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The Role of Informal Groups in Organisational Knowledge Work: Understanding an Emerging Community of Practice

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ABSTRACT

Research has focused on formal and informal groups playing a significant role in organisational knowledge sharing. The concept of the Community of Practice (CoP) has emerged as one such form and has attracted the attention of researchers. This paper reports the initial stages of an ongoing study of an emerging CoP. Specifically, we report the initial stage of a longer-term action research study, investigating how individuals within an informal group in a knowledge intensive organisation perceive themselves, including whether they display the characteristics commonly attributed to a CoP (Wenger, 1998) and how their shared practice might be related to knowledge work. Furthermore, reflecting upon the results reported we capture, in a model, how an emerging CoP might contribute to Knowledge Management (KM) in a knowledge intensive organisation, linking top-down and bottom-up KM strategies.

Keywords: communities of practice; group dynamics; knowledge management; knowledge strategies; knowledge work

INTRODUCTION

“Knowledge is always changing. For the moment the best approach to managing it is one that keeps things moving” (Allee, 1997, p. 72). In the past few years there has been a growing interest in turning knowledge into a significant organisational resource, as organisational and managerial practices become increasingly knowledge-focused (Alavi & Leidner, 2001). A growing literature reports a tendency to knowledge work in organisations, highlighting the associated challenges of exploiting the notion of power = knowledge in a collaborative sense, to the advantage of the organisation and to reduce knowledge hoarding of individuals (Lichtenstein & Hunter, 2004). It appears that...
both cooperation and collaboration are the keys to effective and efficient knowledge utilisation, expansion and distribution in the organisation.

One stream of research has focused on formal and informal groups playing a significant role in organisational knowledge sharing. The concept of the CoP has emerged as one such form of a group and has attracted the attention of researchers. CoPs are groups of people informally bound together by a shared practice and a passion for a joint enterprise (Wenger & Snyder, 1999). The CoP is a social construct, characterised as a social group that shares common objectives but which is not necessarily structured as an organisational unit.

Investigations of CoPs have found these structures to be highly receptive to knowledge sharing and innovation. Whilst some barriers to knowledge sharing have been identified, CoPs thrive through the open and free sharing of knowledge (Ardichvili, Page, & Wentling, 2003), and can be sources of innovation that is highly valued by organisations (Brown & Duguid, 1991). CoPs tend to emerge naturally, but often exist initially as relatively ineffective communities requiring support to realise their potential (McMaster, 2001). It has been suggested by some researchers that a firm can be viewed as a distributed knowledge system (Tsoukas, 1996) and therefore as an organisation of CoPs. In accord with this view, we investigate further the role of CoPs in organisational knowledge work.

In this paper we report the initial stages of an ongoing study of what we refer to as an emerging CoP. In particular, we investigate how individuals within an informal group in a knowledge intensive organisation perceive themselves, including whether they display the characteristics commonly attributed to a CoP (Wenger, 1998) and how their shared practice might be related to knowledge work. Furthermore, we report initial work towards a model of how such an emerging CoP might contribute to Knowledge Management (KM) in a knowledge intensive organisation.

The three key questions we focus upon in this paper are:

- How might an emerging CoP be characterised in an organisation?
- What organisational issues arise from the identification of an emerging CoP and how might their shared practice be related to knowledge work?
- How do members of an emerging CoP perceive their place in the wider organisation and in particular how might this relate to top-down and bottom-up KM strategies and to facilitating communication between organisational leaders and CoP members?

The remaining sections of this paper are structured as follows. We first present a background discussion of the growth and changing nature of knowledge work in organisations, outlining the emerging challenges of knowledge sharing. In addition, we provide a brief introduction to informal groups and CoPs, building a link between CoPs and KM by relating CoPs to bottom-up and top-down approaches to KM. Next, we present a brief overview of the organisation under study and the research method adopted. The following section reports the results of the present research, organised according to the three questions noted previously. Finally, we summarise our findings and present some matters for future research.

BACKGROUND

The Growth and Changing Nature of Knowledge Work in Organisations

“The people are the company” is the title Brown and Gray (1995) give to their article, recognising that it is organisation staff who create processes and structure work by implementing their own practices (Brown & Gray, 1995). In hierarchical manufacturing organisations, knowledge is processed largely at management levels. Drucker (1988, 1992, 1999) observes, however, that there is a growing tendency to knowledge work at “lower levels” of the organisation and anticipates that management levels will be reduced and “lower level” knowledge workers will receive increased
decision-making authority (Drucker, 1988, 1992, 1999). Knowledge is distributed over the organisation in a much broader sense, and knowledge workers need to be connected in order to transform individual knowledge to a collective mind (Cecez-Kecmanovic, 2004; Tsoukas, 1996).

Knowledge work can be characterised in various ways. Schultzze defines knowledge work as the production and reproduction of information and knowledge, manipulation of abstractions and symbols that represent the world and objects in the world (Schultzze, 2000). She stresses that knowledge work is not about routinisation, but involves creativity and generally requires formal education. Ivani and Linger (1999) take this further, analysing knowledge work through the lens of collaboration, where group knowledge work activities produce substantial tacit knowledge (Ivani & Linger, 1999; Raelin, 1997).

