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Title   Knowledge, Learning and Reflection:
           Consulting in Communities of Practice

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Knowledge, Learning and Reflection : Consulting in Communities of Practice

by

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Abstract

Knowledge, Learning and Reflection : Consulting in Communities of Practice

Purpose : The objectives of the research was to identify how knowledge, learning and reflection is mediated in communities of practice.

Aim : The overall aim was to base the evidence from the lived experiences of those who are part of the communities of practice under study.

Design/Methodology/Approach : The research was undertaken through a qualitative inquiry using a social constructionist perspective. The research was pursued through participative action research in one case study organization, and through participative observation, or observation in fifteen others.

Findings : The key findings of this inquiry include six sociological elements which were common to all sixteen organizations. Further, four key knowledge flow processes were consistent across all cases. In total forty one main findings were identified to the pursued research questions.

Practical Applications : Two conceptual models of learning and reflection were presented as ways to help understand how knowledge, learning and reflection are mediated in communities of practice. The models can be used at different levels of abstraction and conceptualization.

Value : The study provides original insights into consulting activity within communities of practice, and highlights key themes based upon the lived experiences of the participants in the inquiry.

Summary of Chapters

Chapter One : Sets out the "Introduction, Context and Overview". The super-ordinate research question is : "How is knowledge, learning and reflection mediated in communities of practice?" A conceptual framework for the research and a timeline of professional practice is included.

Chapter Two : "Setting the Scene : Consulting and Communities in Knowledge Intensive Activity", sets out the profession practice element to the inquiry and positions consulting in organizations, alongside the need to understand knowledge in communities of practice.

Chapter Three : Provides an extended literature review of "Knowledge Organizations" and details various ways in which knowledge types and ways of knowing' are defined.

Chapter Four : Describes "The Metamorphosis of Communities of Practice" and examines various transformations in the way the concept has been presented since 1991.

Chapter Five : Discusses "Considerations around the Research Process" and examines the epistemological, theoretical, methodological and practical aspects of undertaking the inquiry.

Chapter Six : presents "An Early Immersion into a Community of Practice of Compositors". This change of writing style reflects an autoethnographic description of the author's own experience of working in a community of practice as an apprentice.

Chapter Seven	:	Illustrates some early participative fieldwork and data gathering in communities of practice.
Chapter Eight:	:	Considers aspects of consulting activity within a Community of Engineers. The chapter is structured in four parts to reflect specific action research cycles over a thirty month consultancy period.
Chapter Nine	:	Presents a worked example and shows the use of qualitative textual analysis during the early phase of a multi-party project mediation.
Chapter Ten	:	Considers learning and reflection and considers the responses and constructions of the participants in the communities of practice under study.
Chapter Eleven	:	Summarizes my reflections on the data obtained from fieldwork and draws a number of conclusions about enablers that assist with the mediation of knowledge, learning and reflection in communities of practice.
Chapter Twelve	:	Presents two conceptual models of ways to help understand how knowledge, learning and reflection are mediated in communities of practice.
Chapter Thirteen	:	Draws together the conclusions of the research.
Chapter Fourteen	:	Highlights the contribution to knowledge and professional practice.

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3) Qualitative Text Analysis : Open Coding.

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   Qualitative Text Interview transcript showing, margin notes, open coding (Bogdan and Biklen, 1992).
   The transcript and accompanying documents show examples of open coding; codes and evidence; three part lists; metaphor analysis, leading to selective coding : the story and storyline, and emerging hypotheses/propositions with evidence.
   The documents are shown as an example of open coding.

4) Qualitative Text Analysis : Pattern Coding.

   Appendix 4 : Qualitative Text Analysis : Pattern Coding

   Qualitative Text Interview transcript showing transcript with key data source identified; interview data clusters, emerging categories, emerging themes and main thematic categories. The documents are shown as an example of pattern coding and documentation to gain participant verification.

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To all of them, my heartfelt thanks.

A Note on the Writing of this Research

People create meaning and realities with others in many ways, often in spontaneous, and responsive forms. Ideographic research approaches focuses upon the "I", the self studying the self, as well as studying other people. The aim of this research inquiry is partly personal learning and improvement for social transformation and is essentially collaborative. It is also partly about understanding the nature and form of knowledge, and the changing role of Communities of Practice. Mostly, it is about understanding the life-world of the actors who work in Communities of Practice.

Thus, there was a degree of reflection within the intellectual process, and an implication of reflexivity whereby myself as researcher monitored my impact upon the situation under investigation. I have chosen to generally present my research, analysis, reflection and synthesis from the first-person perspective.

Much of the research contains subjective impressions presented by the actors in the study alongside the writer's experience at the time of compiling each entry. It is how I perceived it at the time of writing and how I reflected upon it through later observations. As a consequence there is some mixing of the tenses. I have included the impressions as compiled at the time of writing without attempting to alter them into a past or present tense. I have included the narrative data sets as accurately as possible without editing or changing the language used.

For convenience, I use the masculine pronoun "he" when generally referring to subjects in this research. Where specific references are made to individuals "he" or "she" will be used.

Preface

This thesis is structured in four parts :-

1)   Conceptualization.

2)   Operationalization.

3)   Reflection.

4)   Outputs.

An introductory chapter provides the context and overview. This considers the structure of the thesis; the objectives of the research; the rationale of the research; and how the research was undertaken. The super-ordinate research question is : "How is Knowledge, Learning and Reflection mediated in Communities of Practice ?"

Conceptualization

There are three central themes running through the overall thesis :-

i)   Professional practice

ii)   Knowledge in Organizations

iii)   Communities of Practice.

Chapter two considers the professional practice element of consulting within knowledge-intensive environments.

Chapter three considers the theoretical aspects of knowledge in organizations and provides an extended literature review of knowledge types and ways of knowing.

Chapter four examines the literature on the development of communities of practice and highlights some problems and challenges for conducting empirical research within them.

Chapter five justifies the research processes, epistemological considerations and methodological choice.

<u>Operationalization</u>

These are the fieldwork chapters and presents four different contexts and settings for conducting the empirical research.

Chapter six is retrospective fieldwork, and is presented as an autobiographical account of working in a community of practice of compositors. It is significant because it presents an account of apprenticeship in contrast to the seminal work of early CoP development which also considered apprenticeships as its case base.

Chapter seven illustrates early cases of fieldwork and data gathering in communities of practice.

Chapter eight considers aspects of consulting activity within a community of engineers. The chapter is structured in four parts to reflect specific action research cycles over a thirty month consultancy period.

Chapter nine considers interplays of tension within a project community, and provides, by way of a worked example, the use of qualitative textual analysis using various coding processes.

Reflection

Chapter ten is the first of two chapters that considers the evidence from, and the experiences of, fieldwork. It considers the responses and constructions of the participants in the communities of practice under study.

Chapter eleven summarizes my reflections on the data obtained from fieldwork and the literature. It draws a number of conclusions about the research. Six key sociological elements were common to all the communities of practice under study.

These were :-

1)   Individual Learning roles in CoPs.
2)   The situated context of CoPs, workgroups and teams.
3)   The role of management in mediating learning.
4)   Learning environments.
5)   Organizational culture.
6)   Technology and ICT.

Additionally, key Knowledge Flow Processes were identified that were consistent across all cases :

These were : a)   Formulation of knowledge and learning.
              b)   Generation of knowledge and learning.
              c)   Utilization of knowledge and learning.
              d)   Consolidation of knowledge and learning.

Outputs

Chapter twelve presents two conceptual models of knowledge, learning and reflection, and demonstrates ways in which the models can be used in a practical knowledge management context chapter.

Chapter thirteen provides conclusions from the lived experiences of the respondents, and provides 41 conclusions to the original research questions.

Chapter fourteen summarizes the contribution to knowledge and the contribution to professional practice.

A conceptual model for the research thesis is shown on page 22.

Chapter 1

Introduction, Context and Overview

1.1   Structure of the Thesis

The structure of this DBA thesis and professional doctorate is in four parts :-

(a)   The conceptualization and theoretical framework for the research.

(b)   Operationalization and empirical research through fieldwork..

(c)   Reflection and Reflexivity.

(d)   Outputs, conclusions and contribution to knowledge.

1.2   The Objectives of the Research

The superordinate research question threading through this thesis is :-

"How is Knowledge, Learning and Reflection Mediated in Communities of Practice?".

The overall aim is to answer that question based upon the evidence from the lived experiences of those who are part of the communities under study.

The end result will focus upon implications and findings in the complex social and practical issues involved in learning and reflection in communities. A set of frameworks and conceptual models will assist in understanding the relationship between learning, reflection and knowledge within situated activity and the social dynamics of workplace communities.

An indicator of success is whether those frameworks can be co-constructed and validated between researcher and participant, and whether they can assist in the personal and professional development of each.

Further indicators of success are achieved by the conclusions and contributions to knowledge that arise from examining the learning behaviours of the participants in the communities under study.

1.2.1 The Rationale of the Research

This inquiry considers knowledge, learning and reflection in communities of practice. Despite the vast amount of literature on knowledge management, and the popularity of the concept of communities of practice that sits within a practice-based perspective on knowledge, situated learning within communities of practice has largely been under-researched and under-conceptualized.

There is a significant gap in the literature detailing lived experiences within CoPs, and further, on consultancy practice inside them. This inquiry intends to contribute to reducing that gap. Few researchers have examined the practice of consulting in, and through workplace communities of practice. Less still have focused upon the interplay between knowledge, learning and reflection within them, particularly from the actors' perspectives.

The thesis was intended to address a noticeable theoretical and empirical gap in the knowledge within the literature on consulting in communities of practice, and the mediating influences of knowledge, learning and reflection inside the communities themselves.

1.2.2 How the Research was Undertaken

The research was undertaken through participative action research during consulting activity within workplace communities in organizations.

The study addresses issues of systematic and situated learning through undertaking a qualitative and participative exploration of the dynamics of learning and reflection in communities of practice. An emphasis upon co-

construction of conclusions and conceptual frameworks supports guidance on

how participants can improve the learning environments and infrastructure

elements of communities of practice.

The empirical data informing the findings presented in the thesis have been

generated from 30 months of fieldwork in sixteen case study organizations.

1.2.3   Three Central Themes

There are three central themes running through the overall thesis. These reflect

the framework and timeline for the overall inquiry.

i)   <u>Professional Practice</u> : The real world problem of understanding how
        knowledge, learning and reflection is mediated in communities of
        practice, is of significance to me as a practising consultant who works in
        organizational project management, knowledge management, and
        knowledge-intensive environments.

ii)   <u>Knowledge in Organizations</u> : There are various perspectives on the
        definition of knowledge, but almost universally most schools of thought
        are in agreement that knowledge is something more than just data and
        information. Knowledge is now seen as a critically important factor in
        economic life, and shared understandings and experience is a part of the
        process of creation and transfer of knowledge that takes place within
        organizations. While knowledge is often considered to be the property of
        individuals, a great deal of knowledge is produced collectively and held
        in tightly knit groups known as communities of practice. This
        organizational knowledge is social in character, and is not always easy to
        define or to organize.

iii)   <u>Communities of Practice</u> : Communities of practice as a phenomenon
        have been around for many years. During the late 1980's, studies of
        particular workgroups and communities where knowledge is grown,
        shared and sustained, were linked to situated learning : where learning
        takes place through working practices. Communities of Practice and
        Legitimate Peripheral Participation, the process by which new members
        of the community learn from the group, attracted a lot of interest amongst
        researchers and practitioners, and now form part of the organizational
        development and knowledge management disciplines. This particular
        theme of the thesis is focused upon the practice of the researcher/
        consultant undertaking empirical research in the field of communities of
        practice. The empirical research was conducted through action research
        and was participatory in nature.

1.2.4   Conceptual Framework for the Research Thesis

A conceptual framework for the research thesis and integrating themes shows the relationship between the three themes of the thesis, (professional practice, knowledge in organizations and communities of practice), alongside the specific chapters within the thesis. Additionally, following an extensive literature review of all three themes, a number of research questions were established, and these are also located on the conceptual framework to show their relative association with each theme and chapter. (See Fig. 1.1).

1.3   The Concept of Communities of Practice (CoPs)

The concept of communities of practice has captured the attention of large international organizations, small and medium sized enterprises, and academia, as all explore the motivation and willingness of individuals to participate in, and contribute to, their existence.

In the early models of communities of practice, they were best understood as fluid social relations, enacted among a self-selected community of participants, who were left to develop their own practices, often free from the attentions of policymakers or administrators within their organizations. Matters have progressed since Lave and Wenger (1991), and Brown and Duguid (1991) began to explore *situated learning* in the workplace, where they saw the acquisition of knowledge as a social process where people could contribute in communal learning at different levels within organizations.

Less than ten years later, the landscape of communities of practice had changed considerably, and the concept had become an important part of the knowledge management literature and practice. Etienne Wenger (1998b) in *Learning, Meaning and Identity* presented a theory of learning that started with

the assumption that engagement in social practice was the fundamental process by which individuals learn and so become who they are. Now, communities of practice were seen as an innovative way to manage knowledge and sustain innovation.

The terminology surrounding the concept had also changed, and many new descriptions or hybrids were being formed. It was not enough just to talk about communities of practice, when social networks, networks of knowing, communities of learners and many others were emerging.

Communities of practice can cover communities as diverse as birdwatchers in a New York park, (Winn, 1998) to cross-cultural software teams in an Insurance College in Jamaica (Barrett and Osborn, 2007).

1.4 Researching into CoPs

This thesis began in 2003 out of interest in the subject, and partly around the fact that much of what I was reading about communities of practice did not always align to what I was experiencing in organizations. I wanted to compare and contrast the ways in which individuals created, held and transferred knowledge in different forms of CoPs in the workplace. I wanted to develop some deeper understanding of what communities of practice were, and how they worked.

It was fairly common knowledge that there were different theories about the way that knowledge was created and transferred in the workplace, but were they any different in communities of practice from any other place of work? The early intention was to look at knowledge creation and transfer in communities of practice in CoPs, but I felt that this was only one part of the equation. I realized

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that individuals and organizations have different understandings about what kind of knowledge exists in organizations, and what kind of knowledge they need. Justifying this kind of knowledge as determined by traditional factors such as core competencies, strategic direction, and reliance on innovation, didn't just occur spontaneously. A lot of this had to be thought through in the context of what individuals and organizations were trying to achieve in terms of knowledge definition, acquisition and development. Knowledge as a human act distinguishes it from information, and it circulates through society, organizations and communities in many ways. New knowledge is often created where the boundaries of the old used to be.

1.5   Intended Readership

The thesis is offered to practitioners, consultants, researchers, academics, and those who work closely with, or within communities of practice.

A number of different approaches were undertaken in order to gather the rich experiences that I have had in undertaking this inquiry. The thesis is not a PhD : it is part of a professional doctorate, a DBA, which includes a significant 'taught' element, and as such has a number of specific learning outcomes. These include : reflective analysis and the development of reflective observation skills; reviews of research methods including epistemological positions, research design, methodology and techniques; and the nature of change agent practice which examines the issues and constraints pertaining to the role of the change agent (organizational consultant).

The element of professionalization that distinguishes the DBA from a conventional doctorate arises from the application of what has been learnt in and through the practitioner issue. The issue centred around how knowledge,

learning and reflection is mediated in communities of practice. The supervised research project is the thesis and is work-based and work-focused. There is a significant element of professional development.

1.6　Thesis Title

The title of this thesis is "Knowledge, Learning and Reflection : Consulting in Communities of Practice". This reflects the areas of engagement experienced in undertaking this inquiry : A coming to terms with a vast array of different knowledge forms and concepts; appreciating the theory and practice of learning; discovering that there was a wide body of interest in the concepts of reflection, reflective practice and reflexivity, and being aware of the importance of developing my own reflective and reflexive practices in consulting activity.

This complements the professional element of this research through being a consultant, who works in areas of change management, mainly with people within their place of work. Within many of these organizations knowledge networks have fostered and maintained abundant supplies of existing knowledge, new knowledge, diversity and similarity. People have learned things and forgotten things; organizations have learned things and forgotten things. Some (Department of Health 2000; Paoli and Prencipe, 2003) believe that organizational memory is as important as individual personal memory in an ever-accelerating pace of change, where lessons learned, and innovation are part of a growing landscape and projects are a way to organize economic activity. Starting this thesis in 2003, I developed ideas about what knowledge, learning, reflecting and consulting in CoPs might include. That has changed significantly as the growing literature and research field has intensified its coverage.

The pace of ICT has prompted many companies to evaluate how e-business can improve performance, service, quality, and time-to-market. Many of the electronic mediums have been introduced with some degree of challenge and conflict to physical or traditional organizations who may not have responded quickly enough. Competitive advantage is achieved more easily by accessing and using corporate 'memory' where other organizations have been less effective. Building a knowledge-driven organization and economy depends upon how readily people are able to access technology from wherever in the world they may be. The internet has made information more available to individuals than at any previous time in history. How people respond in organizations, project teams, workgroups and communities or practice to these new developments is part of the challenge. CoPs can themselves be catalysts for change, and assist organizational learning in these hyper-competitive conditions. All these developments highlighted a number of issues that needed answering. My motivation was to uncover the life-world of those who work in CoPs. It was stronger at the end than when I began the inquiry.

1.7   What was Under Study?

The study was about consulting in communities of practice. The focus was to understand, from the actors' perspective, how knowledge, learning and reflection occurs and is mediated within those communities.

Tensions and priorities arise continuously in the workplace between acquiring different forms of knowledge, various forms of practice, and different stages of reflection. Not all of these can be acquired or co-ordinated at the same time. Many of the problems that confront people at work are ill-structured and 'messy'. The process of reflection, for example, may occur at different points in an event : reflection-in-action, or reflection-on-action, (Schön 1983). Practitioners need to

reflect on an event, and they may need to draw on other areas from knowledge, or from learning. Knowledge may increase following reflection. Learning-by-reflection, or reflective practice may arise during or after an event. Experiential learning may occur from taking part in the event.

All of these factors have to be negotiated or mediated during and after experience. A balance has to be found : hence the term "mediated".

The superordinate research question attempted to address this during the study of practice of the actors within various communities.

The superordinate research question was :-

RQ 1)   How is knowledge, learning and reflection mediated in
        communities of practice?

1.8   Why was the Study Necessary and Important?

I found little evidence in the literature of communities of practice that focused directly upon the interrelationships between knowledge, learning and reflection within them. Lave and Wenger's work in *Situated Learning* was important because it located learning squarely in the processes of co-participation. Learning was identified as a process that takes place in a participation framework, and was *mediated* by the differences of perspectives among the co-participants, not a one person act (Lave and Wenger 1991 : 15). However, there have been relatively few insights in the literature or in the workplace analyses of how this occurs in practice, or views it from the actors' perspective.

Lave and Wenger (1991) used five examples of apprenticeship in describing legitimate peripheral participation. I had undertaken an apprenticeship. I had

been there. My experiences were significant, and so were those of my

colleagues.

The total body of research questions are summarized below :-

RQ1 *"How is knowledge, learning and reflection mediated in communities of practice?"*

A number of subordinate research questions also emerged :

RQ 2)   How are structural components of CoPs built and sustained?

RQ 3)   How are epistemic components of CoPs built and sustained?

RQ 4)   How do organizational features or artefacts facilitate knowledge, learning and reflective processes.

RQ 5)   How are interplays of tensions within CoPs resolved and/or reconciled?

RQ 6)   How is the ability to assess the appropriateness of action within CoPs developed and sustained?

RQ 7)   How are CoPs integrated within the organization.

RQ 8)   How is the social construction of knowledge and the process of sharing knowledge across CoPs facilitated?

RQ 9)   How can CoPs and the management of knowledge be integrated to support learning, meaning and reflection in workplace practice?

RQ 10)   How does my own experience of a CoP connect with, and offer insights about other workplace communities?

RQ 11)   How have people in CoPs constructed their reality, and what are their reported perceptions, beliefs and explanations for what occurs within these workplace communities?

RQ 12)   What does the actors' stories and narratives reveal about the culture of CoPs.

The justification and rationale for each research question was made in the following four chapters.

1.9   How Was the Inquiry Conducted?

A preliminary and then a more comprehensive detailed literature review informed the original research questions. The research questions were considered important to extend the body of knowledge on communities of practice.

The research questions were central to the development of the collective framework for the research, the goals and objectives of undertaking a professional doctorate; the methods to be used in the inquiry; and the trustworthiness of the research (credibility, transferability, dependability and conformability).

An inductive process was undertaken, whereby reasoning moved from the specific to the general. Inductive reasoning was the process of arriving at conclusions based upon a set of observations.

A qualitative Action Research inquiry was utilized as the methodological approach.

Information and data was gathered through interaction and interpretation with members of communities of practice mainly within their places of work.

The lived experiences of the participants was obtained through data collection using a participative action research inquiry approach in sixteen different workplace settings.

Both the researcher-consultant and the participants worked together to largely co-construct themes and patterns. Conclusions and propositions were induced within 'local' contexts and workplaces.

The findings were compared to other findings within the theory and practice fields of communities of practice.

1.10 Key Considerations in Undertaking the Inquiry

Some of these were explored in more detail in subsequent chapters. However, an overview of some key considerations is included here.

1.11 Action Research as Methodology

Lewin's (1946) model of Action Research is put forward as the model on which this inquiry will be based. It is worth noting here that Action Research as a methodology has its critics. One common criticism concerns the role of the action researcher. This suggests that Action Research findings are not objective because the researcher is involved in the planning and implementation of the project as well as the evaluation of it. In reality, one might ask whether any evaluation can ever be truly objective in that it takes place in a political environment where knowledge is socially constructed. Action Research, like many other forms of social inquiry, and like professional practice itself, rests on a body of implicit 'taken for granted' theory such as 'common sense' determined in cultural terms; personal assumptions and beliefs; and deeply internalized professional practice. An underlying strength of Action Research is the integration of the discipline of theory with the equally rigorous discipline of practice. (Argyris, 1993).

Action Research is above all, an elaborate model of learning. It is not just about improving practice but also about the development of understanding about practice. This sits very comfortably with my motivation to undertake this inquiry.

1.12   Professional Development

I had chosen to undertake a professional doctorate, rather than a traditional PhD, primarily because I wished to make a significant contribution to my own practice, and with modesty to that of others I work closely with. The research is informed by a real world problem in professional practice : one that confronts a number of managers, executives, consultants and employees alike in a knowledge-driven society. That is :

> **"How is knowledge, learning and reflection mediated in communities of practice?"**

This is a real world problem that seeks answers from the inside rather than the outside. There are of course a number of pedagogical implications of undertaking research at a distance, and the practice-based element of the DBA creates a different dimension to that of a PhD. (See Gregory 1995). The focus on a contribution to practice within a "majority model" professional doctorate also required an original investigation undertaken to gain new knowledge and with practical aims and objectives.

The inquiry had an interdisciplinary element since the research is problem-based, and this in itself posed some dilemmas between knowledge deepening with a single discipline, and that of attending to a real-world problem in workplace settings.

Professional practice is not just about activity : it encompasses meaning and intention. Professional practice knowledge (including know-that, know-how, and

know-yourself, i.e., personal knowledge and emotional intelligence) formed part of my journey along the time line of these studies.

To suggest that professional practice can be described in terms of propositional or theoretical knowledge alone is not enough. Neither is it merely enough to understand the craft of doing something or knowing how. (I discussed my own apprenticeship in chapter six where I developed craft skills and social and culturally formed knowledge). Having personal knowledge about oneself as a professional person and in relationship with others is part of the process, but even then professional practice is also historically formed, culturally formed, socially formed, and discursively formed.

Whilst it is important for me to recognize that practice is situated and embodied in the capabilities and competencies that make up being a researcher and a consultant, it was equally important to be aware that practice is grounded in interaction, agreement, activity and discussion with the culturally embodied self understandings and discursive histories of places of work, (see Engeström, 1989; and Lave and Wenger, 1991, as discussed later).

1.13   Researching Inside Organizations

As a consultant, one gets to know that "the map is not always the territory"; in fact it rarely is! A specific abstraction or metaphorical representation of an event does not capture all facets of its source. As a researcher I have often wondered how it is possible to understand the essences of a life-world without being fully there oneself. Issues of "inquiry from the inside" and "inquiry from the outside" impact on the personal knowledge and professional development of 'the researcher'. My own preference for immersion within the research setting, the experiential nature of the inquiry, and situational relevance of its aims, all have

relevance for the way one behaves when conducting "insider" research. Inquiry from the inside may sometimes appear to be so fuzzy that its findings often compromise precision, rigour or credibility. What it is to know, partly reflects one's motivation to explore the phenomenon.

To engage with an organizational world and create tentative explanations and concepts about what goes on within, serves the professional practitioners' needs rather than theory-testing and developing universal laws and statement from the outside. This is not to dismiss inquiry from the outside, but to distinguish between what is data or information, from meaning. Insider inquiry aims to understand particular situations by making direct experiential contact with the organization and its members under study. Understanding the events, activities, stories and narratives within a specific situation requires a rich appreciation of the overall organization and context.

1.14   Stories within Stories

This study, is an account of the complex web of knowledge, communities, reflection, practice and consulting that takes place in organizations. To be able to tell the story of consulting in communities of practice it was necessary to access other stories that feed into it.

This thesis offers an account of the way in which knowledge, learning and reflection occurs in communities of practice, as seen through the eyes of a management consultant, who brought into this inquiry his own personal and professional history, and through the texts of the actors who helped me to appreciate their experiences.

1.15 The Communities of Practice in the Inquiry

During the lifetime of the inquiry, Communities of Practice were observed in sixteen different settings,

Organization		Anonymized Name
1) NHS Hospital Trust (SW)	:	"Dragon Trust "
2) Manufacturing Operation (N)	:	"Garville"
3) Local Government Organization (SW)	:	"West CC"
4) ICT manufacturer (Home C.)	:	"Hostco"
5) Multinational Manufacturing Co. (SE)	:	"RyanCo"
6) Manufacturing Co. (South Wales)	:	"Valley Girls"
7) Electrical Engineering Co. (W. Mids)	:	"Solvo Electrical"
8) Government Department (London)	:	"SkillGov"
9) Taxi Drivers (London)	:	"TaxiCo"
10) Telephony Co. (Home C.)	:	"RedCo"
11) Construction Consultancy (SE)	:	"Harleywide"
12) Call Centre (East Mid.)	:	"InTouch"
13) National Trades Union (Professional)	:	"Healthwise"
14) National Trades Union (Skilled Manual)	:	"Life Saver Union"
15) International Rail Consortium (Austria)	:	"RailCo"
16) Engineering and Systems Co. (London)	:	"LiteCo"

In the early phase of the inquiry there were occasional opportunities to see communities of practice in operation, and talk to members within them and/or associated with them. They provided valuable insights as the inquiry unfolded, and helped to contextualize the body of literature on CoPs. Most, did not however, provide an opportunity to undertake a longitudinal Action Research inquiry where the researcher would be able to work on the inside of the organization alongside the CoP members. A long-term assignment in "LiteCo" provided an opportunity to study different communities of practice across a range of operations and occupations. A comparative approach was undertaken between these communities; the results are presented within this thesis.

In the next chapter I consider issues from the literature that specifically related

to my role as a consultant researcher.

"Knowledge, Learning and Reflection : Consulting in Communities of Practice"
RQ1 : How is Knowledge, Learning and Reflection Mediated in Communities of Practice?

Fig. 1.1 : Conceptual Framework for the Research Thesis : Integrating Themes

Professional Practice (Consulting)　**Theoretical Research (Knowledge in Organizations)**　**Empirical Research (Communities of Practice)**

CONCEPTUALIZATION

Chapter 2
Consulting in
Knowledge Intensive
Environments

Chapter 3
Knowledge in
Organizations

RQ8
Knowledge Sharing

RQ2/Q3
Structural and
Epistemic Components

Chapter 4
Metamorphosis of
CoP's

RQ4
Features and Artefacts

Chapter 5
Research
Considerations

RQ7
Organization Integration

RQ10
Personal Experience

RQ6
Appropriate Action

RQ5
Interplays of Tension

OPERATIONALIZATION

Chapter 6
Community of
Compositors

Chapter 7
Early Participative
Fieldwork

Chapter 8
Community of
Engineers

Chapter 9
Interplays of
Tension

REFLECTION

RQ9
Learning and Reflection

RQ11
Reality Construction

RQ12
Stories of Culture

Chapter 10
Learning and
Reflection

Chapter 11
Analysis and
Integration of Data

OUTPUTS

Chapter 12
Conceptual
Models

Chapter 13
Conceptual
Conclusions

Chapter 14
Contribution to
Knowledge

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                    ┌─────────────────────────────────────────┐
                    │     Starting Professional Development    │
                    └─────────────────────────────────────────┘
                                        │
                                        ▼
                    ┌─────────────────────────────────────────┐
                    │     Development of Consulting Practice   │
                    └─────────────────────────────────────────┘
                                        │
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                    ┌─────────────────────────────────────────┐
                    │               Begin a DBA                │        (2001)
                    └─────────────────────────────────────────┘

    ┌──────────────────────────┐            ┌──────────────────────────┐
    │  Research Methodologies   │            │      Taught Elements      │
    └──────────────────────────┘            └──────────────────────────┘
                         ╲                  ╱
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                    ┌─────────────────────────────────────────┐
                    │        Research Topic and Proposal       │
                    └─────────────────────────────────────────┘
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                    │          Initial Research Design         │        (2002)
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    ┌──────────────────────────┐            ┌──────────────────────────┐
    │  Understanding Knowledge  │            │     Understanding CoPs    │
    │    (Extant Literature)    │            │     (Extant Literature)   │
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                    │      Conceptual Research Framework       │        (2003)
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    │   Learning and Reflection │            │       Research Inquiry    │
    │        from Inquiry       │            │          (Thesis)         │
    └──────────────────────────┘            └──────────────────────────┘
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                    ┌─────────────────────────────────────────┐
                    │        Learning and Reflection           │        (2006)
                    │        from Research Practice            │
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    ┌──────────────────────────┐            ┌──────────────────────────┐
    │      Reflexive Inquiry    │            │    Continuing Research    │
    │                           │            │     in Organizations      │
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                    ┌─────────────────────────────────────────┐
                    │            Development of                │        (2007)
                    │         Professional Models              │
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                    │          Professional Practice           │        (2008)
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Fig. 1.2 : Timeline of Professional Development, Theoretical Research and Empirical Research

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Chapter 2

Setting the Scene : Consulting and Communities in Knowledge Intensive Environments

This is the first of three chapters that reviews the literature. This one focuses upon the professional practice of consultancy.

There are a number of specific issues that are considered :-

1. The concept of CoPs as a challenge for consultants.

2. Achieving "insider" consultancy status.

3. Consultants as agents of change.

4. Consultants as generators of knowledge.

5. The under-conceptualization of consultancy.

6. The provision of information and knowledge.

7. Tensions within consultancy activity.

8. Metaphors of consultancy.

9. Consultants responsiveness.

10. Cognitive and community models.

The chapter also considered some of the ways in which consultancy and communities of practice have been treated in the management literature, and provided guidance for the researcher-consultant in the field of qualitative inquiry.

Further the chapter also considered issues that I confronted when entering the field of investigation in a knowledge-intensive environment. The study required fieldwork in the sometimes nebulous world of CoPs, where the topic was investigated from both a researcher perspective and a consultancy perspective. I used the words 'sometimes nebulous' deliberately, because many people work

in, or belong to a community of practice, yet do not use that terminology to describe their membership.

2.1   The Concept of CoPs as a Challenge for Consultants

Brown and Duguid (2000a : 142), state that the term 'communities of practice' started as a notion and quickly developed into a full-blown concept. The term "community of practice' is one that has been used and adopted more by academics, researchers and management consultants, than by the people who are members of that community. It is rare to hear work people describe their collective as a community of practice. Yet it is a significant part of the organizational learning and knowledge management disciplines. For many members of communities, the term "Communities of Practice" is an abstract concept.

However, in order to gain entry to the field, and given the nature of the business activity conducted by the researcher-consultant, the entry point was through the professional role of my consultancy practiced and to provide practical and concrete services.

2.2   Achieving "Insider" Consultancy Status

In the few studies of communities of practice where consultants have actually been involved in an action research inquiry, the path of collaboration between the organization and the social scientist has not always been a smooth one. Blackler and McDonald (2000) have described some of the dynamics of power

and collective learning within an action research team that worked in partnership with one organization over a two year period. Although the researchers regarded the company as a backdrop to the investigation, whose parameters would be steered by the research team, in practice the key expectations of the company were modelled by experience of consultancy, business language and specific prescriptions regarding organizational change.

The contrasting orientations to the project revealed themselves when the researchers experienced difficulties in understanding and accommodating the priorities and methods of the company they were collaborating with. This "unsatisfying and unsettling situation" (2000 : 843) highlights some of the practical difficulties confronting researcher-consultants. Czarniawska (2001) also explored the difficulties of employing a particular epistemological stance when confronted with the institutional expectations of managers.

In her case the difficulty was grounded in a :-

> "contrast between the logic of representation, conveniently used in contacts between researchers and managers, and the logic of practice, which is the medium of everyday organizational life ……" (2001 : 253).

Access, the ability to get close to the object of study, was an important issue. The role of the researcher and the consultant together, with the possibility of integrating these roles has been analyzed at length by the *interventionist school*, (Argyris, 1970; Argyris and Schön, 1974; Argyris, Putnam and Smith, 1985; Schein, 1989, 1997; Schön, 1983, 1992). The combination of researcher-consultant was well developed in the methodologies of action research and action science, yet as Gummesson (1991) has revealed, there are a number of significant difficulties associated with the combination of the roles of researcher and consultant. In action research and action science, the researcher-

consultant is expected to produce outcomes that could be applied in real life

situations and be helpful to both client and researcher.

A sign of the increasing significance of knowledge may be the rapid expansion

of consultancy business activity, (Alvesson 2004 : 8). Over recent years,

interest in management consultancy has grown rapidly, and much of the

relevant literature has focused on the expansion of the consulting industry. Yet,

some of this literature has taken a very critical tone. Whilst some have identified

consultants as important carriers in the diffusion of knowledge and innovation,

others have criticized consultants for acting as legitimizers for managerial

manoeuvres, wielding unaccountable power. Consultants generally subscribe to

an organizing principle of change (Czarniawska-Joerges, 1990). This has a

capacity to impose preferred forms of action and can be regarded as a key

power indicator (see Fincham 2003 : 69).

Yet consultancies are a significant part of a knowledge management industry,

and compete and co-operate with academic institutions and media companies in

the creation of management activity and practice. The main asset of

consultancies is the knowledge and competence of their staff. The intellectual

capital that accrues to large consulting organizations through recruitment and

development, is often dependent upon the way knowledge is shared and

distributed within their organizations, and between them and their clients.

2.3   Consultants as Agents of Change, … and Knowledge Providers

The role of consultants who advise on processes of change within or between

organizations has been succinctly defined by various thinkers (e.g. Schèin 1987;

Blake and Mouton 1976; Beckhard and Pritchard, 1992; Buchanan and Boddy

1992; Armenakis and Field, 1993; Connor, 1993), yet a general model of

consultancy that is ideologically and ontologically neutral has yet to become universally accepted.

The conventional roles of consultants as "experts, extras and facilitators" (Tisdall, 1982) has now been widened by the concepts of knowledge-intensive workers operating in knowledge companies/knowledge-intensive firms, (KIF's).

This traditionally viewed the role of consultants who previously might have been perceived as "problem solvers" who mediated issues within decision making processes. Such matters were described by Eden and Sims (1979 : 120) as :-

> A complicated drama which involves power, influence, negotiating, game-playing, organizational politics, complex social relationships with real people, not merely office holders".

More recently consultancy firms are typically portrayed as knowledge intensive and knowledge assumes more importance than most other kinds of input. Consultancies are also knowledge intensive because they rely more heavily on exceptional and rare expertise of individual consultants than widely shared or commonplace knowledge (Starbuck, 1992). Thus, the growth of the consultancy industry is considered to reflect the importance of knowledge workers in contemporary society.

2.4   Consultants as Generators of Knowledge

Consulting businesses are increasingly seen as generators of knowledge. The closeness between client and consultant combines to create new knowledge and a lot of valuable aspects of knowledge consulting originates from client assignments. In a study of five major consulting firms (McKinsey; Anderson Consulting; Boston Consulting Group; Ernst and Young; ABB Management

Consultants), Werr, Stjenberg and Docherty (1997) concluded that in the client-consultant interaction the shared interface facilitates competence, transfer and learning by providing an easily transferred version of a part of the consultant's knowledge as well as facilitating experiential learning through active participation in the change process.

Clearly, the market for professional services is expanding. Up to 2003, Management and I.T. consulting is expanding by at least 10% per year since early 1990.   Sturdy (1997) suggests the main reason for customers using professional services from consulting firms is their ability to both specify and implement new solutions. Resourced-based perspectives on corporate strategy view core competencies or capabilities as the source of competitive advantage, and it is here that much emphasis has been applied by consultancy firms.

Antal and Krebsbach-Gnath (2001), cite consultants as agents of organizational learning, in much the same way as Werr and Stjernberg (2003) explore management consulting firms as knowledge systems. However, Alvesson (1993) identifies that the ambiguous character of knowledge intensive firms means that the demands of the consultants involved, in terms of providing convincing dialogue, regulating impressions and images, are crucial. Alvesson (2003) later shows that IT consulting firms seem to be the most commonly used example of knowledge-intensive firms, and Fincham (2003), notes how the large business consulting firms are classic examples of knowledge-intensive firms, who devote a large part of their resources to acquiring and articulating the latest market knowledge. These consultancies have large data systems for knowledge storage, and make it available for engagement teams in specific assignments acting as a central resource.

Werr and Stjernberg (2003) examine how management consulting firms act as knowledge systems, both as pure "external" consultancies and as internal "corporates". Corporate consulting is where large technology-intensive corporations have consulting units offering both technical and management consulting services to support their companies' products.

Anand, Gardner and Morris (2007) have observed that consulting firms are especially reliant on their staffs for competitive advantage through knowledge-based innovation. Consulting firms are distinctive in their widespread use of the partnership form of ownership, where partners serve as producer-managers actively participating as knowledge generators.

Different approaches to innovation emphasize how knowledge-based companies attend to recruitment, development and retention of highly talented people. Starbuck (1992), Alvesson (2004) argue for the importance of social processes by which knowledge comes to be recognized and others cite the importance of systems such as codification routines, or protocols (Werr and Stjernberg 2003). Implicit in all these approaches is the notion that knowledge-based innovation emerges from on-going work and is then embodied in organizational structure. Information Technology inspired, but cannot deliver knowledge management says McDermott (1999b : 104), who argues that the role of consultants in knowledge intensive firms is not to be seen as a matter of simply building a large electronics repository, but by connecting people so they can think together to assist in this embodiment. His view is that these repositories are often limited in their ability to enable organizations to truly share knowledge.

