all processes related to knowledge are important, maintains that it is difficult to provide an in-depth discussion on all mentioned topics and therefore limits itself to Knowledge Transfer issues. Its importance is recognized by the facts that tacit knowledge is vital for the generation of explicit knowledge but how to transfer this tacit knowledge typically using ICT tool is a major challenge. This challenge is particularly evident in the academic environment on which this paper focuses. This research through literature review identifies, that the role of tacit knowledge[1] which has both technical and cognitive elements can have greater implications within academia. For

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[1] Tacit Knowledge is made up of both **technical** and **cognitive** elements. Technical tacit knowledge consists of know-how's, skills, and craftsmanship specific to a field. Cognitive tacit knowledge is made up of mental models, maps, beliefs, perceptions, assumptions, insights and paradigms (Alavi & Leidner, 2001).Tacit knowledge is highly personal, subjective form of knowledge that is usually informal and can be inferred from statements of others (Sternberg, 1997). Tacit knowledge is personal, context-specific and therefore hard to formalize and communicate (Nonaka & Takeuchi, 1995). Tacit knowledge is experience, personal interaction,

example, the technical element involves the usage of ICT tools and thus has future implications in terms of training and management of academics. Cognitive elements involve collaboration, teaching and researching. This research was meant to answer some of the questions:

How do academics use ICT tools (technical) and what are their views (cognitive) when they use the same tools for collaborative research work and teaching such as online courses. This may provide an understanding of how the academics might be using e-learning tools. It is a well known fact that tools such as WebCT and Black Board have criticism both from students' perspective as well as from academics. While there are many studies conducted on student learning (education perspective) there are fewer studies conducted on academics and this research investigation will provide an insight from the other side. Similarly knowledge transfer between academics for research or collaborative work could be studied with the view of finding the ICT tools that greatly enhance such work and to investigate the role of trust, culture and reward (socio-psychological tacit factors) having an impact. With the above in mind the literature review and research design has been reported below.

KNOWLEDGE AND KNOWLEDGE TRANSFER ISSUES SPECIFIC TO UNIVERSITY CONTEXT

According to Wiig (1993), learning is central to knowledge transfer process. Central to any learning environment is the effective use of Information technology which provides the information needed to solve problems, make decisions and effective action. This view is also supported by Marquard (1996) and Senge (1990). However as Argyris and Schon (1987) points out, individual learning is very important for new knowledge to be created which validates knowledge transfer from one source to another. This view now can be further extended by the fact that ICT including electronic learning could expedite new learning and thus validate knowledge creation and knowledge transfer. Individual learning is the act of finding relevant information and applying or articulating to work processes which makes a positive difference in business results. The concept of learning has received attention and prominence within management and in academia in the recent years and is due to the fact that, organisations including universities are dynamically undergoing changes to meet the increasing demands and pressure of competitive environment. In knowledge based economy, learning appears to be a solution for retaining competitive edge through expansion of knowledge. Learning is no longer a separate activity that occurs in workplace or in a class room settings, but has become a by-product of people doing their work, behaviours that define learning and behaviours that define being productive are one and the same (Zuboff 1988). Therefore knowledge transfer appears to be a unique process and is a continuous process from higher education to the work force and outcome of this research is applicable to both higher education and as well as business organisation.

Within University context, recent developments indicate universities too work like business, on the lookout for innovation, make staff or employees multi skilled and efficient, seek flexibility, looking at core issues of improving products and services, such as off shore programs, internationalization and globalisation of courses, recognition of cultural diversity leading to different target groups and the provision of online education such as e-learning and web based learning (a subset of IT).

While it is difficult to refute that technology helps to facilitate knowledge creation and knowledge transfer between individuals and groups, much of the learning that has been launched into the educational agenda is without a sound theoretical framework or satisfactory model to guide it (Goodyear, Salmon et al. 2001). Although the process of learning and transfer of knowledge to an on-line environment seem to be occurring amongst academics and students, much of these have not been fully understood as tacit knowledge is not documented and varies from individual to individual and appears to be ill defined in an online medium. Literature indicates that issues relating to tacit knowledge such as mapping of tacit knowledge (Alavi and Leidner 2001), impediments, culture and leadership (O'Dell and Grason 1998), detriments, absorption, retention (Szulanski 2003) appear to be the major influencers in the transfer of tacit knowledge.

