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INTER-PERSONAL SOCIALISATION IN KNOWLEDGE TRANSFER: ENCOURAGING PERSONAL ICT USE

*Socialisation interpersonnelle et transfert de connaissances : promouvoir
l'utilisation personnelle des TIC*

Research-in-Progress

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Abstract

Knowledge transfer and effective knowledge resource management facilitates organisations to innovate and develop new products and services. The knowledge transfer and creation processes require formal and informal networks and relationships. While the need for formal knowledge transfer networks may receive organisational attention, informal inter-personal networks, relationships and friendships also play an important role in knowledge transfer and creation. This paper suggests that rather than attempting to eliminate social activity such as personal use of information and communications technologies, socialisation activity should be encouraged to help build a culture of knowledge sharing and innovation.

Keywords: knowledge management, transfer, learning, shared knowledge space

Résumé

Les réseaux interpersonnels informels, les relations interpersonnelles et les relations d'amitié jouent un rôle important dans le transfert et la création de connaissances. Cette étude suggère que la socialisation, telle que l'utilisation personnelle des TIC, devrait être encouragée pour établir une culture de partage de connaissances et d'innovation.

Introduction

Organizations that are able to manage knowledge resources effectively benefit from better decision making, innovation, rapid development of new products, and improved ability to deal with complex environments (2006; Carlile and Rebertisch 2003; Fahey and Prusak 1998; Grant 1996; Lawson 2001). Organizational resources such as knowledge assets deliver long-term benefits that are difficult to measure and difficult to manage and may be invisible in the short-run (Lawson 2001). Where these knowledge resources are tacit and embedded in informal networks they are both intangible and invisible and at significant risk of being overwhelmed by tangible, codified knowledge communicated via formal networks.

This paper reports on research that examines knowledge creation and knowledge sharing, as a subset of knowledge-based resources, through case studies of universities that are exploiting new technologies and undergoing rapid technological change. It concludes that encouraging informal interpersonal networks, friendships, shared beliefs and understanding, enhances knowledge transfer and knowledge-based capabilities but only if an appropriate balance between formal networks (exploitation) and informal networks (exploration) can be struck.

Literature Review

The literature suggests that formal and informal networks are needed for knowledge management (KM), knowledge creation and knowledge sharing. Formal relationships refer to the formal structure of an organisation and involve such aspects as who works with whom and who reports to whom (Pfeffer 1992). Informal relationships are those that take place outside the formal structures. Likewise informal networks are those that exist outside the formal structures. Knowledge transfer is the process through which one organizational unit is affected by the experience of another (Argote and Ingram 2000). In this section we first use the literature to argue that informal networks are essential to building a shared social understanding of the organizational context. Second, we consider the role of information technology (IT) in informal networks: IT is usually used for formal KM, but it may also have a place in informal KM. This is particularly likely to be the case with the emergence of Web 2.0 technologies, which promote community, shared spaces, collective content and collective ownership. What is more, social networking sites (SNSs), virtual worlds, blogs, and email can all be used to support informal networks essential to building social cohesion. Third, the need for balance between formal and informal networks in knowledge creation and sharing is considered.

Informal networks

Innovation is the source of new products and new organisational routines and is a process of transmitting information, transforming knowledge (Drucker 1995; Kogut and Zander 1992), and the creation of new knowledge (Alavi and Leidner 2001). This knowledge process occurs through the integration and conversion of knowledge from different sources (Carlile and Rebertisch 2003). Sharing and transferring knowledge becomes a process of creating shared agreements (Alavi and Leidner 2001; Nonaka 1994) in order to develop an overlap between an individual's knowledge and that of those with whom they will share it, i.e., a shared knowledge space is a necessity. In the absence of shared knowledge, contextual information is needed. The development of shared beliefs, contextual information, and shared knowledge requires time and space (Alavi and Leidner 2001; Tuomi 1999). Where individuals have insufficient background or common methods they may have difficulty transferring, transforming, or using shared knowledge (Carlile 2003). For knowledge creation and knowledge sharing to occur individuals need to be provided with the space, time, tools, and encouragement to interact and collaborate (Davenport and Prusak 1998). This paper suggests therefore that the creation of shared knowledge spaces facilitates knowledge creation and knowledge sharing, leading to innovation.