2.5   The Under-conceptualization of Consultancy

Consultancy is at present under-conceptualized, and although much of the published research has commented on <u>how</u> consultancy should be undertaken, there is still very little that is concerned with <u>what</u> consultants actually do (de Jong and Van Eckelen 1999). Some would even say that consultancy is atheoretical (Gallessich, 1985) and most models of consultancy are often either very vague, overly normative and rarely lend themselves to verification or testing. Consultancy thus remains largely a mystery to those outside of it. Sturdy, et al (2005 : 3) argue that management consultants are typically seen as 'outsiders' in terms of both their organizational attachment and expertise, whereas it is in fact sometimes better to view them as 'insiders' (and some clients as 'outsiders') in terms of a range of boundary characteristics.

A number of accounts have sought to outline the historical influence of consultants (Tisdall, 1982; Littler, 1982; Holloway, 1991; Huczynski, 1993; Grint, 1994), yet the point is made that the consultancy process contains few definable structures.

The ambiguity over learning processes within knowledge work has been established for some while, (e.g. Starbuck, 1992; Blackler, 1992; Legge, 1994), yet very little has been researched into describing the dialectics of consultancy, although the theme of the knowledge-intensive organization has attained interest in the past fifteen years. (e.g. Alvesson, 1993; Scarbrough, 1995; Tsoukes, 1996); Newell and Swan, 2000; Nonaka and Konno, 2000).

2.6   The Provision of Information and Knowledge

Fincham (2003 : 82) cites examples of where strategic workshops and project teams provided flows of information but the consultants role in them was often

ambivalent. Clark (1995) suggests that given the absence of formalized expertise and hierarchical position, it is a dilemma how consultants are able to convince managerial clients of their ability. His view is that the initial selection of a management consultancy and the subsequent evaluation of the quality of service they deliver are inherently problematic. The active management of the client-consultant relationship requires the use of impression management which is a persuasive attempt to convince the client they have purchased a high quality service. Thus the consultant is constantly engaged in the "act of performing" in a dramatic event. Clark considers this dramaturgical metaphor (Burke, 1969; Goffman, 1990; Mangham, 1990; to be most appropriate for understanding the work and role of management consultants and the interaction with their clients. Fincham (2003 : 84) points to the distinction between the persuasiveness of discourse and the constraints of the consultant's position. Consultants employ distinctive power tactics in client firms, yet remain perennial outsiders; they represent management at its most '"systematic", yet in the process revealed the limits of managerial knowledge.

In many consultancy organizations there is a strong symbolic value put on information and knowledge. Knowledge plays key roles such as creating community and social identity; provides for interaction between client and consultant; creates legitimacy and faith regarding actions and outcomes; and obscures uncertainty whilst often counteracting reflection.

2.7   Tensions Within Consulting Activity

The symbolic use of information and knowledge often prevents reflective practice and reflection-in-action from taking place. The consultant is able to hide behind the curtain of "knowledge is power" without deeply reflecting upon the true nature of consultancy and the practical applications undertaken during

the assignments. Similarly, a number of researchers have indicated that there are inherent problems associated with the use of management consultancies (Holmstrom, 1985; Clark, 1993; Mitchell 1994). Much of this revolves around the difficulties that clients have in determining the precise nature of a consultancy's service prior to contracting. Indications suggest that consultants were able to "cloak" their modes and methods of operating.

Neumann (1994), suggests that the client-consultant relationship often operates unspoken "traditional assumptions" until such time that one party seriously violates the expectations of the other :-

> *"in my experience, both I and my new client operate different versions of our mutual contract, despite carefully worded formal and informal agreements until one of us violates the expectations of the other".*
> (Neumann 1994, p. 18).

Ellis *et al* (2001) illustrates how process consultation highlights deep, value-laden, emotionally charged interpersonal responses that resonate as the consultant seeks to shape an emergent situation. This often leads to tensions between the demands of the consultation activity and the intervention process itself. Learning and the demands for specific outcomes/performance are other areas where tensions or incongruencies can develop.

2.8   Metaphors of Consultancy

Clark and Salaman (1996); Atkin and Perren (1998); and Schuyt and Schuijt (1999), all make references to rituals, rules and the metaphor of magic in consultancy. (See also Doyle and Sims 2002, for further discussion on metaphor). Not all metaphors present consultants in a positive light.

This is different to the use of certain types of metaphors which view the role and work of consultants in terms of a professional helper. Perren and Atkin (1999)

illustrate how metaphor appears to be at the epicentre of disagreements and agreements between a high profile/TV personality, change consultant and various client-managers. (e.g. John Harvey-Jones, and in another more recent example (not cited) Gerry Robinson trying to "save" the NHS). Clark and Salaman (1996) in using the metaphor of the "management guru as the organizational witchdoctor" highlight how consultants depend upon power of persuasion and image manipulation. Management gurus create a climate of expectations about organizational change, and they may prepare the ground for consultants as the live actors in firms. Gurus may propagate short lived fads but they create appetites for solutions with strong underlying themes (Abrahamson, 1996; Hucsynski, 1993; Watson 1994).

2.9   The Importance of Consultant Responsiveness

Wasdell (1993) in *"Learning Systems and the Management of Change"* makes the point that consulting organizations are not immune from resistance to change. He postulates that with all the attention focused on client systems, it is all too easy to become unaware of the quality and order of learning being modelled by individual consultants or the organizations to which they belong. Wasdell considers that consultants who fail to "walk-the-talk" demonstrate a lack of integrity in the consulting process, leading eventually to client disillusionment.

The management of knowledge commodifies over time as consulting firms try to colonize new knowledge territories. Walk around any large international airport and advertisements will feature consultancy organizations.

Consulting firms must continually create new knowledge based structures to remain innovative. They accomplish this by developing new practice areas,

which are identifiable sub-units within the company. Consultants are attached to these sub-units according to some common facet of their expertise. Yet, failure to create advanced second-order learning systems in consultancy organizations would seem to be a possible reason why a number of clients consider management consultants to be "unresponsive" to the difficulties highlighted in many client-consultant relationships. In other words some consultants are not learning from their own practice. (Argyris and Schön, 1978; Trisoglio, 1995; Senge, 1990). In practice, the client and the consultant can both develop first and second order learning. Consultants can be involved in second order research : acquired knowledge on how they come to know, when they develop both awareness and reflexive competence.

In this regard reflexive competence means not just reflecting on the practice of change consultancy, but through practice of experiential knowledge; reflection-on-action (first order learning) by developing knowledge and awareness; reflection-in-action through the application of knowledge in practical consulting situations; and through conceptualization and meta-reflection on how knowledge has been developed and used (second and third-order learning).

2.10   Cognitive and Community Models

Newell et al (2002) cite two contrasting views of the knowledge management process : a cognitive model where knowledge is equal to objectively defined concepts and facts, or, a community model where knowledge is socially constructed and based on experience.

Table 2:1 : Cognitive KM Model and Community KM Model

Cognitive model	Community model
Knowledge is equal to objectively defined concepts and facts	Knowledge is socially constructed and based on experience
Knowledge can be codified and transferred through text : information systems have a crucial role	Knowledge can be tacit and is transferred through participation in social networks including occupational groups and teams
Gains from Knowledge Management include exploitation through the recycling of existing knowledge	Gains from Knowledge Management include exploration through the sharing and synthesis of knowledge among different social groups and communities
The primary function of Knowledge Management is to codify and capture knowledge	The primary function of Knowledge Management is to encourage knowledge-sharing through networking
The critical success factor is technology	The critical success factor is trust and collaboration
The dominant metaphors are the human memory and the jigsaw (fitting pieces of knowledge together to produce a bigger picture in predictable ways)	The dominant metaphors are the human community and the kaleidoscope (creative interactions producing new knowledge in sometimes unpredictable ways)

Source : Newell, Robertson, Scarborough and Swan (2002).

Their study indicates that although there is much evidence for the value of a community approach it seems more difficult for organizations to develop this approach. They suggest that CoPs have no formal status within organizations, do not appear in organizational charts and do not recognize a traditional "boss". The voluntary nature of many CoPs makes them different from groups or teams who have specific goals and leaders and are accountable for deliverables. Brown and Duguid describe them as relatively tight-knit groups of people who know each other and work together directly : "they are usually face-to-face communities that continually negotiate with, communicate with, and co-ordinate with each other directly in the course of work". (2000a : 143).

The literature on CoPs has often understated the political dynamics associated with the emergence and embedding of innovative knowledge-based structures (Contu and Wilmot 2003). Similarly another shortcoming, identified by (Fox 2000), is that it downplays the role of individual interest and agency in championing knowledge-based innovation.

CoPs often create barriers against other external groups or new ideas, and the creative difference that can characterize many innovation teams, can be stifled by CoPs that hold contrary viewpoints.

Pastoors, (2007 : 31) has argued that a one-size fits all approach to top-down institutionalized CoPs through the global community does not address consultants' requirements for learning and knowledge. The very nature of consultants' work based on their individual knowledge makes CoPs an extremely valuable way of creating knowledge. However, Empson (2001) has described how knowledge transfer between different groups in the same consulting firm was often impeded following merger arrangements. Two factors helped to overcome this deadlock. Firstly, individuals from both firms acted independently to share knowledge with each other, which helped to create an environment of co-operation where knowledge can be shared at a company-wide level. Secondly, the knowledge base of the strategy firm was codified into a series of manuals, equivalent to those used by the operations consulting firm. A "common currency" for knowledge was created, facilitating the process of integrating these knowledge bases to create a new service offering.

Community is fundamental to shaping knowledge (Leonard and Sensiper 1998 : 121), and also indicates the significance of organizational culture (Schéin 1990, 1999). Meister (2007) emphasises the need to integrate CoPs into the real work of the business, starting with initial planning meetings with senior executives to understand business needs and challenges in the market place.

This ensures CoPs have "a reason for being" and thereby support organizational goals. Consulting in CoPs, has a different imperative to that of consulting in groups or teams. The power of engagement is critical to the success or failure

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of integrating CoPs into the knowledge system of an organization. Von Krogh et al (2000) suggests strong emphasis be placed on personal connection and commitment to shared success. Clearly, CoPs have profound implications for the management of knowledge work.

2.11   Discussion

A review of the literature of management consultancy reveals two main phases. Firstly, an organization development phase authored by practicing consultants who were concerned with maximising the effectiveness of their interventions. Secondly, a critical consulting phase authored primarily by scholars from the critical management perspective who have problematized the status of consultancy as a profession and identified difficulties in how they demonstrate their value to clients in the first instance.

I considered long and hard about the role of the researcher-consultant who was undertaking research in the workplace, drawing on professional practice knowledge including technical (knowing that), craft (knowing how) and personal knowledge and experience. I considered the significance of practice, and the importance of my own reflexivity, bringing to mind the relationship between the practitioner as subject and object of his practice via praxis. I considered that practice invites communicative action; collaborative action oriented towards mutual understanding, inter-subjective agreement and a consensus about what to do. I thought deeply about ways to explore the lived experience of the actors within the community of practice settings that would constitute the field, and I thought about the ways in which I could position all of that with the undertaking of a professional doctorate, which intersects the profession, the academy and the workplace. There was emphasis on professional practice, in a

transdisciplinary context, and engagement with sites of knowledge production within the workplace. I placed emphasis upon flexibility and maintenance of a workplace based connection, where both the researcher-consultant and my clients could thematize, explore problems and issues of practice, and co-construct the outcomes.

By way of a conclusion to the praxis-based issues of undertaking consultancy in a knowledge-intensive environment, I adopted the following :-

1. My practice must involve two goals : help solve a problem for the client and make a contribution to the theory and practice of knowledge, learning and reflection in communities of practice.

2. Attempt to ensure that during the research period, those involved, the researcher-consultant and the client personnel should learn from each other and co-construct their own competence.

3. Attempt to develop mutual understandings that are based upon the totality of the problem, but still focus upon issues that could be understood by those involved.

4. Work on the basis of co-operation between myself and the client personnel, after feedback to the parties involved, and offer open access (subject to principles of anonymity and confidentiality) to those who requested it.

5. Work within a mutually acceptable ethical framework where a particular methodology is used and to ensure transparency when conflicting interests and values are involved.

6. Engage, wherever possible, in participatory research, where those in the inquiry can be involved and contribute to the outcome.

Drawing upon my own experience, I considered it reasonable to ask by way of a subordinate research question :-

> "How does my own experience of a CoP connect with, and offer Insights about other workplace communities?" (RQ 10).

Although the list 1-6 above is relatively short, the considerations of undertaking

interpretive qualitative research in a workplace setting were extensive. I

addressed these considerations around the research process in more detail in

Chapter 5.

In the next chapter I examine some of the concepts of knowledge in

organizations, and relate them to this inquiry.

Chapter 3

Knowledge in Organizations : A Review of Literature

This chapter considers the extensive literature on the definition of knowledge, and categorises and systematises its complexities. It suggests that there are six important areas of knowledge in organizations and each of them have been addressed within the chapter. A review of the relevant literature for each area is included.

These are :-

1. Ways of Knowing.

2. Types of Knowledge.

3. Knowledge Acquisition, Knowledge Transfer and Knowledge in Use.

4. The "Fit" with Organization Culture.

5. Linking Different Forms of Knowledge to Learning.

6. The Shift in the Focus of Learning Theories.

A table (Table 3.1) is provided towards the end of the chapter to summarize the main knowledge types and ways of knowing by author or researchers.

Knowing is a practical and continuous activity, and reminds us that it is situated in a particular place and moment, is subject to many forms, and is constantly changing.

Knowledge is a subject that has been around since the pre-Socratic philosophers, yet it currently has received a huge upsurge in interest, partly as a result of the globalization of economies; the value of specialized knowledge within organizations; the use of knowledge as a factor of production in

knowledge-based sectors, and the rapid developments in world-wide networks

which bring data and information to the attention of learners and users.

My superordinate research question "how is knowledge learning and reflection

mediated in communities of practice?" requires an understanding of some of the

many types of knowledge highlighted in the literature, and some consideration

about how knowledge fits with the culture of organizations.

Knowledge is a diverse and complex subject, although as Hunt (2003 : 100)

describes : knowledge is a concept, like gravity. You cannot see it, but can only

observe its effects.

Early writers such as Bacon (1561-1626 argued that :-

> *"Knowledge … is an impression of pleasure itself".*

And later concluded that :-

> *"Knowledge itself is power"*

Johnson (1709-1784) asserted that :-

> *"Knowledge is of two kinds. We know a subject ourselves, or we know where we can find information upon it".*

More contemporary writers have focused upon understanding the nature of what

knowledge is and how it is to be shared. Davenport and Prusak (1998 : 5),

define knowledge as :-

> " …… a fluid mix of framed experience, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experiences and information. It originates and is applied in the mind of knowers".

It is this complex make up of knowledge that makes it such a fascinating and

often elusive area of investigation. It is often generally described as the body of

understanding and skills that is mentally constructed by people. It is the human
intervention and human interaction that turns information into knowledge. When
information is combined with experience, context, interpretation, reflection,
intuition and creativity, knowledge becomes created. Knowledge is in the
residue from thinking.

Philosophers often find "knowledge" to be a "slippery" concept especially the
notions of "knowing" in the sense of acquaintance (knowing Joe Crow or
knowing Luton, knowing "how" (for example, to ride a bike), and knowing in the
propositional sense (knowing that you are presently reading about knowing).

Educational philosophers have tried to interpret knowledge in broad categories
which they have called "realms of meaning", "forms" or "fields". Thus, for
example, Hirst and Peters (1970) have adopted a "classical" interpretation of
knowledge and claimed that seven forms can be distinguished. These are
mathematics, physical sciences, awareness of one's own and other people's
minds, moral judgement, aesthetic experience, religion and philosophy. Each of
these forms, it is claimed, has its own distinctive concepts, methodologies and
logical structures. It should be stressed that this is in no way an uncontroversial
analysis of the basic structure of knowledge, but it does underline that when we
begin to think about assessing "knowledge and understanding" we are dealing
with constructs which have been the focus of substantial debate.

3.1   Ways of Knowing

"Ways of Knowing" and the kinds of knowledge that is needed with constantly
changing dynamic systems are indispensable for personal and organizational

learning. For Aristotle :-

> *"there are five ways in which the soul arrives at truth by affirmataion or denial, viz, art, science, prudence, wisdom and intuition. Judgement and opinion are liable to be quite mistaken".*
> (Aristotle, English translation, 1955 p. 206).

A simplification might be :-

Scientific Knowledge	*(episteme)*
Art/Technical Skill	*(techne)*
Prudence/Practical Wisdom	*(phronesis)*
Intuition	*(nous)*
Wisdom	*(Sophia)*

(Source : Contradictions of Management Theory – Somekh and Thaler

E.A.R. 5.1 (1997).

Habermas (1971, 1974) suggests that there are at least three ways in which we

come to know and understand things about the world.

(I)   empirical observation.

(II)   Conventional knowledge.

(III)   Critical understanding of the self.

Habermas argues that different knowledge and research traditions are linked

with particular social interests. This Critical Theory tradition is 'critical' in-so-far

as it challenges both the positivist/empiricist and hermeneutic/interpretative

traditions of social research. 'Critical' refers to the unmasking of beliefs and

practices that limits human freedom, justice and democracy. Other literature in

the field would include Benhabib (1986); Carr, W. (1995); Fay (1987);

McCarthy (1978) and Thomas (1993).

Empiricism is the notion that our learning and memory are primarily derived from our experience of events of the world (Latin *empiric* : "experienced"). Empiricist theorists such as those of Aristotle, William of Ockham, John Locke, all had "cognitive" models of learning and memory in one form or another.

3.1.1   Social Construction of Knowledge

Post modern ways of knowing, shifts attention from the mind to social processes such as language use and interpersonal relationships. Social constructionism is principally concerned with explaining how people experience and describe the world in which they live. Many social constructionists draw heavily upon the work of Wittgenstein (1953), in much the same way that symbolic interactionists have drawn upon the work of Mead (1934). Key contributions to the field of social constructionist literature are Gergen K. J. and Gergen M. M. (1986) who write about narrative accounts, voice and the elaboration of the self; Shotter, J. (1993); Sarbin (1986) and narrative psychology and Harré (1986) who considers the social construction of emotions. The view that knowledge is historically and culturally specific is fundamental to the work of the French philosopher Foucault (1972, 1976, 1979), and other discourse psychologists such as Potter and Wetherell (1987), Edwards (1992) and Billig (1987, 1990) have all contributed to the social constructionist standpoint. The major contribution from sociology has been Berger and Luckmann's (1966) "*The Social Construction of Reality".* Van Manen's (1977) : "*Linking Ways of Knowing with Ways of Being Practical",* argues that the concept of the practical is often understated, and suggests that only through critical reflection can the main traditions of social science and their associated ways of knowing be understood. He confirms that the practical, as the achievement of communicative understanding of educational expressions, educational actions,

and educational experiences, finds its theoretical roots in the interpretation

theory of Schleiermacher, Dilthey, Heidegger, Ricoeur, and Gadamer.

Van Manen succinctly describes Heidegger's (1962) two senses of knowing :
Erkennon (knowing) and *Verstechen* (understanding); Gadamer's (1975)

concept of experience which is the experience of reflection; the critical

consciousness of Friere (1970); and the critical thought of Habermas (1970)

and Chomsky (1965), and concludes that these are the central treatise in this

field.

More recent work by van Manen (1991) *"Reflectivity and the Pedagogical*

Moment" considers the relationship between reflection and action, the reflective

practitioner, and the notion of thoughtful action in pedagogical situations.

Pedagogical perceptiveness relies in part on a tacit, intuitive knowledge that the

professional may learn from personal experience or through association with

another more experienced professional. The tactful structure of thoughtful

action, and "pedagogical thoughtfulness", as van Manen has described it, can

itself be a form of knowledge. Being tactful is to incarnate one's reflective

thoughtfulness in concrete situations.

Carper (1978, 1992) sought to identify the structure of knowledge and

fundamental patterns of knowing that characterized the discipline of nursing.

Carper's four ways of knowing (empirical; personal; ethical and aesthetical) are

still constantly referred to in nursing literature today.

In both pedagogical and organizational contexts ways of knowing are often

given as "rewards" or "punishments" in the selection and promotion of

individuals for important leadership roles whether in the classroom or the

workplace. Indeed in some organizations the exhibition of a number of

knowledge elements that individuals openly display, may be at variance with

their organizational or teaching/learning cultures. (See Lazear (1991) *"Seven*

Ways of Knowing : Teaching for Multiple Intelligences"; and Gardner (1983)

"Frames of Mind").   Both Lazear and Gardner have recently (2007) extended

their list of multiple intelligences to include three additional intelligences

(naturalist; spiritual-existential; moral).

3.1.2   Explicit and Tacit Knowledge

In the corporate world of knowledge creating companies, Nonaka and Takeuchi

(1995) describe two forms of knowledge in workplace settings – explicit and tacit

knowledge.The first is formalised, generally systematically codified and

represented in data, organisational policies and procedures and in guidelines

and manuals. Explicit knowledge can be processed, catalogued, transmitted

and stored relatively easily. Tacit knowledge, on the other hand, is personalised

and resides solely in the heads of individuals within the organisation as insights,

intuitions, memories, wisdom and experiences. Given its informal nature, tacit

knowledge is much more difficult to ascertain, document, process, formalize and

transmit to others. Davidson and Voss (2002, p. 2) explain that this implicit

knowledge within an organisation is difficult to determine and use because it is

often knowledge "that has become so thoroughly embedded that the holders no

longer 'think' about what they're doing but simply 'do' it".

I agree with the view that Tsoukas (2002) advances, that tacit knowledge has

been greatly misunderstood in management studies. He argues that tacit

knowledge cannot be "captured", "translated" or "converted", but only displayed

and manifested, in what we do. New knowledge comes about not when the tacit

becomes explicit, but when our skilled performance is punctuated in new ways through social interaction.

3.2   Types of Knowledge

There are many differing views about knowledge and about types of knowledge. For example, Gamble and Blackwell (2001) move beyond the relatively straightforward concepts of explicit and tacit to describe three knowledge types :-

- *Embodied knowledge (un-codified, undocumented information residing in the heads of people such as intuition, empathy and experience).*

- *Represented knowledge (codified and documented information and data underpinning the making of decisions).*

- *Embedded knowledge (knowledge that is located in such things as processes, products, rules and procedures).*

Eraut (1988) describes six types of knowledge : situational knowledge; knowledge of people; knowledge of practice; conceptual knowledge; process knowledge and control knowledge.

Situational knowledge arises first when considering the performance domain then later when discussing the Initiation phase of a performance period. People bring a great deal of knowledge to the way they read situations, and this influences what they expect, what they look for and how they interpret what they see. This knowledge is mainly developed experientially, so much of it remains tacit. However it is also influenced by the perspectives and interpretations of others who have pointed out features of situations or raised awareness of them. There is also good evidence that the way people conceptualize situations and think about them affects the way they behave. Certainly, good performance in

many occupational contexts depends on the performer's ability to read situations, to find out more about them when necessary, and to continue to read the situation as it changes and develops.

Knowledge of people : Closely related to situational knowledge is knowledge of people. This comprises not just one's existing knowledge of people one works with but also the way in which one gets to know and make judgements about people one has not previously met. Such knowledge is extremely important in certain occupations yet people have made little attempt to consider it as an important facet of competence.

Knowledge of practice is a broad category which needs breaking down. First it includes simple factual information that has to be recalled or looked up, in order either to make some sensible plan or decision or to pass it directly on to a customer or colleague. Obvious examples are product information, travel information, rules and regulations, recipes, etc. Beyond this level of facts, however, knowledge of practice extends to courses of action or things to do. Competent practitioners, it can be argued, have to know about several possible courses of action which either they or their colleagues could take. Good decision-making consists of choosing the best action for each particular situation, thus requiring both knowledge of practice and situational knowledge. Some courses of action involve passing a decision or task to somebody else rather than attempting to do it oneself. Simple matching of action to situation is what Mansfield (1989) calls "knowledge for selection of alternatives". More complex decision-making, however, requires rather more thinking. And is perhaps better characterized as a form of problem-solving.

Conceptual knowledge encompasses most of that knowledge that is commonly called "theoretical", and is a particularly important element in understanding. As suggested earlier conceptual knowledge is regularly used to interpret situations and think about practice. What is less commonly realized, however, is the extent to which conceptual knowledge underpins almost every kind of thinking, whether people are aware of it or not. Research into perception has shown that it is affected by a person's cognitive framework. Memory is also a highly cognitive activity, because information has to be categorized in order to be stored and retrieved, and people have to "search their minds" to find "hooks" which enable them to retrieve the information they want. Personal perspectives are strongly influenced by the way people conceptualize problems and situations, and thus determine how they plan, make decisions and generally think about what they are doing. There are distinctions between events/phenomena and the different constructions that individuals place upon them. Kelly (1955), the founder of Personal Construct Psychology (PCP), draws the distinction between events and constructions. Central to the theory of PCP is the belief that constructions cannot be judged in terms of their truth or correctness, but only in terms of their usefulness. This belief is what Kelly calls constructive alternativism, where there are an infinite number of possible ways of construing experience, and some constructions will be more useful than others in making sense of what we perceive, feel and think. Elsewhere, Jankowicz (2001); Heron (2001) and Berger and Luckmann (1966) all argue that knowledge creation proceeds from the intuitive and the tacit; that is all knowledge creation is an act of construction rather than discovery.

Process Knowledge : People have "theories" about almost everything, although only a few have been consciously worked out. The improvement of performance often depends on people recognizing these implicit theories and

bringing them under more critical control (Argyris and Schön, 1974). Process

knowledge is especially important in any occupation that is not highly routinized.

Essentially it is knowledge about how to do things or get things done. Actions of

any complexity have to be broken down into stages and tasks, either preplanned

or subject to ongoing decisions as relevant information is obtained. These tasks

may need to be sequenced and coordinated into a single coherent process,

incorporating ongoing feedback. One can also include as process knowledge

interpersonal skills, such as interviewing or collaborating, and logical skills, such

as budgeting or timetabling. But these are more directly observable than

knowledge of how to go about a complicated task.

Control knowledge uses 'control' with a cybernetic rather than a management

meaning : it applies to controlling oneself and one's thinking, and covers self-

awareness and sensitivity; self-knowledge above one's strengths and

weaknesses, the gap between what one says and what one does, and what one

knows and does not know; self-management in such matters as the use of time,

prioritization and delegation; self-development in its broadest sense; and

the metacognitive skills one uses in organizing and controlling one's thinking.

Thus control knowledge includes planning, problem-solving, analysis and

evaluation. It is especially critical in the thinking that spans the transition from

Initiation to Action, in the ongoing interplay between "doing", "thinking" and

"communicating" and in the concluding stage when products and actions are

evaluated and relevant information recorded.

3.2.1   A Categorization of Knowledge Types

Collins (1993) suggested a categorization of knowledge types where knowledge can be described as :-

> *embrained*
> *embodied*
> *encultured*
> *embedded*
> *encoded*

Embrained knowledge : is knowledge that is dependent on conceptual skills and cognitive abilities, what Ryle (1949), called "knowledge that" and James (1950) termed "knowledge about". Within western culture abstract knowledge has enjoyed a privileged status, and in the organizational learning literature a number of commentators have emphasized its importance. Fiol and Lyles (1985), reflect the predominant view of the distinctive status of abstract knowledge when they contrast "routine" behavioural adjustments with what they term "higher level" abilities to develop complex rules and to understand complex causations. Perhaps the best known theorist of organization learning who has featured embrained knowledge is Argyris, whose theory of "double-loop" learning (e.g. Argyris and Schön 1978) encourages an explicit recognition and reworking of taken-for-granted objectives. A recent account in this tradition is Senge (1990) who synthesizes personal insights , models, systems thinking and shared visions in a general account of organization learning.

Embodied knowledge : is action oriented and is likely to be only partly explicit what Ryle (1949), called "knowledge how", and James 1950, "knowledge of acquaintance". A contemporary account of embodied knowledge is included in Zuboff (1988) : such knowledge, she says, depends on peoples' physical presence, on sentient and sensory information, physical cues and face-to-face discussions, is acquired by doing, and is rooted in specific contexts. Other

accounts include Scribner's (1986) description of "practical thinking", i.e. problem-solving techniques which depend on an intimate knowledge of a situation rather than abstract rules, Hirschhorn's (1984) analysis of mechanization and his conclusion that operators' tacit understandings of machine systems are more important than their general knowledge, and Suchman's (1987) studies of how people spontaneously construct interpretations of technologies as they interact with them.

Encultured knowledge : refers to the process of achieving shared understandings. Cultural meaning systems are intimately related to the processes of sociliazation and acculturation; such understandings are likely to depend heavily on language, and hence to be socially constructed and open to negotiation. As Swidler (1986) indicated, in periods of social transformation explicitly formulated ideologies become the main vehicle for promoting new recipes for action. Following Pettigrew (1979) and Ouchi's (1980) discussions of organizational culture there has been considerable interest in the relevance to organizations of such processes. Within the literature on organizational learning, Srivastva and Barrett (1988) demonstrated how the imagery in the language of a group can change over time : as people grasp for new insights, they experiment with new metaphors into their talk which others may take up and develop; and Czarniawska-Joerges (1990) illustrated how consultants explicitly endeavour to manage this process. Other important contributions include Orr's (1990) account of stories shared by maintenance technicians about complex mechanical problems, and Nonaka's (1991, 1994) discussions of "knowledge-creating" organizations.

Embedded knowledge : is knowledge which resides in systemic routines. The notion of "embeddedness" was introduced by Granovetter (1985), who proposed

a theory of economic action that, he intended, would neither be heavily dependent on the notion of culture (i.e. be "oversocialized"), nor heavily dependent on theories of the market (i.e. be "under-socialized") : his idea was that economic behaviour is intimately related to social and institutional arrangements. Following Badaracco (1991), the notion of embedded *knowledge* explores the significance of relationships and material resources. Embedded knowledge is analyzable in systems terms, in the relationships between, for example, technologies, roles, formal procedures, and emergent routines. This is how, for example, Nelson and Winter (1982) analyzed an organization's capabilities. They noted that an individual's skills are composed of sub-elements which become co-ordinated in a smooth execution of the overall performance, impressive in its speed and accuracy with conscious deliberation being confined to matters of overall importance; thus, they maintained, may an organization's skill be analyzed. In addition to the physical and mental factors that comprise individual skills however, organizational skills are made up of a complex mix of interpersonal, technological and socio-structural factors. Similar approaches include Levitt and March's (1988) development of the notion of organizational routines (which, they suggest, make the lessons of history accessible to subsequent organizational members) while other writers refer to "organizational competencies" (Prahalad and Hamel 1990). A related orientation has been proposed by Henderson and Clark (1990) who distinguish between the knowledge of specialist elements in an organization ("component knowledge") and knowledge about how such elements interact ("architectural knowledge"); architectural knowledge is often submerged within an organization's taken-for-granted routines and interactions, yet is central to an understanding of its strengths and weaknesses.

Encoded knowledge : is information conveyed by signs and symbols. To the traditional forms of encoded knowledge, such as books, manuals and codes of practice, has been added information encoded and transmitted electronically. Zuboff's (1988) analysis of the "informating" power of information technologies explores the significance of this point for organizations : information encoded by decontextualized, abstract symbols is inevitably highly selective in the representations it can convey. Poster's (1990) thesis on how the new information technologies may be "culturally alien" and Cooper's (1992) analysis of the significance of technologies of representation for the theory of organization are amongst the writings which have complemented such lines of analysis.

Other authors such as Gagne (1984), Kim (1993) and Lundvall and Johnston (1994) make the following distinctions between the various types of knowledge:-

- *Know-what-knowledge (information and facts)*

- *Know-why-knowledge (principles and causal relationships)*

- *Know-how-knowledge (how people understand and apply learning)*

- *Know-who-knowledge (who knows what).*

Brown's (1991) account of efforts to develop Xerox as a learning organization provides an example of how the development of each of these different forms of knowledge may contribute to organizational learning. Brown pointed to the advantages for a company like Xerox of undertaking new product development in close association with potential customers. He identified the relevance of the embedded knowledge of Xerox's customers for an understanding of their reactions to new office machinery). He illustrated how design engineers at Xerox learned from ethnographic studies of how people interact with machines

(i.e. from studies of the ways in which encoded knowledge interacts with, and may disrupt, embodied knowledge) and he emphasized too how studies of communications between engineers in Xerox have revealed how essential dialogue is between them (i.e. encultured knowledge) to increase their effectiveness in solving problems.

There is current interest in the competitive advantage that knowledge may provide for organizations and in the significance of knowledge workers, organizational competencies and knowledge-intensive firms.

Drucker (1993) has offered an historical interpretation of the suggestion that, within the demands of contemporary capitalism, a shift is occurring in the relationship between knowledge and wealth creation.

Drucker maintains, a society is emerging that is dependent upon the development and application of new knowledges. "Knowledge is being applied to knowledge itself". Drucker's thesis can be taken to imply that embrained and encultured knowledge are beginning to assume predominant importance.

Blackler (1995) provides an overview of organizations which depend differentially on knowledge that is embodied, embedded, embrained, encultured or encoded, and suggests how four kinds of organizations can be differentiated :-

> 1) *Expert dependent (emphasis on embodied competencies of key members).*
>
> 2) *Knowledge routinized (emphasis on knowledge embedded in technologies, rules and procedures.*
>
> 3) *Symbolic-analysis dependent organizations (emphasis upon the embrained skills of key members).*

4)   Communication-intensive (emphasis on encultured knowledge and collective understanding.

3,2,2   Multiple Forms of Knowledge

Heron, J. (1981, 1992, 1996) has provided new insights into working with

different forms of knowing. His concept of "extended epistemology" is that

knowing takes multiple forms, and is at least propositional, experiential, practical

and presentational.

- Propositional Knowledge *is knowing about. It is the realm of ideas, concepts. It is expressed in words and can be readily debated. This is the main form of knowing recognized in traditional academic discourse, but it is essentially limited. Theoretical knowledge can be held separately and discordantly from practice.*

- Practical Knowing *is knowing how to, we enact it. This form of knowing is embodied.*

- Experiential Knowing *is knowing by encounter. It is the pre-verbal ground from which other knowledges arise, it incorporates emotional knowing.*

- Presentational Knowledge *is patterned in our perceptions before we catch these with our conceptual, categorizing intellect. It is analogic, a matter of form, often only tacitly apprehended (unless appropriate attention is paid). Presentational knowledge can be expressed in images, dreams and narrative.*
  (Sources : Heron, J. 1981, 1992, 1996/Marshall and Reason 1997).

Heron S. (2001) presents an inventory of ten knowledge types, selected from

twenty four variables selected from the literature on different types of

knowledge. This includes the attributes of each knowledge type and describes

how they influence knowledge creation and knowledge sharing within

organizations. (See Table 3:1).

3.3   Knowledge Acquisition, Knowledge Transfer and Knowledge-in-Use

Sveiby, K. B. (1997) suggests that knowledge in organizations often lacks a generally accepted definition and a measurement standard.

In extending this, Hunt, D. (2003) argues that knowledge is often defined as a belief that is true and justified, and a correct or incorrect answer is interpreted to mean simply that a person knows or does not know something. Hunt asserts that such methods of measurement have serious deficiencies which can be alleviated by expanding the definition of knowledge to include the individuals certainty. It is important to recognize that knowledge is transformed by the process of being used. Hence knowledge used only in the training context will not be the same as apparently similar knowledge used on the job; and knowledge used in one job context will not be quite the same as apparently similar knowledge used in a different context. The way the knowledge is organized in the mind is affected by how it has been used.   Indeed much of the learning of new knowledge takes place while it is first being used, not when it was originally introduced. The modification of internal mental schemes to fit a changing cognizance of reality known as "accommodation" was a key concept in Piaget's (1950) *Psychology of Intelligence.* The accompanying concept was "assimilation" where an individual develops an ability to notice similarities among objects and incorporates them into general classes and categories. Both accommodation and assimilation form key cornerstones in Kolb (1976) and Honey and Mumford's (1982) Learning Style theories.

3.3.1   Modes of Knowledge Transfer

Eraut, (1985) has discussed how knowledge may be transferred or used in one of four ways; replication, application, interpretation and association.

Replication is the simplest mode of use. It occurs when knowledge is used in exactly the same way in which it was learned; for example when factual knowledge and routine procedures are recalled from memory and repeated without further thought or modification. Although such knowledge presents few problems of transfer, one still has to know, when to use it. Whether the knowledge was first acquired on or off the job is unlikely to be significant.

 Application conjures up an image of putting theory into practice. It involves making use in a specific situation of some general rule, procedure or method. The normal assumption is that the generalization does not change its meaning across the range of contexts in which it is deemed to be applicable, but that its application involves a degree of discretion. It need not be very abstract or theoretical but it must be made explicit. This is where training becomes important. Training may provide people with rules and methods to guide their actions, which then get internalized during subsequent use, or it may help people arrive at generalizations by reflecting on their practice, and hence make their on-the-job learning more transferable. Thus the application mode of knowledge transfer requires both knowledge of generalizations such as rules, precepts or methods and knowledge of how and when to apply them.

Interpretation is a symmetrical process, though this is not always recognized. The interpretation of some practice or situation involves thinking with a variety of conceptual tools – concepts, principles, schemes, frameworks – some of which may be specially created for the purpose. Conversely, the interpretation of a concept or principle is likely to include a review of the practical situations in which it is used. Using a concept to interpret a situation not only changes one's perception of the situation, it also changes one's interpretation of the concept. A distinctive feature of interpretation is that it cannot be wholly routinized. Users of concepts, principles and ideas have to work out their own interpretations of

what they mean for each different practical setting. For example the principle of being responsive to customers will mean doing different things in different situations.

Association is the most difficult mode of knowledge transfer to describe because it is largely intuitive. It can arise in two different ways. First, when some general image or metaphor is used to provide guidance about what to do. This could, for example, be the image of produce or effect in design work, of an organizational ethos (the listening bank) or of a role (the problem-solving manager, the caring assistant, etc.). Such images can influence behaviour even when they remain fairly vague and diffuse. Second, association is a means by which the experience of one case or situation is transferred to another that is apparently similar, without any careful analysis either of what is being transferred or of whether the transfer is valid. Often this is due to pressure of time, in which case it is wise to reflect on its appropriateness after the event. Association areas are generally considered to be areas of the brain where "higher mental processes" such as thinking, reasoning and intuiting are assumed to occur. Association is an important element in experiential learning and helps people broaden their range of competence. But it can be dangerous when not accompanied by reflection to keep behaviour under some kind of critical control. For rapid intuitive transfer of knowledge can lead to mistakes when crucial differences are ignored between the old and new situations. Sometimes, the pattern of association falls halfway between these two forms. The germ of an idea is transferred by association, while the benefits of use are reworked to suit the new situation. Brainstorming is a process specifically designed to make use of such associative transfer as a source of ideas for problem-solving. (Osborn, 1963).

