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SELF-REGULATED LEARNING AND KNOWLEDGE SHARING IN THE WORKPLACE

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ABSTRACT

This study explores how experts in a global multinational company self-regulate their learning. It investigates experts' perceptions of the impact of knowledge sharing on their learning and work. Findings indicate that self-regulated learning (SRL) is a highly social process that is structured by and deeply integrated with work tasks. Experts tend to draw heavily upon their personal networks of trusted colleagues in the process of diagnosing and attaining their learning goals. In contradiction to existing models, SRL in the workplace does not appear to be a clearly delineated, linear process comprised of discrete stages. Further research is needed to understand tacit practices of SRL in the workplace.

KEYWORDS

Self-regulated learning, workplace learning, collective learning, knowledge sharing, expertise development

1. INTRODUCTION

Self-regulated learning (SRL) in the workplace is gaining importance due to global societal transformations, which have given rise to new paradigms and instruments of knowledge creation (OECD, 2004). These global changes have created new demands for work and learning (Jakupec et al, 2000). Increased global competition means that organisations and individuals have to be able to respond quickly to market changes. Both organisations and individuals must be capable of innovating - defining and solving novel, complex problems for which often no previous knowledge exists (Nonaka, 1994).

In these conditions, the notion of competence, and in particular its constituent complex cognitive skills, have recently gained importance. Competences frequently flagged as critical for successful participation in the global economy include (Straub, 2007; Keen, 1992; van Merriënboer, 1999):

- Autonomy and self-regulation in setting and managing one's own learning goals
- Dealing with non-routine, dynamically changing work processes
- Recognising new problems and finding creative solutions
- Operating in ill-defined, non-hierarchical environments within expanding geographical and time horizons
- Developing and maintaining networks with peers and expert communities
- Collaborating in culturally diverse and geographically distributed teams.

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Education and training have lagged behind socio-economic demands, increasing the gap between the worlds of learning and work (Reynolds et al, 2001). The importance of bringing closer the worlds has been emphasised both at the EU level (eg Bologna Declaration, Lisbon Strategy) and in individual countries (ETUC, 2006). In the UK the government-funded reviews (Leitch, 2006, Scottish Government, 2007) argued that universities are failing to equip learners with skills necessary for the country to retain national competitiveness.

The gap is exacerbated by the fact that nature and goals of learning are very different in these two contexts. In education, learning is a goal in itself, while in the workplace it is a by-product of work. Alignment of learning with work goals, performance assessment and complex interdependencies in the workplace are not familiar to new graduates, posing them difficulties as they enter work and adjust their self-regulating skills (Candy, 1991).

The ability to self-regulate one's learning is a key capability. While there is a large body of research on self-regulation, these studies are also rather diverse, having originated in a variety of disciplines (education, educational and organisational psychology, clinical and health psychology). There is no commonly agreed definition of self-regulation (for an overview of different approaches see Boekaerts, Pintrich, and Zeidner, 2005). We start from a socio-cognitive psychology perspective, which defines self-regulation as "self-generated thoughts, feelings and actions that are planned and cyclically adapted to the attainment of personal goals" (Zimmerman, 2005, p. 14). In his definition, Zimmerman emphasises a few other key points that are worth mentioning in this discussion. First, he notes that self-regulation is a key human capability that provided us with an adaptive edge and enabled us to survive. Second, he posits that our self-regulatory skill or lack of thereof is the source of our perception of personal agency. Third, he views self-regulation as a triadic process of interaction of personal, behavioural and environmental factors. Fourth, he points out that self-regulation is not a singular trait, ability or a stage of competence.

Self-regulatory skills are an important component of enhancing transition, because it underpins conscious deliberate practice, which has been recognised as a core component of expert performance (Ericsson, Charness, Feltovich, and Hoffman, 2006). Expert performance is a set of characteristics, skills and knowledge that distinguishes experts from novices and less experienced people; it is the ability of an individual to exhibit superior performance for representative tasks in a domain (Ericsson, 2006). Properties of deliberate practice include task analysis, goal setting, strategy selection, self-monitoring, self-evaluation and adaptation – all of which have been studied as key components for self-regulation (Zimmerman, 2006).