Further Huber (2001) while highlighting the fact that transfer of knowledge is an unexplored issue in knowledge management studies points out that researchers should explore social- psychological factors such as trust and culture having an impact on knowledge transfer and call for new researchers to address this issue. On close observation, social psychological factors such as trust and culture are factors related to human behaviour in a given environment. These factors are linked to tacit knowledge as tacit knowledge is about experience, intuition, judgment and perception which gets articulated to work process thereby creating knowledge and transferred either formally or informally to others. Thus human factors in the form of tacit knowledge are important to transfer of knowledge as well.

Busch and Richards (2002) and Richards (2002) highlight the importance of tacit knowledge related research in the Information Systems field by stating "Much of the Information Systems research to date has dealt with explicit or articulated knowledge and little empirical research has been done on tacit knowledge". The lack of empirical and

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craftsmanship, intuition that is difficult to be articulated in rules or procedures (Bhatt, 2000) and hence generally is considered to be difficult to capture, codify, adopt and distribute. .

theoretical studies on the subject of tacit knowledge has been highlighted by Nonaka and Takeuchi (1995) by stating " … tacit Knowledge has been overlooked as a critical component of collective behavior (Pg. Viii).

As pointed out earlier and highlighted by Alavi and Leidner (2001) the role of IT within knowledge management studies is questionable and therefore call for an inquiry by stating " We therefore believe that the role of IT in organizational knowledge management ought to receive considerable scholarly attention and become a focal point of inquiry" (Pg. 132). Similarly Davenport and Prusak (2000) emphasis that knowledge transfer need to change its focus from technology to people and interaction with technology, with specific emphasis on tacit knowledge" Too often, knowledge transfer has been confined to such concepts as improved access, electronic communication, document repositories… …..it is time for firms to shift their attention to more human aspects-………., firms need to exploit both the hard and soft aspects of knowledge transfer, but in western business culture there are usually too few advocates of the soft stuff" (Pg.106).

While many studies provide independent view on the role of tacit knowledge and IT and its importance (Kubo and Saka 2002; Brockmann and Anthony 1998; Bender and Fish 2000; Augier, Shariq et al. 2001; Massey, Montoya-Weiss et al. 2002; Russell, Calvey et al. 2003), most of the studies fail to provide a bigger picture arising from the conceptual frameworks drawn by other studies in this field. This has resulted in some confusion and frustration, as there is no uniform opinion as to how tacit knowledge is transferred from one entity to another (Simonin 1999). Therefore, there is urgency to recognize the available theories that underpin the transfer of knowledge which includes tacit knowledge as well.

KNOWLEDGE TRANSFER MODEL FOR AN ACADEMIC ENVIRONMENT

Within a university context, ICT is put to use through tools such as email, Internet, IRC chat, bulletin board and E-learning tools such as WebCT and BlackBoard, which facilitate the transfer of knowledge and act as a link between source and the recipient. Wiig (1993) identifies that when knowledge flows from one person to another, it is difficult to ascertain or be aware of as to what sort of knowledge is sent by the source and what type of knowledge is received by the recipient. A major barrier to a beginner is the lack of awareness of which knowledge (tacit or explicit or combination of both) is being used and how to use it and which source facilitates the use. Unless one is being told about what happens and the reasons, it is usually considered hard to learn. "Effective learning" relies on "Effecting teaching" (implied transfer) process and vice versa.

Tacit to Explicit (TE), known as externalisation process, helps to articulate tacit knowledge into explicit knowledge through metaphors and analogy, hypothesis and models in understanding the concepts. Explicit to Tacit (ET), known as combination process, allows a person in systemising a concept into a knowledge system by combining different bodies of explicit knowledge. Explicit to Explicit (EE), known as internalisation process, helps individuals in identifying strategies to internalize new knowledge.

Alavi and Leidner (2001), place an emphasis that Information Technology can accelerate the growth of knowledge creation and transfer of knowledge but question the effectiveness of this transfer while applying Information Technology. She also point out that while IT can influence the creation and transfer of knowledge, it can also hinder the transfer process such as an inability to find and locate knowledge or discouraged to find them for reasons such as ease of use and motivation. The ability to get knowledge from a source can be referred to as the "pull" process. (Huber (2001) points out that some individuals may not find knowledge easy to give away for variety of reasons such as trust, motivation, and reward. This process of giving away the knowledge may be referred to as the 'push" process.