3.4   The "Fit" with Organizational Culture

Much has been written about how individual's "Ways of Knowing" and multiple forms of knowledge are expected to "fit" with an organization's culture or character. Schneider's (1987). "Attraction-Selection-Attrition (ASA)", proposition suggests that organizations select people who share their values. This is built on the premise that similarity leads to attraction and this attraction leads to decisions by organization representatives to offer jobs to people who have similar values to those of the recruiting organization.

Schneider argued that people want to work with people whom they are similar to and that this effect can be found when people look for jobs (attraction), are selected for jobs (selection), and during employment (attrition). The overall effect of this cycle is that the people within the organization increasingly become more like one another and that this leads to homogeneity in the workforce. Schneider feared that greater homogeneity of workforces would lead to organizational dysfunction.

Research by Jordan, Herriot, and Chalmers (1991) also examined the homogeneity hypothesis. The significance here is they were not simply examining the homogeneity hypothesis, but also deliberately testing whether Schneider was right. They tested for differences in personality across organizations as well as the interaction between organization and seniority hypothesizing that the more senior individuals in an organization should be closer to their organization's personality profile. While mean differences across organizations were found, they did not find support for the interaction of seniority and organization.

Additional research by Schneider, Smith, Taylor and Fleenor, (1998) provides support for the notion that organizations do tend to differ with respect to the personality characteristics of their members. This research was based on data from the Myers-Briggs Type Indicator (Myers & McCaulley, 1985) for over 12,000 managers across 142 organizations. A particularly strong feature of this research was the ability control for industry effects in testing the homogeneity hypothesis.

Recently, Ployhart et. al (2006) tested for integrating multilevel theory and the ASA model. Their research supports a multilevel interpretation of Schneider's model and suggests human capital manifests multiple structures having different functional consequences across levels. Multilevel contexts refers to measures that may be nested within individuals, individuals nested within dyads, dyads nested within small groups or communities, groups nested within organizations, etc., etc.

Some cognitive climate models suppose that the majority of people with a particular cognitive style constitute the groups cognitive climate. (e.g. Kirton and McCarthy 1988).

Elsewhere, Hayes and Allinson (1998) have suggested that people within many groups in organizations will have a similar cognitive style which is related to the information processing requirements of that work.

3.4.1   Incongruence in Knowledge Acquisition

Is there an alternative to this style of research, and if so what might it be? Certainly Czarniawska (2003) notes the immaturity of organization theory as an academic field, characterized, she claims, by a range of competing perspectives

and theories, propagating modernist ideas of control and masculine ideas of mastery.

I have experienced a number of managers and executives who have described an incongruence between their own personal acquisition and use of knowledge and the way in which their organization acquires, creates and distributes knowledge. Often an organization fails to learn from its own experiences and incurs a loss of organizational memory. (See also : Ayas and Zeniuk, 2001; Collison and Parcell, 2001; Baumard and Starbuck, 2005; and Cannon and Edmondson, 2005). This often occurs in projects that is without a 'learning-from-experience' culture, where lessons learned, including 'what we know' and 'how we learn' is generally absent.

An organization's knowledge deteriorates, becomes obsolete and can result in poor decision making. By failing to develop a working definition of knowledge, the tendency to avoid grappling with what knowledge is becomes compounded. There is often little in the education, training or organizational experience of managers or consultants that prepares them for the deep-seated reflection and understanding required by the concept of knowledge. Reflection upon concepts and the distinctions among, and between them, is the essence of "knowing" or learning.

3.4.2   Organizational Learning

Within the organization studies literature a variety of approaches to knowledge can be identified. One obvious place to begin exploring these is the literature on organizational learning. The metaphor of organizational learning is not new, it has attracted attention at least since Chandler (1962), (see also Argyris and Schön 1978; Duncan and Weiss 1979; Nelson and Winter 1982; Daft and

Weick 1984; Fiol and Lyles 1985; Nonaka and Johansson 1985; Levitt and March 1988;   Zuboff 1988; Henderson and Clark 1990; Senge 1990; Brown 1991; Kochan and Useem 1992; Dixon 1994). In recent years, a strong interest has been developing in the United Kingdom and Europe also (Hedberg 1981; Garratt 1987: Pedler et al 1991; Swieringa and Wierdsma 1992; Dodgson 1993, and Douglas 1987).

3.4.3   Knowledge in Post-Industrial Societies

Ever since Galbraith (1967) suggested that a powerful new class of technical-scientific experts was emerging, and Bell (1973) proposed that knowledge is a central feature of post-industrial societies, the significance of experts in contemporary society has attracted much comment. Indeed, in recent years, the importance of expertise for competitive advantage has been emphasized again by economists and business strategists who have suggested that wealth creation is less dependent on the bureaucratic control of resources than it once was, and more dependent on the exercise of specialist knowledge and competencies, or the management of organizational competencies (e.g. Prahalad and Hamel 1990; Hague 1991; Reich 1991; Drucker 1983; Florida and Kenny 1993). This debate has found echoes in discussion about "knowledge-intensive firms", that is, organizations staffed by a high proportion of highly qualified staff who trade in knowledge itself (Starbuck 1992, 1993; Alvesson 1993), in the suggestion that organizational competencies can be nurtured by the development of inter-organizational links (Kanter 1989; Badaracco 1991;   Wikstrom and Normann 1994), and in the proposal that, because of technological changes, team organization is becoming of crucial importance and employees generally should be managed as "knowledge workers" (Zuboff 1988).

Within the literature on the established professions the privilege suggested by the term "knowledge" and the opportunities it offers occupational groups to protect their positions and "black box" (Friedenberg 2006) their skills (for example, by claiming the authority of medicine, law, or other complex bodies of knowledge) have been well documented (e.g. Baer 1987; Abbott 1988). Alvesson (1993) notes how specialists in the new generation of knowledge firms are, in exactly the same way, attracted to the mystique associated with the terms such as knowledge and knowledge worker; knowledge-intensive firms are, above all else he suggests, systems of persuasion. Developing a similar point Knights, Murray and Willmott (1993) suggest that the growing use of such terms may be regarded as normalizing discourse which, as it legitimates a particular division of labour, distracts attention from the knowledge that is an essential characteristic of all forms of activity.

Recent commentary on the emerging significance of knowledge work amounts to the suggestion that, in place of a strong reliance on knowledge located in bodies and routines emphasis is increasingly falling on the knowledge that is located in brains, dialogue and symbols (i.e. knowledge which is "embrained", "encultured" and "encoded", see Collins below). Conventional assumptions about the nature of knowledge are not without their difficulties, however; a point which has emerged strongly from studies of the impact of new information and communication technologies. Inspired by such studies, and drawing from recent debates in philosophy, linguistics, social theory and cognitive science, an alternative approach is outlined. Rather than regarding *knowledge* as something that people have, it is suggested that *knowing* is better regarded as something that they do. Such an approach draws attention to the need to research ways in which the systems which mediate knowledge and action are changing and might be managed. The debate about the growing importance of

esoteric experts and flexible organizations should be located within a broader debate about the nature of expertise and of the changing systems through which activities are enacted.

3.4.4 Intellectual Capital

Stewart (1997) describes intellectual capital as "The New Wealth of Organizations". He argues that knowledge has become the most important factor in economic life : intellectual capital has become the core indispensable asset of corporations. His work claims how to turn the untapped, unmapped knowledge of an organization to competitive advantage. He asserts how to unlock the value of hidden assets, how to find them in the talent of a company's people and in the collective knowledge embodied in an organization's culture systems and processes.

Others, e.g. Klein and Prusak (1974) define intellectual capital as :-

> *"Intellectual material that has been formalized, captured and leveraged to produce a higher-valued asset".*

Whilst,Teece (1996 : 512) considers that :-

> *Intellectual capital has two major components : intellectual resources and Intellectual assets.*
>
> *"The intellectual resources of the firm reside within the minds of the employees … This resource includes the collective experience, skills, and general know-how of all the firm's employees. It is a resource because it is available to the company to use for profit generation, yet it would be difficult for the company to sell these assets in disembodied form … Intellectual assets, the second component of Intellectual Capital, are the codified, tangible or physical descriptions of specific knowledge to which the company can assert ownership rights, and they can readily trade these assets in disembodied form".*

Additionally Edvinsson (1997) has generally been credited with further developing the concept of Intellectual Capital. His work at Skandia during the

past decade was to induce a managerial evolution that moved from viewing products and services as assets to viewing learning projects, customs, clients, and knowledge as assets.

Since 1995, Skandia has issued a supplement to its annual report which details information on such things as the quantity and quality of customer relationships, the training and development investments made to improve operating processes, and the relationships with partner firms. The categories of these measures (human focus, customer focus; process focus; and renewal and development focus) are constant across major Skandia units, but the exact variables tracked are tied to their strategic importance in the particular units.

Skandia views social capital as an input to intellectual capital and it is increasingly apparent that non-economic forms of capital are as much process as object, and measurement of them has never been straightforward. This is particularly true when one aspect of capital may be dependent on another. However, the Skandia initiatives have gained worldwide attention for their measuring and reporting methods.

The Skandia model of intellectual capital has three elements : human capital, structural capital and customer capital, each of which can be measured and targeted for investment. Although all these are mainly intangible, each reflects the knowledge assets of a company and can enable managers to identify both tacit and explicit knowledge.

Some research into intellectual capital emerged where Drew (1996) used an analogy between intellectual capital and financial capital to focus on the management of knowledge in organizations and considered whether useful

insights could be gained from principles of financial management. Frameworks

for the strategic management of knowledge were presented based on a financial

analogy. These were explored with reference to cases of international

organizations where knowledge and intellectual capital are accepted as key

resources. Drew considered that a financial perspective provides metaphors

and a useful lens for approaching the management of intellectual capital, but is

lacking in prescriptions for developing sustained knowledge-based advantage.

The management of knowledge requires a systemic understanding of the

dynamics of knowledge creation and use. A set of guidelines for a "knowledge

audit" to assess a firm's capabilities for leveraging knowledge into competitive

advantage was effectively developed by Drew in his research.

Brooking (1996) argued that organizations across the world are realizing that

their most valuable assets are intangible, and that their greatest asset is

intellectual capital. Her work sets out to explore how to manage, control and

record the value of such intangible assets in a business and she also provided

an extremely useful framework to audit intellectual capital.

Houlder (1997) in "The High Price of Know-How" (*FT* 14.7.97) suggested that

knowledge management and intellectual capital were becoming one of the most

fashionable management themes of the next decade. Corporate experience

with knowledge management to date was reviewed. The development of an IT-

based knowledge sharing system by Arthur Andersen was also described. The

importance of dealing with tacit knowledge management was profiled by

Houlder, who considered that intellectual capital was increasingly becoming

recognized as one of the most significant assets of a company, yet was one that

was frequently understated by a number of major organizations.

Research from the Centre for Strategic Business Studies (Winchester, 1998) demonstrated some innovative ways of getting the most from intellectual capital by involving people in wide ranging knowledge management projects. The CSBS highlighted case studies at BP and Dow Chemicals where investment in intellectual capital had created significant competitive advantage.

Klein, D. (1998) has also addressed central themes in the strategic management of intellectual capital. This was designed to assist organizations in understanding the strategic and operational roles of intellectual property and develop organizational infrastructures and cultures which foster the creation, developing, sharing and mentoring of intellectual capital. Klein's work recognized the powerful interaction and relationship between explicit and tacit knowledge.

Cotter, Bagshaw and Bagshaw's (1999) research also underlined the importance of the asset of knowledge to an organization. The barriers to learning, knowledge and creation in organizations were examined and three essential elements required to turn learning potential and knowledge into profit were described, as were the implications for the learning organization. For them, understanding the sensemaking capabilities of communities, where sense-making is the purpose of knowledge, became the major valid objective of knowledge management itself.

Baumard (1999), in his research on decision making and tacit knowledge in organizations, illustrates how, in conditions of ambiguity, managers overmanage, relying too much on explicit plans and interpretations. Baumard argues that the conventional, rational model of decision making ignores the tacit

and intuitive processes that are often crucial in successful business outcomes. He demonstrates through four central business cases how it is in times of uncertainty, rapid change and turbulence that the fate of companies is often determined. It is at these times that managers' tacit knowledge and their ability to navigate ambiguous and complex situations become most critical.

Huseman and Goodman's (1999) research into the origins of knowledge management demonstrate how valuable it is to organizations and particularly for those that recognize the competitive advantage of their employees' intellectual capital. Based on the authors' study of more than 200 of America's largest companies, this research shows how more and more companies are increasingly aware of the competitive value of knowledge and the crucial role it plays in today's highly technological economic climate.

3.4.5   Knowledge and Innovation

Recent research into the importance of knowledge for managing innovation and change at the level of the organization suggests that it is the intangibles of corporate life which are creating and demanding new explanations or organizational change itself.

The relationship between knowledge management and innovation has to be considered in the light of numerous definitions about the nature and management of innovation, and the state of our current research into knowledge management itself.

Leonard and Sensiper (1998) argue that the complexity of skills and processes needed in the development of today's products and services requires that managers attend to the role of tacit knowledge during innovation. For them,

innovation, the source of sustained advantage for most companies depends upon the individual and collective expertise of employees. Some of this expertise is captured and codified in software, hardware and processes. Yet tacit knowledge also underlies many competitive capabilities – a fact driven home to some companies in the wake of aggressive downsizing, when undervalued knowledge was considered as surplus to requirements.

Another perspective of innovation is advanced by O'Hare (1988), who suggests that :-

> *"Innovation is not primarily about technology. It is not even about raw products or services per se. It is about customers. How we deliver new or increased value to our customers : Innovation is new ways of delivering customer value".*

Fisher and Fisher (1998) in *The Distributed Mind* argue that Creativity and Innovation are social activities. While some great ideas are born in isolation, a far larger number have come from social interaction – from one idea generating another and another, until genuine innovation is achieved.

Another view is that of Foster (1986) who suggests that :-

> *"Innovation is a solitary process that requires creativity and genius, perhaps greatness. It cannot be managed or predicted, just hoped for and perhaps facilitated. "Innovation is born from individual greatness but lives in the province of the market place – it is a repeatable economic event".*

Adair (1996) postulates that innovation is the process of taking new ideas through to satisfied customers, whilst Rogers and Shoemaker (1971) suggest that an innovation is an idea, practice or object perceived as new by an individual.

Clark (1985) suggests that an innovation pattern occurs as fractals, with small decision cycles embedded in larger, but very similarly structured areas, and with

individual choices made within the confines of a hierarchy of prior, larger scope individual or group choices.

Thus the process of innovation is a rhythm of search, selection, exploration and synthesis, cycles of divergent thinking followed by convergent thinking. These steps in the problem solving and problem finding frameworks cover both individual and group expressions of innovativeness.

However, innovation in business is more usually a group process and the way knowledge is managed from one state to another, from tacit to explicit knowledge, requires a variety of different processes.

3.4.6   Knowledge Management Developments and Innovation

U.S. companies are generally considered to be significantly ahead of their British competitors in the utilization of information as a critical part of their business armoury. In 2001, more than 70 percent of the top 1000 U.S. companies had adopted knowledge management strategies and were actively using them to further their business. This compares with only 15 percent of Britain's top companies (*source :* Brint Institute).

Senior managers in a number of U.S. companies have raised significant questions about knowledge management which U.K. managers are now only just beginning to address. For example : what tacit knowledge should be codified and made explicit? Who should carry out the codification, and can the cost and time involved in such an activity be justified? What tacit knowledge needs to be enhanced and shared by means of socialization processes, and what training needs to be undertaken to internalize the explicit knowledge that

has been distributed? The 'Knowledge Creating Company' (1995), has generated a groundswell of interest in states of knowledge.

Many U.K. managers are now addressing the key issues of codification and distribution of the four main states of knowledge (from Nonaka and Takeuchi (1995) :-

- *undistributed tacit knowledge (personal knowledge)*

- *undistributed explicit knowledge (specialisms)*

- *distributed explicit knowledge (protocols)*

- *distributed tacit knowledge (embedded organizational routines)*

Much of this concerns the relationships between knowledge and innovation, and research into these areas has been extensive.

Nystrom, H. (1979) in *Creativity and Innovation* examined the processes of company development and particularly the links between creativity and innovation. Nystrom's multidisciplinary approach considered the application of research and development strategies in a number of different companies from a wide range of industries, and detailed the variations in emphasis on stability, change, managing and problem solving. Much of Nystrom's work recognized that there were different levels of knowledge within an organization. The culture tends to establish which level takes precedence in the organization, and issues such as storage, transfer and transformation of knowledge need to be addressed. Knowledge has to be identified and codified if it is going to be leveraged within the knowledge network. The leverage is what helps organizations to become more creative and innovative.

Adair (1996) argues that common barriers to creative thinking are negative attitudes; fear of failure; executive stress; following rules; making assumptions and over-reliance upon logic. He considers that the biggest barrier, however, is believing that you are not creative. Problem solving and innovativeness are often inhibited when mechanisms are in place that suppress the outward expression of creativity.

In *The Management of Innovation* (1961) Burns and Stalker highlighted the attempts (successful and unsuccessful) of industry to exploit new scientific information. Their work was based on studies of twenty organizations, most of them engaged in the development of electronic devices and systems. This kind of industrial task was fundamentally different from those which industry has been organized to deal with, and required new methods of organization.

The central theme and purpose of Burns and Stalker's work was the relationship between the "external" circumstances of scientific techniques and markets on the one hand, the management systems of industrial concerns on the other; and the ways in which firms were deflected from matching their organization to their circumstances by internal politics and status-gaining activities.

Burns and Stalker highlighted both mechanistic and organic systems of management in what has now become one of the classics in the study of innovation.

3.4.7   Factors Inhibiting Innovation

A perplexing paradox in managing many organizations' core capabilities is that they are also core rigidities. Argyris (1993) talks about competency traps at an individual level, whilst Levinthal and March (1993) talk of "traps of distinctive

competence". The firm's strengths are also simultaneously its weaknesses, and its core capabilities can often both advantage and disadvantage a company. A firm's habitual activities concentrate on augmenting current knowledge; the problems on which management focus are the ones most relevant to current markets and current operations. The power of the present and the experiences of the past often inhibit organizations to develop dynamic problem-solving techniques, producing instead a rigid adherence to prior approaches for solving development problems. In short, people find it difficult to break from the past.

Even if people within an organization recognize the need for innovation, there is no guarantee that new tools and methods will be made available to implement it. Delay in switching to new technologies when old systems are still adequate often inhibits organizations and builds in a rigidity that prevents it from ever becoming "state-of-the-art".

Another core rigidity is limited experimentation, which occurs when new options and processes take place strictly within the realms of the expertise of technical staff, who are reluctant to embody experimentation based on totally different technical knowledge.

3.4.8   Problem Solving

Birch and Rabinowitz (1951) considered that "functional fixedness" interferes with problem solving. This is the tendency for people to become quite fixed in their perception of how objects could be used once that use was suggested. The phenomenon underlying such mindsets is often the brain's natural tendency to store, process and retrieve information in related blocks. These blocks constitute mental models or schema against which we calibrate information and that we use to solve problems. Mindsets are highly useful in routine operations,

but will frequently contribute to core rigidities if organizations become over dependent upon them.

Sirkin and Stalk (1990) identified that as an organization establishes more sophisticated problem-solving loops and begins to learn, its fundamental culture changes. Problem-solving loops that will yield meaningful improvements to the business are often subtle and depend upon finding creative ways to expose employees at all levels to the right people in customers' organizations. Adopting a systematic approach to organizational problem solving might begin with a number of basic questions. What are the critical problem solving loops in our organization? - an examination of the recurring problems that arise and take up an inordinate amount of time. To prevent these recurrences, organizations need to develop processes to keep problems from re-occurring. Do we learn from problems or are we continually fixing the same problem repeatedly? Organizations can also involve the knowledge that exist amongst workgroups to ask : Where do we spend most of our effort – on identifying and responding to specific problems or on resolving underlying causes and finding new ways to improve?

Cognitive mapping as a technique for modelling ideas, beliefs and values can often be used as a way to help individuals help themselves to think about a problem and move towards a solution. (See Eden, Jones and Sims 1983).

Such techniques can assist with experimentation in organizations, including post project reviews, learning from experience, or failure analysis.

3.4.9   Experimentation and Innovation

Experimental ideas create the future and many argue that experimentation requires managers who will create an organizational climate that embraces and encourages that activity. With experimentation comes inevitable failure and organizations need to be tolerant of mistakes in order not to dampen creativity.

Leonard (1996) argues that the more organizations practice continuous widespread experimentation, the better they become at it and the more tolerant the company and its employees become of the concomitant shocks. However, many organizations are adept at ignoring negative news. "Intelligent" failures are not only beneficial but are often absolutely necessary. Intelligent mistakes result from risk taking and experimentation, yet firms generally underestimate the role of failure in building knowledge essential to success. Maidique and Zirger (1985) cited a study of 158 new product successes and failures in the electronics industry and concluded that the knowledge gained from failures was often instrumental in achieving subsequent success.

3.4.10 Organizational Learning through Stepwise Process Innovation

Organizational learning is often described as divided into two types : single loop and double loop learning (Argyris and Schön, 1978) or adaptive and generative learning (Senge, 1990). In single loop learning, new knowledge is applied for "routinization", to improve the quality and efficiency of existing operations. Double loop learning leads to new practices, to innovation in the organization. According to Argyris and Schön, double loop learning is especially complex since it requires the externalization, discussion and modification of values and norms on the individual and organizational level.

Nonaka and Takeuchi (1995) express an opposite view on double loop learning. It is not a special, difficult task, but a daily activity of knowledge-creating organizations. Organizations continuously create new knowledge by reconstructing existing perspectives, frameworks or premises. The capacity of double loop learning is built into the knowledge-creating ("continuously learning") company.

Incremental process innovations in a stable organization can be created through single loop learning. But turbulent environments call for continuous learning in a double loop mode. New processes have to be created and managed, in a "concerted" way, so that they can result in an even more radical change. At the same time, the efficiency of day-to-day operations has to be ensured. The challenge for management is to initiate and support continuous organizational innovation and learning at the same time.

3.4.11 The Dynamics Between Individual and Organizational Learning

Organizational learning requires individual learning. But individual learning must interact in a dynamic social process to develop into organizational learning. This process is described as a spiral of knowledge creation (Nonaka and Takeuchi, 1995). Organizational learning develops in a dynamic knowledge conversion process between the individual and the organization, and between tacit and explicit knowledge.

In the socialization phase, individual experience (tacit knowledge) is shared, which creates collective tacit knowledge, such as shared mental models and technical skills. In externalization, the tacit knowledge is articulated (conceptualized) into explicit concepts. The combination of the concepts creates a new abstract knowledge system, an "invention". The abstract

invention has to be internalized by the individuals through concrete experience, through learning by doing. In this internalization phase, explicit knowledge is converted back to individual tacit knowledge. This new tacit knowledge (experience) has again to be shared (socialized) with others to become organizational knowledge (shared mental models). The spiral goes on.

The spiral is driven by the interaction of individual and organizational experience, by hands-on feedback from applying the ideas into practice. This experience can be achieved in everyday work, but also through stimulation; by experimenting with prototypes. Prototyping is common practice in product development projects. Prototyping new process designs can accelerate the innovation and learning progresses and lead to better solutions (Leonard, 1994). The spiral of knowledge creation is not restricted to the learning and innovation processes on the operational level. For a continuously learning enterprise, systematic interaction is also needed between the development of strategy and operations, between strategic planning and action. (Ansoff, 1991; Mintzberg, 1987). Thus, the whole organization should be able to "learn by doing" in an interfunctional and interlevel spiral for continuous organizational learning. The accumulated evolutionary learning is stored in the organization's memory; in its identity, strategy-structural configuration, culture, routines and procedures, in its way of life. It is recorded in the shared mental models, in stories told, in the social and physical geography of people, in documents, files and computerized databases (Levitt and March, 1995).

3.5   Linking Different Forms of Knowledge to Learning

Nonaka (1991, 1994) created an enormous interest in the management of innovation, which he regards as an ongoing process in which organizations create problems, define them, then develop new knowledge for their solution.

He develops the idea that knowledge is created out of a dialogue between peoples' tacit and explicit knowledge. Knowledge may move from tacit to tacit (e.g. in a craft apprenticeship), from explicit to explicit (e.g. when hitherto distinct but related bodies of information are brought together), from tacit to explicit (e.g. the study of craft skills), and from explicit to tacit (e.g. the internalization of new knowledge). Nonaka maintains that all four of these patterns exist in dynamic interaction in "knowledge-creating" companies.

Nonaka is suggesting that encultured knowledge is intimately related to the development of embodied, embrained and embedded knowledge. His approach traces the link between different forms of knowledge to the processes through which they are created.

As Nonaka and others, have focused on the link between knowledge and innovation it has become clear that traditional conceptions of knowledge as abstract, disembodied, individual and formal are being challenged and the basic question of "what is knowledge" has generated considerable debate. Postmodernists, for example, have challenged the idea of fundamental truth by suggesting that truth is a story (see e.g. Lawson 1989); cognitive anthropologists, ethnomethodologists and symbolic interactionists have queried the value of abstract plans and the notion of social structure and have demonstrated the significance of situated skills and pragmatic knowledge (e.g.

Suchman 1987); and sociologists of science have challenged deep-rooted

assumptions about the privileged status of explicit abstract knowledge by

studying knowledge creation as a cultural process and by de-emphasizing

conventional distinctions between people and technology (e.g. Latour 1987;

Law 1992).

3.5.1   Learning as an Active Process

Lave (1993) identifies points of agreement between cognitive anthropologists,

ethnomethodologists and activity theorists. Such theorists agree she says, that

major difficulties occur which educationalists assume that knowledge can be

divorced from context and transmitted either as abstract data or as universally

applicable approaches to problem solving; learning is not a passive process,

she argues, but an active one. Defining learning as a creative (and collective)

interpretation of past experiences she summarizes the emerging consensus

between "educational" researchers as agreement that :-

> 1.   *Knowledge always undergoes construction and transformation in use.*
>
> 2.   *Learning is an integral aspect of activity in and with the world at all times. That learning occurs is not problematic.*
>
> 3.   *What is learning is always complexly problematic.*
>
> 4.   *Acquisition of knowledge is not a simple matter of taking in knowledge; rather, things assumed to be natural categories, such as "bodies of knowledge", "learners", and "cultural transmission", require reconceptualization as cultural, social products.*
>   (Lave 1993 : 8).

The starting point for the development of a unifying theory of organizational

knowledge might be to talk about the process of *knowing,* rather than talk of

knowledge, with its connotations of abstraction, progress, permanency and

mentalism. These might involve new approaches to conceptualizing the multi-

dimensional processes of *knowing and doing.* One approach to this could be developed from the approach that knowing is situated, distributed and material. Activity theory has its origins in the ideas of the Russian psychologist Vygotsky who, working in the 1920's, endeavoured to develop an understanding of mind and body, thought versus action, individual versus society, etc.) that have characterized mainstream Western thought (and which lend credence to the clear distinctions assumed between embodied, embedded, embrained and encultured knowledge). Basic to the Vygotsky approach is the idea that it is not the consciousness of humans that determines their social being, but social experiences which shape their consciousness : psychological processes can only be understood by an appreciation of the, culturally provided, factors that mediate them. (See Fox, 2000).

Contemporary versions of activity theory take a variety of forms. However, all are explicit in their attempts to develop a unified account of knowing and doing, and all emphasize the collective, situated and tentative nature of knowing. Some (e.g. Brown, Collins and Duguid 1989; and Lave and Wenger 1991) concentrate on the processes through which people develop shared conceptions of their activities. Others, (Hutchins 1983; Engestrom 1987, 1993) model the relationships that exist between a community's conceptions of its activities and the material, mental and social resources through which it enacts them. While the former approach develops a model of learning as socialization, the latter explores the circumstance in which communities may enact new conceptions of their activities.

3.5.2   Shared Stories and Communal Narratives

Orr's (1990a) analysis of Xerox maintenance technicians is in the Brown/Lave tradition of activity theory. He describes how the stories shared by maintenance

personnel about complex technical problems is an essential part of their activities. In the first place the stories they tell each other serve a key informational function, preserving and circulating essential news about particular problems. Second, the storytelling has an educational function : not only do the technicians learn about particular faults on the machines, they also help the participants develop their diagnostic and trouble-shooting skills. Finally, the stories provide an opportunity for the technicians to establish their identity within the community of technicians itself; as newcomers contribute to the storytelling process they begin both to demonstrate their identity as professionals and to contribute to the collective wisdom of their group. In their discussion of the wider implications of this study Brown and Duguid (1989) emphasize the general significance for organizations of such processes. Learning is a socially constructed understanding, they argue, that emerges from practical collaboration. Collective wisdom depends upon communal narratives.

3.6   Shifts in the Focus of Learning Theories

Learning has traditionally been the province of psychological theories.

- Behaviourist *theories focus on behaviour modification via stimulus-response pairs and selective reinforcement. Their focus is on control and adaptive response, and as they generally ignore issues of meaning, their usefulness lies in cases where addressing issues of social meaning is made impossible or is not relevant, such as automatisms, severe social dysfunctionality, or animal training.* (Skinner 1974).

- Cognitive *theories focus on internal cognitive structures and view learning as transformations in these cognitive structures. Their focus is on the processing and transmission of information through communication, explanation, recombination, contrast, inference, and problem solving. They are useful for designing sequences of conceptual material that build upon existing information structures.* (J. R. Anderson 1983; Wenger 1987; Hutchins 1995).

- Constructivist *theories focus on the processes by which learners build their own mental structures when interacting with an environment. Their focus is task-oriented. They prefer hands-on,*

self-directed activities oriented toward design and discovery. They are useful for structuring learning environments, such as simulated worlds, so as to afford the construction of certain conceptual structures through engagement in self-directed tasks.
(Piaget 1954; Papert 1980).

- Social Learning *theories take social interactions into account, but from a primarily psychological perspective. They place the emphasis on interpersonal relations involving imitation and modeling, and thus focus on the study of cognitive processes by which observation can become a source of learning. They are useful for understanding the detailed information-processing mechanisms by which social interactions affect behaviour.*
(Bandura, 1977).

Some theories are moving away from an exclusively psychological approach : e.g.

- Activity *theories focus on the structure of activities as historically constituted entities. Their pedagogical focus is on bridging the gap between the historical state of an activity and the developmental stage of a person with respect to that activity – for instance, the gap between the current state of a language and a child's ability to speak that language. The purpose is to define a "zone of proximal development" in which learners who receive help can perform an activity they would not be able to perform by themselves.*
(Vygotsky, 1934; Wertsch, 1985; Engestrom, 1987). Activity theorists in general argue that knowledge is constantly evolving.

- Socialization theories *focus on the acquisition of membership by newcomers within a functionalist framework where acquiring membership is defined as internalizing the norms of a social group.*
(Parsons, 1962).

- Organizational *theories concern themselves both with the ways individuals learn in organizational contexts and with the ways in which organizations can be said to learn as organizations. Their focus is on organizational systems, structures, and politics and on institutional forms of memory.*
(Argyris and Schön, 1978; Senge, 1990; Brown, 1991; Brown and Duguid, 1991; Hock, 1995; Leonard-Barton, 1995; Nonaka and Takeuchi, 1995; Snyder, 1996).

3.6.1   Knowledge Embodiments in Organizations

Modes of knowledge (from Nonaka, 1991; Baumard, 1999) articulate different

forms of organizational knowledge in a single representation. The diversity of

tacit and explicit knowledge embodiments in organizations can be categorized

into four main groupings :-

i)   *Individual and Tacit*

ii)   *Individual and Explicit*

iii)   *Collective and Explicit*

iv)   *Collective and Tacit*

The mode of individual and tacit knowledge; includes work on automatic knowledge (Polanyi, 1966; Spender, 1993); perceptual filters (Starbuck and Milliken, 1988); incidental learning (Jenkins, 1933); encoding without awareness (Hasher and Zacks, 1984); and knowing more than we are willing to tell (Detienne and Vernant, 1978).

The mode of individual and explicit includes work on conscious knowledge (Spender, 1993); declarative knowledge (Polanyi, 1966); statutory knowledge (Foucault, 1972).

The mode of collective and explicit includes work on objectified knowledge (Spender, 1993); combination (Nonaka, 1994); institutionalized rules (DiMaggio and Powell, 1983).

The mode of collective and tacit includes work on internalization (Nonaka, 1994); collective mind (Weick and Roberts, 1993); collective knowledge (Spender, 1993); collective assumptions (Foucault, 1977); knowledge of community as socially constructed (Berger and Luckmann, 1966); communities of practice (Vygotsky, 1962; Brown and Duguid, 1991; Lave and Wenger, 1991; Wenger 1998; Wenger and Snyder, 2000; Wenger, McDermott and Snyder, 2002).

3.6.2 The Concept of Community of Practice

Lave and Wenger (1991) first introduced the term "community of practice" to undertake a radical and important rethinking and reformulation of the conception of learning. By placing emphasis on the whole person, and by viewing agent, activity and world as mutually constitutive, they argue that learning is a process of participation in communities of practice, which is at first legitimately peripheral, but that increases gradually in engagement and complexity. The terms of debate about "knowledge Management" and "learning organizations" are slowly turning from issues of information and technology to those of human capabilities and sources of motivation, creativity and problem solving skills. Wenger (1998b) in "Communities of Practice" presents a theory that starts with the assumption that engagement in social practice is the fundamental process by which we learn and so become who we are. The primary unit of analysis is neither the individual nor social institutions, but the informal communities of practice that people form as they pursue shared enterprises over time. Wenger's social account of learning encompasses the intersection of issues of community, social practice, meaning and identity.

Wenger extends the work of Giddens, (1971), and generally works with assumptions similar to his. Resolving the dichotomy between structure and action is the motivation for Giddens's "structuration" theory, which is based on the idea that structure is both input to and output of human actions, that actions have both intended and unintended consequences, and that actors know a great deal but not everything about the structural ramifications of their actions (Giddens 1984).

3.6.3 Situatedness of Experience

Lave and Wenger (1991) are concerned with the situatedness of experience. Situated cognition maintains that learning is rooted in the situation in which a person participates, not in the head of that person as intellectual concepts produced by reflection, nor as inner energies produced by psychic conflicts. In the situative perspective knowledge is not judged by what is true or erroneous, but by what is relevant, what is worth knowing and doing, what is convenient for whom and what to do next in a particular situation. The social and individual skills and activities are inseparable, and knowing does not exist apart from the tools, community and activity of a particular situation. Concerns with the situatedness of experience are characteristic of a number of disciplines.

In *philosophy,* they are rooted in the phenomenological philosophy of Heidegger (1927), whose writings have been brought to broader audiences through the work of philosopher Dreyfus (1972, 1991), computer scientists Winograd and Flores (1986), and psychologist Packer (1985).

In *psychology,* ecological approaches explore the implications of a close coupling between organism and environment (Maturana and Varela 1980; Winograd and Flores 1986). From this perspective, the environment is viewed as offering specific "affordances" (i.e. , possibilities for actions) for specific organisms (Gibson 1979). Situated in this context, cognition is understood as a process of conceptually mediated and coordinated perception (Clancey 1997).

In *education,* Dewey (1922) views thinking as engagement in action, and Schön (1983) views problem solving as a conversation with the situation.

In *sociology,* two schools of thought concern themselves with this issue. One is symbolic interactionism (Blumer, 1962), and included under this category are interactional theories of identity (Mead, 1934; Goffman, 1959). The other school is ethnomethodology (Garfinkel, 1967), which has influenced theorizing mostly through the work of anthropologists Suchman (1987), on activity as situated improvisation with plans as resources, Jordan (1989), on apprenticeship and interactional analysis; and of sociologist Whalen (1992) on the choreography of conversations.

3.6.4   Different Perspectives of Situatedness

As the literature on knowledge, community, knowledge management and communities of practice grows through various socio-cultural commentaries, so a number of different perspectives begin to emerge whereby individual and group learning can be analyzed. These may be situative, constructivist, psychoanalytic, critical or enactivist.

Firstly : The situative perspective focuses on practices in which individuals have learned to participate, and addresses how people learn adaptively in situations in which they engage in activities. (Daft and Weick, 1984; Orr, 1987, 1990; Lave and Wenger 1991; Brown and Duguid 1991).

Secondly : the reflective/constructivist perspective where individuals construct meanings from their experiences to produce knowledge. Particular emphasis is placed on critical reflection and dialogue. This conceptualization was popularized by Schön (1983, 1987) and Kolb (1984) and a significant body of theory and critique has developed around how reflection-in, and reflection-on-action unfolds in different contexts to create knowledge. Constructivism has a long and distinguished history (Piaget, 1966; Von Glaserfeld, 1984; Vygotsky,

1978) portraying learners as independent constructors of their own knowledge. Piaget (1966) describes this construction process as oscillating between assimilation of new objects of knowledge into one's network of internal constructs, and accommodation of these constructs in response to new experiences that may contradict them. In the literature of adult learning this reflective view is significant in the writings of Boud and Miller (1996); Kolb (1984) Honey and Mumford, (1982); Mezirow, (1990); Brookfield, (1987) and Schön, (1983), who has been a significant advocate of constructivism to understand workplace learning, arguing that practitioners learn by noticing and framing problems of interest to them in particular ways and then inquiring and experimenting with solutions.

A third perspective includes the interference psychoanalytic focus which concentrates upon the self, how it is crafted, repressed, recovered and understood. The key question in this perspective is how does the unconscious interfere with conscious thought to produce knowledge? The field of psychoanalytic theory is broad, although contemporary educational and writing draws extensively on Freud (1938), Jung (1971) and Klein (1977).

A fourth perspective includes the resistance/critical cultural focus which examines how power circulates to repress or enhance experience or learning. This perspective is interested in how identity is liberated or limited by prevailing cultural codes. Writers in this genre (e.g. Giroux, 1992; Bourdieu, 1980; Flax, 1990; Kellner, 1995), claim that when mechanisms of cultural power arise, ways and means to resist them appear. With resistance, people can become open to unexpected, unimagined possibilities for work, life and development. The learner's positionality is political; power relations determine the learner's relation to situation and object of knowing. Knowledge is expressed through

resistance, in voice, action, or silence. This is knowing as contested, where conflicts are to be expected.