To understand how SRL skills develop it is useful to compare and contrast learning goal attainment practices of novices and experts. By learning goal attainment practices, we mean the actions and operations individuals undertake and behaviours they exhibit in the process of defining, setting, implementing and refining their learning goals and reflecting upon the achievement of these. We are specifically interested in the intersection of individual and collective components of learning, in particular the differences and similarities in how novices and experts create and share knowledge and collaborate with others in setting and attaining their learning goals.

The study reported here is the first phase of a larger research project that investigates and compares learning goal attainment practices of novices and experts, with the view of developing innovative approaches to enhancing learning productivity and decreasing time to competence of novices. This small scale study analyses how experts in a global multinational company set and attain their learning goals. We explore the role of knowledge sharing in learning goal actuation. In particular, we investigated:

1. how experts self-regulate their learning and development
2. how experts both draw upon and contribute to the collective knowledge base in pursuing their learning goals
3. how experts perceive the impact of knowledge sharing upon their learning and work.

Firstly, we review previous research and argue a case for developing a better understanding of self-regulatory learning processes in the workplace. Secondly, we outline the methodology and the results of the study. Finally we specify directions for future research.

2. SELF-REGULATED LEARNING IN THE WORKPLACE

Self-regulated learning has three phases: forethought, performance and self-reflection, with each of these phases comprised of sub-phases (Zimmerman, 2006, Figure 1).

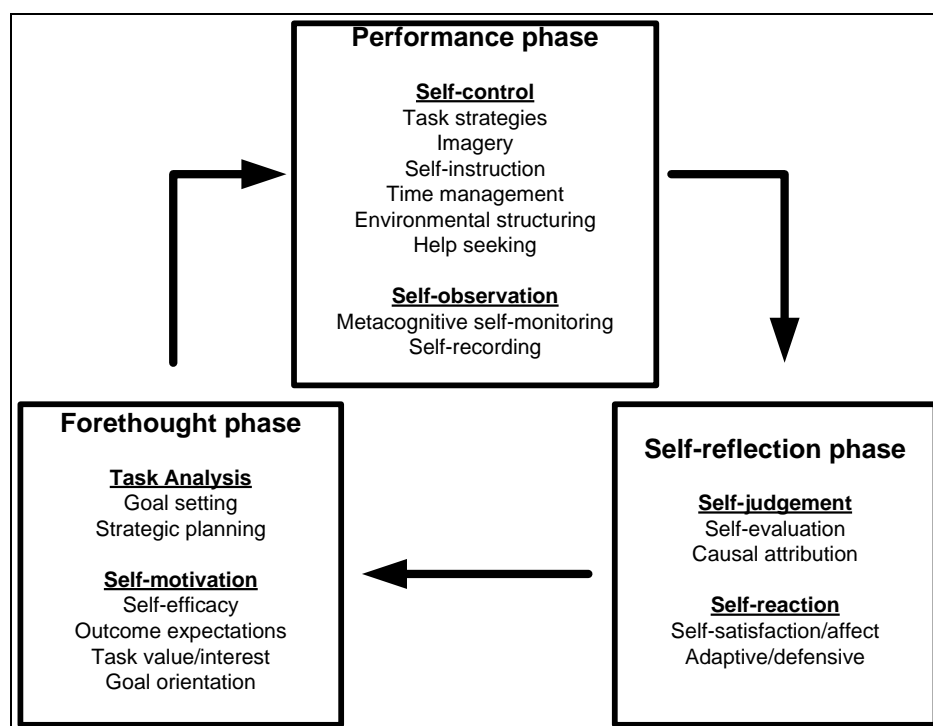


Figure 1. Phases of Self-regulated Learning (Zimmerman, 2006)

Self-regulated learning is both a process and an outcome. As a process self-regulated learning can be viewed as the autonomous actions learners take in planning, carrying out and evaluating their learning. As an outcome it can be seen as the disposition of learners to direct their own learning (Brockett and Hiemstra, 1991; Brookfield, 1986). Both the process and outcome aspects of self-regulated learning are important- as an individual develops a representation of the scope of his/her learning goals and related challenges, he or she will become gradually more ready to set goals for his or her further development.