Knowledge in organisations is “embodied, embodied, engendered, embedded and encoded” (Blackler, 1995). To ensure that the organisation “knows what it knows”, effective knowledge sharing is essential; however, for various reasons knowledge is not easily shared in organisations, due, for example, to motivational or cognitive limitations (Hinds & Pfeffer, 2003). Various authors recognise barriers, such as the ignorance of either source or recipient, lack of absorptive capacity, and lack of relationship (McDermott & O’Dell, 2001; O’Dell & Grayson, 1998) as well as motivational disposition (Gupta & Govindarajan, 2000). Other concerns for KM include a too strong focus on information technology (IT) (Fahey & Prusak, 1998; McDermott, 1999b) and restriction of work practices, such as work manuals dictating a canonical practice (Brown & Duguid, 1991; Raelin, 1997).

The Role of Communities of Practice in Organisations

Research has focused on formal and informal groups playing a significant role in organisational knowledge sharing. Formal group structures, such as task forces, project and work teams, focus strongly on a purpose or task to be accomplished and often only exist for the period of the project or until the next restructure (Wenger, 2000). On the other hand, in informal or social structures actors tend to be weakly tied to one another (Granovetter, 1973), connecting only if there is a particular need (e.g., information exchange) (Wenger & Snyder, 1999).

The concept of CoP combines some aspects of formal and informal groups, adding the dimensions of knowledge, social interaction, and shared practice. Community has been defined as a web of relationships, a self-sustaining system exhibiting “systemic” behaviour. Community is viewed not as a place, but as a “process of becoming” (Stevenson & Hamilton, 2001). While the consultation of co-workers for work related advice has been widely recognised in social network theory literature (Cross, Borgatti, & Parker, 2001), its importance has been highlighted in particular by Lave and Wenger (1991) who coined the term “Community of Practice”. They related the notion of a CoP to the familiar concept of learning in traditional apprenticeships (Lave & Wenger, 1991). Researchers have further developed the CoP concept recognising characteristics such as: knowledge sharing and learning (Lesser & Storck, 2001; McDermott, 1999a), commitment to others (Kofman & Senge, 1993), and honest communication (Judge, Fryxell, & Dooley, 1997).

CoPs may be a means of addressing some of the well known problems of knowledge sharing in organisations. One such problem is dealing with tacit knowledge in the form of know-how. Because know-how is generated in practice and embedded in people it is inseparable from practice or people (Orlikowski, 2002; Spender, 1996b), and individual knowledge processes cannot be separated from their social context (Spender, 1996b). This kind of knowledge is costly to acquire, transfer, and use, and has consequently been termed “sticky” (Szulanski, 1996; von Hippel, 1994). CoPs usually emerge naturally, rather than being built on purpose. Members interact informally, learn together, solve problems together and by so do-
ing attempt to improve their practice. It is because they share a common practice, that they also share an understanding of this practice and use a common language that enables the sharing of know-how.

A second issue is trust. Knowledge is most easily shared when there is a pre-existing trust relationship between provider and recipient (Lichtenstein & Hunter, 2004; van den Hooff et al., 2003) — trust on the provider’s side, that the information passed on will not be abused in any way and trust on the recipient’s side, that information received is valid, correct, accurate, and so on. Informal groups such as CoPs may offer such a safe trusting environment. Social interaction and a shared background and history build trust between members of a CoP, an environment where they feel safe to share their expertise as well as their experiences of failing. Linger and Warne (2001) emphasise this aspect in their models of social learning. They identify “effectors”, motivators and enablers, as the foundation and building material of such groups, as well as challengers and inhibitors that have an adverse impact on CoPs (Linger & Warne, 2001). This might be linked to the concept of energisers and de-energisers in the context of the personality attributes of people in a social network (in this case a subgroup in the form of a CoP) as described by Cross and Parker (2004). Because of their commitment to others, members of a CoP admit their failures so preventing others going through the same experiences. It is also because of their commitment to the shared practice that they work at improving their practice, and creating common practices which might even develop into best practices.

Galliers (2004) sees nurturing CoPs as part of a collaborative business strategy, assisting change management where they are part of an emergent exploration strategy (bottom-up) together with a deliberate exploitation strategy (top-down), which focuses on codified solutions and standardised procedures and rules. Burstien and Linger (2003) describe a bottom-up approach to KM concentrating on a task-based model that incorporates both individual and organisational levels.

It is not surprising that business consultants adopted the CoP concept quickly, advocating building CoPs from scratch and the formalisation of purpose and goals for strategic and competitive advantage (Saint-Onge & Wallace, 2003; Wenger, McDermott, & Snyder, 2002), trying to squeeze the concept into top-down KM efforts where managers dictate who should socialise and share knowledge with whom. Stamps (1997) puts it very nicely: “The community of practice needs to do the work it thinks it needs to do, not the work some guy in a suit tells it to do” (Stamps, 1997). Spender (1996b) in his model of “the movement of distressed firms”, describes situations where self-regulating collective practice is disturbed by organisational leaders, who impose rules without meaning on organisation members. Over time, organisational members establish new meaning to go with those rules, and a new stable pattern of collective knowledge returns.