A fifth perspective is that of co-emergence, which is the enactivist perspective that explores how cognition and environment become simultaneously enacted through experiential learning. The co-emergence of learner and setting has been advocated by Maturana and Varela, (1987); Varela, Thompson and Rosch, (1991); and Davis and Sumara (1997). Here the systems of the learner (neural, immune, visual, auditory, etc.) are embedded in networks of the context, where all of the learner's perceptions are experiential and enacted.

The early foundations of communities of practice as advocated by Lave and Wenger (1991) were built around the theories of learning and were alternatives to the dominant behaviourist models of the time. Lave and Wenger (1991) were primarily concerned with situated learning and their notion of community of practice is closely related to this.

Lave (1993) suggests that knowledge should not be viewed as a timeless body of truth that experts have internalized and which organizations may harness. Knowledge, learning, meaning, and identity are closely intertwined, and by focusing on *knowing* rather than *knowledge,* the distinction that is conventionally assumed between knowledge and learning is avoided.

Wenger, (2001) argues that a community of practice is defined by an interest in a shared domain; what brings people together is the interdependency of their knowledge, not the interdependency of specific tasks on which they are working. What brings value in a community of practice is its members' shared learning, so what brings them together is the exchange of ideas, best practices and new

knowledge that allows them to return to their work and do their jobs better. The

analysis of *knowing* as mediated, situated, provisional, pragmatic and contested

provides an opportunity for each member to consider appropriate responses to

work and research into work.

Table 3:1 : Knowledge Types and "Ways of Knowing" (by author/researcher)

Aristotle (384-322bc)	"Ways of Knowing"
episteme	Scientific Knowledge : Knowledge which has already been developed, what is known, believed to be universally true.
techne	Technical skill, art. A reasoned state which brings something into being which otherwise would not exist.
phronesis	Prudence, practical wisdom. A reasoned state which enables moral action based on reflection.
nous	Intuition. The state of mind that apprehends first principles. An unreasoned state of knowing, and includes what we already know through episteme, techne and phronesis.
sophia	Wisdom. A combination of intuition and scientific knowledge.
mètis	Conjectural, tacit knowledge. Knowledge of the ambiguous and transient.

Habermas (1971)	"Knowing and Understanding"
empirical observations	The notion that our learning and meaning are primarily derived from our experience of events. The technical interest.
conventional knowledge	The practical knowledge that one acquires in everyday contexts.
critical self-understanding	Emancipatory interest. The goals where individuals are concerned with argumentation.

Heidegger	"Two Senses of Knowing"
Erkennen and Erfahrung	Knowing, and the nature of "life experience". Heidegger spoke of an "experimental" person when referring to his/her mature wisdom as a result of life's accumulated experiences. (Erfahrungen). Heidegger provides a critique of the more traditional distinctions between thinking and feeling, or between cognitive and affective dimensions of thought.
Verstehen	Understanding. Refers to both the aim of human sciences and to their method. Heidegger's concept of understanding is bound closely to concept of "world" and "disclosure".

Carper (1978, 1992)	"Four Ways of Knowing"
empirical	The sciences of the trade or profession undertaken. Highly integrated abstract and systematic explanations.
personal	The component of personal knowledge, through interactions, relationships and transactions. The knowing, encountering and actualization of the concrete, individual self.
ethical	The component of moral knowledge in the trade or profession. Matters of obligation. What ought to be done.
esthetical	The art of the trade or profession, including rapport and empathy through acquaintance. The difference between recognition and perception (Dewey).

Heron, S. (2001)	Knowledge Types (attributes)
tacit	Highly personal knowledge, which is hard to formalize, difficult to communicate and difficult to articulate.
causal	The knowledge of 'why' something occurs. When shared, causal knowledge enables organizations to coordinate strategies for achieving goals and outcomes.
declarative	Knowledge is about something. Shared explicit understanding of concepts, categories and descriptors. Declarative knowledge lays the foundations for effective communication and knowledge sharing in organizations.
procedural	Knowledge of 'how' something performs or occurs. Procedural knowledge lays the foundation for efficiently coordinating action in organizations.
collective	Collective knowledge encompasses social, cultural and managerial systems and values within an organization. It can be used to describe the knowledge held by a group of individuals with similar interests within an organization. Where each holds certain knowledge, which is combined to achieve goals.
embedded	Embedded knowledge is "tacit" knowledge residing in organizational routines. It is entrenched in organizations 'communities of practice' and generally has no written rules. Embedded knowledge may be lost to an organization if an employee leaves.
strategic	Strategic knowledge is 'What an organization must do' in order to maintain competitive advantage. It is acquired through environmental scanning and business intelligence processes.
relationship	Relationship knowledge refers to the social capabilities of a person, and the ability to draw on the expertise of specialized groups or individuals. It can be thought of 'knowing who knows'.

organizational	Organizational knowledge is knowledge that resides with an organization, and may include any or all of the above types. It is organizational knowledge that, if managed effectively, can provide competitive knowledge.
proprietary	Knowledge that is the sole property of an individual or organization, such as intellectual property, patent design or copyright is known as proprietary knowledge.
Collins (1983) : Davenport and Prusack (1998)	**"Knowledge Categories"**
embrained	Knowledge dependent on conceptual skills and cognitive abilities. 'Knowledge that' (Ryle 1949), 'Knowledge about', (James 1950).
embodied	Action-oriented. Practical thinking. Likely to be only partly explicit. 'Knowledge how' (Ryle 1949), 'Knowledge of acquaintance', (James 1950).
encultured	Process of achieving shared understandings. Related to processes of socialization.
embedded	Knowledge which resides in systematic routines (Granovetter 1985).
encoded	Information conveyed by signs and symbols.
Gamble and Blackwell (2001)	**"3 Types of Knowledge"**
embodied knowledge	What knowers intrinsically know.
represented knowledge	Knowledge that is contained with documents, databases and records.
embedded knowledge	Knowledge evidenced by processes, products, rules and procedures.
Heron, J. (1981, 1992, 1996)	**"Extended Epistemology of Knowing"**
Propositional knowledge	Knowing about. The realm of ideas and concepts.
practical knowledge	Knowing how to (Embodied).
experimental knowledge	Knowing by encounter. (Incorporates emotional knowing).
presentational knowledge	Patterns in our perceptions, expressed in images, narratives and dreams.

Eraut (1994)	"Six Types of Knowledge"
situational knowledge	How people interpret what they see within the situation.
people knowledge	Making judgements about people not previously known.
practice knowledge	Course of action or things to do.
conceptual knowledge	Knowledge used to interpret frameworks of situations and think about practice.
process knowledge	Knowledge about how to do things or get things done.
control knowledge	Controlling and regulating oneself, ones thinking, self-awareness and sensitivity.

Eraut (1994)	"Knowledge Transfer"
replication	When knowledge is used in exactly the same way in which it is learned.
application	Making use in a specific situation of some general rule, procedure or method. Theory into practice.
interpretation	Thinking with a variety of conceptual tools.
association	Where metaphor, image or analogy is used to provide guidance of how to proceed.

Blackler (1995)	"Organizational Knowledge Differentiation"
expert dependent	Emphasis on embodied competencies of key members. Focus on familiar problems and contributions of key individual experts.
knowledge routinized	Emphasis on knowledge embedded in technologies, rules and procedures. Focus on familiar problems and collective group/team endeavour.
symbolic analysis	Emphasis on the embrained skills of key members. Focus on novel problems and contributions of key individuals.
communication intensive	Emphasis on encultured knowledge and collective understanding through collective endeavour.

Nonaka and Takeuchi (1994)	"Four Main States of Knowledge"
personal	Knowledge acquired by individuals through shared experiences, often beyond organizational boundaries.
specialisms	Knowledge that is crystallized and shared by others, through metaphor, analogy, models to provide the basis of specialised new knowledge.
protocols	Explicit knowledge which becomes the order of doing in one context.
embedded organizational routines	Explicit knowledge which is shared in an organization and converted into tacit knowledge whereby new knowledge basis or ways of working are formed through shared mental models or technical know how.

Nonaka and Takeuchi (1994), Nonaka and Konno (2001)	"SECI : Model of Dynamic Knowledge Creation"
individual and tacit	Socialized : Empathizing. Tacit to tacit accumulation. Expertise gained through practice and demonstration.
individual and explicit	Externalized : Articulating. Facilitating creating and essential dialogue, and abductive thinking. Tacit to explicit transfer.
collective and explicit	Combination : Connecting. Acquisition and integration. Synthesis and processing. Dissemination. Explicit to explicit transfer.
collective and tacit	Internalized : Embodying. Enactive liaising. Simulation and experimentation. Explicit to tacit transfer.

Gagne (1984) Kim (1993) Lundvall and Johnson (1994)	"Various Descriptions of Knowledge"
know-what	Information and facts.
know-why	Principles and causal relationships.
know-how	How people understand and apply learning.
know-who	Who knows what.

Gardner (1983); Lazear (1991)	"Multiple Intelligences" "Frames of Mind"
verbal-linguistic	Interpretation and explanation of ideas and information via language.
musical rhythmic	Awareness, appreciation and use of sound; recognition of tonal and rhythmic patterns.
logical-mathematical	Detecting patterns, reasoning, analysis, deduction and cause/effect relationships.
visual-spacial	Interpretation and creation of visual effects. Imagination and expression using visual images.
bodily-kinaesthetic	Control and movement, dexterity, physical agility and balance.
interpersonal-emotional awareness	Perception of other's feeling. Availability to relate and interpret behaviour.
intrapersonal-self awareness	Personal cognisance, personal objectivity and to understand ones relationship to others.
naturalistic	Appreciation and awareness of the natural environment.
spiritual-existential	Interpretation and usages of religion and ultimate issues.
moral	Awareness of ethics, humanity and values of life.

Gardner (2007)	"Five Minds for the Future"
disciplinary mind	Mastery of major schools of thought, including science, mathematics, history and at least one professional craft.
synthesizing mind	The ability to integrate ideas from different disciplines or spheres into a coherent whole and to communicate that integration to others.
creating mind	The capacity to uncover and clarify new problems, questions and phenomena.
respectful mind	Awareness of, and appreciation for differences among human beings and human groups.
ethical mind	Fulfilment of responsibilities as an employee and as a citizen.

Various Authors	"Perspectives of Knowing"
situated	Focuses on practices in which individuals have learned to participate. Addresses how people learn adaptively in situations.
reflective-constructivist	Individuals construct meanings from experiences to produce knowledge.
inferential-psychoanalytic	How the unconscious combines with the conscious to produce knowledge.
resistance-critical culture	How power circulates to repress or enhance experience or learning.
co-emergence	Enactivist perspective. How cognition and environment become simultaneously enacted through experiential learning.

Various Authors	"Methods for Understanding Reality"
science	Experimental approach.
philosophy	Abstract mind.
rationalism/scepticism	Not accepting realities that are not immediately relevant.
religion	Faith in divine revelation and social tradition.
mysticism	Experiences based on spiritual techniques.
esotericism	Intuitive speculation on perception or "hidden knowledge".
occultism	Psycho-physical techniques to assess hidden realities.
gnosis	Innate wisdom and understanding.

Schön	"Reflective Practice"
Knowing-in-action	What Schön describes as "intuition"; instinctive "motor skills". Knowing as you are doing, (e.g. riding a bicycle).
Knowing-on-action	Reflection/Reflexivity taken on the immediate past.
Knowing-in-reflection "reflection-in-action	(Bounded by the action present). What occurs during, but without interrupting our activities.
Knowing-on reflection "reflection-on-action	(Bounded by the action past). Looking back at the immediate past.

<u>Discussion</u>   :

Much of the organizational attempts at providing an understanding of 'knowledge management' comes from the developments in post-industrial society where wealth is demonstrably and increasingly generated from knowledge and intangible assets. It is the rapid changes in technology, markets and competition that makes knowledge such a valuable commodity. Innovation is a key driver to competitiveness, and knowledge creation and knowledge sharing is essential for innovation to occur. Cross-boundary knowledge transactions between functional specialisms and disciplines have increased significantly in the last two decades, and information systems and new technologies have assisted in the efficiency of many of these transactions. Yet, it is not insignificant that organizational knowledge depends as much upon people as any other asset. Corporate values are increasingly dependent upon knowledge assets and other intangibles such as intellectual property and intellectual capital. Organizations are constantly attempting to develop their organizational knowledge, and there is a recognition that organizations, teams and individuals must be continually learning. Developing the knowledge base of an organization and learning from experience are imperatives. In order to be able to keep pace with constant change, organizations have to continuously develop their ability to accommodate and assimilate new knowledge.

Sharing knowledge across functional and disciplinary boundaries poses a particular challenge for organizations since the groups, teams, communities or networks of people may have little common ground for mutuality, participation or shared understandings.

Much of the literature on knowledge and knowledge management shows a knowledge-as-object approach where 'know-what' is more important than 'know-

how-to-share what'. Overcoming reluctance to share information and knowledge is one of knowledge workers' biggest challenges.

Through an emphasis upon practice-based theories of knowing such as situated learning theory, Lave and Wenger 1991, have made significant contributions to a number of fields of research, but have made little impression on disciplines like organizational team development or management consultancy.

"Knowing", the socially situated activity whereby knowledge is applied and created, is particularly relevant to those engaged in activities involving legitimate peripheral participation. However it depends to a large extent upon a notion of participatory contexts, and some of the early literature on situated learning failed to address these important issues of context.

Blackler (1995), and Blackler and McDonald (2000) have called for a greater emphasis upon "knowing", and more recent research has recognized the importance of both knowledge and knowing, (Werr and Stjenberg, 2003, in management consulting; Nonaka and Konno 2000, in knowledge management), and analyzed in a way that is mediated, situated, provisional, pragmatic and contested. (Blackler 1995 : 1021).

It was relevant, therefore that frequently, issues concerning knowledge often overshadowed practice-based approaches in organizations. Consequently, it was reasonable to ask, by way of two subordinate research questions :-

> "How is the social construction of knowledge and the process of sharing knowledge across CoPs facilitated?" (RQ 8).

> "How can CoPs and the management of knowledge be integrated to support learning, meaning and reflection in workplace practice?" (RQ 9).

In the next chapter I considered how situated learning and the original notion of communities of practice evolved over the past twenty years, and influenced my understanding of the growing concept.

Chapter 4

The Metamorphosis of Communities of Practice

This chapter continues the literature review by considering the transforming and transformation of communities of practice. (Transformation, transforming : metamorphosis (from Greek).

The chapter considers :-

1. Five periods of evolution.

2. Early influences and epistemological foundations.

3. The emphasis upon learning, meaning and identity.

4. The impact of knowledge management.

5. Participation, identity and practice in an electronic age.

6. Some limitations in the concept.

7. Changing relationships influenced by digital technology.

A short summary and implications for my research questions concludes the chapter.

Concepts of communities of practice have changed significantly since Lave and Wenger's (1991) *Situated Learning,* and Orr's (1987) narratives about a community of Xerox service technicians. These landmark studies influenced research into learning processes within shared and communal contexts. *Situational Learning* talked about "Communities of Practice', whilst the Orr study talked about 'Networks of Practice'.

Issues of participation within physical work environments were central to learning that occurred through centripetal activity in the learning curriculum of

the ambient community. Today, in an electronic age, issues of participation, identity and practice are more problematic.

This chapter examines how the concept of community of practice has undergone various transformations in terms of the way it has been presented, and in its evolutionary form, from early foundations located in the late 1980's to the present day use and interpretation of the concept.

4.1   Five Periods of Evolution

In this chapter I conclude there are five distinct periods of evolution which have brought about the metamorphosis of the concept.

1)   <u>Pre - 1990s</u>   :   Early Influences and Epistemological Foundations.

2)   <u>1990-1995</u>   :   Situated Learning and Legitimate Peripheral Participation.

3)   <u>1996-1999</u>   :   Learning, Meaning and Identity.

4)   <u>2000-2003</u>   :   Communities and the Impact of Knowledge Management.

5)   <u>2004-2008</u>   :   Participation, Identity and Practice in an Electronic Age.

Communities of practice have provided an interesting and growing area of research for practitioners, academics, management consultants and those who have an interest in learning in organizational and educational contexts.

In education, Bruner (1996) in *The Culture of Education",* had highlighted the crucial importance of cultural practices in learning, *('culture shapes minds'); 'cultures that operate as mutual communities of learners'* (1996 : 81); *'enabling or learning community'* (1996 : 147), and *'becoming aware of practice'* (1996 : 79).

The term communities of practice has proved capable of holding many levels of meaning, and over its relatively short lifetime has shown to be both a durable and an ambiguous concept. The use of the term has changed significantly since it first became of interest in the 1980's following research at the Xerox Palo Alto Research Centre (PARC).

However, two of the more frequently cited problems around the original concept of communities of practice are now beginning to be more apparent as communities evolve into different forms or subsets. Firstly, Lave and Wenger (1991) did little to describe or analyze communities of practice that were either spatially or socially fragmented. Secondly, there appears to be an inherent contradiction running through their book about whether membership of a community of practice is a prime condition for all learning, or whether communities of practice represent certain conditions in which some forms of learning can flourish, (see Hodgkinson et al 2004).

As one analyzes the development of communities of practice over the five distinct periods mentioned above, these contradictions become ever increasingly apparent.

For example one of the major difficulties I encountered was the Lave and Wenger (1991) concept and over-emphasis of legitimate peripheral participation by the prime learning process in all situations. Whilst this held good for the learning of newcomers, and particularly in my case as a young newcomer (See Chapter 6), it did not explain the learning of more experienced workers, or workers who had longevity within their place of work.

4.2   Pre 1990s : Early Influences and Epistemological Foundations

PARC has had a forty year history of working closely with different enterprises and new ventures to discover and develop innovations through business and technology. PARC is celebrated for innovations such as laser printing, ethernets, and the graphics user interface. It claims to be informed by a deep understanding of customers' work practices and draws on more than thirty years of multidisciplinary research on workplace communities. They emphasise systematic observation and analysis of people in their natural environments through the use of ethnography in technological contexts.

During the late 1980's at PARC, a number of interdisciplinary researchers were working together at the Institute for Research and Learning, including Jean Lave, Etienne Wenger, Paul Duguid and John Seeley Brown. All four of these researchers have been instrumental in advancing the notions of communities of practice, although each have taken slightly different approaches in advancing its concept.

Just prior to this period, there was a growing interest in how organizations learn and unlearn (Hedberg 1981); occupational communities in organisations (van Maanen and Barley 1984); culture as praxis (Bauman 1973); and narratives at work (Orr 1986).

The researchers at PARC came from several different occupational backgrounds and academic disciplines, but all four were particularly interested in providing alternatives to the (then) dominant behavioural models of learning. That is, that knowledge could be viewed as an object and transferred from one individual to another.   A growing interest in social constructivist/

constructionist models of learning, some based on the work of Vygotsky (1934, 1978), held that knowledge was socially constructed through collaboration and interaction and was a process in which knowledge was mutually "co-constructed". Co-constructed processes involve people interacting during shared activities.

Lave had a particular interest in cognition in practice situations, whereas Wenger had already developed a theory of cultural transparency. Brown and Duguid were both closely involved in the organizational learning taking place at Xerox, and all four became heavily influenced by Orr's ethnographic studies of service technicians in Xerox (1987, 1990). Orr had concluded the identity and knowledge that people acquire when joining an organization, were more likely to be those of a particular practice through which the individual joins the organization. Thus, the technicians that Orr studied became Xerox members by first becoming technicians.

Orr described how, within the community of Xerox technicians, knowledge was instantiated dynamically in what Giddens (1984) calls 'knowledgeability'. Membership of the community offered context and form, as well as content to aspiring practitioners who needed not only to acquire the explicit knowledge of the community but also the identity of being a community member.

Giddens appears to have been a strong influence on the early work of Lave, Wenger, Duguid and Brown, as does the sociology of Tonneis (1971). Tonneis emphasized the importance of the local community *(gemeinschaft),* and it is here that a focus for work, learning, knowledge and identity formation appears located epistemologically in the work at PARC at that time.

In this early period of the development of the concept of communities of practice, Lave and Wenger (1991) collaborated together on a radical reformulation of the concept of learning, arguing that most accounts of learning ignored its social character. In *"Situated Learning : Legitimate Peripheral Participation",* Lave and Wenger (1991) located learning squarely in the processes of co-participation, not in the heads of individuals. The challenge posed by their work was that learning takes place in a participation framework, not in an individual mind. Thereby, learning is mediated by the differences of perspectives among the co-participants, and it is the community, or at least those participating in the learning context who 'learn' under this definition (1991 : 15). The reading of *Situated Learning* (1991), indicates that it proposed a new model of learning based on situativism and constructivism as an alternative to cognitive/behaviourist models. It proposed learning *insitu,* rather than teaching in classrooms. It emphasised learning from other learners (social) rather than an individual learning from a teacher. It advocated that learning is as much about understanding how to behave, as what to do and is an identity change. This was, according to Lave and Wenger, preferable to learning in a mechanistic, cerebral process of transmission and absorption of ideas. "Situated Learning" (1991) studied five cases of apprenticeship, where learning within coherent crafts was located within communities of practice. This suggests that a community of practice was a unified, neatly bonded group, but Lave and

Wenger (1991 : 42) admit that :-

> *"the concept of community of practice is left largely as an intuitive notion, which serves a purpose here but which requires a more rigorous treatment" (1991 : 42).*

It can be argued, therefore, that *Situated Learning* posed more of a corrective to educational practice than to the transformation of workplace learning.

Lave and Wenger's early work was primarily concerned with situated learning, and their concept of community of practice was related closely to this. For them learning was essentially the process of socialization into a community.

In 1991, Brown and Duguid also published an influential text entitled *"Organizational Learning and Communities of Practice : Toward a Unified View of Working, Learning and Innovation".* They described communities of practice as a vehicle for closing the gap between espoused and actual practice, or the way in which work is documented verses the way it is actually performed. They build on Lave and Wenger's (1991) practice-based theory; Orr's (1987, 1990) investigations of knowledge practice amongst technicians, and Daft and Weick's (1984) interpretitive account of "enacting" organizations. Interestingly, Orr does not use the term community of practice, referring instead to the concept of occupational community (van Maanen and Barley 1984).

Brown and Duguid (1991) suggest that learning is the natural connection between working and innovating, using the terms *canonical* and *non-canonical* practices to describe a person's work and the way the work is carried out in practice, (espoused v actions or theory-in-use). They introduce three categories of work practice : *"narration", "collaboration",* and *"social construction",* which occur within the work community. For them, the central issue in learning is about becoming a practitioner, not learning about practice. Brown and Duguid (1991 : 48) accept Lave and Wenger (1991) concept of peripheral participation (LPP) as one of the most versatile accounts of a constructivist view of learning. Learning, from the view point of LPP, essentially involves becoming an "insider" (1991 : 51), and workplace learning becomes best understood in terms of the communities being formed or joined and personal identities being changed.

Both Lave and Wenger (1991) and Brown and Duguid (1991) see communities of practice as being outside the "formal" organization, seeking a reasonable degree of autonomy and independence from the organization and driven by their own internal needs. As Hildreth and Kimble (2002) have described, communities of practice were seen as 'wild' or 'untamed'.

Other texts during this period built upon notions of community, in one form or another, including Nonaka (1991); Lave, Duguid, Fenandez and Axel (1992); Reber (1993); Cook and Yanow (1993); Schuler (1994); von Hippel (1994); Nonaka and Takeuchi (1995) and Jones, S. G. (1995). Each text also discusses the distinctions between tacit and explicit knowledge in workplace learning contexts, the *locus classicus* being Polanyi's "The Tacit Dimension" (1966).

Nonaka and Takeuchi (1995) theory of knowledge creation rests on the assumption that knowledge is created through social interaction between tacit and explicit knowledge. The SECI process (socialization, externalization, combination, internalization) with its four modes of knowledge conversion became a strong feature of knowledge management theory and practice that took place during this period. Up to that time it attracted very little criticism, and so became one of the more influential models in knowledge management and strategy literature.

Nonaka and Takeuchi's (1995) study of breadmakers drew comparisons with Lave and Wengers (1991) study of apprentices, and the conversion of tacit knowledge into explicit knowledge in Nonaka's Honda City case drew similarities between the Xerox photocopier technicians in Orr, (1987), highlighted frequently by Brown and Duguid (1991). Thus, knowledge creation and community of

practice became linked, although there are few similarities. At this point communities of practice became one of the most frequently cited sub-sets of the knowledge management agenda. Duguid (2005 : 117) argues that Nonaka and Takeuchi have misread Ryle (1949) whilst others, Essers and Schreinemakers (1997) and Tsoukas (2002) later argued that the SECI model employs a mixed ontology, trying to be both constructivist and positivist. Despite these shortcomings, both SECI and CoP concepts had each gathered considerable momentum by the middle of the last decade.

4.3   1995-1999 : An Emphasis Upon Learning, Meaning and Identity

By the mid 1990's the concept of CoPs was diverging from educational and pedagogical notions of apprenticeship and transitions from school to work, and encompassing a more business focus, driven by the demands of globalisation, downsizing, outsourcing and developments in internet technologies. Sveiby (1996) describes how the Swedish community of practice centred around research and practical efforts to manage knowledge organizations *and to measure* (my emphasis) knowledge.

Sveiby was part of a loose group of managers and executives from Swedish organizations who use primarily non-financial indicators to monitor and publicly present their intangible assets. This was based on a theory originally brought forward by a work group consisting of members from several Swedish knowledge companies, known as the "Konrad Group". The purpose of the Konrad community was to encourage knowledge companies to improve their public reporting, thereby opening them up for public analysis. Sveiby, Skandia

AFS and the Konrad group were the early drivers for developing a European movement for measuring and managing the intellectual capital of communities. (See Edvinsson 1997).

In 1996, Wenger, now having moved away from his early collaboration with Jean Lave, began to focus upon the social fabric of learning organizations and social learning systems. This shift in Wenger's approach can best be summarized in a number of principles set out in a text in the Healthcare Forum Journal (Wenger 1996). To summarize Wenger's approach (From 1996, pp. 15-18) :-

> Learning is inherent in human nature. We already have learning organizations. What is needed is not to create learning, but rather to create circumstances that make learning empowering and productive. Learning is fundamentally social. Learning is most effective when it is integrated in a form of social participation. Learning changes who we are. Learning transforms our identities as social beings.

(Wenger begins here to introduce identity as a major part of the community of practice dialogue). The central themes here are that learning is a matter of engagement in practice. It is the ability to participate in, and contribute to, a shared enterprise that defines an individual's experience of identity in practice.

> Learning reflects our participation in communities of practice. Successful communities of practice provide forms of participation that encompass the past and open the future. Our identities imply both our connections to communities and a sense of personal history, with a past and a future.

(Wenger begins here to position communities along a time-line of personal and organizational development).

Learning means dealing with boundaries. As communities of practice collaborate, clash, merge, diverge, the required process of co-ordination, translation and negotiation is also a process of learning.

 (It is here that Wenger begins to set out his ideas about how CoPs begin to operate).

Learning is an interplay between the local and the global. Communities of practice are not just places where local activities are organized, but also where the meaning of belonging to broader organizations is negotiated and experienced.

Wenger suggests here that the local and the global are not different historical moments in an expanding world. Instead, they are related levels of participation that always co-exist and shape each other.

Wenger, like others (e.g. Kofman and Senge, 1993) recognised the growing internationalisation of business, and now began to realise that the sharing of knowledge was becoming critical. CoPs now needed to operate in a distributed international environment using skills, expertise, tools and techniques to address specific problems and tasks. Supporting teams, groups and CoPs with collaborative technology was now an imperative. (See Hildreth and Kimble (2000). Weaker social ties could now be formed electronically, (more like a "community of discourse"), and the informal associations that developed in face-to-face arrangements with work colleagues could now be extended via cyberspace. The usefulness of electronic weak ties for technical and collaborative arrangements was now creating greater opportunities for interrelated communities of practice to operate, (see Constant et al 1996).

Communities of practice could now exist anywhere, and everywhere, not just in organizations or business units. This has an important and significant shift in emphasis. *"Learning as a Social System"* (1998) saw Wenger acknowledge that even when people work for large organizations, they learn through their participation in more specific communities made up of people with whom they interact on a regular basis. Wenger distinguished these most informal and unstructured communities from organizational units, describing them as :-

> *" a company's most versatile and dynamic knowledge resource and form the basis of an organization's ability to know and learn".*
> (Wenger 1998 : Systems Thinker 1998 : 2).

This period of Wenger's work, sets out his position, independently of others, where he attempts to position the intellectual foundations of his work. In *"Communities of Practice : Learning, Meaning and Identity",* (Wenger 1998b), he adopts a more concise definition of community of practice emerges based on three interrelated terms, much more the vocabulary of organizational culture, than the earlier anthropological terminology of legitimate peripheral participation.

In "joint enterprise", "mutual engagement", and "shared repertoire", Wenger argues that communities of practice now arise out of a need to establish certain tasks or projects.

> *"Communities of Practice are … a different cut on the organization's structure – one that emphasizes the learning that people have done together rather than the unit they report to, the project they are working on, or the people they know".*
> (Wenger, 1998b : 72).

It is clear here that Wenger's emerging concept bears much more resemblance to Brown and Duguid's (1991) work, and there is evidence of more knowledge management terminology entering his concept. The source material for his 1998 work is drawn from an ethnographic study of claims processing clerks in a medical insurance company. One message consistent in this research is that

even in apparently routine or unskilled work there is a large amount of interaction and sense-making involved in getting the job done. Here Wenger introduces four dualities in arguing that communities of practice can contribute to the knowledge assets of an organization both through the knowledge they develop at the core, and through the interactions at their boundaries. The dualities interplay and create a single conceptual unit that is formed by two inseparable and mutually constitutive elements whose inherent tensions and complements give the concept richness and dynamism, (1998b : 66) :-

participation - *reification*
designed - *emergent*
identification - *negotiability*
local - *global*

So it would seem that Wenger, by 1998 had moved away from situated learning towards viewing communities of practice as a way of achieving tasks or projects through problem solving and sense-making within organizations.

Others, (e.g. Snyder 1997 : 3) at this stage had developed their own definitions of communities of practice :-

Collections of individuals bound by informal relationships that share similar work roles and a common context".
(1997 :3).

Here the word "community" highlights the personal basis upon which relationships are formed. They are not constrained by geographical, functional or business unit boundaries, but are drawn together by common tasks, contexts or work interests. The word 'practice' implies the way the individuals actually perform their jobs, rather than the espoused policies and procedures about how they should be performed. In this context 'practice' is very much "knowledge-in-action" (see Schön 1983, 1992).

It is this period which characterizes Wenger's most theoretical stage, and here

he draws on the epistemic characteristics of CoPs in *Learning, Meaning and*

Identity, (1998 : 279).

Table 4:1 : Characteristics of CoPs

Body of theory	Characteristics of CoPs
Theories of learning	Participation in CoPs involves communication, is task oriented, requires at least peripheral social inclusion, is distributed, and arises from a dialectic between subjective and objective realities.
Theories of social constitution	Situated learning exists only in interaction between structural forms and human action, not in either of these alone.
Theories of practice	CoPs are a lived sociality.
Theories of identify	Situated learning is negotiated experience, of which identity is both Input and output – a connection between different communities, styles and discourses.
Theories of situatedness	Situated learning is always context specific, and a function of the life trajectory or narrative, of the interpreter.

Wenger also identifies structural and epistemic indicators of CoPs in *Learning,*

Meaning and Identity, 1998 : 125).

Table 4:2 : Indicators that a Community of Practice has formed

(1)	Sustained mutual relationships – harmonious or conflictual
(2)	Shared ways of engaging in doing things together
(3)	The rapid flow of information and propagation of innovation
(4)	Absence of introductory preambles, as if conversations and interactions were merely the continuation of an ongoing process.
(5)	Very quick setup of a problem to be discussed
(6)	Substantial overlap in participants' description of who belongs
(7)	Knowing what others know, what they can do, and how they can contribute to an enterprise
(8)	Mutually defining identities
(9)	The ability to assess the appropriateness of actions and products
(10)	Specific tools, representations, and other artefacts
(11)	Local lore, shared stories, inside jokes, knowing laughter
(12)	Jargon and shortcuts to communication as well as the ease of producing new ones
(13)	Certain styles recognized as displaying membership
(14)	Shared discourse reflecting a certain perspective on the world

Within the context of organizational development and organizational learning,

there were diverging communities of practice from academic and

practitioner/consultancy fields bringing a wide range of learning theories and epistemological approaches. (Easterby Smith et al 1998). The growing popularity for constructionist methods over positivist methods, (e.g. stories quotes, text, construction or meaning, narratives and participant-researcher involvement), generated greater opportunities to link concepts such as the learning organization, organization learning, sense-making, knowledge creation, knowledge sharing, experiential learning and social networking with the concept of communities of practice. (See also Sims 1999 on organizational learning as the development of stories). Leonard and Sensiper (1998) also highlight the role of tacit knowledge in group innovation with some emphasis on CoPs.

The development of on-line communities (OLC), the rise of e-mail and other computer-based communication technologies also enabled members of organizations and groups to collaborate and exchange information on a much greater scale than ever before. Intra-net based OLC's groupware systems, search engines and Extranets now enabled communities to form and grow. Opinion was divided about whether OLC's were really "communities" at all or were simply ways of getting tasks achieved. One theme that emerged from this growing field was that a community is a group of people who are willing and able to help each other (Cothrel and Williams 1999 : 60). Wenger himself had always argued that it was essential to develop on-line platforms to create strong links with communities within regions.

This period in the metamorphosis of communities of practice (1996-1999) closes with an interesting thesis by Lesser and Prusak (1999) which hypothesized that communities of practice are valuable to organizations because they contribute to the development of social capital, which in turn is a necessary condition for knowledge creation, sharing and use. The three concepts of communities of

practice, social capital and organization knowledge had been wedded together in a cross-disciplinary sense : quite a journey over ten years from the Yacatec Mayan midwives and the Vai and Gola tailors in Liberia.

One of the significant changes that this implied was that wider issues of social and economic inequalities beyond the actual site of workplace learning were important to consider. In my subordinate research question the issues of knowledge, learning and reflection, and the mediation of these issues, now become a wider issue than the boundaries of the workplace. For example, employment relations affects workplace behaviour and legislation impacts upon workplace learning. Certain labour law, policies and procedures, structure both formal and informal education and training systems at work.

4.4   Communities and The Impact of Knowledge Management (2000-2003)

By the turn of the century the idea of communities of practice had been taken up with a remarkable degree of enthusiasm. CoPs would expand the possible range of acceptable "ways of being" in an organization and even in a large corporation with a very conformist culture (Turner 1999). Reynolds (2000) acknowledges that the idea of community underlies much of the more participative, if not experiential approaches to management education and development. Recognizing the appeal of community in its implied promise of solidarity, belonging and sense of personal significance, Reynolds never-the-less warned that notions of community could mask darker tendencies of coercion and assimilation of differences. The period 2000-2003 witnessed a number of challenges to the seemingly "redefined" notion of community of practice. (Fox, 2000, Hildreth and Kimble, 2002, Contu and Willmott, 2003).

Many of the concerns were a recognition that Wenger's work had taken on a different style and had adopted a different perspective. Community of practice had become a management tool which could be used in blue-chip multinational corporations. As Cox (2005) later observed, there was a sense that there had been a reinvention of communities of practice as a managerialist concept. For some while, Wenger had been advocating that a knowledge-based community of practice provided the advantage of integrating the stewarding of key competencies into the very fabric of the organization. Communities of practice would be the natural stewards of knowledge in an organization, driving a knowledge-based strategy by an ongoing dynamic process of renewing the capabilities of the organization through a circular series of process steps.

Wenger had collaborated with Snyder to describe communities of practice as *"The Organizational Frontier",* (Wenger and Snyder 2000), where, they agreed, that CoPs are diverse as the situations that give rise to them (2000 : 141).

Wenger and Snyder admitted that it is not particularly easy to build and sustain CoPs or to integrate them with the rest of the organization, suggesting that the organic, spontaneous, and informal nature of communities makes them resistant to supervision and interference. Those that had become "nurtured" (2000 : 140) added value to their organization in several important ways :-

1) *they help drive strategy;*
2) *they start new lines of business;*
3) *they solve problems quickly;*
4) *they transfer best practice;*
5) *they develop professional skills*
6) *they help companies recruit and retain talent.*

Again, although communities of practice are fundamentally informal and self organizing, they benefit from "cultivation" (2000 : 143). Wenger alone, persists

with this notion of cultivation in *"Tending the Garden of Knowledge"* (2001), where stewarding knowledge stayed a central theme.

In 2002, Wenger teamed up with Snyder and McDermott to produce *"Cultivating Communities of Practice",* a popularist book of tips on what large organizations were doing in developing their own communities. Criticism of this work was centred on the fact that there were no empirical studies to support the assertions made in the book; the evidence was anecdotal, and the imperatives were driven by a sense of compulsion to change in the face of urgent environmental factors such as globalization, or efficiencies. Fox (2000) challenges Wenger's theoretical framework for understanding CoPs arguing that it failed to analyze issues of power and inequality, so prominent in the earlier work with Lave (1991). This profound shift away from earlier notions of CoPs has been described as commercialisation or commodification of the concept (Vann and Bowker, 2001).

Some of the biggest concerns have been the way in which the whole community of practice concept has been redefined as :-

> *"groups of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an on-going basis".*
> (Wenger, McDermott and Snyder 2002 : 4).

The "innovation" of CoP's is apparent in-so-far as the drive now had shifted from sharing knowledge and solving problems, to inventing new practices.

"Cultivating Communities of Practice" (2002) offered few practical examples of how CoPs functioned. Yet the book does provide an insight into a number of unresolved issues and difficulties in the communities of practice approach. There is some consideration that not all communities are "safe-havens", and it is

generally recognised that issues of power dynamics, trust, and resistance to change, are generally understated. It is a regular criticism that Wenger, McDermott and Snyder (2002) failed to advance the notions of communities of practice, relying on a populist management consultancy approach, when other areas of literature, pedagogy, educational theory and healthcare have attempted to extend the concept.

Brown and Duguid (2000a) suggest that often too much attention is paid to the idea of community, and too little to the implications of practice, a theme later revisited by Duguid in 2005. Ponzi and Koenig (2002) argue that the concept of communities of practice has fallen into the same trap as knowledge management in becoming another fad, and it is possibly the closeness or affinity between the two that has provided some of the skepticism as well as generating much of the interest. (See also, Papargyris and Poulymenakou, 2003).

Never-the-less, there have been some interesting developments in this period, especially around the building of communities of reflective practitioners. For example Ayas and Zeniuk (2001), describe how project-base learning use communities of practice that cross project boundaries; Ghaye and Lillyman (2000) describe a series of initiatives for health care professionals that link reflective practice concepts with CoP's; whilst Driver (2002) describes the integration of various communities of practice around a model of learning linked to leadership in organizations.