Role of technology

Informal inter-personal networks (Reagans and McEvily 2003), relationships and friendships (Ingram and Roberts 2000) play an important role in knowledge transfer. Face-to-face contact is rich and useful in sharing and transforming knowledge that exists in knowers' minds (Alavi and Leidner 2001), but technology can be used to

increase 'weak ties' (Pickering and King 1995) which are informal contacts. Although such communication is not as rich as face-to-face contact, it may still increase the breadth of knowledge sharing (Alavi and Leidner 2001). The amount of shared knowledge space required is uncertain, but socialisation which leads to shared beliefs, background, context, and culture, can be aided by information systems (IS) such as email, intranets, the Internet, and social connections between friends, family and colleagues. This paper also suggests that use of email, intranets, the Internet, and social networking sites (SNSs) for personal and informal communication is important in creating shared beliefs, background, friendships, and shared knowledge space for knowledge transfer and transformation, which is a requirement for innovation. Such personal use of IS is part of developing a knowledge-intensive culture encouraging behaviours that facilitate knowledge creation and knowledge sharing (Davenport and Prusak 1998). Further, Web 2.0 type technologies may be enable the creation of 'strong ties' in the absence of face-to-face contact.

Differentiating tacit from explicit knowledge (Nonaka 1994; Polyani 1962) is useful for distinguishing between the uses and roles of different ways in which IS can support knowledge management. Tacit knowledge comprises both cognitive and technical elements (Nonaka 1994). The cognitive element refers to an individual's mental models consisting of mental maps, beliefs, paradigms, and viewpoints. The technical component consists of concrete know-how, crafts, and skills that apply to a specific context. An example of tacit knowledge is knowing the best means of approaching a particular customer, for example, using flattery, hard sell, or a no-nonsense approach. Explicit knowledge is articulated, codified, and communicated in symbolic form and/or natural language, for example as it is in an electronic product manual. Alavi & Leidner (2001) find that the greater the shared knowledge space, the less contextual information is needed for sharing knowledge, the higher the value of explicit knowledge, and the greater the role of IS in supporting knowledge management. Conversely, the smaller the shared knowledge space, the greater the need for contextual information, the greater the value of tacit knowledge, and the lower the role for IS in knowledge management. However, although the role of IS in knowledge management may be less when dealing with sharing tacit knowledge, the role of IS in supporting informal communication to support socialisation, shared beliefs, context, and knowledge to aid the sharing of tacit knowledge may be higher. Either way there is an IS role: to directly support knowledge management in the form of directories, databases, and other technical systems developed to support and enhance knowledge creation, storage, retrieval, transfer, and application (Alavi and Leidner 2001; Davenport and Prusak 1998); or in the form of technology-supported communication to develop the 'weak ties' (Granovetter 1973) that lead to greater breadth of shared knowledge.

The need for balance

The paper considers the question: what should organisations do? Some are banning Web 2.0 technologies in the workplace and trying to make a clear distinction between work and home. But with more home working and the rise of 'third spaces' such as Internet cafes where work is carried out, managing this distinction is difficult. It is also hard to separate work and social activity since much work substance comes out of social and chance encounters and a social network is needed to support the formal network and business activity. However, balance is needed, though striking the right balance may well be difficult. This need for balance is identified in complex adaptive systems theory. Volberda and Lewin (2003) claim that 'the long-term survival of an organization depends on its ability to engage in enough exploitation to ensure the organization's current viability and engage in enough exploration to ensure its future viability' (p. 2127). Exploration and exploitation need to be co-present and must operate simultaneously such that organizations avoid being 'mired in the past' but not so over-enamoured with the future that they waste time over-planning it (Brown and Eisenhardt 1998). Organizations that focus on the past and exploitation become trapped but those that forget the past are always starting from new and repeating their mistakes. Similarly, the formal knowledge network can be thought of as 'exploitation' of existing structures and the informal sharing as 'exploration' of the organization's knowledge network. This complex adaptive systems view indicates that both are needed but that an appropriate balance must be found. Thus, in agile software development teams time is set aside each day for studying to foster exploration, a necessary counter-balance to the work of producing working code (exploitation) (Vidgen and Wang 2006). Similarly, time and resources are needed if formal and informal knowledge creation and knowledge sharing are to be balanced effectively. For instance, an auto-dialler in a call centre can keep operators at full capacity with no time for socialisation. This is efficient in process terms (exploitation) but is not necessarily good for business as there is also a need to build social networks and promote the transfer of tacit knowledge (exploration).