Alavi and Leidner (2001), indicate that transfer of knowledge occurs when there is a balance between the "push" and the "pull" processes. This can be interpreted as provider's perspective on transfer of flow = selective pull process by seeker. Seeker's perspective on transfer of flow = selective push process by the provider.

Factors that affect the "Push" and the "Pull" Process

From the empirical studies conducted by (O'Dell and Grason 1998; Simonin 1999; Gupta and Govindarajan 2000; Standing and Benson 2000; Huber 2001; Szulanski 2003) there are several factors such as motivation, absorptive capacity, richness of transmission, retention and regeneration, casual ambiguity, trust, culture etc that influence the effective transfer of knowledge from the source to the technology environment. Similarly these factors facilitate the recipient for acceptance and understanding of this transferred knowledge.

Motivational Factors

According to online Britannica dictionary, motivation is defined as "minds that are able to reason, remember, learn, and form concepts or ideas. Human minds are able to direct actions toward specific goals. In other words, people can be motivated by reason and intelligence". An academic may or may not be motivated to use a specific system to push the knowledge. There may be reasons such as resentment in redefinition of work practices or lack of recognition of enhanced effort put in to making the educational experience of the recipient a good one. Fear, perceived heavy work, need for new learning, training that is required may have an impact on transfer of knowledge from the source. Willingness to share knowledge is also another criterion that may effect the motivational disposition of the source.

Some source need to be motivated to use the system as it is a new form of learning (different to the traditional teaching and learning atmosphere) and may have encountered adverse experience, which has an impact towards the transfer of

knowledge. Foot dragging, feigned acceptance, passivity, outright rejection in the implementation of new knowledge are cited as lack of motivation (Szulanski 2003). Willingness to acquire new knowledge by the source (as a reverse role of being the recipients) is also an added perspective of the motivational disposition of an academic. Thus lack motivation of the source (or as a recipient) can have a negative impact in the transfer of knowledge.

Ease of use

Ease of use is defined as "the degree to which an individual believes that using a particular system would be free of physical or mental effort" (Dias 1998). An academic needs to push the necessary (for example subject) knowledge using a system (for example – WebCT). The role of the system and the degree to which this has an effect on source and as a recipient will have an impact on the transfer of tacit knowledge. (Dias 1998) used "ease of use" as a factor to study the motivation.

Perceived usefulness

Perceived usefulness is defined as the "degree to which an individual believes that using a particular system would enhance his/her job performance" (Dias 1998). An academic may find a particular system for example email as an easy tool to communicate a subject material such as an attachment of to a group of people. This may be found easier in comparison to uploading a document in a web based tool such as WebCT which may be time consuming, difficult, not quick and easy to complete the required job as systems can be difficult to learn technical skills. Perceived usefulness can be a factor influencing the source and as a recipient in pushing and pulling the materials in technology facilitated environment.

Training Factor 1: Absorptive capacity

Absorptive capacity is defined as "the ability to exploit outside sources of knowledge and is largely a function of the prior related knowledge" (Cohen and Levinthal 1990). This prior knowledge includes basic skills, shared language, and recent scientific or technological developments in a given field. According to Gupta and Govindarajan (2000) "absorptive capacity is an ability to recognize the value of new information, assimilate it and apply it to commercial ends" while Cohen and Levinthal (1990), believe that it is important to have prior related knowledge in order to absorb the new knowledge.

According to Cohen and Levinthal (1990), ease of learning and technological opportunity are factors correlating with absorptive capacity. An academic may undergo professional development training or may have instruction on how to use the tools in order to push the content. An academic's ability in learning a new skill, the absorptive capacity, the lack of it may have an impact in the transfer of knowledge. As a recipient an academic must be able to relate to the new knowledge either in content, manner it is presented or have an ability to access the information such as know how to deal with a technical problem, how to search for new information with little or relative information. The ability to exploit new information is considered to be absorptive capacity.