The connection between process and outcome views is articulated in Zimmerman's 'Social Cognitive View of Self-Regulated Academic Learning' (Zimmerman, 1989) in which there are mutual interactions between a learners' personal disposition and their environment (community, tools, rules), mediated by behaviour (enacted outcomes). The personal disposition itself contains components of commitment to goals, strategies, and self-efficacy perceptions (the individual's belief that they can act effectively). All components of the personal disposition interact with the externally revealed behaviour and environment and are affected by these. For example, self-efficacy may be affected by four factors to which it is linked: commitment to goals, knowledge of strategies, behaviour (e.g. successful past outcomes) and environment (e.g. peer encouragement). Similarly, commitment to goals is not just an internal disposition, but is linked to the external community. Links between the components represent processes, and afford the possibility of intervention to enhance self-regulated learning. The Zimmerman model implies that goal actuation is linear, but there is a growing body of evidence that, in the workplace, adults acquire a significant part of their competences through transformations with open objectives in which goals and motivations are continually reviewed (Fiedler and Kieslinger, 2006).

Although the socio-cognitive theories of SRL recognise the role of the social context in learning, its impact is often assumed to be inferior to individually-based components (Jackson et al, 2005). This contradicts the nature of the workplace, where individuals' work and learning are shaped by complex interdependencies with others (Billett, 2001).

Goal formation and attainment practices of novices and experts have been studied extensively. For example, previous research has shown that while experts use technique-oriented strategies and set specific process goals (Zimmerman et al, 1999), novices often do not set goals at all (Kitsantas et al, 2002). Experts tend to possess higher self-efficacy (Clearly et al, 2001) and their self-evaluative standards are neither too high nor too low (Locke et al, 2002). Experts systematically self-reflect upon their learning and are more adaptive than novices in self-regulation (Kitsantas et al, 2002).

Despite the existence of extensive body of research, current understanding of self-regulated learning in the workplace has three major gaps. First, SRL processes in the workplace are not well understood since most research has taken place in formal instructional settings. We need methodologies that will allow us to conduct robust investigations of individuals' self-regulatory learning practices in real-world settings.

Second, research has not explored sufficiently the impact of socio-cultural and organisational context on the development of self-regulation. We know that self-regulation is not only a cognitive but also a motivational interactive process (Boekaerts, 1997). It is a domain-specific skill that can be impacted by the variables of the social context (workplace, team, community organisation, society) within which it is applied (Bolhuis, 2003). Transfer of self-regulatory skills therefore can be impacted by inherent differences in motives, goals, and scaffolds in the workplace and educational settings (Candy, 2004). For example, motivation in education is problematic since students are not involved in goal setting; rewards are extrinsic, leading students away from self-regulation (Bolhuis, 2003). In the workplace, SRL may be constrained by culture, management style, roles, hierarchy and other socio-cultural and organisational factors.

Third, research has largely ignored the role of the collective in self-regulated learning. It is important to develop a better understanding of the nexus of individual and collective in self-regulated learning in the workplace. What is the interplay between the individual

and the collective – the cumulative knowledge residing in people, practices, and machines both in and beyond the organisation? It has been argued that the individual and the collective mark the ends of a continuum of degrees of social mediation, and that both can interact over time to strengthen one another (Salomon and Perkins, 1998).

A central aspect of linking the individual and the collective is an understanding of how tacit and explicit knowledge flows in workplaces. Current theories argue that tacit knowledge is socially created, shared and maintained within communities of experts (Collins, 2001), therefore it can be acquired *only* through social immersion in groups who possess this knowledge (Collins et al, 2007). The flow of knowledge is constrained by social structures, hierarchies, and communication channels underpinning networks, particularly those involving experts and novices. Siemens refers to learning as ‘the process of creating networks’ (Siemens, 2006). The act of learning, he argues, is the act of creating an external network of nodes – connecting people, organisations, libraries, books, databases, websites and other information sources. Therefore self-regulated learning is more than the solo acquisition of knowledge and skills. While internal networks (neural structures within individuals’ minds) are necessary in creating understanding, it is the external networks that allow an individual to tap into the collective in order to continually find, generate, create, filter and connect new knowledge.