The growth of interest in the concept during this period also enabled a number of practice-based initiatives to take place which has helped to explain one of Ryle's (1949) challenges that we learn *how* by practice.

Brown and Duguid (2000a) in their social-practice perspective introduced the notion of *"networks of practice",* where, building on Spender (1993, 1994), managers form networks that extend well beyond their own organizations to include similar managers in other organizations. Despite being competitors, a lot of shared know-how takes place.

Such networks then spread knowledge among practitioners, crossing boundaries of particular organizations and following routes prepared by practice. A lot of knowledge is 'sticky', (von Hippel (1988, 1994), whilst some becomes 'leaky', (Liebeskind 1996). For a more dramatic description of 'sticky' and 'leaky' knowledge in organizations, witness the Ferrari-McLaren 2007 dispute over shared know-how in the Formula One motor racing technical, design and engineering network.

As Brown and Duguid have noted :-

> *"networks embrace people with a core of common practices;*
> *organizations, by contrast deliberately embrace communities with*
> *fundamentally different practices, presiding as most do over a particular*
> *division of labour, and hence of practice and knowledge".*
> (2000a : 47).

Addressing some of the problems of power conflicts with CoP's and particularly those raised by Fox (2000), Lande et al (2003) highlighted how during an empirical case study in MobyCo, a large UK-based multinational mobile telephone company, more strategic orientation to communities of practice emerged. MobyCo were becoming wary of the term 'communities of practice' and replaced it with the term 'knowledge networks' : the term had immediate business relevance, whereas community did not.

4.5   2004-2008 : Participation, Identity and Practice in an Electronic Age

As Roberts (2006 : 636) has noted :-

> "*communities of practice is, in a sense, still an evolving approach to knowledge management*".

Some have moved away from the wording of the concept to embrace other emphases such as 'knowledge networks', i.e. *MobyCo* above; or 'communities-of-knowing' (Boland and Teukasi 1995), where knowledge-intensive organizations consist of multiple communities with specialised expertise. Klein, Connell and Meyer (2005) have proposed a typology of communities of practice based on their knowledge characteristics which identify four types of CoPs. In the absence of any agreed standard characterisation of a community of practice, this seems a particularly helpful and relatively straightforward typology that has been largely missing from the previous literature on the concept.

Table 4:3 : A Classification of Communities of Practice

	Knowledge activity	
Structure	Sharing	Nurturing
Stratified	• Advanced grades share knowledge knowledge with less advanced grades. • Knowledge flows down through community. • Community knowledge fairly fixed and slow to change.	• Knowledge development experiences sequentially arranged. • Knowledge development controlled by control of experience. • Community knowledge changes slowly but develops pluralistically.
Egalitarian	• All grades share knowledge with each other. • Knowledge flows up and down through community. • Community knowledge changes quickly.	• Knowledge development experiences not sequentially arranged. • Knowledge development not sequentially arranged. • Community knowledge changes quickly and develops pluralistically.

Source : (Klein, Connell and Meyer 2005).

The four types of CoPs identified by Klein et al (2005) seem a particularly good complement for the types of communities identified by Saint-Onge and Wallace in their study and subsequent book on communities of practice at Clarica Life Insurance in Ontario Canada. In *"Leveraging Communities of Practice for Strategic Advantage"* (2003), Saint-Onge and Wallace propose a direction for establishing CoPs as an integral part of the organisational structure. In many ways this text represents one of the first attempts to document how to develop a strategic web-based community of practice in a strategic context.

Wenger's contribution to the debate about the utility of knowledge management and knowledge strategy continued in 2004 with his short paper entitled *"Knowledge Management as a Doughnut"* (Wenger, 2004) where he repeated a number of assertions made in the earlier *"Cultivating"* book (Wenger et al 2002), that :-

> *communities of practice are groups of people who share a passion for something they know how to do, and who interact regularly in order to learn how to do it better.*
> (2002 : 74).

Here, there is a direct implication that communities of practice and continuous improvement are synonymous. Within the "doughnut" paper, Wenger argues that communities of practice are the cornerstones of knowledge management, and are defined by disciplines, problems or by situations. There are three fundamental characteristics introduced :-

> *domain* : the area of knowledge that brings the community together, gives it its identity and defines key issues that members need to address.

> *community* : the group of people for whom the domain is relevant, and the definition of the boundary between the inside and the outside.

> *practice* : the body of knowledge, methods, tools, stories, cases and documents which members share and develop together.

What Wenger tended to understate in his work during this latest phase of community of practice evolution, is that of size and spacial reach. The earlier concept with Lave, (1991) presented CoPs as small, spontaneous, self-organizing fluid processes. In his later work, it is suggested that a globally distributed community such as in Shell Expro could comprise more than 1500 people.

However, in a little publicised earlier case study, "Clarica's Agent Network" (Wenger 2002 : 5), he does acknowledge that going to scale to include 3000 agents :-

> "is a challenge because a very large community can become too impersonal and generate an overwhelming amount of material. It will be necessary to devise a process by which the community can sub-divide into meaningful sub-groups".

Interestingly, Boyd (2003) in reviewing twelve years of experiences in communities of practice in Shell, described how the rapid growth of 107 CoPs in Exploration and Production created duplication, user dissatisfaction, uncertainty over which one to join, and inconsistency in operations and usage. Shell's top-down solution was to merge these into two CoPs!! This issue of size is visited by Roberts (2006 : 630) who challenges Wenger on communities in both small and large groups, arguing : *'is it really possible to apply exactly the same principles to these two* (large and small) *communities'* (2006 : 630).

To address the issue of size, Wenger describes large distributed communities as a collection of communities of practice, and here the term *'constellations of practice'* emerges, along with other terms such as *'fractal structures for global communities'.* (Wenger et al 2002 : 127), (see also Gherardi and Nicolini, 2002).

These terms were used to describe an array of various communities of practice in ten cities in Central America, Mexico and the Caribbean region who were involved in a World Bank initiative to focus on knowledge as a key lever in the fight against poverty. The *Ayuda Urbana* project involved Knowledge Management initiatives within and across informal communities of practice operating within key cities in the aforementioned regions. These were known as Thematic groups or constellations, working on similar problems across a wide geographical area. In this model the CoPs became the vehicle through which the World Bank could connect its knowledge strategy with other various sources of expertise operating within the individual communities. In this way the World Bank could position itself at the heart of the constellation or fractal.

Knowledge strategy, knowledge management and communities of practice were now inextricably intertwined.

Roberts (2006 : 633) also suggests that communities within business organizations may have difficulty forming when the pace of change is accelerating. Just as they begin to form, so an organization can re-organize them (e.g. Shell above). So the spontaneity element that characterized early CoPs may only be tolerated in large organizations which can be cushioned from short-term competitive intensity.

Handley et al (2006 : 641) argues that it is sometimes difficult to distinguish conceptually between the terms 'participation' and 'practice' because of occasional duplication of meaning. For sure, the term 'practice' is rich in meaning and at times ambiguous. Similarly, the term 'community' can also be viewed in a variety of ways. In its original form (Lave and Wenger 1991 : 29), the focus was upon learners participating in communities of practitioners,

moving towards full participation in the socio-cultural practices of a small community. Mutch (2003) in his critique, acknowledges that there is nothing fixed about the way in which we use concepts, challenges Wenger's compartmentalism of practices (one for each community setting).

A further point raised by Duguid (2005 : 115) is that the CoP perspective limits itself to communities and networks where practice is critical to CoP analysis. This may be at the root of the current dilemma around the concept within management literature. How exactly, do individuals negotiate their engagement with CoPs? It is the need to focus upon the 'practice' aspects (Duguid 2005; Roberts 2006) where these issues become critical. A refinement of the definition of CoPs to enable greater conceptual clarity has been long overdue. Perhaps there is a need to go back to basics and revisit 'situated learning' processes in the light of new accelerated forms of knowledge transfer and acquisition. The linear development of community formation may need to be replaced by a multidimensional model of community formation based upon practice, meaning and identity. (See also Walker, Justesen, Robinson, 2007).

Developments within virtual learning communities can deepen a sense of connectedness and offer benefits of sharing and learning, but they also bring their own problems and challenges which are relatively easy to resolve in face-to-face interaction, but not so easy to resolve virtually. Trust building in virtual communities poses different challenges. Top-down adjustments or modifications to communities create different dynamics to those which emerge spontaneously. (Gannon-Leary and Fontainha 2007).

Wenger's five year study of the technologies designed to support communities of practice (Wenger, et al 2005) highlighted two fundamental tensions now facing communities.

Firstly, a community implies an experience of togetherness that extends through space and time. Separation creates a dilemma for communities : how can they experience togetherness even though they cannot be together face-to-face?. A second tension involves the relationship between communities and individuals. Members are not necessarily members of one community, they may participate in a number of communities, teams and networks, and have to find meaningful participation in these multi-membership relationships while preserving a sense of their own identity. Technology-mediated togetherness can create the danger of confusing the community with the technology. Communities that depend on technology need to pay attention to the tools that enable their togetherness, without being distracted from the interests that brought them together in the first place.

This seems to be at the centre of the dilemma for 'virtual' communities of practice. Given that traditional CoPs tend to be self-perpetuating and self-directed, where the focus is not on a narrowly bounded task, but on a dynamic living 'practice', will they work in a high tech and increasingly internationalised virtual work environment? Almost all the original research on CoPs up to the end of the fourth phase of its development (2000-2003) had been based on co-located CoPs where participation was the process through which individuals became active participants, and reification (conversion of the abstract into the concrete), gave form to the communities experience by producing artefacts.

The question of where learning and doing, two fundamental constituents of CoPs. occurs in virtual communities has been addressed by Leug (2000) who argues that the transfer of a concept that is deeply rooted in the lived-in world, to the virtual, involves conceptual problems.

Can virtual communities be described as communities of practice, and can a CoP ever be truly virtual? Perhaps it is time to clearly define the concept and dinstinguish CoPs from what Brown and Duguid (2001) call 'Networks of Practice', (NoPs). This is where social network groups who are geographically dispersed and may never meet or get to know each other personally, share similar work or interests. (For example, health service technicians operating worldwide with different employers, different workplace cultures, geographically dispersed, but with similar challenges and issues). Networks refer to all networks of social relationships with strong or weak ties. 'Practice' need not necessarily be restricted to include those within one occupation or functional discipline.

The concepts of CoPs and VCoPs are significantly different, not least of which is the technology/technological component, which makes member's experiences in these environments, so very different. Mutual knowledge, trust building and identity are much more complicated through IT mediated interactions, and VCoP's have a wide range of membership characteristics, cultural diversity, technological dimensions, organizational contexts and demographics, not so prominent in traditional situated communities.

It is well documented that CoPs are fluid, constantly changing living systems : but they do not last forever and can drift into non-existence, redefine themselves, merge with other communities or become organizational units.

(Gongla and Rizzuto 2004). It is likely that in a virtual world, social network groups such as NoPs will become more important to organizations, and here the fundamental unit for many examples of virtual working is not the group, but the individual.

Fig 4:4 : The Emerging Varieties of Communities of Practice

The above figure illustrates how the concept of CoPs has spawned a number of varieties. The original concept of communities of practice with its strong social ties may prove to be difficult to form and sustain in virtual environments.

4.6   Some Limitations in the Concept

The social and relational aspects of learning within communities of practice have resulted in a number of landmark studies (Orr, 1987, Brown and Duguid 1991; Lave and Wenger 1991; Cook and Yanow 1993; Gherardi, Nicolini and Odella, 1998; Wenger, 1998b). Others in the management literature have provided critiques of the earlier concepts, (Fox, 2000; Mutch, 2003; Contu and Willmott

2003; Marshall and Rollinson, 2004 and Handley et al 2006) that suggest some limitations.

Some of the key concerns about the communities of practice approach, particularly over issues of trust, power, identity and predispositions, suggest that the emphasis upon community has tended to overshadow the importance of practice. The original Lave and Wenger (1991) conceptual model of communities of practice as a context for situated learning is now challenged as emerging networks and new ecologies demand different approaches. In many cases, conflicting identities and power inequalities have revealed difficulties in learning within, and between different communities, and issues of participation are now made more complex by changes in web-based technologies.

Handley et al (2006) have expressed the view that communities of practice should not be considered as cohesive, and homogenous social objects, and there is clear evidence for variation and even intra-community conflict.

Wenger (1998b : 77) acknowledges the potential and possibility for conflict where "peace, happiness and harmony are therefore not necessary properties of a community of practice". The potential for conflict and tension increases as individuals participate, not within a single community, but within many communities, collectivities or networks. Early models of communities of practice tended to view them as single entities, whereas now they may have overlapping practices and identity structures. Individuals may be members of different networks of interest, and may have membership of multiple communities. Practices within communities are difficult to compartmentalize, and participation, identity and practice in an electronic age has created different challenges. The growth of various forms of networks has highlighted differences

between strong and weak ties within them, and also brings into question what constitutes 'participation'. In the original concept of situated learning and legitimate peripheral participation, 'peripheral' meant newcomers who were permitted to participate to a limited extent in tasks and relationships. In the workplaces described by Lave and Wenger (1991) non-participation posed a different interpretation to what counts for non-participation in an electronic age. Wenger suggests that peripherality and marginality are two distinct concepts :-

> "whether non-participation becomes peripherality or marginality depends on relations of participation that render non-participation either enabling or problematic". (Wenger 1998b : 167).

In social networks, non-participation may well become an active aspect of practice, much more so than in communities. In 1991 legitimate peripheral participation was an important stage in developing confidence to contribute and belong to a community. In an electronic community or network 'lurking' (non-participation) can be viewed either positively or negatively depending upon the specific culture of the network. Many electronic networks advise newcomers or 'newbies' to lurk for some time in order to get a feel for the culture and sensitivities. Occasional lurking and habitual lurking have different connotations.

Thereby, in many electronic social networks, participation inequality shows that 90% of users are lurkers, 9% of users contribute occasionally, and 1% of users participate a lot and account for most contributions. (See Garcia et al 2009).

Building on Granovetta (1973; 1985), the difference between communities (as closer relationships) and networks (as more loose relationships), becomes more apparent.

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Interpersonal relationships in networks have two basic forms : *strong ties* which are based on the immediate work and life contexts and build the core of communities, and *weak ties* which stretch beyond or direct and close contexts into other domains and are rather peripheral to the communities we are participating in. In this way, they constitute networks.

Extending this, Siemens (2003) considers a community to be the clustering of similar areas of interest that allows for interaction, sharing, dialoguing and thinking together. Here, communities foster learning through informal means and regard peer-to-peer learning as valuable as corporate-directed instruction. Small communities are seen as highly relevant to the future of effective lifelong learning. Within networks, two or more nodes are linked in order to share resources, whereby nodes are connection points to larger networks. Learning communities are nodes. A network, in the context of ecology and communities, is how the organization of learning communities is formed. This develops personal learning networks.

Learning in a digital age has drawn a number of learning theorists towards a new learning theory which uses a network as the central metaphor for learning, and focusing on knowledge as making connections. "Connectionist Learning Theory" (connectivism) is derived from the key thesis of Siemens (2003) that knowledge proceeds from connections. Competence, according to Siemens comes from forming connections, and the ability to synthesize and recognize connections and patterns with the available technology. He acknowledges the contextual/situated nature of learning and the work of Lave and Wenger (1991) but also draws upon an eclectic mix of social learning theories, and theories of complexity and systems-based thinking. However, others, such as Kerr (2006), and Verhagen (2006) question whether connectivism is a new learning theory,

or merely a variant upon systems theory, network theory, and chaos theory. They argue that networks are recognized as important but haven't changed learning that much to the point where established learning theories can be discarded and replaced with a new one.

4.7   Changing Relationships Influenced by Digital Technology

However, the increasing use of digital technology means that network creation and attending to that network in 'many-to-many' contexts is going to depend more upon learner-centric, activity-based and experiential opportunities. In that regard the focus of learning may become more contextualized, with a stronger emphasis upon collaboration and participation. Consequently, "know-where" and "know-who" are likely to be as important in a digital age as "know-how" or "know-what". Legitimate Peripheral Participation assists in the development of an individual where he/she observes the discussions and actions of experts and once a base in the field has been developed, the individual begins to participate and contribute to the advancement of the field. What appears to be changing is the relationship of the individual to the field. In 1991, Lave and Wenger emphasized the needs of the field above the needs of the individual. As digital technology has grown apace, individuals may well learn as much from those who have a similar understanding to their own, as from the experts (masters) who existed in master-apprentice relationships, and expert-learner contexts that featured in *Situated Learning (1991).*

4.8   Summary and Implications for Research Questions

Communities as originally described by Lave and Wenger (1991) now have a different relationship to networks as digital technologies continue to grow and develop.

In many cases, workplace networks are now denoted as a special subset of communities of practice, which link colleagues in a technical, or specialist domain to steward and share knowledge. These networks tend to include everyone with a particular discipline within the organization, often globally. These networks have active and widespread participation; are well funded; have infrastructure including facilitation and high levels of IT support; and experience enthusiastic management participation and executive support. In these specialist electronic networks, knowledge sharing activity is high and lurking almost non-existent. In many of these workplaces, the presence of sophisticated intranets contribute to the interconnections of local groups and to the emergence of a network of practice. The increasing use of intranets contribute to mutual reinforcement of local communities, and towards the overall network itself. This is accompanied by growing complementarities among colleagues at different levels within the organization, and conceptually in a relational perspective, extend the situatedness of practice.

Therefore given the considerable number of transitions that have occurred since the original conception of community of practice was developed towards the end of the 1980's, it was reasonable to ask by way of research questions :-

RQ 2) How are structural components of CoPs built and sustained?

RQ 3) How are epistemic components of CoPs built and sustained?

RQ 4) How do organizational features or artefacts facilitate knowledge, learning and reflective processes.

RQ 5) How are interplays of tensions within CoPs resolved and/or reconciled?

RQ 6) How is the ability to assess the appropriateness of action with CoPs developed and sustained?

RQ 7) How are CoPs integrated within the organization?

In the next chapter I consider some of the important considerations surrounding the research process that assisted me in pursuing these questions through the interpretive tradition in qualitative research.

Chapter 5

Considerations around the Research Process

This chapter justifies the reasons why particular research processes had been chosen, and indicates the epistemological considerations, theoretical perspectives, methodological issues and types of methods considered. The assumptions of the research are also included.

The Chapter is structured in seven main sections :

5.1   Research Topic, Problems and Questions.
5.2   Philosophic Traditions and Epistemological Stance.
5.3   Methodological Considerations.
5.4   Social Constructionist Approach.
5.5   Conceptualization of the Research.
5.6   Using Action Research in a Constructionist Approach.
5.7   Sampling and Data Considerations.

5.1   Research Topic, Problems and Questions

Specifically, I wanted to research the nature of knowledge learning and reflection in communities of practice. Because I am a management consultant I am also interested in how consulting occurs in these processes. The title of this thesis reflects the specific interest : "Knowledge, Learning and Reflection : Consulting in Communities of Practice".

There are a number of areas that surround communities of practice that interested and concerned me and these are highlighted in the superordinate, and subordinate research questions.

5.1.1   Research Problems

The research problems consist of theoretical elements, empirical elements and methodological elements. There are questions concerning the epistemic components and the structural components of communities of practice.

The superordinate research question reflected what I wanted to understand and accomplish in undertaking this inquiry. The goal of the inquiry, why it is worth doing, is not to achieve replication or theory testing, rather it is to do with ensuring that the results of the inquiry are representative of the interpretations of those who work in CoPs.

5.1.2   Research Questions

The superordinate research question is :-

> *"How is knowledge, learning and reflection mediated in communities of practice?"*

The subordinate research questions are :-

2)   How are structural components of CoPs built and sustained?

3)   How are epistemic components of CoPs built and sustained?

4)   How do organizational features or artefacts facilitate knowledge, learning and reflective processes.

5)   How are interplays of tensions within CoPs resolved and/or reconciled?

6)   How is the ability to assess the appropriateness of action within CoPs developed and sustained?

7)   How are CoPs integrated within the organization.

8)   How is the social construction of knowledge and the process of sharing knowledge across CoPs facilitated?

9)   How can CoPs and the management of knowledge be integrated to support learning, meaning and reflection in workplace practice?

10)   How does my own experience of a CoP connect with, and offer insights about other workplace communities?

11)   How have people in CoPs constructed their reality, and what are their reported perceptions, beliefs and explanations for what occurs within these workplace communities?

12)   What does the actors' stories and narratives reveal about the culture of CoPs.

5.1.3   Why did I choose this topic?

A lot of studies have been undertaken over the past five years that have focused upon the ways in which CoPs have been organized, or have organized themselves in firms, but very few of these have been conducted from a social constructionist perspective. Very few have reflected the everyday lived experience of the members who comprise those CoPs, the life-world of these communities. There now appears to be a resurgence of interest in the nature of situated learning, meaning making and reflection, and there is a general view that the ideas originally presented in Jean Lave and Etienne Wenger's (1991) work "Situation Learning : Legitimate Peripheral Participation" should be revisited to explore the situated character of human understanding and communication in a technological age.

5.2   Philosophical Traditions and Epistemological Stance

The intention was to use a phenomenological approach, using description and studies of how things appear to people and how they experience the world. This is what Merleau-Ponty (1962) had described as the 'study of essences'.

5.2.1   Nature of Reality

The ontology, or study of the conceptions of reality, is concerned with the nature of the lived experience of those covered by the inquiry. It is the description of the ordinary conscious experiences of everyday life (or "life-world"), and thereby is intended to be a description of things as experienced by the actors within the study. It adopts relativism, whereby truth is relative to some particular frame of reference such as the language or the culture of the subject of the inquiry. In contrast to absolutism it does not assume that all points of view are equally valid. It is concerned with local and specific constructed realities.

5.2.2   Epistemological Stance

The stance was primarily subjectivist, and considered local and specific

constructed findings.

Subjectivity deals with the inner world of private emotions and thoughts. It is

this inner world which is most often said to be unique to each individual person.

Critics often say that it is often seen to be an illogical and unreliable source of

knowledge. This contrasts with objectivity, where it is thought unlikely that one

could be wrong. Social constructionism proposes a way of knowing that does

not occur simply through sensory experiences *within* an individual, but occurs in

the *relations among individuals* as they converse, negotiate and share their

world with one another.

Relational social constructionism focuses upon how people within a particular

setting create meanings inter-subjectively through their dialogical activities with

each other. "Knowledge creation and learning occurs through interaction within

unique social milieus" (Easterby-Smith, et. al. 1998).

5.2.3   Apprehension

As researcher and consultant, I viewed the world as largely indeterminate and

problematic. Within the study, the phenomena under investigation was viewed

as functions of perceptions, attitudes, values, beliefs, intuitions and personal

meanings.

5.2.4   The Phenomena of actors in CoPs

I wished to consider the lived experiences of the actors within the CoPs, and considered both observed characteristics and specific qualities as personal forms of meaning.

5.2.5   Formulation of Problems

To the best of my ability I have attempted to state as clearly as possible, the basic assumptions that I, and other researchers were making in exploring this topic.

5.3   Methodological Considerations

I was interested in understanding processes, and consequently the emphasis was placed on describing the world of CoPs from the point of view of the actors who live in it. Thereby, all concepts and/or theories that emerged from the study and the data, required an inductive approach that could not be replicated exactly.

5.3.1   Object/Subject Relationship

The inquiry adopted an interaction approach between and within the object/subject relationship.

5.3.2   Research Pathway

The pathway adopted an inductive process and involved the development of general inferences from particular instances that emerged within the inquiry. This was the process of observation and reflection of the empirical world, to a construction of explanations and theories about these observations. The pathway began from the reflection of past experiences and continued through

the formulation of abstract concepts, theories and generalizations that explain the past and present experiences, and predict within certain limits the future experience.

5.3.3   Research Approach

The emphasis was upon the explanation of human behaviour as determined by the actors' subjectivity and/or culture. It was the study of experience from within. It was research that treated each individual actor as a *universal singular.* It was intensive, and thereby Ideographic.

5.3.4   Ideographic Methods

The approach had a phenomenological bias, and emphasized the richness and complexity of the unique individual(s)/actors. Ideographic methods emphasized a commitment to research in everyday settings and to allow access (closeness) to participants. They required inductive form.

I considered that ideographic studies have an epistemologically valid position which stems from the distinction between causal laws and empirical generalizations, and real structures, actual events and experienced events.

Empirically, ideographic studies help to elucidate the specific through the explanation of subjective meaning, systems and explanation by understanding.

5.3.5   Research Perspective

The form of explanation of situations or events depends upon the actors' internal logics or subjectivity. This involves the "insiders" or "natives" interpretation of reasons for his actions, customs or beliefs. This research followed an "Emic" perspective (Pike, 1967). Thus, an "emic" account in this inquiry was a

description of behaviour or a belief in terms meaningful, (conscious or unconscious), to the actor. Emic constructs are accounts, descriptions, and analyses expressed in terms of the conceptual schemes and categories that are regarded as meaningful and appropriate by the members of the culture under study. An emic construct is correctly termed "emic" if it is in accord with the perceptions and understandings deemed appropriate by the insider's culture. The validation of emic knowledge thus becomes a matter of consensus, the consensus of native informants, who must agree that the construct matches the shared perceptions that are characteristic of their culture. The account was therefore culture specific.

5.3.6   The Concept of "Meaning"

The general term "meaning" usually refers to what is meant, or an expressive importance. For the purpose of this research, however, it required more specific understanding or interpretations of the term. In this respect "meaning" was addressed in three different ways. Firstly, where meaning has a significance or importance to the actor(s). Secondly, where meaning has a purpose or orientation. Thirdly, where meaning equates to understanding or content; or where it can be understood by the content. All three possibilities could be used depending upon the context. As a researcher the intention was to focus on meanings, and try to understand what was happening rather than looking for causality or fundamental laws. This entailed looking at the totality of each situation, developing ideas through induction from data obtained by multiple methods, to establish different views of phenomena of CoPs. This involved small samples investigated in depth, and over time. The data type was predominantly qualitative, context-bound and specific.

5.3.7   Researcher Role

My role was to be active, and interior to the research process, where the researcher interacted and was dependent and integrated with those actors within the inquiry.

5.4   The Social Constructionist Position

The social constructionist position in the sociology of scientific knowledge emerged primarily from empirical studies of knowledge production in the natural sciences that were conducted in the late 1970's and published in the 1980's (Knorr-Cetina, 1981; Latour & Woolgar, 1979; Lynch, 1985). A major contribution comes from Berger and Luckmann's (1966) *The Social Construction of Reality* in which they argued that human beings together create and sustain all social phenomena through social practice. They see three fundamental processes for this : externalization, objectivation and internalization. People externalize when they act on their world, creating some artefact or practice by telling a story. This then enters into the social realm; other people retell the story or read the book and once in this social realm the story begins to take on a life of its own. The future generations are born into a world where this idea already exists and they internalize it as a part of their consciousness.

This view slightly differs from Burr (1995) who considers social constructionism as a loose collection of theoretical perspectives underpinned by four main assumptions; a critical stance towards taken-for-granted knowledge; historical and cultural specificity; knowledge sustained by social processes; and knowledge and social action acting together.

Additionally, in another view, Dachler and Hosking (1995) view social processes theorized as language based processes of co-ordination and co-ordinations that construct Self in relation to other. They view relating as an ongoing process of construction carried out on the basis of language. Communicative processes are constructed in many kinds of relation and not only written and spoken words; for them it is possible to view all acts and artefacts as potential texts. In this sense, a text is any action available to be made relevant or irrelevant, meaningful or meaningless, by being co-ordinated within some way. Another way of addressing this is where Hosking and Bouwen (2000) adopt a relational-constructionist variant which theorizes the processes of social constructionism. This entails treating 'relating' as the vehicle in which learning is the ongoing construction. Additionally relational constructionism theorizes process as historical and social co-ordinations (2000 : 129). The approach assumes a relational ontology where all social realities (self, others, things) are viewed as interdependent or co-dependent constructions existing and known only in relation. Cunliffe (2008) describes her own relationally responsive social constructionism, through continually constructed research conversations and practice-structures.

All the above approaches contrast with the more usual cognitivist, constructivist approaches from the psychological dimension. Two main influences have assisted here.

Gergen (1984, 1985) considers all knowledge historically and culturally specific. For him, we must therefore extend our enquiries beyond the individual into social, political and economic realms for a proper understanding of the evolution of social life. Gergen argues that knowledge is socially created through constructions between people.

Shotter (1990) considers that people should be seen as knowledgeable, socially accountable agents, and the authors of their own socially constructed individuality or identities. Researchers should move away from the individual, 3rd person, external observer stance who collects fragmented data from a position socially outside of the activity observed towards a more relational, interpretative approach, in which outcomes occur as a result of joint action between all the participants involved.

Gergen and Shotter's positions assume that individuals perform 'internal' cognitive operations separable from 'external' social influences, to make sense of, and understand how things really are.

There is an emphasis on the everyday interactions between people and relating as an ongoing process of construction, where language is considered to have a social function rather than a private function. (See Maturana and Varela, 1980; Fay, 1987; Czarniawska-Joerges 1990; Watson, 1994; Burr 1995; Gherardi, Nicolini and Odella 1998; Gergen, 2000; Czarniawska 2003; Cunliffe and Shotter, 2006).

The terms constructivism and its two strands of thought, radical constructivism and social constructionism are all part of the philosophical perspective interested in the ways people individually or collectively interpret the social and psychological world. Radical constructivism focuses on the act of cognition of the individual knower (von Glaserfeld, 1984), whilst social constructionism focuses more on social process and interaction. To take social constructionism from its starting points it is important to note Schütz 1962 : 5).

> Strictly speaking there are no such things as facts, pure and simple. All facts are from the outset facts selected from a universal context by the activities of our mind. They are, therefore, always interpreted facts, either facts looked at as detached from their context

> by an artificial abstraction or facts considered in their particular setting. In either case, they carry their interpretational inner and outer horizons. (1962 ; 5).

Constructionism puts greater emphasis on the social dimension of knowledge, whilst constructivism includes cognitive and psychological dimensions. Both terms, social constructionsim and constructivism, are used interchangeably, although social constructionism displays more of an understanding of interpretation, construction and experiences, consistent with the world of individuals in social situations. Social constructionist researchers adopt some characteristics of an interpretivist perspective, such as trying to understand a phenomenon from the inside in an effort to understand the significations. The intention is to understand social reality experienced by the subjects/actors within the inquiry. Social constructionist researchers generally do not attempt to transform reality and knowledge. For constructionists, the validity of knowledge is consistency with experiences; the origins of knowledge are located in the empathy they build up with the actors in the inquiry.   Knowledge is generated both through interpretation and construction, using a multiple range of methods. This is the development of an "inside" understanding of a phenomenon, where broad propositions are based on the descriptive experience of the participants. Therefore, in order to establish coherence, a social constructionist researcher must operate on the inside of the system under observation, developing scientific knowledge in a co-constructed way with its actors. Tools and research techniques that assist co-construction, have to be considered in research design.

Both social constructionists and constructivists question the primacy of deductive logic and the universal character of the validity criteria proposed by positivists. Thus, for social constructionists, trustworthiness (credibility,

transferability, dependability and conformability) locates their validity criteria.

(See Lincoln and Guba 1985 : 295-6).

Petit and Huault (2008) have argued that principles of constructivism are difficult to adhere to within research design. For them, in research design, a fundamental principle should be to show how the actor's integration can enhance thinking and the knowledge creating process. They emphasize that researchers should adopt a reflexive approach, which is an awareness of the multiple identities a researcher represents in the research process.

5.4.1   Understandings that Guided the Inquiry

This concerns the system of concepts, assumptions, expectations, process flow, key areas, theories and literature that informed and guided the inquiry. This was an iterative process that took many forms in the early planning stages of the project, and was changed dozens of times. It changed because my understanding of the nature of the problems changed; experiences occurred through personal involvement and closeness with the actors. The sources for this inquiry, literature, theoretical and the actors themselves frequently changed, affecting my understandings. The planned approach that was documented in the original research proposal was modified and revised many times. Communities came and went, access arrangements were made and then abandoned for a whole variety of reasons. These problems impacted upon the critical paths of the inquiry. The goals changed and so did the conceptual framework. At one stage I had considered giving up the whole project because there appeared to be little chance that I would have the opportunity or the permission to work with CoPs on-the-inside, being 'fully' there. There were a few opportunities to work with groups or teams as an 'outsider' and I undertook

many of these assignments in the course of my consulting practice. However, to get organizations to accept the difficulties, challenges and costs involved in 'insider' research became a major difficulty. The majority of interactions within this inquiry were conducted on a 'no-fee, no-charge' basis.

In many ways this assisted the ability to get 'up-close and personal' with the participants as there was not the feeling that I was just another management consultant brought in by the company to help resolve organization difficulties. In many ways this helped to achieve a closer rapport with the actors in the inquiry, but the downside was that other organizational priorities frequently took precedence over my meetings and workshops. The theoretical solution was to try to find an internal sponsor for the inquiry who was fully committed to the goals and aims of the study, and who had the foresight to see that 'everyone wins' in these circumstances. In practice, this took a lot of time and energy, a lot of networking, a lot of optimism and a lot of disappointment. In project terms, this inquiry over-ran. Eventually, I found three communities of practice that welcomed me in, were stable in terms of their lifespan, and gave me the opportunities to work closely with them. Even so, people came and left, went abroad, got sick, changed addresses and contacts, dropped off the radar, and taught me that respondent verification or conceptual confirmation cannot be taken for granted and has to be planned very carefully.

5.4.2   What do I mean by 'understanding'?

Here I considered the concept of *Verstehen* which is used both to the aim of the human sciences and to their method. For me *Verstehen* had two meanings : in its first sense, *Verstehen* refers to 'understanding' as the process by which people in everyday life come to interpret and, therefore, to understand and guide

themselves in their world. However, I am also one such person, albeit with different cognitive motives. *Verstehen,* also refers to 'understanding' as the particular process by which researchers interpret the subject meanings that give rise to the behaviour of people. With hermeneutics, the relationship between pre-understanding and understanding is an iterative process where each stage of research provides new knowledge. I approached this inquiry with a background understanding about consultancy, communities of practice and the management of knowledge. I had access to others via personal involvement and my research methods in the inquiry. This led to new understandings. This is conceptually described below.

Understanding and pre-understanding refers to the insights, but at different points in time. The concept of *pre-understanding* refers to the insights that people have about a specific problem and social environment before the event. It is the input. The concept of *understanding* refers to insights gained during the event. It is the output. As a consultant I develop pre-understanding about the nature of a problem, based on my previous experience, and what people choose to tell me about that problem. I have to be selective in terms of what are givens and what are opinions and attitudes. In fact I regularly use a maxim that "there are three-sides to every coin" : my first hand experience doesn't always equate to my second hand experience gained through intermediaries.

Fig. 5:1 : How I use sources for my understanding

(Source : Adapted from Gummesson 1991).

Each pre-understanding leads to an understanding, which, following a new interpretation, creates another interaction. In practice, however, understanding is rarely as rational or as sequential as this.

Fig. 5:2 : The Hermeneutic Spiral

(Adapted from Gummesson, 1991).

5.5   Conceptualization of the Research

The conceptualization that guided the research approach was based upon a

number of factors :-

     (i)   Understanding of the extant literature.

     (ii)   Existing theories around the concepts of knowledge in
organizations, CoPs, and the consulting process.

     (iii)   Dynamic changes in (ii) above, as understood from the extant
literature and working knowledge of these concepts.

     (iv)   Prior research findings and/or critiques of models (e.g. SECI
(Nonaka and Takeuchi, 1995).

     (v)   Connections with an appropriate research philosophy, paradigm
and traditions (e.g. phenomenological, social constructionist,
qualitative, relational-oriented).

     (vi)   Ability to link all in (v) above, with real-world consulting and
research in workplace settings.

The theoretical components, or theoretical perspectives of the research

concepts were :-

     (a)   Subjective.
     (b)   To understand (knowledge, learning, meaning, reflection,
           identity).
     (c)   Both descriptive explanatory and descriptive/exploratory.
     (d)   Consistency with experience (actors' and my own).
     (e)   Mainly constructions, although some interpretation.
     (f)   Predominantly qualitative.
     (g)   Construction (and some interpretation) through rapport and
           empathy.
     (h)   Inductive processes.
     (i)   Internal and intensive.

More elaboration on these theoretical components are contained in this

chapter (below).

5.5.1 Structural and Epistemic Characteristics of CoPs

These were considered to be some of the structural and epistemic

characteristics of CoPs.

- Demographic
- Technological environment
- Membership
- Organizational context

Demographics

D1   Orientation : (operational - strategic)
D2   Life Span : (temporary - permanent)
D3   Age : (young (less than 12 months) - old (more than 5 years)
D4   Level of maturity : (transformation stage - potential stage)
       (Transformation - Stewardship - Maturing - Coalescing - Potential)

Organizational Context

01   Creation process : (spontaneous - intentional)
02   Boundary crossing : (low - high)
03   Environment : (facilitating - obstructive)
04   Organizational slack : (high - low) (level of Support and Resources)
05   Degree of institutionalised formalism) : (unrecognized - institutionalized)
06   Leadership : (clearly assigned – continuously negotiated)

Membership

M1   Size : (small - large)
M2   Geographical dispersion : (low - high)
M3   Members' selection process : (closed - open)
M4   Members' enrolment : (voluntary - compulsory)
M5   Members' prior community experience : (extensive - none)
M6   Membership stability : (stable - fluid)
M7   Members ICT literacy : (high - low)
M8   Cultural diversity : (homogeneous - heterogeneous)
M9   Topics relevance to members : (high - low)

Technological Environment

T1   Degree of reliance on ICT : (low - high)
T2   ICT availability : (high variety - low variety)

(Sources : Based on McDermott, 2000; Wenger et al 2002; Von Krogh et al, 2000; Dube et al, 2005, and confirmed in earlier pilot work).

5.5.2   Conceptual Framework

A conceptual framework was produced at the start of the inquiry and was modified a number of times prior to undertaking the research in the case study communities under review. This assisted with the focusing and setting boundaries for the fieldwork in this inquiry.

Fig. 5:3 : Conceptual Framework for the Inquiry

5.5.3   Research Design

My epistemological position regarding the study and its research design, can be

summarized as follows :-

> Data is contained within the perspectives of the people who comprise as
> members of a community of practice. How may this phenomenon or
> experience be best described? What are the invariants or themes that
> emerge in these perspectives and descriptions? What are the actors;
> subjective reflections of these themes? What are my subjective
> reflections of these themes? What are the essences present in these
> themes and subjective reflections?

Because of these (above), I actively engaged with the actors in collecting and

analyzing the data. Many of the research conclusions were co-constructed.