Research Proposition

For organisational learning, knowledge transfer and KM it is important to allow shared knowledge spaces to develop in the form of informal inter-personal networks, friendships, and shared beliefs. While face-to-face communication is rich, enabling such informal networks to develop, technology-based communication can aid in building weak ties that support informal network development. Technological communications can include email, instant messaging, and the use of intranets and the Internet. For informal interpersonal networks, friendships, and shared beliefs to be built, face-to-face and technology-based communication is needed, particularly where people are not co-located in space and/or time. This research adopts a research proposition that personal use of technology-based informal communication is important in organisational learning, KM, knowledge creation and knowledge sharing.

As organisations exploit new technologies they require learning and knowledge transfer, indicated by experimentation and staff training, as well as formal and informal interpersonal networks to facilitate sharing of knowledge. This research proposes that organisations that are effectively exploiting new technologies engage in organisational learning, KM, knowledge creation and knowledge sharing by supporting and encouraging the formation of formal and informal interpersonal networks supported by the use of technology-based communication.

Research Design and Method

A multiple, in-depth case study approach is used here, consistent with the focus of obtaining rich data in a natural setting (Yin 1994). Data is gathered from interviews within each case. The contemporary nature of this research, and the availability of willing participants, means that case study is a practical option.

Case	Size	Research	E-learning	Distance / Local
1.	Large	Active	Active	Distance not a focus / local use of learning technology through virtual learning environment (VLE)
2.	Small	Active	Active	Distance not a focus / local use of learning technology through VLE
3.	Large	Active	Active	Mainstream distance courses plus local learning technology via VLE
4.	Large	Less active	Active	Delivers courses at distance via partners plus local learning technology through VLE
5.	Large	Active	Active	Solely distance learning
6.	Large	Less active	Active	Distance not a focus / local use of learning technology through VLE
7.	Small	Active	Active	Distance not a focus / local use of learning technology through VLE

This research is located in a contextual setting of e-learning in higher education (HE). E-learning in universities (or higher education institutions (HEIs)) is being exploited by similar organisations across a relatively homogeneous industry. E-learning involves new technology that requires new capabilities in the form of knowledge creation and knowledge sharing in the use of technology for teaching and learning (Laurillard 1993; Salmon 2000; Ward and Newlands 1998). A multiple case study using high and low performers with similar strategic positioning is adopted, with an interpretive approach providing rich data for understanding how organisations implement new technology. Performance measurement is standardised in the UK by virtue of government funding policy, and published rankings, used by students in choosing an HEI. While there may be some discussion, or dissent, about their appropriateness for funding decisions, or university choice, research universities nevertheless strive to compete on the basis of research assessment exercise (RAE) ratings, and a limited number of published rankings for postgraduate courses. This identifies case organisations operating at different levels of performance. Seven UK higher educational institutions were chosen (Table 1), two in the upper quartile of the national rankings, one mid, and two lower quartile cases, along with a distance-only institution, and an institute of higher education. This offered a wide range of institutional type and performance level. Each case organization is a research and teaching institution with undergraduate, and taught and research postgraduate, courses. All cases use learning technologies,

all have, to a differing extent, study programmes delivered at a distance. One is purely distance learning, while the rest are traditional campus-based institutions.

Principal actors in each case were interviewed. These actors were all academic staff, or learning technology support workers within the case organizations. Research by Walsh and Linton (2001) and Marino (1996) was used to build an interview framework in the form of a questionnaire, but interviews were semi-structured, allowing freedom for discussion. Interviewees were users of learning technologies, or actors in a decision-making position who were in a position to influence the use of learning technology. All interviewees discussed the use of learning technology in terms of what they perceived to be its most important elements, and the implications. Interviews were recorded and transcribed. Transcriptions were coded and entered into NVivo, a qualitative analysis tool, to aid analysis.