In order to begin to explore how learning goal setting and actuation takes place in the workplace and in particular to investigate the role of collective, we conducted a small scale study in an online Community of Practice in a global multinational company. This community is focused on a key technical discipline within the company. Members of the community are both novices and experts who use a dedicated online discussion forum to exchange knowledge, experiences, problems, solutions and best practices.

3. METHODOLOGY

Data was collected through a web-based questionnaire survey, followed by in-depth semi-structured interviews.

3.1. Respondents and data analysis

The survey was posted on the community’s discussion forum at the end of the second quarter of 2008. This online community has 9749 registered members. The log analysis shows that in that quarter, 43 contributors had made a total of 116 postings in the community site. These posts were read by 672 unique viewers in that quarter. We therefore assume that the total sample that had access to this survey is comprised of these 672 active members of the community.

At the end of this survey respondents were asked to volunteer for a follow-up interview (by indicating their name and e-mail address). All follow-up interviews were conducted by telephone, and lasted one hour.

The findings reported here are from a sample of 37 survey participants (predominantly experts) and 8 interviews (only experts).

Informed consent was sought prior to data collection (separately for the survey and interview). The survey data was summarised and analysed descriptively; responses provided in the open ended questions were coded according to common emerging

themes. The interview data was audio-recorded, transcribed, coded and analysed for pre-defined as well as emergent themes.

3.2. Questionnaire

Questions were structured into four sections:

Section 1. Informed consent

Section 2. Background information: Questions were designed to elicit information about the status of the respondent – in other words, were they an expert or novice. The questions explored respondents' years of experience in an area of specialisation alongside the length of their time within the company and in their current role. The section continues with a set of questions aimed at identifying whether respondents viewed themselves as experts, whether they were recognised as experts by their peers and whether they knew other experts in their disciplines. This was followed by a question focusing on the ways in which individuals utilised knowledge in their daily work: the application of knowledge to existing practice, development of new practice and generation of new knowledge.

Section 3. The online community: Questions in this section focus on the knowledge sharing practices within the community and the ways in which individuals draw upon the community to support their learning. Questions also focused on eliciting information about the range of external and internal tools and resources respondents use to support their work.

Section 4. Individual and organisational factors: This section comprises questions aimed at drawing out the importance of a range of organisational and individual motivational factors that could impact self-regulated learning. These factors include personal motivation, preferred ways of learning, the perceived value of knowledge sharing to career advancement and work goals, and means of improving individual's consumption, connection and contribution of knowledge.

Different measurement scales were used in various sections of the questionnaire, depending on the nature of the data sought. Sections 1 and 2 include nominal data, while Sections 3 and 4 contain a mixture of nominal and ordinal data. For the ordinal data, a five-point Likert-type measurement scale was used. Reliability analysis confirmed good internal consistency ($\alpha = .88$), indicating that the questionnaire measures the intended constructs. The full questionnaire is available on request.

3.3. Semi-structured interview

Semi-structured interviews aimed to elicit information about the ways in which experts contribute, consume and connect knowledge and self-regulate their learning at work. The questions were structured around the three phases of self-regulation shown in Figure 1.

Individual survey responses were analysed to identify specific issues requiring further clarification in the follow-up interviews. As a result the first part of the general interview guide was tailored for each specific participant on the basis of his survey response.

4. RESULTS AND DISCUSSION

4.1. Survey results

4.1.1. Background information

Respondents reported a high degree of experience. The majority (31/37, 83.8%) have more than 10 years experience in their area of specialism. Most of these individuals (25/37, 67.6%) have over 10 years service within the company. As is typical within many large organisations, individuals are encouraged to progress and change roles and this is evident in the responses to a third question which shows that the great majority of respondents (28/37, 75.7%) have between 1 and 10 years experience in their current role.