Thinking and knowledge is something that can neither be controlled nor forced. In terms of ownership, organisations like to think that they own their employees’ knowledge, seeing it as an intangible asset (Teece, 1998). In fact, Spender (1996b) suggests that “a purely economic analysis might overlook aspects like knowledge being ‘non-rivalrous’ or ‘public’ good, whose quantity and value is not diminished by sharing with others.”

Spender (1996a) argues that an organisation might be seen as an activity system, where “individual learning must be considered in the context of processes of the social entity that relies on that individual as its active ‘agent’”. Therefore “individuals are only

Knowledge Strategies in Organisations:
Top-Down vs. Bottom-Up

While CoPs grow naturally from the bottom up (Fontaine, 2001), building trust relationships as a prerequisite for knowledge sharing, they need to be nurtured from the top down (McDermott, 1999a; Spender, 1996b) for the organisation to get the most from them.
proficient when they are ‘socialised’ into an organisation and they have acquired much of the collective knowledge underpinning the way things are done around here”. Tsoukas (1996) supports this in his studies of the “firm as a distributed knowledge system”, stating that “knowledge is dispersed and cannot be concentrated in a single mind, nor can a single mind specify in advance what kind of practical knowledge is going to be relevant, when and where”. He concludes that “coordinated action does not so much depend on those ‘higher-up’ collecting more and more knowledge, as on those ‘lower-down’ finding more and more ways of getting connected and interrelating the knowledge each one has”.

In summary, the emerging understanding in the extant literature is that top-down KM strategies must nurture bottom-up action which supports staff connecting and interrelating the knowledge each has. These concepts will be discussed further in relation to the informal group under study and the development of a model of the role of CoPs in organisational KM.

METHOD

The research reported in this paper is part of a long-term Action Research (AR) project as described in an earlier publication (Koegelreiter, Smith, & Torlina, 2005).

The subjects participating in the study are members of a currently informally constituted group of academic staff which delivers tertiary educational programmes in information systems (IS) development technologies in a school at an Australian University. Thirteen academic and general staff have been identified as being members of the “potential CoP” of educators with a focus on IS development technologies (i.e., lecturers in systems implementation, database design, technical infrastructure as well as staff who had expressed interest in technical areas to us). It should be noted that the core members of this informal group have worked closely together for a number of years. Further, although not formally designated as a “group” by management, they share substantial common domain knowledge, have a history of social interaction within the workplace, and shared practice.

The approach taken has been to run a series of workshops for this group, culminating in a workshop focused on them sharing aspects of their practice, knowledge work, and working lives. Specifically, participants in this series of workshops, and in particular in the final workshop, were given the opportunity to share and seek feedback on their recent projects and activities as well as “engaging in an open dialogue that is based on inquiry and reflection” as suggested by Linger and Warne (2001). Following the workshops, semi-structured interviews were conducted with each participant (see subsequent paragraphs). It should be noted that, in terms of the ongoing AR research programme involving this group, the work reported herein is seen as a base-lining exercise upon which future interventions will be built.

Specifically, all 13 staff identified as potential members of the CoP were invited to participate in the final workshop, with five accepting the invitation. A three hour focussed workshop was conducted, bringing the group members together with the intention of mutual update on the work interests and responsibilities of individual members. We saw this final workshop as a mechanism to stimulate discussion in the subsequent interviews of how members of the embryonic CoP perceive themselves and the “group”, and its place within the wider organisation as well as its contribution to organisational KM.

Following the final workshop, which was audio recorded for analysis, each of the five were interviewed, focusing on the individual’s perceptions of the existence, membership, and role played by the embryonic CoP. Semi-structured interview questions addressed each participant’s understanding of the CoP concept and whether participants identified themselves as being part of a CoP, purpose and goals of this CoP, benefits to the individual CoP member as well as to the wider organisation, expansion of membership and group dynamics, social aspects and resource considerations. Audio recordings of those interviews were subsequently tran-
scribed and were subjected to inductive qualitative content analysis techniques (Mayring, 2000).

A three-step approach to characterising the CoP was developed. Firstly, analysis concentrated on indicators that the participants exhibited behaviours or expressed opinions which might be aligned with Wenger’s characteristics for a group to qualify as a CoP. These are specifically:

- The group can be seen as a joint enterprise as understood and continually renegotiated by its members;
- The group functions with mutual engagement that binds members together into a social entity; and
- The group produces a shared repertoire of communal resources (Wenger, 1998).

Secondly, issues arising from the analysis of the group’s characteristics and its self-identification with the concept of the CoP were addressed in turn, with reference to the wider literature on knowledge work. The implications for organisational knowledge work were discussed. Finally, the interview data was revisited to identify the perceptions of group members concerning their role in the wider organisation. This analysis was situated against, and informed the development of a model of the role of CoPs in organisational KM.

RESULTS AND DISCUSSION

We now report the results of the present research in three parts: characteristics of the informal group; issues arising and implications for organisational knowledge management; and results related to the potential for this CoP to contribute to organisational knowledge management.