Findings and analysis

There is recognition that knowledge management is important. One interviewee stated that it was about *'allowing everybody to know where the successes and failures were of things that have been tried out in the university'*.

Formal networks

The development of formal networks was evident. One interviewee identified how these grow: *'We are gradually pulling people in and, of course, as they start to work with our materials and they see how we develop our materials and what we do, then that raises their level of understanding'*. The role of management in building networks is described by another interviewee: *'My job as Sub-Dean for Learning and Teaching Technologies, means that I have been pushing people in this direction'*, and by another: *'they are starting to bring [in] things like performance appraisals...they're encourage, trying to encourage the use of [the technology]'*. Technology support services also build networks: *'we run workshops, for example last May there was one on communication and collaboration, on-line communication and collaboration...that was advertised to all academics...across the university [geared] more towards people we were already in contact with than newbies to learning technology to be honest, and we had external speakers, we had speakers from inside who were already using learning technology'*.

Experimentation and staff training

There was extensive use of formal methods of knowledge transfer. One interviewee pointed out that not to do so resulted in ineffective technology exploitation: *'if you simply leave tutors and lecturers to work out for themselves how best to apply e-learning, it's not only not very efficient, it's not very effective'*. In most cases there was a process of learning how to use technology, improving its use, and passing on that knowledge to others, which can be described as experimentation. One of the interviewees outlined the process: *'we started experimenting with these sorts of things, we then went into getting new...sources of funding, then teaching and development funds really came into [their] own, and increasing amounts became available,...and we were able to then try all sorts of other little bits and pieces of innovation'*. There was staff development and training in the form of day courses in the use of the technology: *'the [teaching support service] provides a lot of workshops'*. There were also seminars: *'it's basically...training seminars, training events'*, including seminars by outside speakers and experienced users: *'we had speakers from inside who were already using learning technology'*, research projects resulting in conference papers and journal articles *'we've been doing a conference paper about the sort of things were looking at here'*, and individual support for users from learning technologists *'interaction with that individual as well, they're right on site, they can come in, they can ask questions, they can go off and play around with the stuff on their own'*. Other formal methods included development funding. One user received a fellowship to develop their use of the technology: *'what had happened was that I got a national teaching fellowship and they give you £50,000...to employ someone...As a result of that, I developed a new unit'*.

There were also informal methods of knowledge transfer. Some took the form of experienced users passing on their knowledge to novice users: *'we are still at the learning-from-pioneers stage'*. Some of it is a more general building on organisational experience: *'We have built up an experience of good practice, I guess, we know what works and we are building on that'*, and allowing a trickle-down of new knowledge: *'it then cascades down, doesn't it and becomes a...pedagogical method for the rest of the people in the department who don't know anything about on-line learning. They say well, show us how you do it and we will do it that way'*.

Informal networks

Informal networks can be built in a variety of ways. Enthusiasm and fun are factors: *'And that was terrific actually, absolutely terrific, they would be here until 9 o'clock at night dealing with issues...I think because it was so new as well [what] they were dealing with, it's always fun in a project isn't it?'* A lack of organisational strategy and a degree of autonomy also contributes to informal networks: *'there's no pressure...because there's no overarching strategy'*. Technology support services help to build informal networks: *'it may well be directing somebody to somebody who we've already dealt with who is doing something similar, so people aren't reinventing the wheel all the time, and so information-sharing [goes on]'*. Perhaps the most important aspect of exploiting new technology is emphasising that it is people who will use it, irrespective of the formal organisational pressures and strategies people must become comfortable with the technology: *'whatever we may want, or the powers that be may want...the fact remains we still [deal] with people, a lot of whom aren't even particularly IT literate, so...you also have to get across the fear factor, because a lot of people are just, not technophobes, but...they're all experts in their own areas, renowned experts in their areas, and to find that there is perhaps a deficit in the knowledge, I think that's a little threatening for some people, so it's gonna be slow but gradual'*.