Only a small proportion of respondents (4/37, 10.8%) have been with the company for longer than they have experience in their area of specialism, indicating that (at least within this discipline) the company recruits individuals with specialist knowledge, rather than developing discipline-specific expertise in house.

In parallel to questions about experience, the expertise of the respondents was also investigated. The results illustrate that an overwhelming proportion of respondents (31/36 respondents, 86.1%) considered themselves to be experts and even greater proportion (35/37 respondents, 94.6%) felt they were considered an expert by others.

4.1.2. Online community

Respondents were questioned on participation levels in their primary, online community. Participation may involve reading posts written by others or actively contributing through posting messages. Data on each of these possible participation modes are presented in Figure 2. The great majority of respondents read posts daily, or at least weekly (36/37, 97.3%). Few post more frequently than once a month (4/34, 11.8%) and a similar number (4/34, 11.8%) have never posted. It is important to remember that this survey was distributed through an online community and therefore less active members of the community will not have found and completed the survey.

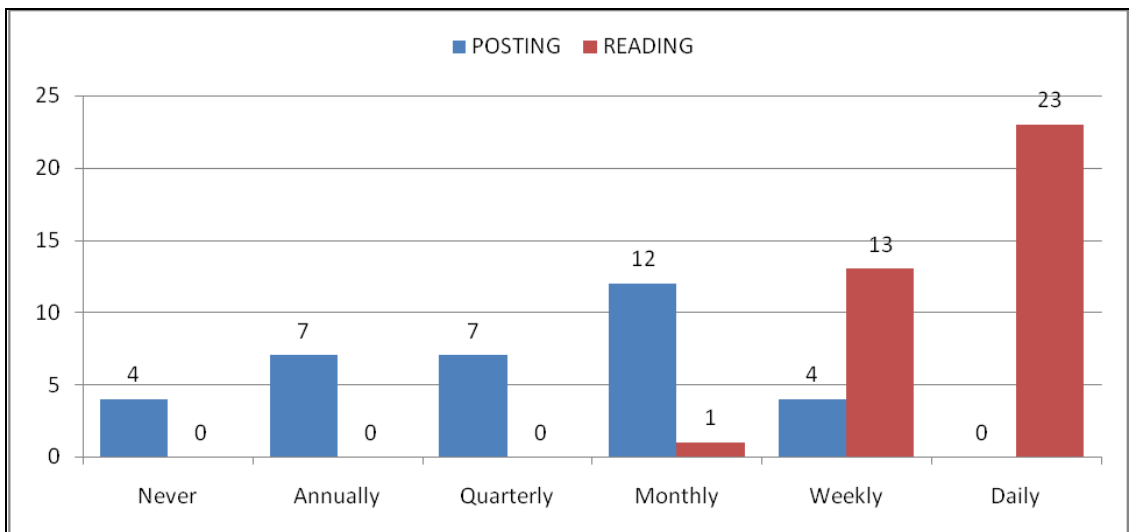


Figure 2. Patterns of knowledge consumption and contribution within community

The interaction between the online community and the respondent's work environment was explored. A series of statements was tested using a Likert-type scale of choices ranging from 'strongly disagree' to 'strongly agree'. Responses to these statements can

be analysed in two ways: either by aggregating responses to see the overall opinion of the community, or by examining the responses from each individual to see how views on different topics inter-relate. Aggregated responses are illustrated in Table 1. The emerging picture is that respondents view the online community as useful. This result is unsurprising, as the survey was delivered through an online community, therefore respondents are already active members within the community (potentially biasing their responses). Responses confirmed the statements ‘Contributions help me to create new knowledge (33/37, 89.2%) and ‘I share knowledge I have gained beyond my online community’ (32/37, 86.5%). Few responses confirmed management participation within the community’ (5/36, 13.9%). This result is not surprising, since experts are likely to be managed by business leaders, rather than discipline experts who have a specific interest in these specialised communities. This hypothesis was borne out in follow-up interviews.