In all of the following, those who attended the workshop and participated will be referred to as participants P1-5. Of these, P2, P3 and P4 have from 5 to 10 years involvement working together in teaching software development. Participant P5 commenced with the group one year ago and P1 has been interacting with the group for approximately three months. Also identified in the results that follow is N3, a member of the potential CoP, with developing connections to the group. A more complete description of the group members has been reported by Koeglreiter et al. (2005).

Characteristics of the Informal Group

Details of the initial characterisation of the group have been reported by Koeglreiter et al. (2005). However, as this provides an important context for the further results reported in the sections, “Issues Arising and Implications for Organisational Knowledge Management” and “Understanding the Potential of this CoP to Contribute to Organisational Knowledge Management”, we briefly summarise those results. Specifically, we summarise results extracted from transcriptions of the interviews that followed the workshop, grouped according to their relevance to the participants’ awareness of the CoP concept, and Wenger’s (1998) characteristics of CoPs.

Awareness of the Concept of a CoP

The interviews with the five participants focused initially on the creation of community awareness amongst the participants, seeking insight into whether they were aware of the CoP concept. Whilst only P4 indicated that he was familiar with the concept of Communities of Practice, all were able to identify their situation, as a group, with Wenger’s CoP elements, as explored further in subsequent paragraphs.

Identification with the CoP Concept

We put to the participants various elements related to Wenger’s characteristics of a CoP, asking whether they felt that their situation as a group exhibited any of those elements.

The group can be seen as a joint enterprise as understood and continually renegotiated by its members. Drawing upon the interview transcripts it was apparent that:
• All of the participants agreed that they constituted, in part at least, an identifiable group. In doing this, they identified the group using different titles related to their shared practice, such as the “group of programmers”, the “Web group”, and the “implementation group”.

• The notion of a joint enterprise underpinned discussion about committing to a group purpose or goal. When discussing this, all participants agreed that there should not be a formal, specific goal. Individuals might share very broad goals like exchanging knowledge, ad hoc problem solving, and keeping abreast of new technology, but it was anticipated that formalisation might change group dynamics.

• A dimension of the notion of renegotiation emerged when it came to discussing matters related to expanding the group. Specifically, strong concerns were raised when it was suggested that there might be an expansion of the invitation of participation to the wider organisation. It became clear that each individual group member would want to be involved in major decisions such as expansion of the group, to ensure that new participants would fit the culture of the group.

• It was also suggested that the social balance might be affected by potential new members bringing political issues or being in positions of power.

The group functions with mutual engagement that binds members together into a social entity. The concept of mutual engagement arose in a number of contexts, including:

• The importance of having relevant expert knowledge as a requirement for a person to continue as part of the group.

• The social dimension, both in terms of friendship, and being involved in engagement by debate.

• The notion of roles within the CoP. Participants initially emphasised informality and equality—a view that everyone should hold the same position/role within the group—however, roles like contributor, workshop convener, group leader, passive member, or champion for technical solutions, emerged.

Recognition of the group as a social entity was reflected in particular in the comments of more senior group members, who argued strongly the existence of social relationships, including the observation that a subset of those attending the workshop is already recognised as a group within the school, as they regularly have lunch and coffee together at which time they often talk about matters related to work.

The group produces a shared repertoire of communal resources. Finally, individuals were asked whether they saw themselves having communal resources, or whether benefits might accrue from the building of such resources. In this regard, a number of examples emerged, including:

• The operation of the workshops was highly valued and a recently established meeting room within the school was also positively acknowledged.

• The notion of a technical library was also discussed and deemed useful, as was a possible shared resources repository on a Web site.

• Some participants expressed a feeling of restriction in their workshops at present due to constraints upon the use of centrally supplied technical resources. The notion of a technical “playroom” was raised as a means of addressing this (see discussion in the following section).

Issues Arising and Implications for Organisational Knowledge Management

Arising from the initial analysis given earlier, four inter-related issues emerge relevant to knowledge work of the group and knowledge management within the organisation un-
under study. These are specifically: group boundaries, the role of trust, facilitating communication, and shared resources. Indicative exhibits extracted from the interview transcripts relevant to these issues are presented in Appendix I.

**Group Boundaries (see Appendix I)**

When confronted with the possibility of expanding CoP membership, colleagues from within the school were readily welcomed, but those from other areas of the organisation (outside the school) were initially rejected. Group boundaries were considered a sensitive matter, which might affect adversely knowledge work within the CoP. In the course of the interviews it emerged that these concerns had their origin in organisational politics and balance of power issues within the group.

Participants were able to identify specific organisational issues—reasons why “outsiders” might not be welcome. Specifically, the school to which the present participants belong is in what might be perceived as competition with other schools/departments with potential CoP members. A conflict of interest may arise, if staff from those other schools/departments were to join the CoP (Exhibit 1). Even when conflict of interest situations didn’t arise, concerns were expressed that problems may arise by bringing in people from outside the immediate school, because of the constraints this might place on discussions of issues that might be primarily departmentally relevant (Exhibit 2).