The naming of the research as participative, or collaborative, and its

accompanying intention of co-construction, needed to take into account the

complexity of power relationships that exist between researcher and participant.

Power relationships cannot be discounted, or neutralised and the presence of a

researcher in the actors workplace has wide implications. That is why I included

respondent verification of both data and initial analysis into the design.

Fig. 5:4 : Research Design Conceptual Framework

5.6   Using Action Research in a Constructionist Approach

Selecting a methodological approach involved developing a set of ideas about the constitution of reality, the generation of knowledge, the strategy and plan of action which shapes the choice and use of particular methods linking them to the desired outcomes. Interpretivist and constructivist approaches and their many subsets use a wide range of methodologies where interpretations and individual constructions can be elicited and refined only through interaction between and among researcher and respondents. This interaction included : understanding of cultures and systems; understanding of participants' experiences; ascertaining viewpoints, attitudes, values and beliefs; identifying how participants organise talk and action; character of language; discovery of regularities; identification of patterns; comprehension of meaning and text; reflection.

Easterby Smith et al (1998) considers Action Research to be suitable for constructionist approaches. Action Research is the investigation of a practical social phenomena (i.e. CoPs) which may wish to extend, survive, contribute, or generally improve the quality of action within. Action Research is a way of attempting to improve the 'performance' both of and within itself. It aims to feed practical judgements into concrete situations. The validity of the 'theories' or propositions it generates depends not so much on 'scientific' tests of truth as on their usefulness in helping people and organizations act more skilfully and effectively, based on informed and reflective thinking. A purposeful sampling issue arose for choice of CoPs to work with : whether they were prepared to engage with Action Research in order to act differently. This was potentially problematic at one stage as a few members of CoPs stated they were quite

happy with the *status quo* and had no wish to increase their usefulness to anyone else!

Action Research was originally developed by social psychologist Kurt Lewin during the 1940s, and describes a particular kind of research which unites the experimental approach of social science with programmes of social action to address workplace and social problems.

The concept involves a spiral of interlocking cycles of :-

- Planning
- Action
- Observation
- Reflection

It purposely engages researchers and participants in both the inquiry and its context so as to incorporate bias. It tends to encourage rather than reject the role of affect, emotion and feelings within the inquiry process. As such it sustains a commitment to an inquiry that seeks to unfreeze practitioner's assumptions underlying their actions. (see Elliot, 1991).

The reports of participants are considered to have reliability and validity because the data are rooted in action, that is, circumstances that matter to them. The six action strategies are :-

Action Research; Action Learning; Action Science; Developmental Action Inquiry; Participatory Action Research; Co-operative Inquiry;

It is the participatory nature of action research of these which I have considered appropriate for this inquiry. It is a process wherein researchers participate in studies both as subjects and objects with the explicit intention of bringing about change through the research process. Winter (1998) describes Action Research as a way of investigating professional experience which links practice and the analysis of practice into a single continuously developing sequence.

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The ideology of Action Research is to focus on participation, involvement and empowerment of organizational members within the workplace setting. The nature of discourse is collaborative and problem solving based upon actionable knowledge. The methodology is iterative cycles of problem defining, data collection, taking action or solution building, followed by further testing.

Fig. 5:5 : Conceptual Model of Action Research (Source : Lawday 2003)

I developed this model after reviewing a number of earlier models from the six action strategies mentioned previously.

New research theme(s)
Interest(s)
Question(s)

Reconnaissance

Plan and Design Research Project

CHOOSING (1)

Emerging Research Theme

tacit reinforcement of present understandings → First order mental model

cycles, plans, schemes

tacit knowledge within experiential learning

Retrospection

DISCOVERY

ACTION (1)

Knowledge Acquisition

Review of original theme/s

Action Steps 1, 2, 3, n   Implement   Evaluate effect of Intervention

Monitor in terms of research theme(s)

CONSEQUENCES and other changes

New research theme(s)
Interest(s)
Question(s)

Reconnaissance

1ST Revision Plan and Design

CHOOSING (2)

Emerging Research Theme

conscious modification of schemata in a particular direction → Second order mental model

basic mental maps   SENSEMAKING

REFLECTION

explicit knowledge within experiential learning

Reflective Practice

DISCOVERY (2)

ACTION (2)

Knowledge Processing

First order mental model

Action Steps 4, 5, 6, n   Implement   Evaluate effect of Intervention

Monitor in terms of research theme(s)

New actions are initiated which in turn trigger different action possibilities   Basic assumptions and beliefs become altered. New accounts are formed that delimit forms of activity

CONSEQUENCES and other changes

New research theme(s)
Interest(s)
Question(s)

Reconnaissance

2nd Revision Plan and Design

CHOOSING (3)

Emerging Research Theme

consciously thinking about thinking of the present schemata and being able to change it when appropriate → Third order mental model

complex mental maps   SENSEMAKING

Cognitive Mapping

COGNITION

Critical Thinking

REFLEXIVITY

critically explicit knowledge within experiential learning

Critical Reflection

DISCOVERY (3)

ACTION (3)

Knowledge Generation

Second order mental model

Action Steps 7, 8, 9, n   Implement   Evaluate effect of Intervention

Monitor in terms of research theme(s)

CONSEQUENCES and other changes

The cyclical nature of Action Research recognizes the need for action plans to be flexible and responsive to the environment. Lewin's deliberate overlapping of action and reflection was designed to allow changes in plans for action as people learned from their own experiences.

It is often the methodology of choice for management consultants and change agents who are focused upon real world concrete problems within the organizational setting.

5.7   Sampling and Data Considerations

"The phenomenon dictates the method (not vice-versa)", according to Hycner (1999 : 156). Purposivel sampling was considered to be the most appropriate non-probability sampling procedure to identify primary CoP respondents. One issue was to locate a community of practices that broadly met with Wenger's (1998b : 125) indicators that a community of practice had formed. Once identified, and broad approval obtained, the sample of individuals was based upon my own judgement and whether the individuals were those who had the experience relating to the phenomenon to be researched (Kruger 1998 : 150). Specific approval with individuals was then sought, and informed consent obtained with the organizational unit head, and the individuals concerned. These individuals became the key actors (key insiders or key informants). An informed consent letter was then hand-delivered to each key actor. (See Appendix 1). All participants who were in agreement returned a countersigned consent form.

5.7.1   The Sampling Universe and Boundary

The sampling was undertaken where communities of practice were considered to be in existence and which met the criteria of Wenger's (1998b : 125) indicators. These CoPs often interacted and inter-connected with other groups of teams who did not meet Wenger's criteria. Although these interactions took place in the usual course of knowledge activity in the workplace, data from these

interactions or groups was occasionally used in the data sample. Therefore only data that was generated by a CoP or a member, was used in this inquiry.

5.7.2 Data Collection Methods

Capturing the rich descriptions of phenomena and their settings was paramount. A number of different methods were used (multi-method techniques), in various different scenarios with CoPs and individuals. A schedule of each specific interaction is contained in the chapters for each study. However the general principle was to use tools, techniques and research techniques that assist co-construction. Thus, it was decided, for example that in conceptual mapping the equipment used would be pin-boards, card-shapes, flip charts, sticky labels etc., etc., rather than using a PC with *Decision Explorer, Atlas* or similar. The reasoning was to reduce or eliminate the explicit or implicit power of expertise that occurs in consultancy interventions where the consultant/facilitator/ researcher can use the technology and its software, but the participants cannot. This used a lot more paper and cardboard, but the group dynamics were much more collaborative and participative.

Table 5:1 : Data Collection Methods

Tools and Techniques for Co-Construction

Explicit

- Conceptual mapping
- SWOT analysis
- Force-field analysis
- Scenario planning
- Narrative meetings
- Action planning
- Post-project evaluation

Implicit

- Reality construction
- Sensemaking
- Reflection-in-action

- Single, double, triple loop learning
- Reflexivity

Research Techniques for Co-Construction

- Narrative interviews
- Semi-structured interview (or unstructured)
- Ethnography
- Action research

Research Techniques used by Researcher/Consultant for developing own personal understanding

- Observation
- Participant interaction review
- Critical incident analysis
- Critical review
- Field notes, analytic memos
- Diary/journal/reflective journal/photography
- Autoethnography
- Reflective thinking and practice
- Dialogical thinking and practice
- Dialectical thinking and practice

5.7.3   Pilot Interviews

6 pilot interviews were carried out with individuals who were members of CoPs, but these data sources were not used within this inquiry. The interview format was amended and adjusted in an iterative process after each pilot interview.

5.7.4   Aspects of Qualitative Research Interviews

Following Kvale (1996 : 30) the qualitative interview format was the intention for each interview :-

Life-world	:	The everyday lived world of the interviewee and his/her relationship to it.
Meaning	:	Seeking to interpret the meaning of central themes in the life-world of the subject.
Qualitative	:	The interview seeks qualitative knowledge expressed in normal language, and does not aim at quantification.
Description	:	The interview attempts to obtain open nuanced descriptions of different aspects of the subjects' life-world.
Specificity	:	Descriptions of specific situations and action sequences are elicited.

5.7.5   Data Collection Procedure

A fifteen step data collection procedure was used in all case study CoPs. The research methodology for inquiry was primarily Action Research (see methodology section, this chapter). Different tools and techniques were used at various times within each study, but the 15-step procedure was adopted across all CoPs cases.

Table 5:2 : Data Collection Procedure

1.   Assess extant literature.

2.   Obtain expert opinion or theories.

3.   Gather existing data.

4.   Enter the field.

5.   Action Research Phase One : Obtain new data from tools and techniques; interviews; narrative meetings; observation.

6.   Assess initial data and emerging themes.

7.   Revise plan and design in light of new evidence and data. Seek further literature. Establish first-order mental model.

8.   Action Research Phase Two : Obtain new data from further use of tools and techniques; interviews; narrative meetings; observation.

9.   Assess second phase data and emerging themes. Compare with first phase.

10.   Revise plan and design in light of new evidence and data. Seek further literature. Establish second order mental model. Check with field notes and analytical memos.

11.   Action Research Phase Three : Obtain more data from further use of tools and techniques. Deepen the process if necessary. Obtain interviews; narrative meeting; observation. Establish third order mental model. Repeat whole process until little or no further relevant data is forthcoming.

12.   Ensure saturation has accommodated all research interests in the RQ's.

13.   Transcribe data.

14.   Anonymize data for participant security.

15.   Code data.

Fieldwork details are shown in Appendix 7.

A full worked example is given in Chapter Nine.

Table 5:3 : Data Analysis and Reporting

1.	Acquire sense of feeling for ideas in order to understand them.

2.	Extract significances (statements, phrases, interpretations). Put into individual data strips. (Data Items).

3.	Formulate meanings for each significant statement. (Data Clusters).

4.	Repeat the process to 'label' each description from participants. (Emerging Categories).

5.	Formulate into clusters of themes. (Emerging Themes).

6.	Provide exhaustive description of phenomenon under study. (Main Thematic Categories).

7.	Reduce descriptions to essential structures. (Enablers/Disablers).

8.	Validate with participant.

9.	Reassess main thematic categories and emerging themes for distinctions, closeness, similarities. Check that all areas of research interest have been accommodated.

10.	Assess for broad propositions about the data.

11.	Link back to original research questions. Establish propositions.

12.	Establish further conceptualizations based upon propositions.

5.7.6   Qualitative Textual Analysis

A researcher needs to be able to "see the data", and find ways "to let the data speak". The analysis of text has been developed from approaches established by Gummesson (1991); Miles and Huberman (1994); Charmaz (2000); and Strauss and Corbin (1990), using either Open Coding or Pattern Coding or both. (See Chapter Nine for a full worked example).

The researcher deconstructed the entire texts of all interviews and separated them into individual items of data. *(Data strips).* These were then rearranged

into *clusters* of data sets, from which emerging *categories* of data were

established.

The data categories were then reassessed to identify emerging *themes,* and

from there the themes were reconsidered to analyse whether any one main

thematic category could be detected.

Fig. 5:6 : Qualitative Textual Analysis : Concept

different items of data	▤ ▤ ▤ ▤	(data sets)
clusters of data sets		(data clusters)
emerging categories		(constellations)
emerging themes	● ● ● ● ●	(emerging themes)
main thematic category	●	(key concept/theme)
enablers and disablers	• (+) • (-) • (+) • (-) • (+) • (-) • (+) • (-) • (+) • (-)	(enablers/disablers within main category)

There are four key considerations in using these codings. They helped the

researcher as he :-

i)   created several categories of themes reflecting respondents'
          experience(s).
ii)   attempted to uncover implicit underlying issues.
Iii)   studied people in their natural settings and provided a focus on
          meaning.
iv)   created the data and ensuing analysis through interaction with
          respondents, ensuring validation took place.

(As an example, a schema of coding for "Knowledge Learning Flows" is included in Appendix 6.1-6.6)

For the qualitative analyst, pattern coding provides four important functions :-

1.	It reduces large amounts of data into a smaller number of analytic units.

2.	It gets the researcher into analysis during data collection, so that later fieldwork can be more focused.

3.	It helps the researcher elaborate a cognitive map, an evolving, more integrated schema for understanding local incidents and interactions.

4.	For multi case studies, it lays the groundwork for cross-case analysis by surfacing common themes and discretional processes.
(Miles and Huberman 1994 : 69).

For constructionists, data should be interaction between the viewer (researcher) and the viewed (respondent). The researcher created the data and ensuing analysis through interaction with the respondent. The data itself does not provide a window on reality; rather, it is constructed in reality that arises from the interactive process in its temporal, cultural and structural contents. Researcher and respondent framed that interaction and confer meaning on it through their co-construction. Data and the questions that helped create it were aimed at getting "meaning", not at truth.

Both open coding and process coding (See Chapters Seven and Nine), were useful during the early stages of the inquiry. They helped to organize data for later events and activities, where individuals and groups could deepen their own analyses using a wide range of qualitative tools techniques, including those listed earlier.

The use of coding also enabled me to enter into iterative phases where new data could be sought, and new propositions formed. Some of the data themes

provided the agenda for workshops and meetings, at other times for
conversations and narratives. It is the 'words' of the data that act as the basic
medium, but the meanings emerged in social interactions between the
participants. Detecting similarities and differences, positives and negatives,
enablers and disablers, brought forth a higher commonality and enabled
participants to discuss contentious issues more easily. It was so much more
rewarding to generate propositions, or connected sets of statements, where
findings and conclusions could be analyzed and synthesized in group activities,
rather than on the lap-top of the researcher, manager or consultant.

5.7.7   Respondent Verification

I used the verification process to ensure that I understood my respondent's
intended meaning and tried to ensure that the respondent always had the
deciding voice.   And apart from the time taken following up requests, all-in-all I
am satisfied with the process.

5.7.8   Complexity of Relationship

The relationship between subject and object is a complex and interwoven
patchwork of interaction. The researcher had a presence in any study of social
phenomena, in terms of voice, presence and signature. I tried to reveal myself
in my writing and where possible through the experiences of both myself and
others in these interactions.

5.8   Conclusion :

The premises upon which this study was based were :-

- There is no straightforward cause-effect relationship in the case of
  socially constructed phenomena.

- People construct their version of reality differently according to their subject positioning and their temporal location.
- Different realities were revealed through the language used in social interaction.

- All concepts that emerged from this study and its data, utilized an inductive approach.

- Common understandings were negotiated between respondent and Researcher.

- A collaborative methodology of co-construction was used.

Czarniawska, (2001) highlighted the difficulties that can arise from the tensions between logics of 'practice' and logics of 'representation' particularly when using constructionist thinking and research in consultancy situations.

The social constructionist asks how people work together to develop the realities that they live by. The considerations around the research process that have characterized this research were developed with that in mind.

Using "sensitizing concepts" for approaching the social contexts to be studied within communities of practice required an interpretivist approach that illuminated the lived experience of those who work within those communities. Interpretations were based upon the events and details which were described by the actors within those communities, and the social and cultural circumstances in which they act.

Thinking deeply around the research considerations enabled me to navigate the difficult methodological minefield that presents itself by the "constructed" world

and the "material" world which are often inextricably linked and were considered as one. The mutuality between individuals and the social and cultural worlds in which they act was made apparent by viewing their workplaces as a dynamic ecology of evolving dialogue and discourse maintained by dialogic communication and an orientation towards future realities.

The next chapters concerned with fieldwork, show the researcher in the field of study, and begins with an autobiographical account of experience in a community of practice of compositors.

Chapter 6

An Early Immersion Into a Community of Practice of Compositors

Personal Reflection and Retrospective Fieldwork : An Autobiographical Account

This chapter presents an autobiographical account of my experiences in a community of practice, where I was an apprentice. The chapter is presented as a live example of the way in which people construct their version of reality differently according to their subject positioning and their temporal location. I compared and contrasted my experiences to those highlighted by Lave and Wenger in their 1991 work entitled "Situated Learning : Legitimate Peripheral Participation", their seminal work and forerunner to much of the theory and development of communities of practice. The chapter highlights difficulties in a number of areas of their account including the integration of new members into socially fragmented communities, and the tensions between on-the-job and off-the-job learning.

Within their treatise, they considered midwives, tailors, quartermasters, butchers and alcoholics as actual cases of apprenticeships. They argued that these provided historically and culturally specific examples which seem especially helpful in exploring the implications of the concept of legitimate peripheral participation. The purpose of this chapter is to present my autobiographical account alongside Lave and Wenger's examples of participation and learning, and Wenger's (1998b) later concepts of joint enterprise, mutual engagement and shared repertoire. The intention is to make some comparisons for the understanding of learning and reflection within the community of practice known as the composing chapel.

<u>October 1964</u> : I had been in my first permanent job for a few weeks as an apprentice compositor, at a London-based general printing firm. It was a medium-sized firm, at that time, with about 40 journeyman compositors and 10 apprentice compositors. The "apps" were at various stages of their 5 or 6 year apprenticeships ranging in age from 15 years to 21 years old.

As Coburn (1983) has observed, it was a male-dominated industry, and this company was no different. Almost 90% of the work force were male, the exception being a few office employees and bookbinding operatives. As a raw, naive, and none-too-streetwise teenager, I couldn't wait to develop my skills "at the frame", setting type by hand, laying out pages into larges formes before they were despatched to the machine room where the printing processes took place. However, many of the "apps" were employed doing menial tasks which were the domain of general assistants rather than future skilled artisans. At first I found this puzzling, rather insulting, and often, in the first few weeks, I became somewhat rebellious. The "apps" regular routine tasks consisted of "doing the rolls for the men", (getting their mid-morning food for the 10.00 a.m. break). This took up to 2 hours. There were other menial tasks such as cleaning down the hand-presses with paraffin-soaked rags, removing the tacky ink from the roller-beds, replenishing the rags, emptying the bins of waste monotype and linotype lead slugs, and "doing the lead". This particular task involved collecting all the waste-lead; sorting it into huge piles; shovelling it into large ammunition boxes; weighing it; loading it into pallet trucks; and taking it on a precarious journey into the despatch yard where it was hand loaded onto the metal foundry lorries. It was hard physical work. Most of the "apps" enjoyed doing the lead, and they all seemed to complete the whole process from start to finish, including personal wash-up, in exactly the same time : 4 hours.

I couldn't see the need to undertake such a time consuming process when all the job needed was about two hours of co-ordinated effort. I disagreed with the older apprentices about how it should be done.

One day I was doing the lead with Mac, a senior apprentice who always wore a white "Fred Perry" style tennis shirt. Mac and I came to blows in a violent altercation about the way the job should be done. Mac was the app-FOC, the father-of-the-chapel (union convenor), for the apprentices. We came to blows in the despatch yard, swearing, rolling and tumbling amongst the boxes of lead, watched and cheered on by the other apprentices and the journeymen who had left their frames and came to watch the entertainment. The father-of-the-chapel for the journeymen stepped in and pulled us apart : Mac, in his not-too-white bloodstained shirt, and me with a black eye and lumps all over my face. The FOC gave each of us a chance to tell our side of the dispute. I was sure I would be vindicated. I was all for improving productivity; the new apprentice considerably younger than my opponent, and fresh with ideas about breaking the monotony of the prevailing routines. To my surprise the FOC accused me of undermining the customs and practices of the compositors, threatening to "take me over the Soc", (the old term for the London Society of Compositors), to be disciplined; and found me guilty of "attempting to disrupt the community of the chapel". It was this phrase which upset and baffled me at the time. The customs and practices of the compositors were steeped in tradition, and here was I, a fresh-faced 16 year old just out of school, having the temerity to tell the other members of the apprentice community how to do their work. The embedded routines were not to be challenged, and I was left reflecting on the father's words :-

> *"the community of the companionship is sacrosanct; believe me, we know more than we can possibly tell you".*

How could an altercation between two hot-tempered teenagers be considered so serious by the father of the chapel? Some of this is located in the history of tradition of journeymen and apprentices working together and the manner in which they were paid.

In the Middle Ages it was customary for the journeymen, as well as the apprentices, to live in the Master's home. Greg and Boswell (1930 : 4) record how in 1577 a master was ordered by the Court of Assistants to provide :

> *"meate, drinke, lodginge and wasshinge for his journeymen".*

The records of the Court of Assistants show that there was hardly an aspect of industrial organization with which it was not called upon to deal. Its jurisdiction was limited to members of the Stationers' Company, and a large part of its work was concerned with internal quarrels, lies and disputes between masters and journeymen over the terms of employment.

As there was little change in technique or the size of industry, custom was an important determinant of the code of industrial rules. Thus when the Court of Assistants was required to decide a disputed point, it considered first the law, and second the custom – either of the city or of the trade. The Court did not, except on a few occasions, make new rules itself; it attempted to interpret and enforce rules which it derived from custom and law.

From the earliest records there are fragmenting scraps regarding disputes. Piece-payments, or payment by the amount of work produced, became more prevalent with the increase in printing of news sheets and topical pamphlets.

The regulations framed by the Master, Wardens and Assistants in 1635 for compositors indicated that a number of compositors were paid by piecework.

> *"That where a journeyman and an Apprentice worke together, they shall take theire Worke as it falles out, and not otherwise, the one the ffirst part and the other the last, as at ffirst they agree".*
> (Clause 8).

More than two centuries later the London Society of Compositors had to fight to achieve recognition of the same rule, to prevent the piece-worker from being given the difficult composition, known as "lean" which would take a long time, while the apprentices took the "fat" or straightforward matter.

In those Middle Ages, the reality was that the well-being of the apprentice varied enormously according to the status and temperament of the master. An apprentice who served his time with a wealthy stationer, after paying a high premium, would live *en famille,* be accorded care and attention, and might reasonably aspire to the hand of his master's daughter. But many of the smaller masters engaged apprentices for the sake of the premium or the cheap labour, and took it on themselves to exact from the unfortunate "boys" more in the value of service than the cost of board, lodging and instruction. The apprentice was committed for seven years or more to a kind of bond slavery from which he could hardly escape, except to the prisons or the gallows. Contemporary records are full of stories of runaway apprentices, and of the riotous behaviour of apprentices revolting against their restrictions. Their hours of work, mealtimes, holidays and so forth were completely at the discretion of the master, who was also allowed a fair degree of latitude in the infliction of corporal punishment for alleged misdemeanours.

The chapel of the printing house was the democratic workplace institution with authority to legislate on a wide variety of matters connected with the organization of production and the personal conduct of its members. This authority did not extend to apprentices largely because of the power of the Stationers Company, and the authority of each individual master. In 1666, shortly after the Great Fire of London, the journeymen printers issued a broadsheet containing a plan for stricter control of entry into the trade. "Foreigners", (those who had not served seven years in the art of printing as an apprentice), and the growing number of apprentices posed a threat to the economic ability of journeyman to earn the wages they felt they were entitled to earn. One important effect of the engagement of large numbers of apprentices by comparatively small numbers of masters was the breakdown of the system of "indoor" apprenticeship, for a small master could not give board and lodging in his home to half-a-dozen rowdy young men. This change in custom was deeply deplored by the journeymen, primarily because it encouraged the taking of an excessive number of apprentices. Furthermore it symbolized the separation of the social classes and economic interests of masters and men.

One hundred years later the tensions were still apparent over the greater number of apprentices and the inevitable consequences : future employment was uncertain. Atkinson (1799) chronicles how in 1775 the London pressmen asked the Court of the Stationers' Company to enforce more rigid control, but although the Court made a gesture of acquiescence, it was in reality powerless in the matter. It was partly to deal with this problem that the early journeymen's trade societies came into existence.

Compositors in a London printing office in the eighteenth century were usually organized into a *"companionship",* ('ship), (Sykes 1960). These groups of

compositors, working together, were usually paid by the piece and organised by a "clicker", who was the head of each companionship. Thus a society house (union-house) may have a number of "companionships" all working on different publications (or projects), organized under the umbrella of the chapel headed by the father of the chapel (FOC). The early stimulus to the formation of a society of compositors was the need for a set of rules to regulate payment to piece-workers, and to regulate the number of apprentices entering the industry. Compositors frequently launched intensive propaganda campaigns against printing offices which had "excessive" numbers of apprentices.

Collective bargaining, and an increasing control over the labour supply of compositors into "fair" (unionised) establishments strengthened the power of all the craft unions operating in the printing industry. Edwards (1850 : 20) analysing the problem of improving the printing unions bargaining power, came out strongly in favour of strict limitation of apprentices :-

> *"the only remedy that will heal the wounds of the printing trade is restriction of boy labour …"*

In the late nineteenth century with numbers growing and discipline assured by sanctions, the two broad fields of union activity, (especially amongst the London compositors) were the control of labour supply and the elaboration and extension of union rules and practices, including quotas for apprentices.

The technological revolution in composition at the turn of the century came during an era of great expansion in the industry. By 1914 almost all newspaper offices throughout the country were using Linotype slug casting machines, and all the main book houses were using Monotype type casters. The London Society of Compositors however, adopted a policy to deny apprentices the right

to operate the new composing machines. Composing apprentices were to hand-set type from the case, and only in the last year of their apprenticeship were they allowed to train on typesetting machines, and then only with the agreement of the chapel.

Post-war activity in the London printing industry consolidated the power of the London Society of Compositors who introduced a wide variety of restrictive practices into London Master Printers Association houses. A Report of the Court of Inquiry, (October 21st 1950) was highly critical of the L.S.C. evidently :-

> *"determined to exploit its key position without regard to the interests of other sections of the industry".*
> (Para 59).

However, the establishment of an annual review of the apprenticeship quota system, and its adjustment in relation to the level of unemployment of L.S.C. members was an interesting development. Subsequently all unions agreed to allow substantial "block entry" of apprentices and to renew war-time dilution agreements in cases of persistent labour shortage.

In 1955 the London Society of Compositors amalgamated with the London Printing Machine Managers' Trade Society to form the London Typographical Society. The PMMTS had been equally insistent on limitation of labour supply and apprentice quotas. Relaxation of apprenticeship rules and quotas in 1950 and 1956 had not proved harmful to union interests, and were no longer sacrosanct and inviolable "principles". Instead they had become objectives of commerce, and were aspects of collective bargaining to be put on the bargaining table and assessed in terms of cash.

In 1964 the London-based L.T.S. amalgamated with the provincial Typographical Association to form the National Graphical Association. The "aristocratic" societies where craftsmen were allowed to wear swords, were faced with a decline in craft-consciousness that would eventually sound the death knell of craft unionism. The apprenticeship, for centuries considered the corollary of craftsmanship, had been perpetuated right into the 1970's by the unions as a limitation on entry to the trade rather than the employers' concern with it as a system of training. The formation of Joint Industrial Councils improved the system to ensure better selection of apprentices, better practical training on the shop floor, and continued theoretical and practical training in the technical colleges. The N.G.A's attitude towards these developments was far more enlightened than the old London societies, recognising apprenticeship as a wider issue than a collective bargaining feature.

This is where I came into the printing industry. In 1964, I was the first apprentice in my company to attend block release training at technical college; the other apprentices still attended day release. For most of my first year I attended full time training at the London School of Printing. The chapel and my employer agreed to pay me only half the first year apprentice wage since I made no economic contribution to the productivity of the workplace whilst away on block release! This created some controversy within the chapel. A minority of journeymen felt that the employer was being particularly mean and that the chapel officials had connived in order to achieve concessions elsewhere. Apprentices in that house were not allowed to attend chapel meetings of the journeymen, but were allowed to organise themselves into "apps chapels". To maintain cohesion apprentice issues were discussed in depth in chapel meetings but only the decisions and not the substance was relayed to the apprentices. (See Sykes 1967).

The owner of the firm was known as "Mr. Reg", a tall upright man, who occasionally used to walk through the composing room nodding to the men and only engaging in conversation with the FOC. The compositors would respectfully nod back and usually only say "good morning, Mr. Reg" as he caught their eye. His nickname was 'Steak' which was cockney rhyming slang for steak and veg, (Mr. Reg).

'Mr. Reg' had liaised with the London Master Printers to participate in a new apprenticeship scheme where some apprentices did more block release training, and I was one of these. One day he told the 'O' that he wanted to see me and discuss what I had been doing on the scheme. The other apprentices said this was my big chance to explain to him how unhappy I was at only getting 50% of the apprentice rate. When I went to his office he asked me whether I had been on any field trips with the London College of Printing. There was a particular paper mill in St. Mary Cray which I knew locally as 'The Mill', and this was the only field trip I attended. He asked me where I had been. I told him we had been to 'The Mill' but couldn't remember the name of the company it was officially known as. He looked aghast, and said he couldn't understand why I had been touring a huge paper mill, yet couldn't remember its name. I came away from his office not mentioning my feelings about the rate. I felt powerless to speak. He was immaculately dressed in a suit, and I was dressed in my work apron and ink-stained denims. As I sat uncomfortably on a board-room style swivel chair he stood centrally in his large office with plaques and certificates on the wall and leather seats, polished furniture and neatly stacked memorandum. His long-serving secretary was positioned in an adjacent room, within earshot of our encounter. The power distance relationship between us was considerable. He was at the heart of the organisation and I was on the periphery. He could control my destiny, and my earnings. He could encourage

or curtail my involvement in the new apprenticeship arrangements within the London printing industry. These unequal relations of power reinforced the institutional relationship between apprentice and master which occurred in the early period of my 'time'. A younger apprentice felt subjugated to the master, the 'O', or the organisation, and found little affinity to the chapel in those early months, until he moved closer to the centre of its community. The chapel relinquished influence over the design of training programmes to the organization who, in turn, relinquished it to the London Master Printers training scheme and the technical colleges.

Many of the older journeymen were steeped in the old traditions of the L.S.C. and viewed the new apprenticeship arrangements endorsed by the N.G.A. and the British Printing Industries Federation as retrograde. (See Sykes, 1965). It was the younger "comps" who journeyed around London from printing firm to printing firm who were more likely to transfer their knowledge about aspects of the trade to the apprentices.

Overtime payments could significantly increase the take-home pay of journeymen and apprentices. This was the subject of day-to-day negotiation between the floor manager, or overseer, and the father of the chapel. Quotas of apprentice overtime were based upon strict ratios of how many journeymen were offered extra work.

Menial tasks such as "doing the rolls", "doing the lead", washing down presses, or 'mumping' for type (visiting other houses or foundries to replenish exhausted type) were offered to apprentices as a way of allocating more productive work for the journeymen, and to keep out the non-craft general assistants from other unions such as Natsopa. (National Society of Operative Printers and

Assistants). Composing apprentices often used to copy-read for NGA

organised readers, as a way of ensuring that Natsopa revisers (copy readers)

did not gain a foothold into the composition correction processes. (See : Roy,

1952).

Following my 'goldbricking' altercation with Mac, I agonized for days over

whether I wanted to spend the next five years of my life bound to this repressive

madhouse, with its weird initiation ceremonies of genital blacking, its secret

language and codes,

and the systems of work that involved little conscious reflection :-

> *These Boys do in a Printing House, commonly black and daub*
> *themselves; when the workmen do Jocosely call them* Devils*, and*
> *sometimes* Spirits*, and sometimes* Flies*.*
> (Moxon 1683 : 338. Davis and Carter (Eds.) 1962)

Mac and I had lived up to the early traditions of the Printer's devil. We had

breached three of the nine customs and bylaws made and intended for the well

and good government of the *Chappel*.   The penalty for the breach of any of

these laws and customs is in printers language called a *Solace* :-

> *And the Judges of these Solaces, and other Controversies relating to*
> *the Chappel, or any of its Members, was plurality of Votes in the*
> *Chappel. It being asserted as a Maxim, "That the Chappel cannot Err".*
> *But when any Controversie is thus decided :-*
>
> 1. *Swearing in the Chappel, a Solace.*
> 2. *Fighting in the Chappel, a Solace.*
> 3. *Abusive Language, or giving the Ly in the Chappel, a Solace.*
> (Moxon 1683 : 323. Davis and Carter (Eds.) 1962)

Time is a great healer and the incident was soon forgotten. No *Solace* was

incurred and Mac and I became friends. As the older apprentices left, I moved

up the order of seniority amongst the "boys", and I became one of the

staunchest advocates of these ancient customs. I acquired much of the old

language and still use terminology from the London Society of Compositors companionship culture to this day. The LSC encouraged the development of the compositors knowledge base through a community of practice within the chapel system. Apprentices enjoying a legitimate peripheral participation, gradually approached a status of full members by both absorbing and being absorbed in the culture of praxis.   (Lave and Wenger 1991 : 95).

One time, a football match was arranged between our company and its sister firm in Sussex. The Sussex team had a good record that year and hadn't lost a match in their local league.

We felt that to stand any chance of winning we would need to bring in some "ringers", people from outside the organization who were exceptionally good at football. This wasn't really the done thing, but it was considered our only chance of keeping any dignity. I asked a friend of mine called Steve to play for us, and he scored the winning goal in a closely fought encounter. We were lining up at the end of the game to receive a small glassware gift from Mr. Reg, he shook our hands and acknowledged us by our surnames. Each player would say, "thank you Mr. Reg" as he received the glass momento. As he got to me, he stopped and said "Ah, Lawday, err, who is that chap at the end, there, your number 11?". I replied "That is Steve, Mr. Reg, our new man in the reading room".

As he came to Steve, he shook his hand and said "well done, Steve", to which Steve replied : "Thank you, Steak" to much laughter and amusement amongst the players. One of my apprentice colleagues muttered under his breath :-

"fuck me, I've been here for five years and 'Steak'' doesn't even know my first name. Your mate has played for us five minutes and he calls him 'Steve', amazing".

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This incident had an effect on the way we viewed Mr. Reg in future. No longer were we in awe of this man who was, in effect our master. His referent, charismatic power had diminished. Hegemony over resources for learning (Lave and Wenger 1991 : 42) had shifted from Mr. Reg to the chapel, where we learned more from each other and the younger journeymen than we did from the master or the 'O'. Organizational control and hierarchy-authority structures had been modified in a single afternoon.

It was rare for an apprentice to stay on in the printing house where he was indentured. You were always going to be "the boy", even though you had full journeyman status. You were encouraged to leave when your "time" was completed and you were free.

> *An apprentice when he is Bound pays half a Crown to the* Chappel, *and when he is made Free, another half Crown to the* Chappel; *but is yet no Member of the* Chappel*; and if he continue to Work Journey-work in the same House, he pays another half Crown, and is then a Member of the* Chappel.
> (Moxon 1683 : 329; Davis and Carter, (Eds.) 1962).

The few apprentices that did stay on were rarely able to act in the chapel in socially recognised ways. Incoming journeymen quickly became aware that they had served their time in the house, and they were treated differently to the other members. It was not enough to claim you were a time-served compositor : you had to gain acceptance and recognition of other compositors (see Ibarra 1999). The learning processes of becoming a compositor were complex social and collective.

At some time Mr. Reg engaged his son to work in the estimating office, and occasionally he would walk through the composing room behind his father. We never got formally introduced to him, and he did not engage in eye-contact with

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the comps and rarely spoke to us. He was our age, but seemed a generation older.

He wore the same grey suit every day, and very soon his nickname became "Suit", later modified to "Zoot". The apprentices would make a point of acknowledging the father-and-son unit as they walked through the composing room : "morning Steak, morning Zoot". Mr. Reg would nod sagely but 'Zoot' never looked at the comps and never left the margins of the workplace. This cheeky behaviour reflected the liberated times of the 1960's, but also demonstrated how the apprentices had formed a community that was no longer so respectful of the master, but could operate safely within the limits of being the historical and cultural expressions of group identity : the printers 'devils'.

The ceremony for leaving the chapel was known as "the bang-out". The more popular the apprentice, the more diabolical was his bang-out. Incoming journeymen would tell stories of bang-outs in their former chapels. Apprentices would try to out-do each other in terms of spectacular pageantry. The "lucky" apprentice was pushed around the printing house in a cart, dressed up in outrageous garb, and concoctions that had been fermenting for months were poured over him. The rest of the companionship would bang metal galleys against the frames in a cacophony of noise and mayhem. Then he might be chained half-naked to a street light, or (as in my case) tipped into Kennington pond. Afterwards he was expected to buy drinks for the journeymen and masters who had "taught" him his trade, collect his indentures which gave him "freedom", and leave the community where he had spent five or six years of his earlier working life. For many apprentices this "leaving the companionship" was even more distressing than the initiation ceremonies which welcomed them in.

They had become an "insider", as observed by Brown and Duguid (1991), and were now leaving the companionship to seek employment elsewhere. The culture of their apprenticeship was now substituted by the culture of their journey around the trade. The breaking of these ties had little to do with the transfer of abstract, "objective" individual knowledge from master to apprentice. It was more about their time spent learning how to function in a community (Brown et al 1989:48), rather than being educated or trained to be a skilled compositor. They had become "enculturated" and were now breaking those ties. Thus, the mastery of the trade, and the matter of situated learning has to be viewed in its entirety, including its culture and time-honoured traditions.

On one occasion an apprentice called Mick was due to be "banged out", but informed the chapel that because he was saving up for a car he was breaking with tradition and would not be taking anyone to the pub after his ceremony. The decision was secretly taken that Mick would receive a traditional bang-out with all its pageantry and mayhem, but he would be taken "up West" (London's West End) and left to find his own way back to work to receive his indentures. Many of the apprentices and journeymen had tickets for an England football match that evening at Wembley. Mick was "banged out", bundled into a van, still covered in ink and fluid, taken to Oxford Street and chained to a traffic island, where some coloured smoke canisters were discharged. Mick was hardly recognisable as a human being and looked a sorry sight, bondaged, covered in ink and feathers surrounded by palls of smoke and slow moving traffic. Mick did not come back to work that afternoon and neither did he get to Wembley, although he too, had a ticket for the match. As we sat in our seats awaiting the start of the game, someone noticed an article in the late edition of the *Evening Standard* stating that a Hare Krishna demonstrator had set off a bomb in Oxford Street earlier that day and had been arrested.