Table 1. Interaction between individual factors and community

	Strongly Agree/ Agree	Neutral	Strongly Disagree/Disagree	No Response
Community helps solve problems in daily work	20	13	4	0
Community improves my daily practice	22	12	3	0
Contributions help me create new knowledge	33	2	2	0
My contributions help others to create new knowledge	19	16	2	0
Others consider my contributions useful	18	17	1	1
Sharing gained knowledge beyond community	32	5	0	0
Community valuable source of learning	26	7	3	1
Manager actively participates in my community	5	13	18	1

The role of the online community in individual’s day-to-day practice was explored further. Respondents were asked if community participation helped them establish individual collaborations with other community members. A sizeable minority (13/37, 35.1%) responded positively. The majority (25/37, 67.6%) of respondents had encouraged their peers to be active members of the online community, verifying respondents’ value in the community.

In contrast, only a minority (7/37, 18.9%) drew upon the community when undertaking their personal learning and development planning. This result may imply that community members have a narrow conception of the potential role of these online communities in supporting their development. The relevance of community to personal learning and development planning was further explored through the follow-up interview and indicate that (within this community at least) personal learning and development planning is viewed as an individual (private) process, which does not have

direct relevance to the types of knowledge exchanges that occur within online communities. Despite this, almost half (18/37, 48.6%) the respondents agreed or strongly agreed there was a direct connection between participation in community and the goals set through their personal learning and development planning.

4.1.3 Preferred form of learning

Participants were given a choice of 4 approaches to learning, representing typical informal and formal contexts. An open comment box was provided to nominate other alternative learning approaches. Table 2 illustrates responses provided in the category ‘other’ comprised on-the-job learning, acquiring knowledge through self study (books), research (internet) and attending conferences. The results indicate that most forms of learning are acceptable to most participants. This question may have been more informative if the respondents were only allowed to select one response.

Table 2. Preferred modes of learning

Courses	24
Participation in community	25
Coaching/mentoring	25
Opportunities to learn as they arise	30
Other	6

4.2. Interviews

The following key themes emerged from the interviews:

4.2.1. Self-regulated learning

Interviews indicated very clearly that SRL in the workplace is structured by and deeply integrated within work tasks and priorities. Respondents indicated that their learning in the workplace is a highly iterative process. The ever-increasing complexity of problems and projects (*“we are stepping further and further beyond everyone’s comfort zone”*) means that it may be impossible to learn everything one needs to know to solve any particular problem at hand (*“you kind of tank up as you need it”*).

Interviews also showed that these experts were not learning in a clearly delineated process involving discrete stages of planning, implementation and reflection upon learning and development goals. Instead, planning and implementation of learning goals appear to be closely intertwined.

Experts in this sample did not appear to engage in deliberate and systematic self-reflection. In the workplace, learning is driven by task and performance demands, therefore there are limited opportunities for systematic self-reflection. Where the opportunity for (deliberate) reflection exists, such as in project after-action reviews, they are closely linked to the immediate work task, rather than being focused on learning *per se*. Out of 8 interviewees, only 1 respondent mentioned deliberately reflecting upon and capturing learning points in the process of carrying out his tasks. When a new project came up, he would *“go back and see what we have done on a previous project that might be similar and apply or modify that learning depending on situation”*. He also said he would check his individual development plan monthly to review his progress towards his planned goals. Most interviewees could not explicate any specific reflection strategies that they may have used, and one expert clearly stated

that he did not have time for reflection (*"it would be nice to be able to do it, but at the end of the day I am not paid to reflect upon my learning, I am paid to do the job"*).

Individual Development Planning tends to be the starting point for agreeing upon specific development needs. However, when faced with a new problem or a new task for which they need to gain knowledge quickly, most experts tend to draw heavily upon their personal networks of trusted peers to diagnose and attain their learning goals. Although these peer networks are predominantly internal, some may be external to the organisation. In cases where individuals are tasked with solving a novel problem and there is little relevant knowledge within the organisation, experts tend to consult a wide range of literature sources, or may even engage in formal learning (eg a course). SRL in the workplace is also vicarious: *"if it is something that some other expert has to deal with I follow it very closely so that I can learn from his learning"*. Experts not only draw upon the collective to attain their learning goals, but also share their learning with peers, mainly through local networks.