Concerns were expressed also that, whether from inside or outside the school, membership might go to people in positions of authority who might hold what is perceived as a position of political strength, so making CoP members feel constrained or inhibited to speak openly. In this regard, Nguyen et al. (2004) distinguish between two types of leadership and power in their described virtual community: firstly, formally accepted leaders in formal positions and secondly, informal leaders, who tend to be people with strong personality (Nguyen et al., 2004). New CoP members of both types might be viewed with concern by the existing core CoP even if they possess deep knowledge in specific areas. Indeed, Myers and Young (1997), state that “everyone has an agenda” and what is emerging in the interviews is a concern that organisational leaders (possibly formal and informal) might pursue their own agendas within the CoP (Myers & Young, 1997) (Exhibit 3).

Emerging also from the interviews are issues related to the notion of bottom-up KM. In the group under study there is no evidence of recognition within the group of leaders (either formal or informal). The operations of the group are characterised by open dialogue with the only apparent goal being the improvement of practice through informal feedback. Information passed by group members to higher organisational management or other outsiders goes through a process of testing for usefulness, correctness and completeness with peers. As such, only what might be termed “verified knowledge” passes to other areas of the organisation.

**The Role of Trust (see Appendix I)**

Besides the practice that CoP members share, social relationships evolve from like-mindedness (e.g., technical background, the form of communication — in particular the selection of words, approaches to problem solving, or a similar sense of humour), which allows for open communication. Like-minded work colleagues provide a safe environment, where individuals feel comfortable in sharing their expertise, ideas and possibly some aspects of their personal lives. Lesser and Storck (2001) have linked this kind of social capital to business outcomes, and insist that trust relationships are essential for CoPs to function. This kind of trust is based on benevolence, where members of a CoP do not feel threatened or vulnerable when asking a question of their CoP colleagues, and so can learn and grow in the CoP environment (Cross & Parker, 2004). The alternative, competence-based trust is focussed upon people’s ability, expertise, and competence to do a job and know what they are talking about (Cross & Parker, 2004).
The interviewees highlighted the importance of trust not only within the CoP, but on an organisational level as well. A level of distrust expressed by some CoP members of other schools/departments within the organisation might be interpreted as an indication that those schools/departments were actually seen as outsiders/competitors/threats. In fact, those other schools/departments within this organisation are managed independently. Some are strictly hierarchical and therefore enact a different organisational culture. The CoP still keeps connection to those other schools/departments via individual informal relationships, which might be based on personally established relationships, work-related common interests, historical background, or previous formal relationships (Exhibit 4).

While CoP members had initially rejected outsiders, specific organisation members were later identified, who might be accepted at least on a neutral level, because they had something useful and new to contribute. Interestingly, those CoP members who have been with the group and organisation for a relatively long time are those who most openly expressed concerns about the expansion of the group, possibly suggesting that this may be related to memories held of tensions between various organisational entities over a number of years (Exhibits 1-3).

An absence of trust not only inhibits the growth of the group and its capacity to enter new knowledge terrain, but also stops knowledge flowing to the rest of the organisation on all hierarchical levels. This might result in duplicating efforts (different departments doing the same thing). This CoP enacts many of the 10 actions for building and maintaining trust in relationships as suggested by Cross and Parker (2004): They act with discretion; they match words and deeds and avoid hidden agenda; they communicate often and well; they have established and continually renegotiate a shared vision and language; they indicate knowledge domain boundaries and admit failures or what they don’t know; and they have non-work-related commonalities — to name just a few.

Facilitating Communication (see Appendix 1)

While CoPs have been observed to function in a variety of ways, the role of electronic communication has emerged as an important factor in the operation of coherent CoPs in the contemporary organisation (Eales, 2003; Marshall, Shipman III, & McCall, 2000; Sharp, 1997). For example, communities which are focused upon shared technical expertise, can be supported by electronic means such as Internet newsgroups, digital libraries, and virtual forums (McLure, Wasko, & Faraj, 2000; Torkina & Lichtenstein, 2004) and video or audio conferencing and computer supported community ware (CSCW) (van den Hooff et al., 2003).

In the interviews, we observed that colocated CoP members are communicating more frequently (daily) in contrast to P5, who is located on a remote campus. CoP members only establish connection to P5 and vice versa via phone when really necessary, and in most cases in relation to formal work requirements rather than social interaction. This issue might be seen, in some sense, as a form of inequality of membership within the CoP, where modern communication technology is not able to overcome the social detachment of a remote CoP member (Exhibit 5). Face-to-face interaction is crucial for building group coherence. Travel costs and time constraints are a major issue, limiting P5 to full-day visits to the main campus that, when they occur, are usually packed with meetings so reducing the opportunity for socialising to a minimum. CoP members on the main campus have offered to travel to the remote campus for attending community events, because they value the contribution of P5.

Observation of staff on different campuses has shown that organisational culture on the two major campuses is quite different. P5 tends to communicate more with like-minded staff on his campus and limits communication with the rest of the CoP on the other campus to more formal occasions, which only happen infrequently. It is interesting, however, that the different views held by the person that is “not around all the time” (P5) apparently are appre-
ciated by group members as they refresh the interactions and view points in the community. While many organisations focus on technology to overcome the problem of distance communication, they at the same time try to save on travel costs and forget about the importance and richness of face-to-face interaction, which we see as essential to this CoP.