Training Factor 2: Retention and regeneration

Retention and regeneration according to Cohen and Levinthal (1990), is an ability not only to acquire and assimilate new knowledge but also to use or apply knowledge when required. According to El Sawy et al. (1998), knowledge must go through re-creation process which depends on the recipient's cognitive capacity to process of the incoming stimuli (Vance and Eynon 1998). Academics after going through the professional development program will also need to have retention power and ability to re-create the knowledge by applying those skills to create own material. Szulanski (2003), identified this as "ramp up" stage in the process of knowledge transfer. Where recipient begins to apply the new skill, knowledge or understanding of new practices initially with struggle and continue until the performance is considered as highly satisfactory. This knowledge is internalised and gets to become part of routine. Nonaka and Takeuchi (1995) identified this stage as "Internalisation" where an individual continue to embody new knowledge.

Causal Ambiguity

Causal Ambiguity is understood as uncertain imitability (Lippman and Rumelt 1982; Rumelt 1984; Szulanski 2003). When idiosyncratic features may compromise replication of results in a novel setting then there is casual ambiguity. Causal ambiguity is an inability to determine the success or failure of an outcome when knowledge is recreated in a novel environment, while replication refers to an inability to respond to new knowledge or re-create the knowledge. In information systems field, use of technology such as E-learning is still in its infancy and established theory regarding its potential usage is yet to emerge. An academic who makes an attempt to re-create the existing knowledge into a new form is uncertain of how the new E- learning features will affect the outcome of the re-creation effort and is unable to measure the contribution. As a recipient an academic may not be sure as to how to respond to new learning situations and unable to determine whether the effort put in is sufficient for new learning may lead to causal ambiguity.

Richness of transmission of Channel

Taking inference from the study of Gupta and Govindarajan (2000), existence and richness of transmission channel is another factor that this research framework will consider to investigate. With many different tools/ technology available, academics may prefer to use a specific channel due to certain properties which can also affect the transfer of knowledge. These may be telecommunication factors, preferred time of transmission, and availability of academe in

times other than the specified time, density of communication etc. These factors can have an impact on both source and the recipient in transfer of knowledge in the interaction that helps to facilitate the knowledge spiral.

Culture

Culture is defined as shared values, beliefs and practices of the people in an organisation (McDermott and O'Dell 2001). According to McDermott and O'Dell (2001) the cultural values are hard to articulate, invisible and people generally act on natural instinct of an organisation. These instincts are based on past action, stories and legends, myths and values passed on by leadership that are deep rooted. People share knowledge if it is expected to be a natural process and not a forced one. According to Standing and Benson (2000) organisational culture is a critical factor for knowledge sharing. They found factors such as trust to be a barrier for transfer of knowledge. Similarly factors such as leading by example, rewards and incentives, team based approach, improved communication, recognition for sharing information and improved technology were considered as facilitators to overcome cultural barrier. O'Dell and Grason (1998) indicated that not all people are interested in reward, but people like their expertise and knowledge to be used and acknowledged widely perhaps as award ceremony or embedding knowledge of best practice into work methods or professional development program (Ardichvili, Page et al. 2003). Removing barrier through success stories being told in meetings, reward positive behaviour, promoting right people through performance management review, leading by example and showing commitment were considered to be factors motivating the source to share to knowledge. Little is known about culture factor that affects the transfer of knowledge between the sources.

This paper perceives knowledge as travelling from the source to the recipient; the source being an expert, for example, who is believed to have both tacit and explicit knowledge. The travel is envisaged as knowledge being "pushed" through an IT environment and "pulled" by the recipient. The role of IT that facilitates the transfer is presently largely unknown. Factors mentioned in the previous section which influence the "push" and the "pull" process within academic environment are under researched. The following key research questions therefore emerge:

- Which IT tools such as email, chat, Internet, bulletin board encourages effective transfer of knowledge from source to the recipient?

- How do factors such as motivation, training (absorptive capacity and retention/ regeneration), causal ambiguity, richness of transmission, culture have an impact or influence the knowledge "push" process and the "pull" process?

RESEARCH STRATEGY

Discussion of research design needs to be considered from two perspectives, the theoretical underpinning and the application process adopted to collect the necessary primary and secondary data. Providing a theoretical underpinning to the research design ensures confirm ability, transferability, dependability and creditability. This underpinning is achieved by determining the appropriate research paradigm, research methodology and research technique. In this study, the research paradigm being adopted is realism (Perry et al. 1998) because the theory being newly developed has no axioms or truths to be tested, and it is unclear if issues to be measured are independent of the researcher's influence (Yin 1993) and these are key factors in the selection of the relevant research paradigm (Yin 1993). Thus, the view of reality required for this research is an imperfect and unknowing theory generation exercise of a complex real world study, where the findings need to approximate the truth. Having identified the paradigm it is necessary to consider the relevant research methodology for the given research problem.