There were difference in strategic approaches to learning, whereby some experts were focused on short-term goals, while other appeared to take a longer-term view. For example, one respondent said that when planning his learning needs, he would tend to *"speak to the skill pool bosses because the oil industry is changing and it is identifying what is going to be needed in X number of years not necessarily what you are having to do right now"*.

Other popular learning strategies among experts involve attending conferences, and here as well we could observe a difference in the strategic approaches, with some experts predominantly attending conferences related to their area of specialism, while others would participate in conferences outside their area of specialism, seeking to expand their understanding of *"peripheral areas"* that may help them solve problems from a broader, more systemic perspective.

4.2.2 Relevance of knowledge sharing in online community to daily problem solving

It appears that experts might typically use the CoP to seek out a *"light touch peer review"* rather than a solution to a specific problem. For peer advice, experts appear to prefer to draw upon trusted contacts within their personal networks that they have developed throughout their career. In the next phases of the study, it would be interesting to explore the extent to which this is true for novices, bearing in mind that novices may not yet have developed personal networks that they can draw upon, therefore they may find that the online community offers more direct benefits.

Another reason respondents view the community as not being directly relevant to their day-to-day work appears to be the perceived inapplicability of solutions or suggestions posted to/discussed within the community. These solutions may not fit the specifics of the local context (climate, different local policies and procedures), or an individual member's job. One interviewee indicated that the discussions in the community tend to be operations-related and are therefore not applicable to him and his colleagues, since their roles focus on research and development. The level of discussion in the community might not be relevant to experts, particularly those with an extensive experience in the discipline. As one respondent commented *"I have been in the discipline for close to 34 years so I have seen most of the problems first hand and most of the solutions."*

4.2.3. Relevance of community to individual learning and development plans (IDP)

Another area of interest was whether there was a direct connection between participation in the community and the goals set through individuals' personal learning plan. While almost half (48.6%) of the respondents either agreed or strongly agreed with the statement, more than half were either neutral or (strongly) disagreed. This result was surprising, given that a minority of respondents (7/37) indicated that they drew upon the community when carrying out IDP.

The interviews revealed that this did not necessarily mean that individuals could not see a link between their personal learning goals and their participation in the community. Rather, associated organisational factors, most notably their line manager's attitude to knowledge sharing in online communities, may be impacting the general nature and extent of their involvement. IDP requires the agreement of line managers, therefore if the manager discourages an individual from investing time in engaging with the CoP, the individual is less likely to actively contribute to and draw upon the community.

Experts viewed IDP as more relevant for novices than experienced individuals. Some also appear to consider IDP to be a tool primarily for structuring formal learning (courses) and, therefore, not relevant to experts who tend to prefer to engage in experiential, non-formal learning.

4.2.4. Drivers and barriers

What motivates or discourages experts to share knowledge?

Respondents said that they are eager to invest time in contributing to discussions and answering questions posted within the community, especially when the effort of posting is small compared to perceived value of the posting to the person asking the question: *"There is a part of me that thinks okay well if this person only knew that it could save them an extra couple of days of work and it will take me 5 minutes to write it down and send it to them. It is almost like a value investment ratio that I am thinking to myself"*.

Another expert cited *"Moral obligation to help people"* as a reason for his contributing to the community. However, it is important to note that this respondent was a Subject matter Expert (SME) who was required to spend up to 15% of work time sharing his knowledge across the organisation.

Motivation to share knowledge is not always based upon perceived direct relevance to an individual's work goals. Experts may be motivated by *"bigger gains that are out there"*, such as enhancing interdisciplinarity and cross-pollination between disparate skill pools. Participation in the community was therefore viewed as an opportunity to *"look at something in a different way ... whereas that is very difficult to do in your day-to-day role in your single location"*.