**Shared Resources (see Appendix 1)**

As emerged in the interviews, the notion of resources covered a number of things, including what would be, in Teigland’s (2000) terms, sources of knowledge embracing the provision of resources such as meeting rooms, hardware, and software to facilitate learning and experimentation. With regard to individual sources of knowledge, Teigland (2000) in his conceptual framework divides sources into organisation-internal and -external sources and tacit and codified sources. Internal and external sources both list CoP interaction, which can be interpreted as a tacit dimension and also codified sources such as company internal databases or the Internet (Teigland, 2000).

The CoP under investigation uses all aspects of internal and external sources. However, the nature of their work requires access to special technologies for their research and preparation of their teaching curricula. CoP members have raised as concerns a lack of specific resources and restriction in the use of their computing resources due to the formal management of the university’s technical infrastructure. Individuals have been working around this using their own test machines, but would appreciate a technical “playroom”, that is easily accessible and where the group might share those machines to enhance collaboration (Exhibit 6).

In addition, professional training offered by the organisation cannot cover the specialised knowledge needs of this CoP; members therefore would benefit from collaborative learning support. Those efforts might then be supported by electronic community memory support systems, such as collaborative tools for document organisation and manipulation or tools to support emergent, dynamic, exploratory interpretation, as suggested by Marshall et al. (2000).

Emerging also from the interviews are issues related to the notion of top-down KM (see the section “Knowledge Strategies in Organisations: Top-Down vs. Bottom-Up”). Consistent with classical (top-down) approaches to KM, this group would benefit from access to digital repositories of codified knowledge. One of the major frustrations of their further development, however, is an organisational policy on the configuration and control of technical system resources that constrains their ability to develop their own digital repositories of codified knowledge relevant specifically to their community that are under their direct and complete control.

**Understanding the Potential of this CoP to Contribute to Organisational Knowledge Management**

In this section we reflect upon issues raised in the section “Issues Arising and Implications for Organisational Knowledge Management” concerning the perceptions of those in this emerging group on how their activities are influenced by, and might contribute to Knowledge Management within the wider organisation. To facilitate this we review the top-down and bottom-up approaches to knowledge management discussed in the section “Knowledge Strategies in Organisations: Top-Down vs. Bottom-Up” and adapt the model of Tortlina and Lichtenstein (2004), which reflects upon the role of informal groups in organisational knowledge work. The adapted model is shown in Figure 1 and represents a view of how CoPs might contribute to organisational Knowledge Management. In the remainder of this section we discuss this model and briefly report feedback from some of the group participants in the light of this model, this being supported by indicative exhibits in Appendix 2.

Top-down KM assumes that organisational leaders (i.e. managers) are the knowledge workers and formally introduce strategies to manage organisational knowledge.
Organisational leaders are usually concerned with setting goals, evaluation, and regulation. The self-regulated CoP on the other hand is concerned with the execution of lower level knowledge work, such as building social relationships and sharing expertise. This model suggests that management activities should happen in consultation with relevant CoPs, who informally have been managing knowledge as part of their day-to-day collaborative knowledge work. It should be noted that despite possible feelings of intimidation (Exhibit 1) there is evidence that members of the CoP under study acknowledge their capacity to contribute to organisational decision making (Exhibit 2). Many organisations adhere to hierarchical structures, where management directs what the worker (CoP) should do, sometimes even how to do it, and the worker reports back on progress and results. Organisational leaders sometimes embark on formal collaboration with other organisations, whereas the interaction of a CoP with externals seeks to obtain advice and form opinions on specific problems via an informal advice network and process (Exhibit 3). This might go as far as extending membership of the CoP to those external people, even though they might work for a competitor. Since the nature of work in modern organisations has been shifting increasingly
towards knowledge work, it cannot be restricted to management and decision-makers only (Drucker, 1988; Iivari & Linger, 1999), where every individual worker is seen as a knowledge worker and potentially part of a CoP. The “Knowledge Work” component in Figure 1 therefore incorporates the task based model of knowledge work of Burstein and Linger (2003), where the task is located within a space defined by doing/thinking/communicating. In this paper we particularly focus on the conceptual layer, which is about the “actor’s understanding of a task in terms of a model of the structure of their knowledge and a model of their knowledge of the process required to perform the task” (Burstein & Linger, 2003, p. 301). Technologies used as part of the “Knowledge Work Support System” of the CoP under study are email, the online teaching and learning environment and shared storage spaces. The actual documentation of experiences is currently largely communicated verbally by means of story-telling.

Knowledge work basically requires resources and creates outcomes. Those outcomes feed back into resources contributing to knowledge creation in some form. This cycle is applicable to both the knowledge work of managers and the CoP. It should be noted, however, that they differ in the type of resources used and outcomes produced.

A further important aspect of the organisational KM model we propose is the relationship between the CoP and organisational leaders. While the classical formal relationship of directing and reporting exists, CoP members who were interviewed expressed a desire for an informal connection to leaders, receiving informal feedback (i.e., acknowledgment) as well as providing feedback to leaders (i.e., advice on support that might be necessary for the everyday knowledge work of CoP members, and at the same time underpin organisational decisions). Grant (1996) states: “When managers know only a fraction of what their subordinates know and tacit knowledge cannot be transferred upwards, then coordination by hierarchy is inefficient” (Grant, 1996).