The findings are extensive, as is common with case research (Eisenhardt 1989), and only a sample are provided here, but there is evidence of experimentation, staff training, formal and informal networks, and an appreciation that the human element in knowledge transfer and transformation is important. Specialists, even world-renowned in one field, may have difficulty in acquiring new knowledge from a new area.

Conclusions and research plan

This research suggests that organisations that are successfully managing organisational learning, KM, knowledge creation and knowledge sharing, do use technology-based informal communication. The kind of knowledge that was created and shared requires further exploration and definition in the next series of case studies to be conducted. Experimentation, staff training, formal and informal networks suggest that there is a need for formal and informal communication. Recognition of the human element in knowledge transfer, such as the fear of new technology and the motivation of having fun, suggests that for organisations to effectively manage the transfer and transformation of knowledge and the building of knowledge-based resources, they must encourage and support informal communication. The view that all activity must contribute to immediate and measurable output may jeopardise activities that lead to the development of knowledge-based resources that ultimately deliver competitive advantage. If shared beliefs, friendships, and a shared knowledge space are to be built, informal communications may need to be linked to shared beliefs, friendships, and a shared knowledge space outside of the organisation - the assumption that people can easily differentiate between intra-organisational relationships and extra-organisational remains untested.

There are a number of limitations to this study. First, the case organisations are HEIs and thus may not be typical of non-academic organisations. Second, it was not possible to establish how the case organisations went about determining the explore/exploit balance. We suspect that this was either not done at all or that it was done ad hoc without thought for the wider consequences. Regardless, further data is needed on the role of explore/exploit in KM. Third, due to the nature of qualitative case study methodology the findings may not be generalisable. Fourth, in order for the time and space for informal networking to take place there may be a need for organisational slack to be created: this will need to be further examined in future case studies. The opportunities for further research must therefore include the option of further case studies in other organisations, as well as broader research in less depth, perhaps using survey, to develop a better understanding of these phenomena in different industries and across many organisations.

If informal networks are an important aspect of knowledge creation and sharing then information technologies that support informal communication, such as email, blogs, and social networking sites must have a role to play in the creation and sustaining of organizational knowledge assets. Rather than prohibit the use of such technologies in the workplace organizations should welcome and support the use of such technologies. However, for this knowledge strategy to be successful the organization must strike a balance between exploitation of knowledge resources and exploration. Banning the use of social networking sites in the workplace may be counter-productive but so would unfettered and unconstrained access. Future research is thus concerned with how organizations can monitor and manage the tension between the formal (exploit) and the informal (explore) knowledge networks.

This further research will use case studies located in an industry setting and it will follow three distinct strands: what type of knowledge is being shared in informal networks? What is the role of technology in supporting informal networks? How can the balance of formal/exploit and informal/explore be managed in knowledge creation and sharing? The typology of knowledge created in informal networks will draw on the work of Matusik and Hill (1998) and Spender (1996). In addition to tacit and explicit knowledge, Matusik and Hill distinguish between *individual* and *collective* knowledge, between *private* and *public*, between *component* (knowing about the elements) and *architectural* (knowing about the whole) knowledge. Public knowledge resides in the public domain, while private knowledge is organization-specific. Component knowledge relates to discrete aspects of operations and may be held individually or collectively. Matusik and Hill suggest component knowledge may have public and private elements. Architectural knowledge relates to organisational-wide routines for co-ordinating components and, as it covers the whole organization, it is held collectively. Spender (1996) contends that implicit and explicit knowledge can be dichotomised into *individual* and *social*. Individual explicit knowledge is *conscious*, and individual implicit knowledge is seen as *automatic*. Social explicit knowledge is *objectified*, while social implicit knowledge is *collective*. This leads to four knowledge types – *conscious*, *automatic*, *objectified* and *collective*. The second strand of the research will identify the technologies used in informal knowledge creation and sharing and consider explicitly the opportunities and pitfalls of Web 2.0 technology use in organizations. Thirdly, the research will explore the tension between formal and informal knowledge creation and sharing from an exploit/explore perspective and endeavour to elicit lessons and best practice in this area.

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