Research methodology

Given the need to ask questions such as how and why, the little control the interviewer has over the interviewee; and the focus on contemporary event of this research, the appropriate options for a suitable research method applicable to this study is case studies (Yin 1989). A multi-case design, embedded approach was selected so as to achieve the goals of pattern matching and for ease of analysing the whole and interrogating the components in the analysis process.

For the above purposes, an exploratory inquiry was undertaken to relate role of ICT and human behaviours in the transfer process within a university setting. According to Gavana, R., Delahaye, B., & Sekaran, U. (2001) pg 108. "An exploratory study is undertaken when little is known about the situation at hand or when no information is available on how similar problems or research issues have been resolved in the past".

Research techniques

Knowledge transfer within knowledge management deals with both explicit and tacit knowledge. Tacit knowledge has been previously defined as combination of feelings, perceptions, judgment, intuitiveness, opinions and experience which are difficult to capture and hence the difficulty in understanding the complexities of the knowledge forms. The above focus group provides an arena to surface a whole range of tacit knowledge forms as they are being explained, answered by participants own words, interpretations of their views on the role of ICT and their personal opinions and experiences in this regard. For this reason the focus group technique is considered to be an appropriate technique for this research study.

In particular, group discussions are easier to conduct as they can take the format of a "less structured interviews" in which there is no pre-constructed interview guideline or questionnaire. This lack of structured interview format within an exploratory research is useful as it provides the focus group an opportunity to take control over the direction of the interview in terms of discussing items within the identified domain of the topic. According to Krueger (1994) and Morgan (1997) this aspect is particularly useful in exploratory research where a researcher may not initially even know what questions to ask. This ability to turn the discussion in favour of the participants themselves provides the focus group with a particular strength.

Two focus groups with academics from university of Southern Queensland were conducted to refine the model and develop the protocol for the main quantitative study. The purpose for convergent of the focus groups is to refine the issues under study and improve the interview protocol by reviewing and comparing findings from each successive group until commonality has been achieved. At the conclusion of the study, the findings were integrated with the model developed from the literature to develop a refined model and testing protocol based on the research propositions.

Analysis of the data from the groups provided the necessary information required to provide confirmability, transferability, dependability and creditability in addressing the research problem and propositions. The data analysis approach adopted was - data collection, data display, data reduction and conclusion (Miles & Huberman 1994). The data reduction phase used the process of putting information into different arrays, making a matrix of categories and placing the evidence within each category, creating data displays for examination, tabulation of the frequency of results and putting the information into a temporal order (Healy 1994). The findings and conclusions were then discussed in terms of the model and its ability to address the research problem.

Data Collection & Analysis

Data were collected using focus group interviews of academic from a business faculty. The focus group was conducted for 2 hours with open interview questions. A moderator was also available to help the interviewer with recording. It is a standard practice to make verbatim transcripts from the tape recordings for qualitative interviews (Lederman 1989). The data recorded on digital recording machine was transcribed into a data file later by an independent transcriber. However there are occasions when transcripts are unnecessary (Stewart and Shamdasani 1990) when the purpose is not detailed reporting and transcribing can be time consuming. For purposes of reporting the emerging themes, a selective jotting approach that advocates coding of data directly from the tapes was found to appropriate for this research (Jones 1985, p 58).

FINDINGS

As this is a research in progress, much of the findings cannot be reported in this paper, however some emerging themes and information are explained. The focus group indicated that Knowledge is dependent on past experience and can be demonstrated to others. The group also indicated that knowledge can be applied to specific contexts and can be explained as to how this application occurs in a step wise manner. Further, the group expressed that knowledge is an end product of an action and indicates responsibility of the person who possesses it.