Furthermore, developing a reputation and getting known among peers through active participation in the community appears to be a motivating factor. Experts recognise that gaining a reputation as someone *"who is always helping people out"* within the networks may have advantages for career progression and mobility within the organisation.

Another factor that appears to motivate experts to contribute knowledge to the collective is whether their input is directly applicable to someone else's problem. Some

respondents viewed conversations within the online community as being based on opinions rather than facts. These individuals would moderate their own input by limiting it to situations where they had something of value to contribute. At the same time, *“estimating the value you create is almost impossible. At best maybe one posting in ten you will get an email back personally thanking you for it but even then you... don’t know what the impact is”*. Consequently, it is difficult for active contributors to justify their time investment.

Trust appears to be a strong factor in knowledge sharing. There appears to be a natural group size of trusted peers within which individuals are prepared to share knowledge. Sharing knowledge within regional groupings was viewed as being less problematic than global sharing across the whole corporation. Sharing within a relatively close network of peers appears to be valuable to the individual, because it helps maintain and reinforce relationships. Sharing beyond an immediate network appears to be less essential. Trust appears to be augmented when contributions are attributed. *“If you know who actually is responsible for the piece of knowledge then people would take care about what they are submitting”*. Trust is also enhanced when *“you have a personal contact, and even better still if you have face-to-face interaction”* with others within the network.

4.2.5. Nature of job and organisational context

For the majority of experts in our sample, their job is structured around interdisciplinary projects. In most instances, experts work independently. They have autonomy over their part of the project, while collaborating with others on specific problems. Collaborators tend to be local colleagues or peers within personal networks, rather than project team members.

The majority of the respondents indicated that processes and tools were in place to enable them to share knowledge. Interviews illustrated that a wide range of knowledge sharing tools are available and utilised locally, and that these are considered useful. However, a number of respondents expressed a concern that these disparate knowledge bases and resources were fragmented and therefore not easily discoverable, particularly for the novices. In addition, the importance of quality control of the information made available through the KS platforms, particularly online CoPs and the company wiki, was emphasised by a number of interviewees.

The extent to which knowledge sharing and learning are recognised as valuable activities appears to vary across the organisation. In some parts of the organisation managers actively support individuals in investing time in sharing knowledge and learning, while in others daily business tasks take a priority. In some locations individuals appear to be encouraged and rewarded for sharing knowledge locally rather than globally. A “Not invented here” mentality was cited as being characteristic of this particular company. It was suggested that this factor can negatively impact knowledge sharing and learning from a broader range of sources and opportunities than those within the immediate company or the organisation as a whole.

5. CONCLUSIONS

This study found that SRL in the workplace is a highly collaborative process that is structured by and deeply integrated within work tasks and priorities. Experts tend to draw heavily upon their personal networks of trusted colleagues in the process of

diagnosing and attaining their learning goals. At the same time SRL in the workplace is not a clearly delineated process comprised of discrete stages of planning, implementation and reflection upon learning and development goals. Instead, planning and implementation were found to be closely intertwined, contradicting findings from previous cognitive psychology studies (eg Zimmerman, 2005). Many experts did not appear to engage in deliberate and systematic self-reflection, although this may be because their reflection is tacit and bound to action therefore it might be difficult for them to explicate their strategies.

The interviews showed that in the process of setting and attaining their learning goals, individuals draw from and contribute to collective knowledge. This includes social agents, social objects, tools, artefacts, information and practices. SRL in the workplace appears to be socially mediated to a very large extent rather than being individually-based.

Further research is needed to understand tacit practices of SRL in the workplace and to develop interventions that might improve learning productivity. In our future work we will seek to collect data from novices regarding their learning goal attainment practices and compare the findings from experts and novices with the aim of beginning to develop descriptive models of self-regulated learning in the workplace. Two parallel larger scale studies involving both novices and experts are currently ongoing in a number of other communities of practice in this company. The findings of this study will be aggregated with data generated in the next stages of the project.

Future research should also develop/apply more elaborate methodologies for elicitation of goal planning, implementation and reflection practices. This is a challenging task in research conducted in real-world settings.

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