We would observe that these kinds of situations can be frustrating and de-motivating for members of the CoP (Exhibit 4).

So, at the heart of the model are organisational leaders and CoPs conducting their knowledge work somewhat independently, with the primary interaction being via processes of directing and reporting. Ideally, therefore, the outcomes and details of a CoP’s work should be shared with the organisational leaders, while outcomes of the managers’ knowledge work should inform the development of knowledge resources by the CoP (Exhibit 5). This important open communication relationship is depicted by the feedback double arrow between organisational leaders and CoPs in Figure 1. This is where top-down KM and bottom-up KM meet (Galliers, 2004), and where top-down KM strategies can be developed which nurture bottom-up action (see the section “Knowledge Strategies in Organisations: Top-Down vs. Bottom-Up”). This link is often poorly developed in organisational practices however, and consequently open knowledge flows between CoPs and organisational leaders are often absent, or not valued by an organisation as a part of its KM strategy. This is reflected in Exhibit 5, where P2 observes that formal feedback mechanisms are not working satisfactorily. In this regard, it is encouraging that the CoP members interviewed in this study expressed confidence in their ability to contribute to the wider organisation by their produced outcomes (Exhibit 6). This CoP continuously spawns new ideas not only to improve its shared practice but also improvements of the practice of the organisation in general and by innovation of new techniques.

CONCLUSION AND OUTLOOK

In this paper we have reported the initial stage of a longer-term action research study, investigating how individuals within an informal group in a knowledge intensive organisation perceive themselves, including whether they display the characteristics commonly attributed to a CoP and how their shared practice might be related to knowledge work.
Furthermore, reflecting upon the results reported we have captured, in a model, how an emerging CoP might contribute to Knowledge Management (KM) in a knowledge intensive organisation, linking top-down and bottom-up KM strategies. Specifically:

1. The design and exercise of an instrument for providing an initial characterisation of an informal group in terms of Wenger's elements of a CoP, has been completed. Initial action, in the form of a workshop to promote an exchange of information concerning aspects of current work, has been used to stimulate and focus subsequent one-on-one interviews with the workshop participants, concerning their appreciation of CoP concepts and the relevance of those ideas to the present situation in their group. Analysis of the collected interview transcripts against Wenger's three characteristics of a CoP has proven a useful means of identifying the current situation of the group as an emerging CoP. Finally a two stage reflection process, built upon the preceding transcript analysis, has focused in turn upon issues relevant to the operation of group members as knowledge workers, and the perceptions of those in the group of their place as knowledge workers in the wider organisation.

2. Reflection upon issues relevant to the operation of group members has highlighted a number of concerns, each of which illustrates existing themes in the extant Knowledge Management literature, including: knowledge sharing across boundaries, trust as the basis of knowledge sharing, facilitation of communication, and knowledge resources.

3. Reflection upon the perceptions of those in the group of their place in the wider organisation has supported the adaptation and enhancement of the model of Torlina and Lichtenstein (2004). In particular, the reflection has highlighted the importance of reconciling top-down and bottom-up Knowledge Management strategies, facilitating open communication between organisational leaders and CoP members.

The research completed has provided a foundation for ongoing study, in the action research mode, of this emerging CoP, focussing on issues surrounding the facilitation of its development. It is anticipated that future publications will report research with this group relevant to its supported growth, and in particular the investigation and refinement of the model of the role of CoPs in Organisational Knowledge Management that has been developed.

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REFERENCES


agement framework for supporting knowledge work. Information Technology & People, 16(3), 289-305.


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APPENDIX 1.

Indicative Exhibits from Interview Transcriptions, Related to Issues and Implications for Knowledge Work