When questions were asked as to how knowledge can be shared or exchanged, the group expressed that ICT is only an avenue for sharing knowledge, however can be obtained from others on a personal basis and is a result of practice. One of the group members took a view that ICT usage became prominent as the circle of known people diminished while seeking knowledge. This was explained by a set of concentric rings, where the innermost circle represented set of close friends and colleagues with whom the role of ICT was less and informal contact or exchange appeared to gain prominence. The subsequent rings represented friends of friends or colleagues through mutual interaction and the role of ICT became more important and wider the circle the ICT gained momentum as versus the informal context. The group also indicated that knowledge can be shared in informal and formal contexts. The group expressed that usually these contexts are effective using 'physical communication' than electronic communication. The ICT tools, the group concluded, while useful are not always effective. The group felt that the knowledge creation initially happened through face-to-face contacts and then augmented by ICT tools.

An interesting theme that emerged was that knowledge is exchanged only when someone feels that they have achieved the purpose. For example, technical or academic knowledge is shared after a publication is realised. Even when shared, the knowledge is shared among friends and new comers are not welcomed. The group expressed that knowledge falls into categories such as superior knowledge and depends upon the role and position of the person handling that knowledge component. Roles such as editors etc appear to generate knowledge according to the group interviewed. The group also expressed that the knowledge sharing depends on individual personalities where some people freely share knowledge while others are reluctant. Knowledge in academic setting is shared without expecting any rewards.

In terms of barriers to knowledge sharing, the group expressed that recognition is a key aspect. The recognition was expressed in terms of journal publication, a position or award. The group also expressed that some people hold on to their knowledge till they complete a specific objective. People also felt that it is ethically incorrect to claim other's work as one's and this is a barrier to knowledge sharing. Intellectual property rights also appear to be barriers. According to the group, while knowledge sharing results in benefits to the organisation, individuals appear to gaining

no additional recognition. The circumstanced in which knowledge is shared are dictated by individuals and not by organisations.

The group, when the discussed the types of knowledge, catagorised knowledge into procedural knowledge, administrative knowledge, organisational knowledge, personal knowledge and product knowledge. Procedural knowledge is realised when individuals understand various procedures associated with specific tasks. This knowledge also transforms into administrative knowledge as the procedures are dictated by the administration. When the procedural and administrative knowledge are combined in to a bigger entity, this knowledge becomes an organisational knowledge because organisations document these procedures and members of the organisation use this knowledge. These three types are dictated by various rules. On the other hand, personal knowledge is different because only certain individuals possess this knowledge and this knowledge has significant value because it is not widely available. This knowledge is seldom shared as people perceive that once shared, they lose their value in the organisation. Individuals maintain ownership of this personal knowledge and they don't place this knowledge in public domain. The group also expressed there is a form of ego attached to the personal knowledge. The product knowledge is specific to the products of the organisation and widely found through various documents.

In terms of knowledge store/transfer, the group expressed that transfer implies dissemination and ICT tools are good mechanisms to disseminate knowledge if the person who is responsible to transfer the knowledge is not available. Due to the dynamic nature of the knowledge based on specific contexts, it is not possible to rely always on the knowledge transferred by the ICT tools from various repositories as updating these repositories is not easy. The knowledge transfer process is at its best when it is shared through other individuals, not ICT tools.

The group informed that email should be treated as broadcasting medium only. Emails are no appropriate for knowledge acquisition as people don't check it regularly. Emails act as an 'interconnect' between people and application of emails is crucial to get the correct information. In terms of the Internet, the group felt that this is a mechanism to collect knowledge rather than sharing.

A surprising factor that did not get much discussion was the training factors. The group did not consider this to be a significant factor in the process of knowledge management. While the prior studies have indicated that training to be a crucial factor, the group did not consider this to be an important factor.

CONCLUSION

In summary, it can be concluded that the major factor impacting knowledge transfer appear to be past experience, categories of knowledge, individuals willingness to share or transfer knowledge and the context. The factor training was not considered important by the group interviewed. ICT tools appear to play a role in the transfer of knowledge but not so much in knowledge creation. Emails did not gain much respect in the group's view and Internet is considered to be a knowledge collection mechanism rather that knowledge sharing mechanism.

The qualitative data collected through the two focus groups should be treated as limited as the opinions expressed by the members of the group were not fully validated. This study has organised three more focus groups for the month of August to gain more insights. Data has been collected. NVivo will be used to develop a concept map. This concept map will then be used to develop a quantitative instrument to obtain feedback from a wider sample. It is hoped that the combination of qualitative and quantitative techniques will bring out factors of knowledge transfer. The research questions will be answered in full once the data collection is complete.

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