Mick was never charged, but seriously regretted not respecting the conventions of the apprentices. These shared repertoires extended beyond the way that work was undertaken, and covered the socio-cultural behaviours and traditions used to "celebrate" the identities of the apprentices. Attempts by management to curb the enthusiasm engendered within these "bang-out" ceremonies were met by a passive indifference from the journeymen, and by ingenuity from the apprentices who found more subtle ways to celebrate the "coming-out" of an apprenticeship which did not inconvenience members of the general public.

The apprentice, as individual learner, and the master or journeymen were not at centre stage. The relevant knowledge resided in the culture and practice not in the master. Knowledge was not directly transferred from master to apprentice, and neither was the apprentice learning from the master. The knowledge resides in the companionship, or the chapel, of which the apprentices and the journeymen were a part. The knowledge was located in practice as "decentred" knowledge. The chapel was a communal frame of reference and value system that had to be acquired by the individual apprentice in order to become a full member. Journeymen who travelled from firm to firm, brought with them the same knowledge, the same traditions and broadly the same value-sets that other chapel members held. This knowledge base was located in the customs, practices, stories, language, historical events and memories that had been transferred between members. Occasionally it had been codified, where some of the terms and language patterns had been reproduced in a booklet from the London Society of Compositors, possibly in an attempt to perpetuate these traditions. (See Rowles, G. (1948) : "The 'Line' is On").

When the London Society of Compositors amalgamated with the London Machine Managers to form the London Typographical Association and later the

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provincial Typographical Association (compositors and machine staff), who were organised outside of the London area, the new organisation became known as the National Graphical Association. Many London-based members resisted the dilution of their old cultures and customs within the new organisation, arguing that their companionship was now more like a loose collective than a tight community. For many years London-based members, especially compositors, failed to adopt the same integration principles of their provisional counterparts. The knowledge-as-practice which resided in the communal activity and culture of the companionship, chapels, stories and narratives were now dispersed into individual knowledge and competencies more distributed than decentred. The type of knowledge worker that existed amongst compositors was more of a free-agent (with certain limits), than enculturated. Ways of learning now were gained through problem-solving processes in the workplace or technical college rather than through the socialization of the chapel, and its culture.

Power, might also equate to risk-taking, especially over personal safety. Apprentices, like journeymen were expected to operate machinery and work with lead processes in a safe and risk-free manner, taking care for themselves and others around them. In some settings like machine rooms and typecasting operations, safety was specifically addressed, and in others it was neglected. This 'missing data' (see Gheradi and Nicolini 2000) extended to the use of power saws and metal mitre machines which hot metal compositors and apprentices use to operate. The saws were used to trim expensive 'half-tone' copper plates prior to mounting in chases, or zinc plates made of softer material. To maintain the integrity of the plate and to avoid damaging these expensive artefacts, the plate was pushed through the cutting machine by hand. The operator had one hand on the on/off button and other on the plate, secured

only by the pressure being applied via the operator's hand. It was a risky

process, and an operator could potentially sever fingers if a lapse in

concentration meant the plate moved on the cutting bed. These dangerous

operations were never addressed explicitly or organically and neither was

particular attention paid to them. Most of the apprentices were wary of the

process, partly because damaging an expensive plate or 'zinco' incurred the

wrath of the 'O', and held up the forme on its journey to the machine room. The

comps whose performance was monitored by time dockets for each piece of

work undertaken were more prepared to take risks than the apprentices, who

appeared to value their fingers more highly. The journeymans' system of work

was unsafe, and this got transferred to the apprentices, through micro-social

interactions in which language, observation and (unsafe) workmanship came

together in a mix. This 'learning the dangerous' (see Cook and Yanow, 1993)

continued for many years until a young journeyman came to work in the

company and brought with him a long clamp that secured the plate without

exposing the operators fingers to danger. He held short "master classes" for

the apprentices and quickly gained their respect. His rolls were never late or

cold, his frame was always regularly stocked up by the apps, who would also

frequently run errands for him if he so requested. The socialization within a

culture of practice was an active reciprocal endeavour of using both tacit and

explicit knowledge in the carrying out of practical activities. Polanyi (1967)

draws a distinction between two types of awareness that exist when operating a

tool : focal and subsidiary awareness. During the cutting of the plates the focal

awareness was on the passage of the plate as it passed through the exposed

(and unguarded) cutting blade. The subsidiary awareness of the movements

involved in activating the switch and pushing the cutting blade forward was

linked to the identity of the compositor, who despite taking these risks, was

getting the task achieved. Some apprentices felt that they had not become a

full member of the practice through participation, because they would not take those risks, often asking other apprentices or comps to cut their plates for them. When the improvised clamping tool was introduced, apprentices would operate the cutting saws more confidently, and thus accelerated their ability to become competent members as well as to develop a sense of belonging and identity to the other journeymen.

The transfers of engagements and amalgamations that had taken place in the printing industry between 1960 and 1980 brought in new, younger, less traditionally-inclined craft printers, not having served 7, 6 or 5 year apprenticeships. Many of these new entrants in various parts of the country came into the printing industry from non-traditional sources. Many had their training in art schools, occasionally National Union of Student members and so the political character of the membership slowly changed. Lave and Wenger (1991 : 62) argued that the historical significance of apprenticeship as a form for producing knowledgeably skilled persons has been overlooked, for it does not, in their view, conform to either functionalist or Marxist views of educational progress.

Their view differs significantly from that of Engeström (1987) who associates apprenticeship with craft production, the use of tacit knowledge and the prevalence of traditional protective codes. In some ways the old traditional London Society of Compositors and London Typographical Society, operated in ways more closely described by Engeström, and it was successive transfer of engagements and amalgamations which shifted the main repository of knowledge within communal activity to that of individual and competency-based organisations. The LTS regulated an area with only a 15 mile radius from Charing Cross, and found work leaving London at an alarming rate during the

early 1960's. This benefited the members of the Typographical Association whose jurisdiction covered the rest of Great Britain and Ireland. In essence, the advantage of the new National Graphical Association was that it enabled members to "follow the job" into each others' territory.

This change from a "knowledge community" to a "knowledge collectivity" witnessed a shift in the presence of the six critical success factors highlighted by Wenger 1999; and Wenger et al (2002) for an effective community of practice within the Unionised Chapels :-

> 1) *Sharing knowledge became nationalised, rather than localised.*
>
> 2) *Learning together became regionalised rather than within a local geographical context.*
>
> 3) *Creating common practices became diluted as more employees entered the industry from non-traditional sources.*
>
> 4) *Sharing mental models became less commonplace as there were fewer opportunities for workplace representatives to attend local delegate conferences and events.*
>
> 5) *A common culture of information sharing was weakened as biennial delegate conferences replaced annual conferences and quarterly meetings. Members often spoke of becoming "disenfranchised".*
>
> 6) *Displaying a sense of community that enables learning. During the 1970's the NGA's membership began falling as both new technology and unemployment gripped the Union. Economic recession, and the balance of power in industrial relations terms, began to weaken the financial strength of the amalgamated union. A protracted political battle with the then Conservative government and a nationwide dispute with two employers' associations, the Newspaper Society and the British Printing Industries Federation increased the determination of the print employers to reduce, and if possible, to break the grip of the NGA on the industry. The community that existed previously in its smaller constituent members was not capable of manifesting itself into a larger national community : rather, a loose association was failing to learn from its past experience. Communities who hold common activity also come to hold similar beliefs and value systems. By 1980 those beliefs and value systems were widely dispersed amongst the membership of the National Graphical Association. Chapel power was now influenced significantly by national officials and policies.*

Lave and Wenger (1991) in their work on situated learning suggested that the idea of a community of practice implies a group of people all engaged or involved in a shared practice. A significant portion of their thesis is taken up with five actual cases of apprenticeship provided as ways to explore the concept of legitimate peripheral participation. "Situated Learning" as articulated by Lave and Wenger (1991 : 32), focused upon learning that takes place in everyday life, including workplaces :-

> "The distinction between historical cases of apprenticeship and a theory
> of situated learning was strengthened as we developed a more
> comprehensive view of different approaches to situatedness".
> (1991 : 32)

They cited five examples of apprenticeship : Yacatec Mayon midwives in Mexico, based on earlier work by Jordan (1989); Vais and Gola tailors in West Africa; US naval quartermasters; meat cutters in a butchers' apprenticeship scheme; and the apprenticeship of non-drinking Alcoholics Anonymous programmes.

In each of these examples Lave and Wenger found *triadic* group relations ("masters"; "journeymen" and "apprentices"). They argue that the dynamics in these *triadic* groups are different to the *dyadic* relationships between teacher and pupil in a school situation. Their argument is that the apprentice learns from the master and must also make a contribution to the work output of the group. This is what they call the legitimate peripheral participation since the newcomers (apprentices) start by participating in a set of practices and this immediate contribution makes them a legitimate member of the community. As they acquire more skill through activity in these peripheral practices their legitimacy increases within the group. In a social context they move towards the centre and identify more and more with the community of practice in

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question. In a number of respects this aligns with my early experiences as an apprentice compositor. The first few days were spent accompanying other apprentices on tasks like "doing the rolls" which acquainted the newcomer with names, faces and work locations of the journeymen. At other times during the working day, groups of apprentices would be engaged in "breaking up the formes" of already printed jobs and redistributing the pieces of lead, wood and type back into their respective places in the composing frames and galleys. Journeymen did not like to be seen to be doing such menial jobs, but apprentices often saw this as a chance to stand around the large stones in the middle of the composing room, exchanging banter and stories, whilst being seen to be engaged in legitimate work tasks. "Doing the lead" was an activity undertaken away from the gaze of the overseer and contributed to the smooth running of the composing and typesetting operations by ensuring that waste lead was cleared away from work areas and new ingots replenished depleted stocks. The general tidiness of the composing room was often gauged by the absence of waste metal, irrespective of the films of dust that often gathered on little used type cases! Cleaning and re-inking the hand presses was a dirty, but essential part of maintaining the composing room efficiency. If a "comp" went to a hand press to proof his page and the ink had become prematurely dry, or the constituency of the mix was incorrect, the apprentice would invariably get the blame. Those apprentices that did their jobs well, generally to the satisfaction of the journeymen, were integrated more readily into the norms of the composing room. If a "comp" ordered two bacon rolls and he was served two sausage rolls the apprentice would often be admonished. Honesty, accuracy and timeliness were essential virtues. The overseer, who was the modern day equivalent of the master in-so-far as he was responsible for the smooth production of the composing room, only got involved if there was unrest between journeymen and/or apprentices and the harmony of workflow was

threatened. Technically he was responsible for the training of the apprentice compositor, but was often too busy and the role was delegated to "clickers" or specialist journeymen. First year apprentices often spent the first few weeks of their work experience following other apprentices around. Part of the traditions were to have a "trot" (joke) with new members, e.g. sending them on fool's errands, going around the factory asking for a long-weight (long wait); or the traumatic and sometimes violent initiation ceremony of genital blacking (black and daub). For emotionally sensitive newcomers, often in their first work experience, this time-honoured ritual seemed particularly hard to understand.

For one or two weeks the newcomer builds up rapport with other apprentices and (seemingly) kindly journeymen who in an instantaneous co-ordinated display of physical force subject the unsuspecting victim to an intimidating and humiliating experience. The stern and disciplinarian overseer at this stage was nowhere to be seen, or was turning a "blind-eye" to the events. This rite of passage ensured that the newcomer apprentice became quickly integrated into the customs and culture of the chapel, and could move more rapidly to the centre.

Many of these rituals were justified as historical traditions of the chapel, and ensured that the apprentice was able to progress from participation in a legitimately peripheral way towards the centre of the workgroups, work processes and social culture. Lave and Wenger (1991 : 110) describe the acceptance by, and interaction with, adept practitioners as opportunities for continuity-based "futures". Brown and Duguid (1991 : 42) describe these transitions as "learning in working", and for apprentice compositors there was generally an understanding that you served your time and then you moved on, no matter how well you were valued by the organization, or how happy you

were in their employment. Brown and Duguid argue that organizations should be viewed as communities of practice, and like Goody (1989) and Engeström (1987), have characterized the continuity-displacement contraction. Similarly Lave and Wenger (1991 : 115) describe the dilemma that often faces time served apprentices :-

> *"newcomers are caught in a dilemma. On the one hand they need to engage in the existing practice which has developed over time : to understand it, to participate in it, and to become full members of the community in which it exists. On the other hand, they have a stake in its development as they begin to establish their own identity in its future".* (1991 : 115).

The theoretical basis of communities of practice is about learning as socialization, where increasing participation in that community is the key to both how learning happens and identity formation. The weakness of Lave and Wenger's (1991) analysis of apprenticeships is that it fails to properly address power in its analysis of the learning process.

Despite many tensions within the company the apprentices still retained a sense of identity to the organization, and there was a sense of pride in working together that manifested itself in social activities as well as work activities.

When apprentices from another printing company a few streets away challenged our apps to a charity raft race on the Thames, I approached 'Zoot' to ask his father if we could build a raft on the factory premises. A few days later he came back and said his father had given us permission. (I'm still not sure whether he really asked him) but this gave a few apprentices the chance to go to work on building an elaborate raft which was named the "Davetrogoff" (an anagram of our names).   It took weeks to build, and in between, our company was taken over by a large group organization who replaced 'Steak' and 'Zoot'

and other management people with a more business focused set of executives who concentrated upon efficiencies and productivity matters. The apprentices took the view that we should still continue to build the raft, partly because we did not want to lose face with our neighbour apprentices saying we were continuing this in honour and memory of 'Steak' and 'Zoot' whose names were quickly painted on the side of the raft.

The week before the scheduled race, the raft was 'discovered' under a tarpaulin cover by a member of the new management team who had been alerted to the large number of apprentices who were regularly missing from the composing room floor. He called all the apprentices together to explain why they were constantly absent from their frames, and what was the purpose of the raft. When he was told about the challenge, he put his hand into his pocket and gave one of the apprentices a five pound note (for sponsorship), saying "just make sure you bloody well win".

Our raft team did win and "Davetrogoff" was installed as pride of place at one end of the composing area near to the time-clocks, where it stayed for months. These 'monuments' or symbols, (Wenger 1998) were extremely important to the way in which the apprentices viewed their relationship to the new organization who had, in effect, given their blessing to the continued social activity of building and racing the raft. Initially, this new management team knew how to keep the motivation of the chapel members high, with more overtime, a new night shift, seemingly increased participation and consultation, and a more engaging discourse with the journeymen and the apprentices. Interestingly, they were ruthless with the middle management strata of the old company, and a few overseers were brought in or replaced fairly rapidly.

Problem solving over production matters appeared to be more streamlined, and people who showed initiative were generally encouraged to express their abilities. One senior machine room apprentice, who was particularly skilful, was given a huge pay increase despite the fact that he was not yet "out-of-his-time". He was valued for his productivity and engineering knowledge.

This apprentice was a particularly good engineer, and used to race motorbikes in his spare time. The Works Manager used to let him bring his machine into the workshop for tuning or modifications, when before, a push-bike on the premises was frowned upon. He could tell specialist printing engineers how to remedy faults on machines, and very soon the Works Manager realised the benefits to the company and stopped hiring-in the expensive engineers. He helped other apprentices and journeymen to overcome technical difficulties and he ran one of the more sophisticated machines with little complication. This mutual engagement with the management team (Wenger 1998) had a knock-on effect for the closer integration of machine room apprentices into their chapel and organizational cultures within the company. They were able to cultivate organizational expertise through practice as a result of more opportunities to share and transfer knowledge of specific engineering problems, than composing room personnel. The apprentice in question was treated like a respected journeyman and was often paid more than some of them. He would work closely with the machine room management team, but never lost his identity with the other apprentices. However, the day he finished his time, he moved on, despite strong financial inducements to stay. His "bang out" was characterized by transforming a waste barrow into a replica motor cycle in which he was pushed around the various departments. Like many others, he still got the ink, sour milk, solvent, feathers and paper treatment. He later told us it took two weeks for him to clean the detritus out of his skin and hair. His

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fellow machine room apprentices had acquired rapid drying inks used in banknote printing, which once set, were particularly resistant to removal. He had hired a photographer to capture his 'celebration' and at some stage the photographer had a bucket of solution poured over him 'by mistake'! As Contu and Willmott (2003 : 285) have recognised, within communities of practice it is not the acquisition of skill or knowledge with a universal currency (e.g. textbook knowledge) that identifies the "competent" member. It is a demonstrated ability to "read" the local context and act in ways that are recognised and valued by other members of the immediate community of practice that is all-important. This is what Lave and Wenger (1991 : 53) describes as "the construction of identities". A further illustration in this example is what Lave and Wenger (1991 : 98) have discussed as power relations :-

> A community of practice is an intrinsic condition for the existence of knowledge, not least because it provides the interpretive support necessary for making sense of its heritage. Thus, participation in the cultural practice in which any knowledge exists is an epistemological principle of learning. The social structure of this practice, its power relations, and its conditions for legitimacy define possibilities for learning, (i.e. for legitimate peripheral participation). (1991 : 98).

The machine room apprentice was able to redress some of the unequal relations of power by transferring his knowledge into the engineering/machine room community and by retaining a sense of identity with apprentices, journeymen and the management team.

Handley, et al (2006 : 642) argue that situated learning theory positions the "community of practice" as the context in which an individual develops the practices, including values, norms and relationships, and identities appropriate to that community. Two main processes of identity construction : (identity-regulation and identity-work) were largely absent in the early development of situated learning theory. The effects of social and power relations have to be

considered more deeply. For example, identity-regulation in a composing chapel refers to regulation originating from or mediated through the organization (e.g. recruitment, control of labour supply/apprentice quotas, induction and progression policies).

Identity-work refers to employees' continuous efforts to maintain or revise their perceptions of self. This identity work involves a negotiation between the organizations efforts to regulate identity and the employees' sense of self derived from current work identities. Through these processes, individuals either accept or reject opportunities to participate more fully in their community of practice. For example, a compositor who was either elderly, unwell, unfit or generally incompetent (or a combination of some of these), would occasionally be directed to work alongside the apprentices on forme break up or distribution ("dis"). This frequently involved a loss of face for some compositors which resulted in intra-personal tensions as well as instability within the chapel community. Lifting 16 page formes on and off the composing stones involved heavy manual work, and coordinated teamwork between compositors. Those that were unable to undertake these tasks often agreed to undertake less physical jobs such as "dis" (replacing lead characters back into their type-cases) or store activities. Generally these identity-work issues also involved the individuals agreeing to forego participating in opportunities for overtime work or to agree to accept less demanding overtime patterns. These were usually regulated between the overseer/deputy overseer who set the level of the required overtime work, and the father of the chapel who arranged equitable distribution of overtime based upon a number of criteria. These individuals fully accepted moving from the full centre to the margin of work activity.

Therefore, the notion of participation in a composing room community of practice was dependent upon aspects of power relationships that resided within the chapel and its head, the father of the chapel (FOC). Apprentices in their first, second and third years were prepared to undertake fairly menial and physically arduous tasks because it legitimised their participation within the chapel, and in a more practice sense gave them opportunities to undertake extra-curricula activities away from the watchful eye of the overseer. Learning the skill of the job was not so much *triadic* as Lave and Wenger (1991) suggest, but more likely to be *dyadic*, either from experiences at technical college or from working in small work-projects with other apprentices or journeymen compositors.

Towards the end of their apprenticeships, compositors had one eye on their "future", and generally liaised with the chapel or/and overseer to engage in more complex and varied work in anticipation of journeying around the trade where full participation was an accepted condition of a qualified and indentured craftsman. Practice as *praxis* denoted engagement in both the social and participatory aspects of the compositor's work.

A consequence of the new management takeover was a change in the nature of work that the company undertook. Traditional jobbing, magazines and technical reference manuals took second place to financial document printing that had strict deadlines to be achieved, usually in overnight processes. A large night shift of compositors was quickly recruited and became the dominant force in the chapels. The former FOC was ousted at a particularly acrimonious chapel meeting and the new FOC was a night compositor who applied the Union rules 'to the letter'. There was no affinity from this new group of compositors to the older traditions of the family firm set up by Mr. Reg, and kept alive by some of

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the longer serving day journeymen. The new members of the chapel were more militant and economistic, and internal rules and procedures were altered to favour working arrangements of those night workers. The day workers had the knowledge and experience of the composing room operations, whereas the night workers held the economic clout.

Apprentices could only do "gobble" (overtime) in a strict ratio to the number of journeymen undertaking overtime. As the majority of work and overtime was now done at night or early morning, composing apprentices had less opportunities to increase their take-home pay. One particular task for apprentices was to ensure that all compositors' frames were well stocked with materials so that the journeymen could work productively without having to break their rhythm by having to cut lead, or find composing 'furniture' (small components) around the room.

If an apprentice did not like a journeyman there were lots of subtle ways to make life difficult, such as cutting their lead materials a few millimetres short of the required lengths, or mixing up the furniture components in their boxes. Type spaces could be mixed, which would slow down their speed of hand-setting. One day a canary flew into the composing room, and was captured (rescued), and put into a cardboard box until a cage could be quickly bought. The day composing chapel gave the apprentices the money to buy an elaborate cage and equipment for 'the bird', but the night chapel refused to contribute. This created intense inter-chapel friction, and the apprentices engaged in a guerrilla war against some of the more "frugal" night compositors. Collaboration, information and learning between day and night shifts became virtually non-existent. Boundary crossing (Wenger and Snyder 2000), went from high activity to low activity and organizational silos developed. The work

environment changed from 'facilitating' to 'obstructive'. Sharing and learning

could not be legislated into existence where the dispute over the 'bird' fund was

a manifestation for the underlying tensions between the day and the night

chapels. The situation stabilized after a number of day-shift compositors

transferred to nights in order to increase their earnings, and a more pragmatic

compositor, who viewed apprentices more favourably, became elected as

Imperial FOC. Apprentice 'gobble' became re-established and all chapel

members contributed to the weekly 'bird' fund levy. This meant that not only

could the 'bird' be kept in the most palatial cage ever imagined, with a vast

array of high tech toys, but that the fund could be used to pay for all the

apprentices' breakfasts and snacks throughout the day! "The bird", became a

living symbol, a monument for the composing apprentices in their struggles

against the rigid 'totalitarian' night composing chapel. The leadership

significance of the role of the FOC where power and influence was clearly

assigned, could determine the industrial relations climate on the shop floor and

in reality, management had very little ability to influence events. There was a

constant tension where the chapel could extract concessions from

management, and management could seek productivity improvements that did

not contravene union customs and practices. These power relations on the

shop floor were a reflection of the implicit negotiating between chapel and

management that took place at local level over and above the formal collective

bargaining that occurred periodically between the Master Printers federation

and the national unions. In these 'local' situations the 'O' became less powerful

whilst the FOC's became more powerful, and apprentices generally knew where

their short-term interests lay. Both power and knowledge strategies of the

respective chapels were the unfolding processes making selective use of

materials provided through the formal organizational context, the shared

experiences and the collective memory of each day and night shift. Thus,

collective sensemaking was conditioned by social and material contexts of action in which meanings were collectively negotiated by the respective groupings. However, the chapels failed to establish strong internal ties or develop a shared purpose. A management response to these difficulties of poor knowledge transfer between night and day shifts, was to initiate a policy of 'day-work-only' recruitment for compositors. Transfer to the more lucrative and work-intensive night shift could only be obtained through some initial experience on day work, where a more general appreciation of the organization's work was available. Apprentices could form strong ties with incoming journeymen through shared work experiences and increased social activities that occurred during day work, (e.g. tea-break card schools; lunch-time table tennis/darts; a staffed canteen; inter-firm football matches; occasional visits to the pub for celebrations over 'bang-out'; births; birthdays or pre-wedding etc., etc.). Composing apprentices, with opportunities to be away from their frames more regularly, could assist new incoming journeymen to integrate more comfortably into the workplace, liaising over errands, or obtaining artefacts from the local economy. To supplement their meagre earnings, composing apprentices often ran sidelines of business, which were conduits for mini 'black-market' economies that prevailed in many London-based firms. An apprentice who had worked in this local economy for four or five years built up a good deal of local knowledge, both tacit and explicit, and some of this could be transferred to incoming journeymen relatively quickly if the rapport/empathy 'chemistry' was favourable. Machine room, typecasting and bookbinding apprentices had fewer opportunities to develop this parallel knowledge as they were working on machinery where 'down-time' equated to inefficiency. Thus, composing communities were a lived sociality where enculturation became influential; these often had boundaries far wider than the physical constraints of the place of work.

Composing apprentices were given opportunities to leave the workplace premises more regularly, and management frequently used them to acquire 'hard-to-find' artefacts, e.g. liaising with specialist type foundries or to 'mump' particular type from other companies. 'Mumping' was a term for unofficial borrowing of materials from other London-based firms, who had built up collections of specialist typefaces or wood-letter pieces. It was often too time-consuming for management to officially make requests to other printing houses for these exchanges, but apprentices frequently went into other houses, liaised with their apprentice counterparts, and usually came back with the 'hard-to-find' materials. Some apprentices used to 'brag' that they knew where to find type in other comp rooms better than some of the journeymen who worked there. This social networking gave credibility to the composing apprentices and also extended their wider knowledge of the London trade (who was paying what?; where there was prevalent 'gobble' or what new processes were being employed by different firms). Overseers, clickers, or journeymen did not have these opportunities and much knowledge transfer was about the social aspects of the trade, as well as the technical knowledge of the craft. Learning occurred in the practice of story-telling through which context-sensitive understanding of the trade, the world of work and working selves were acquired, shared and elaborated (Contu and Willmott, 2003 : 284).

Composing apprentices were able to establish their identities through both inputs and outputs and make connections between, and beyond different communities, styles and discourses.

This aligns to what Yannow (2004) explores in issues concerning recognition and power in relation to local knowledge versus expert knowledge. Compositors may have been full participants in their own community of practice,

yet may not have necessarily had the skill or expertise to work in other organisations where specialist processes took place. Compositors in the London area generally built up their knowledge through socialization of which printing houses demanded specialist skills, (e.g. four-colour imposition; or complex legal documentation).

Others, such as Contu and Willmott (2003) have extended this notion of power and expertise through an examination of Orr's (1996) ethnographic study of Xerox photocopy repair technicians. (This was a key study in the early part of Lave and Wengers concept of legitimate peripheral participation). The dynamics of power, mastery and collective learning were intertwined. Thus it was well known amongst London compositors that if you served your apprenticeship at one of those specialist houses, you invariably spent less time on menial tasks, more time on complex production activities alongside journeymen who were highly skilled, and were more likely to experience *triadic* learning opportunities where production management took a more active role in the training of apprentices. It was also generally appreciated that those particular communities of practice were less likely to become static in terms of their knowledge base or resistance to change.

Some compositors who took employment in these specialist printing houses often found that the community was anything but the warm, comfortable, cozy place characterized by a common understanding. Although some stayed for years, others only lasted a few weeks. However, those apprentices that were employed for five or six years frequently developed a wider appreciation of production processes and often transferred their skills out of blue collar occupations into printing management or executive roles. Every printing company, composing community, and individual chapel had its own culture and

practices. Every chapel was unique, and took different approaches to the nature of apprenticeship, training and enculturation. Some of the very large composing chapels (up to 200 compositors with 20-30 apprentices) would have a closer affinity to the national newspaper sector of the trade, producing magazines and inserts that accompanied them. These chapels tended to be highly structured in terms of their membership and organization, were union-rule oriented, and politicised. There were close connections between trades union activity and political activity. Many members of these chapels, both journeymen and apprentices, also took an active role in London region union matters, and political party activity. Power relationships between management and chapels tended to be more coercive than instrumental in these houses.

As Engestrom (2000) has noted, there was a sense that learning occurs more where there is conflictual questioning of existing standard practice. Apprentice training, quota systems, wage rates and overtime arrangements for apprentices were more highly regulated by these composing chapels. Political activity (both union and national/domestic) was often encouraged by FOC's and journeymen in these chapels, and apprentices were often activists in socio-political campaigns such as CND and anti-Vietnam war protest movements. This politicization of apprentices often became the catalyst for careers within the official trades union structures, into what were primarily elected and permanent posts. These activities including delegate meetings, advisory groups and "Printers Parliaments", were themselves communities of political interest where the practice of union activism took place both in the workplace and outside it. Lindkvist (2005) distinguishes between communities of practice and collectivities of practice which refer to temporary groups or project teams concerned with knowledge creation and exchange. These specialised printing houses within the London printing industry were more characteristic of

collectivities of practice in the way that Lindkvist (2005 : 1205) describes them. That, and the changing nature of the printing industry brought on by technological (ICT) change, provided a valuable means to explore the transfer of tacit knowledge with the composition areas of the printing industry. Some compositors were able to adapt and retrain, seeking associated careers elsewhere. Others were unable to stay ahead of the technological changes and fell victim to the growing levels of unemployment that characterized the industry in the 1980's and l990's. By this time many compositors realized that they had no long term future for undertaking the craft that they had spent many years learning about. The whole status of the compositor had changed and so had the culture in which they had found themselves situated. The acquisition of identity had become transformed. The job opportunities were just not there. Compositors had realised : people do not simply learn *about* they also learn *to be,* and what they had learned to be was rapidly diminishing.

Discussion

This chapter has attempted to establish the relationship between the self (myself) and fieldwork. It reflects the personal, emotional and identity issues that impact on fieldwork when attempting to undertake an autoethnographic study. This was fieldwork, because I was there, albeit forty or so years ago. This was also personal reflection and my own reflexivity. The chapter was influenced by the literature on communities of practice, and through my memories and reflections in comparing Lave and Wenger's (1991) concept of legitimate peripheral participation with my own recollections of my apprenticeship. It was retrospective fieldwork because I recently went back and sought out some of the journeymen and apprentices I had worked with in London and discussed my thoughts and perceptions about our experiences. I

re-examined old chapel minutes, notes, college reports, some diaries, photographs, tools and momentos from years as an apprentice. I shared 'war stories' and recollections with some of the craftsmen and their social perspectives on 'learning the trade'. Some of them were nostalgic about their apprenticeship, others were not. Some of them did not see that learning, transformation and change were implicated in one another, whilst others could align themselves with my assessment of the contradictions and struggles that were inherent in the apprenticeship system and the formation of identity.

Situated learning for apprentices in the chapels and communities of practice that I had experienced, refers to the broad collection of work which shares an emphasis on the importance of culture, power, identity and context in acquiring knowledge and skill. We developed our expert knowledge and skill from everyday experiences at work, in the community and in the chapel. Our domain-specific knowledge was necessary for the development of expertise, much of which relied upon detailed local knowledge of a composing room, a workplace, a locality or a geographical region. The learning that took place was a social process that existed alongside a formal craft education. Knowledge was embedded in practice and was transformed through good directed activities that each apprentice and compositor experienced every working day.

Compositors were expert journeymen who excelled mainly in their own domain. They acquired this domain knowledge upon which their expertise was built. It could not be easily transferred to that of other domains such as foundreymen or machine managers. Never-the-less, there were opportunities for cross-transfer to other domains, and many compositors trained to be monotype or linotype operators, readers or production managers. The development of expertise became a vehicle for the acquisition of transferable generic skills. The

participation within the chapel community of practice required a common set of tasks associated with stories, traditions, language patterns and ways of working.

The engagement of the first year apprentice, whose initial participation was peripheral but gradually increased in engagement, legitimacy and participation, revealed itself when the learner became a full participant in the socio-cultural practices of the chapel (community), ending up with the apprentice becoming indentured and "out of his time", a fully fledged journeyman. It was this participation in the activities of the chapel and the workplace which mediated learning. This concept of learning was away from the individual and towards the community. It was not about individuals acquiring mastery over knowledge and processes of reasoning, but more a matter of the journeymen and apprentices co-participating in a community of practice. The focus was on the chapel community, not the individual :-

> "for newcomers then the purpose is not to learn *from* talk as a substitute for legitimate peripheral participation; it is *to* learn to talk as a key to legitimate peripheral participation".
> (Lave and Wenger, 1991 : 109).

This required an emphasis towards the context or situation as being an important aspect of learning where apprentices were exposed to multiple situations and multiple examples. There was a community of discourse, (the London Society of Compositors way of talking) in which journeymen compositors and apprentices actively engaged in learning through communicating.

The *joint enterprise,* the glue that bound the community together was the chapel structure, and the associated membership of the compositors' union.

The *mutual engagement* was the culture, traditions and membership rules that journeymen and apprentices adhered to in order to achieve the goals of the chapel community. The *shared repertoire* was the composing room, workspace, language, work patterns and norms that each chapel created locally. The shared cultural objects, the chapel rules and minute books, the work wear aprons and specialist tools were the artefacts that accompanied the shared background and context for exchanging craft-based expertise and knowledge, which mediated learning through social interaction and communication.

From a researcher perspective, ethnographers rarely leave fieldwork totally unaffected by their research experience. Fieldwork affects the self in many ways. The complexities of engagement with, and separation from, people, places and memories, impacts directly upon the emotionalism of the research endeavour. Personal relationships change significantly when one revisits the field. There was a sense of strangeness and loss in leaving the workplace where I had served my apprenticeship, and similarly there was a sense of strangeness and loss in realigning some of the memories of my own lived experiences so many years ago. This remembering of a shared past is significant in terms of what that past symbolizes.

In rethinking the emotional, personal experiences, and contexts of my apprenticeship, I went beyond a private capacity to recollect events. The personal experiences of autobiographical memory, and the social shared resources such as culture, identity and meaning give shape to how the events are retold. The interpretive frameworks of memory, emotion and reminiscence link together with the data of my memory, the memories of those colleagues who were revisited, and the documents from the past. The personal narrative of

the researcher as represented by the self is reflected in the author's voice

alongside the account of this particular community of practice within this

chapter.

Conclusion

A number of conclusions emerge from the account.

- The composing chapel conformed to a number of epistemic characteristics of a community engaged in shared practice (Lave and Wenger 1991).

- The chapel was a communal frame of reference and value system.

- The knowledge base was located in the customs, practices, stories, culture and language transferred between members.

- Participation in the chapel involved communication, conformance, task-orientation and social inclusion.

- Participation arose from the subjective and objective realities of working life in the composing room.

- Situated learning took place in interaction between the structural forms and human action.

- The chapel was a lived sociality; the joint enterprise (Wenger 1998b : 73).

- Language had been codified. (Rowles, 1948; Sykes 1960).

- Ways of learning were initially gained through socialization within the chapel and shared repertoires, (Wenger 1998b : 82).

- Apprentices began with peripheral social inclusion and became legitimate members of the community by integrating into the rituals, customs and practices of the chapel, and mutual engagement, (Wenger 1998b : 184).

- Apprentices experienced tensions of identity within the organization and the chapel. This dual nature of power and identity often created resistance from apprentices to either/or both organization and chapel at different times.

- Context-sensitive understanding of compositors work was largely acquired through socialization and participation processes within the chapel.

The structural components of the chapel community were over century-long traditions and customs. These were maintained through the membership of the London Society of Compositors, (later LTS and NGA), the traditional use of standardized tools, the adherence to chapel regulations and codified wage agreements, and boundary objects such as rulebooks, union membership cards, indentures, and work wear. These structural components were sustained by chapel officials and trades union activists.

Apprenticeship in the craft composing chapel confirmed to the model of Engeström (1987) where tacit knowledge and traditional protective codes prevailed.

Although composing chapels are often considered to be examples of tight, socially cohesive work communities, my experience found that at times they become socially fragmented and open to internal conflicts and tensions. Lave and Wenger (1991) fail to describe or analyze communities of practice where there are interplays of tensions. Further, they appear to overlook the fundamental question of whether the community of practice is a prime condition for learning, or whether other factors determine that learning can flourish. Apprentices in composing chapels received high levels of off-the-job learning away from the workplace as well as on-the-job training within it, and these often created tensions between chapel members, Master Printers, and the apprentices themselves. These workplace tensions were understated in Lave and Wenger's (1971) work. Formal learning in educational settings were also underplayed. Finally, composing chapels had developed into tightly formed and well-codified communities, yet Lave and Wenger's definitions of what constituted a community of practice was far too loosely constructed. Wenger (1998b) attempted to redefine and provide a tighter definition in his later work.

In the next chapter I continue to explore the relationship between the researcher and the field by presenting empirical evidence from participant observation in a number of communities in which I actively and consciously began to examine practice in different settings. Here I was seeking to understand the actors; stories and narratives and what they reveal about the culture of CoPs, (RQ12). Further, I was seeking to understand how people in CoPs construct their reality and how they report their perceptions, beliefs and explanations for what occurs within their workplace communities, (RQ11).

Chapter 7

Early Participative Fieldwork

This chapter illustrates some early cases of fieldwork and data gathering during

2003 and 2004. The chapter is structured in four parts to reflect some of the key

learning points that I had acquired from my early days in fieldwork :-

7.1   Issues of access.

7.2   Participative approaches.

7.3   Data gathering, coding and thematizing.

7.4   Significant confirming or disconfirming moments. (Links between data
        sets/themes/research questions).

7.1   Issues of Access

The objective was to try to gain access to members of communities of practice

and to obtain first hand observation of them in their workplace setting.

Taking the definitions of whether a community of practice existed, that is :

Wenger's (1998 : 125) indicators that a CoP has formed, I began the process of

attempting to identify what opportunities might exist to gain access to the

community.

Such requests were initially informal. As an outsider who had little opportunity

to make requests for meetings with employees of organizations directly, I had to

wait for opportune moments during relationships with other areas of the

organization in order to make requests to engage with a community of practice

where I considered one existed.

7.1.1   Is There Anyone There : Where are the Communities?

One initial problem was that even in 2003 the term 'community of practice' was not widely used as means of specifically identifying a particular group. Unless the organization had intentionally set up communities of practice, or they existed in a formal or semi-formal way, it was unlikely that the communities themselves would describe or identify themselves by that term.

This became apparent when I detected a distinct trend in the formal replies to my requests to meet with certain communities, where the general response was along the lines of : "we would like to help but we do not have any such group within our company". It seemed to me that even some experienced Human Resource specialists didn't always appreciate that communities of practice existed throughout their organization. Perhaps this reflected some of the difficulties that arise with CoPs since "community" is not a term that is regularly used in the workplace, unlike "groups", "teams", or "networks", which are part of everyday parlance. Things improved when I restructured my requests to "work with groups and teams around knowledge sharing issues". The responses became much more positive.

7.1.2   Stage One Organizations

During 2003 and 2004 I had limited exposure to a number of CoPs within organizations and was able to establish some semi-formal arrangements with them, whilst working in other parts of their organization. This was undertaken with the co-operation of an internal sponsor, or champion, who had the authority to sanction access, subject to the necessary assurances of confidentiality.