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<thead>
<tr>
<th>Issue</th>
<th>No</th>
<th>Exhibit</th>
<th>Notes</th>
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</thead>
<tbody>
<tr>
<td>Boundaries: Different/ conflicting interests</td>
<td>1</td>
<td>“School/DepartmentY have got excellent people, that could come and we could talk. But whether the topics that we talk about would be relevant to them, I am not so sure. For example P4’s topic, would not be of interest to anyone apart from people who teach and develop unit materials. People from School/DepartmentY would not be interested in that topic. But then again, they may have been interested in the technology he was behind that, which was what he was explaining. So there may be those synergies there, so I would think, yes, we could expand the group but you would have to make sure you get the right people in. There would be political reasons stops from bringing certain people in that group from certain [schools/departments].” (P4)</td>
<td>P4 notes that the expanding the group boundaries beyond the school might not work because of different interests. He also suggests that conflicts of interest (‘political reasons’) might argue against some joining the group.</td>
</tr>
<tr>
<td>Boundaries: External members constrain discussion</td>
<td>2</td>
<td>“Then you carefully select your words whereas now you can say whatever you want to say and people will either agree or disagree with you. I suppose once that has happened, where it goes outside the school. No I don’t like it to go outside the school in the initial stages.” (P3)</td>
<td>Expansion of the CoP to staff within the school (potential CoP) is supported, but outsiders are not welcome at the initial stages.</td>
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<tr>
<td>Boundaries: Management/authority figures constrain discussion</td>
<td>3</td>
<td>“I think if they [School/DepartmentY] could be supportive of projects we are doing, they could offer genuine support to this CoP without preventing us from doing that sort of things that we see as important. It might depend very much who the individuals are. The School/DepartmentY managers I would see as inappropriate.” (P4)</td>
<td>Group members must offer genuine support to the shared practice, however management figures may constrain discussion and are considered “inappropriate” group members.</td>
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<td>Trust</td>
<td>4</td>
<td>“We have had groups in the past you have been part of that where we played murder mysteries — to me they are as much part of the CoP. When you get together and learn to trust each other on a social setting you learn to trust the people with the technical aspects as well.” (P2)</td>
<td>Pre-established relationships form a basis for informal work relationships.</td>
</tr>
<tr>
<td>Facilitating communication</td>
<td>5</td>
<td>“So, it’s those 3 or 4 hours are productive but it’s the only productive time you have got for the day, so you don’t want to be doing that on a regular basis, say every fortnight or every month, but if it’s 3 or 4 times a year, then it is certainly worth while. So if the group progresses, that these meetings happen more regularly, then I think we would have to look at some other type of, at least for some of the meetings, another type of whiteboard or some other solution.” (P5)</td>
<td>Face-to-face meetings must be productive, particularly for P5, the remote CoP member who only occasionally visits the main campus.</td>
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<tr>
<td>Shared resources</td>
<td>6</td>
<td>“Something with computers we could all play with instead of the [University] machines — a little lab, where we have got a server. P3 comes down and plays with that computer — if we had a room where we could work together, it might be great.” (P2)</td>
<td>Technical facilities would help overcome the limitations of the current technical support. Ideally they should be located centrally.</td>
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APPENDIX 2.

Indicative Exhibits from Interview Transcriptions, Related to Organisational Knowledge Management

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<tr>
<th>Issue</th>
<th>No</th>
<th>Exhibit</th>
<th>Notes</th>
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<tbody>
<tr>
<td>Intimidation as a barrier to influencing organisational decision making</td>
<td>1</td>
<td>“One of the things I find personally is if you feel that someone is a threat to you or is better than you or you are not as good as them you won’t feel as keen in contributing — you feel sort of shut in — I don’t like that.” (P2)</td>
<td>Feeling threatened is a barrier to CoP member participation as would be required for active participation by CoP members in influencing organisational decision making.</td>
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<tr>
<td>The capacity of a CoP to contribute to higher level organisational decision making</td>
<td>2</td>
<td>“If this group evolves so we know, what ways it is done in industry and the Faculty is trying to do something in terms of its IT, perhaps this group could be useful there. At the University level, there may be University committee; for example, I used to be on the IT labs committee. But maybe as a group we could be represented on that committee. Yes, I guess the expertise, that we hold within that group may be useful on various IT committees throughout the University and the Faculty.” (P5)</td>
<td>CoPs could contribute their expert knowledge at high level organisational committee forum.</td>
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<tr>
<td>The importance of informality to the CoP approach to considering organisational decisions</td>
<td>3</td>
<td>“We tend to be very, very informal but it is amazing what things come out of it…. It’s true you have formal meetings and often what people do is work it out beforehand in the corridor. So I see a lot of those informal approaches as being very powerful.” (P2)</td>
<td>A characteristic of the CoP is that members’ positions on organisational matters are formed through informal processes.</td>
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<tr>
<td>Feedback</td>
<td>4</td>
<td>“One thing about our job is that often in the more formal channels there is very little scope for feedback. But in a CoP like this you can get instant feedback from your peers. That feedback can be in the form of something that causes you to change the focus of things slightly. Not necessarily feedback on ‘gee, you are doing a good job’ but it’s more feedback on ‘oh gee, we could be concentrating on this or change this and this’. But also feedback like ‘that was really good’ and we don’t get that a lot as lecturers.” (P2)</td>
<td>Informal peer feedback also contributes to the motivation of the individual knowledge worker.</td>
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<tr>
<td>The importance of specialist CoP knowledge to informing organisational decisions</td>
<td>5</td>
<td>“Earlier all these meetings or all these conversations were deemed by other people as a trivial nonsense that we talk, because we are techies [...]. ‘Nah, these people have nothing else there, just like big kids, trying new things with a gadget’. But what they don’t understand is how important it is, that some of us know exactly what’s going on ...” (N3)</td>
<td>A recently migrated (from potential CoP to core CoP) participant, N3 acknowledges the important contribution that the specialist knowledge of this CoP could make to organisational policy formulation.</td>
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<tr>
<td>The belief that the CoP can influence organisational decision making</td>
<td>6</td>
<td>“So there is a number of us, who I believe put in above and beyond of what we expected to in those unseen ways [...]. So a CoP is a sort of informal approach here — I think it helps the comradery in the school and generally runs the school more smoothly. It has also other benefits — what we learn out of that, helps drive the school into the future.” (P2)</td>
<td>The comradery assists the group to contribute substantially on matters that are not necessarily expertise related.</td>
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