The organizations were :-

1. "SkillGov"
2. "Garville"
3. "Valley Girls"
4. "TaxiCo"
5. "Healthwise"
6. "Life Saver Union"
7. "West CC"
8. "RyanCo"
9. "RedCo"
10. "In Touch"
11. "RailCo"
12. "Solvo Electrical"

and later,

13. "Dragon Trust"
14. "HostCo"
15. "Harleywide
16. "LiteCo"   (Fieldwork details are shown in Appendix 7)

Issues of power were often near to the surface. In one heavily unionised company the Facilities Director informed me that he had 'instructed' the Night Shift Electricians to meet with me in their 'booby' (rest room) at 8 p.m., their first official break of the night. He explained that he wanted to be in attendance, but hoped the meeting would not go on for too long because he had a bowls match he was hoping to attend. We walked into the 'booby' to be confronted by six or seven surly looking electricians in dark blue overalls. None of them greeted us. After the Finance Director made his introductions he asked the Electricians if they had any questions. One of them, who I later realized was the shop-steward, looked at me and forcefully replied in fairly graphic industrial language, to the effect that : "he can stay, but we ain't talking to you". The Finance Director looked sheepish, and muttered something about a "spirit of co-operation" which seemed strange after months of industrial relations wrangling that had been fermenting over issues not remotely connected to my research. The Finance Director scribbled down his mobile number and suggested I called him if I "was in any trouble". He then retired to his bowls match.

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My first question was : "Is there any tea on the go" and after accepting a rather oil-stained mug, I asked the shop-steward if he would show me around the site where they worked.

Our meeting, and subsequent meetings went well. It was obvious that in many of those circumstances, semi-structured interviews were totally inappropriate for these kind of settings and gaining sensitivity to the workplace culture was vitally important. The interviews would have to wait. Instead, I took analytic notes during my meetings.

7.1.3   Insider/Outsider Issues

People who are insiders to a setting being studied, often have a view of the setting that is quite different from those of the researchers or consultants who are conducting the study. In large part, these differences between insiders and outsiders stem from differences in gaining knowledge about the setting. The Finance Director, and the Electricians had different reasons for viewing the setting under study as a source of greater opportunity to indirectly explore the perceptions of each others' world and experience, without establishing any direct commitment to each other. Both groups saw the researcher-consultant as another intermediary who might provide additional insights into their conflict-laden world.

For the outsider, they experience the setting under study as would visitors, temporarily, and usually for a set period of time. All parties know that the relationship is a temporary one, and so much of the interplays between the parties is initially, at least, at a surface level. For a researcher in an organizational setting who is attempting to appreciate the importance of

understanding the participants' perspectives, it is important to acknowledge the existence of workplace culture and document the formation and functioning of local theory.

My initial experiences in these fieldwork settings highlighted that parties came to a setting with unique experience, education, socialization and involvement in the setting. The maintenance of the insider/outsider divide restricted the opportunity for exploring the lived experience of the participants primarily because each party placed limitations upon the ability of each other to "get close". The participants often failed to qualify a "what's-in-it-for-me" criteria that enabled them to collaborate beyond the social acceptances of surface-level exchanges. The researcher can never be an "insider" in the sense that he is not part of the community, or employed by the organization where the community is located. However, he can make attempts to reduce the ambiguities in the fieldwork experience, establish rapport with participants and attempt to establish "partial insider" status by a role that is understood to constantly move between parties and identities. Rapport also involved being more sensitive to informants' voices and experiences, and avoid superimposing generalizations onto their lives.

7.2   Participatory Approaches

Participation cannot be 'imposed' or 'instructed' upon work groups. The degree of participation achieved in any particular inquiry is the joint result of the character of the problems and environmental conditions under study, the willingness of the respondents to engage with the researcher, and the skills of the researcher in building and generating a relationship with the participants.

In this early fieldwork, I tried to adopt a participatory approach that utilized integrative and interdisciplinary social sciences based on both local knowledge

and appropriate methods, tools and techniques. My intention was to emphasize co-construction, co-learning, participation and collaboration, (See Argyris and Schön 1991; Reason, 1991). In a collaborative sense I tried to involve as many participants in the whole process from exploring problem formulation to the application and assessment of co-constructed results. The primary purpose was to develop practical knowing, the embodied moment-to-moment action by the researcher and his participants, and the co-construction of learning through communities of inquiry and communities of practice. (Argyris, 1993; Senge, 1990; Senge et al, 1994).

7.2.1   Local Knowledge

To appreciate the knowledge and analyses of members of the community under study, it was essential to gain the support of those members, and encourage them to develop their own roles and stakes in the research process and outcomes. I placed a lot of importance upon sending my notes, interim conclusions, and working hypotheses to as many respondents, groups or communities that I encountered. Some felt this was unnecessary, many were neutral about receiving them, and others felt actively engaged by their receipt.

7.3   Data Gathering

Where workshop sessions took place, involving groups of up to 14 employees, I usually successfully negotiated the presence of a video camera, placed discreetly in the room, and directed away from the group (or with the cap over the lens), to deliver up to four hours continuous audio dialogue of sessions to be used in transcription where appropriate. In early sessions with new groups or communities, I frequently encountered a few individuals checking that the cap was still firmly in place over the lens! As participants' confidence increased and the process intensified in terms of dimension and depth, such data collection

tools became routinely accepted. Participatory approaches emerged over time as a process, rather than as a full blown methodology from day one. Usually an approach started with a general discussion, then an attempt to jointly focus upon a particular problem and gradually opening up into a much broader and deeper process.

Some approaches took place at very informal venues, (e.g. "TaxiCo", away from the workplace, and in social settings, cafés or public houses), where communities or groups socialized. In those situations, small audiotape recorders were used to capture respondents' experiences, but this was always negotiated prior to the data gathering.

'Authenticity' rather than reliability is one of the ways in which qualitative research demonstrates validity criteria by gathering an authentic understanding of people's experiences, in meetings or interviews. Open-ended questions are a route to gaining authenticity in interviews, and the transcripts of such recordings, based upon standardized procedures and conventions, provide an excellent opportunity to examine naturally occurring interaction. Not every meeting, workshop, or interview was tape recorded. Field notes of observational data, can offer a reasonable insight into experiences, but recordings and transcripts provide highly reliable records to which researchers can return to, as they develop their working hypotheses.

7.3.1   Questions and Discussion Points

My early fieldwork experiences in communities of practice, gave me an opportunity to explore what I eventually ended up calling "Knowledge and Learning Flows" within communities and work groups. Taking the approach based upon the interaction between tacit knowledge and explicit knowledge,

(Nonaka and Takeuchi 1995; Polanyi, 1966; Tsoukas, 1991, 1996, 2002), the

mechanisms by which knowledge gets articulated and amplified into and

throughout collectivities were based upon the following :-

- Knowledge is about beliefs and commitments.
- Knowledge is a function of a particular stance.
- Knowledge is related to human action … knowledge to an end.
- Knowledge is about meaning.
- Knowledge is context specific.
- Knowledge is relational.

Berger and Luckmann (1996) argue that people interacting in a social and

historical context share information from which they construct their social

knowledge as a reality, which in turn influences their judgement, attitudes,

values and beliefs; Cunliffe (2008) advocates a view of relational social

construction that focuses on the micro-level, creating meanings through

embodied dialogical activities.

Open ended questions, were frequently interspersed with questions designed to

explore the lived experience of participants, and to provide a possible

interpretation of the nature of that experience. Although the following list is not

exclusive of the questions used in semi-structured and unstructured interviews

and conversations, they are illustrated as an example of ways to initially explore

four key areas of knowledge and learning flows within communities or work

group collectives. They are "first-level" questions.

7.3.2   Questions and Discussion Points about Knowledge Formation and Learning Within the CoP

- How would you describe as some of the features of your community?
- How is knowledge formed within it?
- How would you describe what helps knowledge to be defined?
- In your view what hinders?
- How does knowledge get justified?

- How does it fit with your culture?

- How is knowledge part of your strategic thinking?

- How do you know what you need?

- How do you know if you have it?

- How do you acquire it?

- "Why" (justification) questions.

- Are there any notable moments or examples you could share with me?

- What were your major considerations?

- Any problems? …… regrets? …… difficulties?

- Where does all this …… come from?

- Tell me what is happening here?

- How is it happening?

- Could you share with me the story about?

- How did you decide?

- What was it like to discover?

- What did it feel like?

- How did you tell others?

7.3.3 Questions and Discussion Points about the Generation of Knowledge and Learning with the CoP

- Who participates and who does not?

- Why do you think they don't?

- How do you learn?

- How is knowledge discussed within the community?

- What stories exist?

- How do you discuss what you know?

- How do you share experiences?

- How do you develop what you have?

- How does the community learn?

- How do individuals learn?

- How do you tell what you know?

- Are there any learning examples you could share with me?

- Any examples?

- In what way?

- What were your thoughts on?

- Was there a story to tell there?

7.3.4   Questions and Discussion Points about the Use of Knowledge Within the CoP

- How does knowledge get used within the community?
- How do you share it?
- How do you ensure it is appropriate?
- How does knowledge get transferred around?
- In your view, what works?
- In your view, what doesn't?
- In your view, what stops the sharing process?
- How efficient are you at using knowledge?
- How do you innovate?
- What benefits have come your way from developing your practices?
- Can you tell how it was used?
- In your view what was the effect?
- Is there a story behind what you said?
- What do the others say?

7.3.5   Questions and Discussion Points about Knowledge Consolidation and Learning with the CoP

- How do you know what is valuable?
- How do you keep it?
- How do you learn from experience?
- How do you store knowledge?
- Where is it stored?
- How do you get at it?
- What form is it in?
- What is its status?
- How do procedures get devised?
- Who makes the rules?
- Are they kept?
- Do they make sense?
- How does the procedure get established?
- What understandings exist?
- Do you trust them?

- Why?/Why not?
- How will you extend or sustain the (community)?

7.3.6   Objectives for the Style of Discussion

For discussions, and unstructured interviews, I used tiered levels of conversation with respondents that started at a surface structure level and gradually built up to a deep structure level, rarely in one conversation, but over a period of many conversations. (I later developed this as a model of understanding about how it is possible to increasingly deepen conversation, and continue to build upon previous conversations). These levels, or platforms, I describe as "Platforms of Knowledge and Learning", and explore in more detail in chapter twelve.

The conceptual model enables conversations to begin at surface levels, and journey through complexity to uncover deeper structures, encompassing action, reflection, conceptualization and experimentation at different points in an individual's acquisition of knowledge and learning.

The broad objectives for the style of discussion were to use open-ended questions wherever possible, enabling the respondent to articulate their feelings or ideas, and be conscious of the need to develop and maintain empathy.

1) Try to get the respondent to describe the experience as they lived it ……

2) Work 'up the levels' of questioning types from small beginnings (facts …… through emotions …… opinions …… attitudes …… values …… and beliefs).

3) Avoid working up the levels too quickly, especially in the first or second meeting.

4) Focus on a particular incident that the respondent indicates is important.

5) Focus on an example of experience that stands out for the respondent.

6) Focus on an aspect of practice that the respondent considers important.

7) Stay at level 2 (emotions) if it is helping to illuminate the lived experience.

8) Avoid agreeing or disagreeing with their account …… use the term …… "as you experienced it" …… or "what was it like ……"

9) Let the respondent speak!

10) Keep it as a discussion, not an interview ……"

7.3.7 Coding

Following transcription, the texts and data were coded, which is the general term for conceptualizing data. Codes raise questions and help to give provisions, answers, (working hypotheses), about categories and relationships between categories. Conceptual density, the multiplicity of categories, properties and their relationships occurs as data is deconstructed by the researcher. This is reorganized into data packages (strips or sets), ordered into clusters, categories and eventually emerging themes. The integration of data occurs while the researcher is also developing theoretical sensitivity, a process whereby the data is subject to detailed analysis and examination in theoretical terms. Coding eventually leads the researcher to reorder the data towards emerging categories, core categories, emerging themes and core themes.

7.3.8 Open Coding

Upon entering the field in 2003 I originally used open codes (initial codes) based upon mid-range schemes (Bogden and Biklen, 1992). These initial codes were useful in producing general concepts that seemed to fit the data, and enable the coding to open up the inquiry. The codes were :-

1. *Setting/Context* : general information on surroundings that allow you to put the study in a larger context.

2. *Definition of the situation* : how people understand, define, or perceive the setting or topics on which the study bears.

3. *Perspectives* : ways of thinking about the setting shared by informants ("how things are done here").

4.   *Understandings : ways of thinking about people and objects* : Understandings of each other, of outsiders, of objects in their world (more detailed than 3, above).

5.   *Process* : sequence of events, flows, transitions, and turning points; changes over time.

6.   *Activities* : regularly occurring kinds of behaviour.

7.   *Events* : specific activities, including those occurring infrequently.

8.   *Strategies* : stated ways of accomplishing things; people's tactics, methods, techniques for meeting their needs.

9.   *Relationships and social structure* : unofficially defined patterns such as cliques, coalitions, romances, friendships, enemies.

10.   *Methods* : problems, joys, dilemmas, puzzles, experiences, stated frustrations, feelings or affect.

11.   *Metaphors* : "partial abstraction", ways of making sense of experience.

7.3.9   Selective Coding

Using open codes helped to develop core categories by a more systemic selection of the respondents' stories and details, known as selective coding. This is establishing the overall story and storyline within the data, where the researcher looks for conditions and sequences that relate to the core category. From there the researcher starts to identify some emerging hypotheses from the data, generating some preliminary theories for further investigation. The text was revisited to provide evidence to support the emerging hypotheses, and other associated analyses, (e.g. metaphor analysis) can be used to confirm or assist alongside the emerging hypotheses.

A short worked example using open coding on an interview transcript with respondent (M14) is provided in Appendix 3.2-3.8. This shows the open coding scheme; coded interview transcript; evidence from the open coding; the

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selective coding story and storyline; the emerging hypothesis and supporting

evidence, and a brief metaphor analysis (or metaphors in use).

7.3.10 Thematic and Pattern Analysis

The term "theme analysis" refers to the process of recovering the theme or

themes that are embodied in the evolving meaning of the respondents'

experience. "Theme" gives control and order to the research and interpretation.

Qualitative inquiry emphasizes and builds on several interconnected themes,

and qualitative methods are particularly oriented towards explanation, discovery

and inductive logic. The approach is inductive in-so-far as the researcher

attempts to make sense of the situation without imposing preconditions or pre-

existing expectations on the setting under study. In the earlier example of my

initial meeting with a group of electricians, the Finance Director had advised me

in advance of my meeting that they were known as the "awkward squad" within

the organization. Had I taken notice of that and established pre-existing rapport-

building questions and general conversational style, our relationship and

subsequent meetings would have probably been unlikely to flourish. Empathetic

neutrality assists credibility. The same goes with the analysis of data. Inductive

analysis begins with specific observations and builds towards general patterns.

Categories, themes and dimensions of analysis emerge from open-ended

conversations and observations without pre-supposing in advance what the

important decisions will be.

Thematic coding took place after the first phase of meetings in the communities

and organizations entered during 2003 and 2004. The codes were built up as

the data grew and I progressed beyond initial open coding, towards pattern

coding and thematic coding.

7.3.11 Pattern Coding

Pattern codes are an inferential and explanatory set of codes that emerge in local settings and relationships. As patterns become clearer they help to uncover emerging themes within the data. Pattern coding is a way of grouping data sets or summaries of data (data clusters) into smaller sets, categories or themes, and reduces the large amounts of data within a case into a smaller number of units.

(A full worked example involving pattern coding is provided in chapter nine where respondent (M117) data is used to illustrate the process). Miles and Huberman (1994) suggest that pattern codes usually turn around four, often interrelated summarizers : themes; causes/explanations; relationships among people; and more theoretical constructs. Pattern codes work in a complementary way to concept mapping and can be used to emphasize "enablers" and disablers" within a case.

An example of coding using data clusters, emerging categories and emerging themes is provided in Appendix 6.1-6.6. The data codes from the data clusters (n = 667) were the codes used in most of the initial textual coding for the topic of "Knowledge and Learning Flows". The eventual emerging categories were (n = 16); and the emerging themes were (n = 4).

Appendix 5.1-5.5 shows an example from part of an interview in 2003 with (M301) a Development Director at "Solvo Electrical". The transcript shows the initial codes being inserted into the text prior to subsequent analysis.

7.3.12 **Looking for Themes Within the Texts**

Qualitative researchers work with themes or notions that help to get a better fix on the significance of a situation. The emergence of a theme, from the raw data, frequently in the form of handwritten notes or vignettes of conversations, gets converted through sets, clusters, categories and eventually into its final thematic form. Van Manen (1999 : 87) describes themes as :-

- The experience of focus of meaning, of point …

- Theme formulation is at best a simplification.

- Themes are not objects one encounters at certain moments or points in a text.

- Themes are intransitive, the form of capturing the phenomenon one tries to understand.

- Themes give shape to the shapeless.

- Themes describe the content of the notion.

- Theme is always a reduction of a notion.

Phenomenological themes are described by Van Manen (1999 : 79) as the "structures of experience". Isolating themes within texts can be undertaken in a number of ways :-

a) Sententious (or the text as a whole).

b) Selective (looking for a statement, phrase or key word that describes the phenomenon).

c) Detailed (line-by-line approach, analyzing every single sentence).

From my early experiences in the field, and the growing accumulated data, I decided to adopt the selective (b) approach to see whether a theme emerged from a piece of text that represented the experience of the respondent, or at least provided some insight into the problems set by my overall research

questions. I usually summarized the emerging themes from some of the semi-structured interviews I undertook and sent them back to the respondents for verification. (See Appendix 6 for an example). Where themes or patterns emerged in 'one-off' conversations or from within 'focus-group' type activity, I would test the validity of those themes with other similar groups or communities, or subsequently in on-going work with the same 'focus-group'.

7.4   Confirming/Disconfirming Moments

The following extracts are included here as an illustration of significant moments in the researcher's understanding. The first story, about taxi-drivers came when I was interviewing two of them about "Doing the Knowledge". This is a taxi-driver term for gaining an "all London" licence which requires them to have detailed knowledge of the thirty thousand or so streets within a six-mile radius of Charing Cross. Most London "Cabbies" actually drive around the routes on mopeds using a "Blue Book" which provides detailed routes. Some cabbies, however, prefer to prepare their own books to supplement these, giving unique details not covered in the "Blue Book".

7.4.1   Knowledge of "The Knowledge" : "TaxiCo" : Knowledge Creation

M401   We'd meet up most mornings at Vi's.

G.L.   That's a café, right?

M401   Yeah, just off Horseferry Road. There'd be about 20 or 30 of us in there most mornings. Vi used to get the 'ump cos we'd park our scooters outside, but she's okay. Brings her the business.

G.L.   What time was this?

M401   Oh, early, anything from 6.30 onwards. We'd be there just talking about stuff, football, the papers, and then Tommy would come in and give us our sheets.

G.L.   Who is Tommy?

M401   He is the guy that issued us with out routes for the day … where we had to go that day and what to look for …

G.L.   Oh yeah, right.

M401   Well, most of the chat was about where we had been the day before, what had happened, any incidents. It was all a learning experience really cos even though I'd never been, say to Plaistow, I felt that I had, because the other guys would tell the story of their journey, and I felt I'd already been there … you know, what they'd seen, I would look out for, like.

G.L.   Things like …

M401   Queen Mary University down the Mile End Road, or West Ham football ground, or whatever.

G.L.   So, was this a formal thing?

M401   Oh, no, very informal, but it took place every day at Vi's and it always seemed to have the same format, you know, who would speak first etc. Usually those that were new, held back just listening, but if you had been on the knowledge for a couple of weeks, you soon realised that this banter and chat, really helped you.

G.L.   So, how did you remember all this, then? I mean there's a lot to learn.

M401   Oh, yeah, a hell of a lot, but, after a while someone started to take a lot of notes in one of them notebooks with the wire down the side.

G.L.   Spiral bound?

M401   Yeah, that sort of thing … well after a while someone asked if they could borrow the book, and copy the notes.

G.L.   How, by hand?

M401   Yeah, at first by hand, but then someone else asked if they could borrow it, so Mohammed, the guy, said, why don't you photocopy it and give everyone a copy.

G.L.   Who did that?

M401   At first it was the first person who'd ask for his book that paid for the copies. But after a while a fund was set up whereby everyone put in a couple of quid a week into a jar at Vi's, and that paid for a copy for everyone.

G.L.   So there was like photocopy fund …

M401   Yeah, just called "The Fund". One day Tommy said that if we collected all the sheets together he would type them up and put them in a binder and give one to everyone …

G.L.   Did you do that?

M401   No, some people felt that all Tommy wanted to do was get more stuff about the routes for himself, and that once he'd got it, he wouldn't do it on a regular basis.

G.L.   So what happened?

M401   … we told Tommy that we would do the book, and give him a copy ourselves, if he would pay for the cost of putting it together … which he did.

G.L.   So the company paid for you to put together some kind of book?

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M401 Yeah, and everyone got a copy whether they went to Vi's each day or not. It was better to go there, though, cos it was a way of getting to know everyone quicker, and the tricks and scous that went on, like.

G.L. Tricks and Scous?

M401 Well, like where there were lights that stayed on forever, where to miss them out, where the old bill would wait at night. That sort of thing.

G.L. And did this book help you.

M401 Well, it helped me, cos I used to look at the street map and compare the routes in the book with the map, making marks on the map, and keeping my own little notebook as well. I weren't never much good at reading at school like, but the book was in everyones handwriting and even though some of it was hard to read, a lot of it stuck.

G.L. Do you still use it?

M401 No, not now, but I have it all up here (tapping head). But I still remember it from time-to-time, and peoples handwriting, I think I would know who wrote what.

G.L. And does this still go on at Vi's?

M401 I think that the company kind of used the system for their own purpose in the end, but they still put out some sort of set of papers each week and its more formal now. But it was a good way of learning, like if it was pissing down with rain and you were out there on the bike, you could stop off at some caff' somewhere and look through the book. That way you didn't feel you were wasting your time.

G.L. … tell me about the book …

M409 I remember this guy came in one day and said he wanted to buy a copy of the book.

G.L. He was doing the knowledge.

M409 Somewhere up in Harlesden, not from this side of the water, anyway. He said he'd heard about the book and where could he get a copy?

G.L. Did you give him one, or sell him one?

M409 No, I was fucked if I was going to just let him waltz in here and buy our book. I mean no one had ever seen him before, he never came into Vi's, or joined in any sesh with the rest of us.

G.L. Why not, it was just a book wasn't it?

M409 It was more than a book. It was the amount of work that had gone into putting it all together … I mean, fuck me, we'd all spent a lot of time doing those sheets, and he wanted to buy one … probably to make a few bob himself … so no, he wasn't gonna get one.

G.L. What did you say?

M409 I said we'd got none left and to comeback in a few weeks time, by which time, we would have all been gone, anyway. Either way, we never saw him again …

The story has significance for the social construction of the Taxi Drivers' knowledge creation and the process of sharing knowledge across their communities. (Res.Q : RQ8).

The second story is from two production workers who were discussing their boss, and some questions of ethics came into the conversation. Ethics-in-use became an important concept for me in developing a model of learning and knowledge mediated by reflection.

7.4.2   Valley Girls … Ethics-in-use

G.L.   *Describe how you feel about Cliff …*

G.R.   *He is a great guy, so passionate about Port Talbot, and its people. He doesn't care who he upsets if it means he can protect the people from round here.*

G.L.   *Oh, yeah?*

G.R.   *Do you remember I told you about the time that we went down to Cardiff and stole their Christmas tree?*

G.L.   *Yeah, I do, but what meaning does it have for you?*

G.R.   *At the time, it seemed just like a bit of a caper, err, you know, a bit of a laugh … really … but we brought that tree back on the back of a lorry, it must have been all of twenty foot high and err, err we put it in the front of the factory for all to see when they came in to work.*

G.L.   *What, over night?*

G.R.   *Yeah, and when the early shift came in at six, there it was all erect and light up, and everyone was laughing … it was our prize, like …*

G.L.   *And so, what do you think about that, then?*

G.R.   *Well, the interesting thing was that when we got the production figures for that week, and the following week, they had gone through the roof. I meant, err Cliff said that normally they dip a bit in those three weeks around Christmas but this time, they had gone up, not down. And the whole place seemed happier … we had got one over on Cardiff and we felt great. Cliff came to us later on and said he wanted to talk about a re-organization in the Marking Room, and everybody went along … and it was a great meeting … no arguments …*

G.L.   *Even though people would be made redundant,*

G.R.   *Oh yeah, cos it wasn't his fault, like, it wasn't him, it was Head Office.*

G.L.   *But he would try to help you?*

G.R.   *To the ends of the earth … he knew some of those girls were the only breadwinners in the household … so he would try to keep them on as long as he could … even if he was unpopular with Head Office …*

G.L.   *He would ignore Head Office?*

G.R.   *That's the way it was with Cliff. He would go to great lengths to get one over on Cardiff, even though it meant loads of time and money … he didn't care … he saw it as local pride … for the people, you know what I mean, but if you stole one thing from one of your own, that was it …*

G.L.   *What do you mean …?*

G.R.   *He wouldn't give you a second chance. It was a given … and so nobody stole from nobody …*

G.L.   *What he'd sack them …?*

G.R.   *He gave them a chance to resign like, leave, so they could get another job in the town, or wherever … but it was like an unspoken law, and it worked.*

The story has significance for the way in which the respondents viewed ethics and 'rules' in their workplace and the example reveals much about the culture of their workplace community. (My research question 12 : RQ12).

7.4.3. Vignettes from First Phase Fieldwork and Emerging Themes

As part of the evidence base, the following vignettes are provided as examples of significant data sets which led to some of the emerging themes within the study. The community/organization is mentioned first, followed by the theme and data set. The significant Research Question (RQ) is stated thereafter.

7.4.3.1 "HealthWise" : Loose Structures

G.L.   *What were you trying to achieve there?*

        I'm not sure we had fully defined it?

G.L.   *I mean, did you intend it to be a tight structure with rules, or a loose structure with few constraints?*

        … definitely more loose than tight … we tried to impose some restrictions in the early days, but people resented them and didn't fully engage … so we eased off a bit and we found that they grew out of their own accord. Some of them have been going a long time now. I think people would prefer not to be over-controlled.
        Significance : RQ2 structural components built and sustained.

7,4.3.2 "Life Saver Union" : Enduring/Sustainability

G.L.   *… enduring?*

        Yes, they have a long life.

G.L.   *What makes them enduring, then?*

When you avoid setting too many rules and restrictions, or over monitor, um, you know, checking on them, making people feel they are being watched by the company.
Significance : RQ2 structural components built and sustained.

7.4.3.3 "RyanCo" : Group Identity

We noticed that some of them had some little enamel badges made up, like they wore their identity with pride.

G.L.   *How many?*

Oh quite a few. There were at least four or five that I can remember. Some of them used to meet up socially, organise trips to the theatre as well.

G.L.   *Interesting …*

Well we also found that they not only acted as a source of friendship and identity, but also as a resource for sharing information, general stuff like recipes, where to go, music, as well as work related matters.
Significance : RQ7 integration into the organization.

7.4.3.4 "In Touch" : Alternative Identity

Some gave themselves names, which they used regularly on the electronic boards, there were some that didn't even know the real names of the people they were dealing with, their name had taken priority.

G.L.   *And was that helpful or not?*

I think it gave people the confidence to be a participant without feeling it was them upfront. It gave them an alternative identity. There was no hierarchy, no status, no social standing … became identified with the identity and their own personalized alternative identities in a way was that they could get involved, or not get involved at different times … there was no obligation.
Significance : RQ7 integration within the organization.

7.4.3.5 "SkillGov" : Knowledge Acquisition

G.L.   *How did you decide what you were trying to acquire?*

It was important for us to recognize that the principle of division of labour also is similar to the growth and formation of knowledge. Sometimes we had difficulty getting the right people in, and especially those who were knowledge workers in the true sense of the word. We sometimes got good people who didn't know how to acquire the knowledge we needed, or we sometimes got good knowledge workers who didn't fit into our culture.

G.L.   *Was that just unfortunate or a planning matter?*

It makes the point that you have to be very clear about the calibre of the people you are acquiring and what you want them to precisely do for you.

G.L.   *Competencies, then?*

*Competencies, for sure. You most certainly need to have a clear understanding
of what competencies you have at the moment and those that you need to carry
over the next five to ten years.*
Significance : RQ6 appropriateness of action.

7.4.3.6 "Garville" : Co-construction of Issues

*We got to a point where we asked people to work in small groups, to test out
each others ideas, before they took them to another stage.*

G.L.   *And did that show any benefits? What happened?*

*The point was that we were giving people a chance to say what they think is
worthwhile, and then let others comment on it. If the idea is constructively
critiqued we find that people will initially justify than modify their original ideas.*

G.L.   *uh huh …*

*They can look out problems from other peoples' viewpoints without feeling
threatened or challenged, or threatening or challenging themselves.*

G.L.   *So there was a positive climate?*

*That, and the fact that the more people participated, the richer was the eventual
solution, and actually the more accurate.*
Significance : RQ8 social construction of knowledge.

7.4.3.7 "Garville" : Strategy Generation

*We did want to specifically get them to be involved in all our knowledge
management initiatives. Not that everyone could attend everything, but that
each group know it had a part to play in the way we generated strategy and
direction, and that we were able to show that we valued them for what they
knew and what they contributed.*
Significance : RQ7 integration within the organization.

7.4.3.8 "West CC" : Socialization/Stories to Tell

*After all, it is the way people get involved that eventually makes them stay or go.
They exchange little stories about their lives, about their family, about their work,
and someone else shares their story. Sooner or later, more people join in, and
people share their innermost thoughts about something they may have been
holding onto for a while.*

G.L.   *And do you get involved as well?*

*Of course … I recognize that creativity comes from having a relaxed place to
work. Intensive, maybe but relaxed just the same. We sometimes have to work
very hard but in such a way as we stimulate our creative powers rather than
stifle them.*
Significance : RQ12 actors stories and narratives.

7.4.3.9 "RailCo" : Practical Applications

G.L.   *Is it more practical things or theoretical, I mean things that are corporate, procedural?*

No, no … it's the practical aspects that people enjoy working with, if it's a practical problem with an end-result, I think people are happiest … its what keeps groups going … and being able to see the results of their problem solving.
Significance : **RQ9 knowledge integrated to support learning.**

7.4.3.10 "RyanCo" : Support for Group Identity

… there was a big emphasis on keeping the identity issues of the groups going … ensuring that there was a common purpose, a sense of pride, having clear objectives, building relationships, trusting each other, and resolving difficulties together. Where we did that we found that the groups seemed to go on longer.
Significance : **RQ5 interplay of tensions.**

7.4.3.11 "RedCo" : Domain of Interest

When there was a definite focus, an issue that everyone could focus their attention, we found that there was much more learning taking place than when there were simply work routines and few challenges.
Significance : **RQ9 knowledge integrated to support learning.**

7.4.3.12 "RyanCo" : Face to Face

… there had to be a coming together of the sales force. When they did you could sense the energy in the room. It was like the regular conferences, conventions, and trade shows invigorated them. Of course, a lot of it was socializing, plenty of beer, lots of fun, but without it, I don't think that group would have been half as effective had they been virtual …
Significance : **RQ12 actors stories and narratives.**

7.4.3.13 "HealthWise" : Individual Learning

The difficulty in any environment is ensuring that individuals stay focused on the corporate challenges, and continue with their learning and development so that they are equipped to counter the demands of the future where there was active participation in communities of learning, and it has to be active, not lurking, then I think the spin-offs were there for everyone.

G.L.   *What about team learning?*

We found that more difficult to evaluate. How do you know if everyone in the team has developed, or learnt new skills, or competences? Generally we think so, yes. But we found that more of a change.
Significance : **RQ7 integrated within the organization.**

7.4.3.14 "RailCo" : Cross-Project Knowledge Transfer

We wanted to generate cross-project knowledge transfer, and in many ways, informal communities of practice helped to achieve that, especially if there was a

closeness amongst the community groups. It isn't always easy to tell if cross project transfer has been truly successful until way after the project has finished. Then the PPE comes in and you can compare them. The review is essential at different stages of a project, not just at the end, in my opinion.
Significance : RQ8 sharing knowledge across CoPs.

7.4.3.15 "RedCo" : Use of Technology

... you want people to engage, and generally they will if you don't force it …

G.L.   *What if you do?*

People get resentful, I think. You cant tell people what way to keep in touch with one another, some are more technically adept than others anyway … but eventually there is a recognition that some technology can provide huge benefits over others, and then people get curious and embrace it.

G.L.   *Can you give me an example?*

Yes, Mobile marketing. It's in its infancy, but it's here to stay as a marketing channel. But we had a lot of resistance to using it, and people saying it wasn't the right medium etc., etc., …so we just were patient … and then began to see the sector grow, and after a while some of those people who opposed it, saw it in a different light, and slowly they are coming around. Bluetooth has helped a lot as well.
Significance : RQ4 organizational features.

7.4.3.16 "In Touch" : Link to Official Organization

They have generally not been recognized as part of the official corporate structure, but when you factor them in as well, they get a sense of being part of something, rather than just the invisible men, … and women.
Significance : RQ2 structural components.

7.4.3.17 "WestCC" : People Engagement

I really do believe that it's the people factors rather than the technology factors that are more important … I mean they are both important, but I think the people factors take priority. People are comfortable in roles they understand. Where they are not, and I'm generalising here, we found they tend to share less, and hoard … maybe for self preservation …
Significance : RQ4 organizational features.

7.4.3.18 "RailCo" : Reciprocity

If you give something out, your invariably get something back. Where we had teams that were reluctant to share, we found that their traffic was less, they became inactive.

G.L.   *Why was that, did you ever get to the bottom of it?*

I think people find it easy to respond through e-mail or intranets. The more you get that you find helpful, the more there is a sense of obligation to return the favour.

G.L.   A sense of obligation, that's interesting?

We had a good example in switching and crossing. (commercially confidential), wouldn't reciprocate, but our Swiss competitor was very obliging. In the end we set up some collaborative work projects, even though we knew that at some time we might be pitching for the same piece of work …
Significance : **RQ8 sharing knowledge across CoPs.**

7.4.3.19 "SkillGov" : Rigidity

There have been instances where some communities have become too stiff, too inflexible. They get into a routine, and over time cannot break out of that mould.
Significance : **RQ7 (lack of) integration within organization.**

7.4.3.20 "Garville" : Problem Solving Processes

There is no doubt that problem solving when it works well, has a really positive impact on work groups and communities alike. Where you get groups involved constructively in problem solving, there can be huge benefits in reducing apathy, routine or inertia. Essentially, problem solving is an enjoyable process, and very rewarding if there are successful outcomes.
Significance : **RQ9 knowledge integrated to support learning.**

7.4.3.21 "LifeSaver Union" : Intranets

… using the intranet has been quite revolutionary in bringing in official and unofficial teams into the mainstream of our activities …
Significance : **RQ4 organizational artefact.**

7.4.3.22 "RedCo" : Prototyping

What is challenging? … well in my view, prototyping is a creative activity that stimulates all sorts of groups and teams. There is so much more brilliant software that can be used, than say five years ago. Same thing with other disciplines like benchmarking. Its rewarding if you realise that you are ahead of the game …
Significance : **RQ9 knowledge to support learning.**

7.4.3.23 "In Touch" : Boundary Crossing

I often ask : "what have you learned today", and the reply I often get has a source that may be outside their team, but is located in other teams or communities not always associated with this organization. Learning has no borders.
Significance : **RQ8 sharing knowledge across CoPs.**

7.4.3.24 "HealthWise" : Experimentation

The issue of experimentation is an interesting one … how far do you go … how far do you allow it … I think it is healthy to encourage experimentation, and when you do, you find that you are quietly getting something better than what you originally had … we wouldn't want to crush anyone's spirit …
Significance : **RQ7 CoPs integrated within organization.**

7.4.3.25 "RyanCo" : Knowledge Sharing

We don't like it when someone leaves. It's like we have lost a piece of machinery off the back of a low-loader. Its probably more expensive as well. You can't write down, or document everything that person knows, but you can have a damn good try at trying to formalize what systems and processes are in place, so that he or she is not just walking away with all the knowledge in their heads, and nothing in the system. We also like to have an overlap where the new person coming into the post can get two or three weeks with the person who is leaving, so that there can be a realistic handover. It doesn't always happen, but we try to make it so.
Significance : RQ6 appropriateness of action/RQ8 knowledge sharing.

7.4.3.26 "RailCo" : Post Project Review

When we started to introduce reviews, we became aware that the interim review was just as important as the post project review. In fact, probably more so, because it helped to plan-do-learn, plan-do-learn throughout the project rather than looking back after the project had finished. We try to encourage regular exchange of knowledge and information during the project, as well as at the end. Much of this is documented in terms of project learning and widely discussed during the project. Lack of time is no excuse for not reviewing progress or learning events.
Significance : RQ9 knowledge integrated to support learning.

7.4.3.27 "RedCo" : Sustainability Through Data Acquisition

They have as much a vital role to play in bringing together information and knowledge in from the outside, as any other group, team or department. Why not? If we can encourage people to seek out solutions elsewhere, we are happy if those solutions can be applied in here. I think it adds to their credibility as well. We really don't mind so long as its cost effective.
Significance : RQ6 appropriateness of action.

7.4.3.28 "RailCo" : Strategic Reorganization

The old guard didn't know what to do with them. I think they thought they might be some kind of subversive group, or groups, operating against the company. It was when we got ____(anon)__ in from __(anon)__ , that they began saying … "well, let them run, see what they bring …", that they felt they might have a more positive part to play.
Significance : RQ7 integration within the organization.

7.4.3.29 "In Touch" : Reorganization

When _____ came in as M.D. he told the floor managers to take out all the plants and flowers, get rid of personal effects and generally tidy the place up. What we saw was a real drop off in participation and a noticeable fall off in workplace morale. Then _____ left suddenly, and people thought, like "wow, if that can happen to him, who's next … ". So they just stopped all their

activity, and kept their heads down. What we also found was that ideas and suggestions just dried up, routine problems were taking longer to resolve, and

new or unique problems didn't get solved. It was like we had stripped out our problem solving capability along with all the plants.
Significance : **RQ4 organizational features.**

7.4.3.30 "SkillGov" : Sustainability/Rigidity

… we have to look at what exactly we are trying to do. What is the KM objective, and what are the objectives of the various communities? We hope they all have objectives, but I'm not sure that is always so. Some communities just spring up and have a life of their own, without really having a focus. Others are established with a point in mind, erm, a reason for being. I have to say that those that that are fully focused on what they are there for, what they stand for, and why they exist in the first place … they are the ones who have more likelihood of surviving the trials and tribulations that confront such groups … what I mean is … they are capable of withstanding difficult situations because they have an overreaching central objective and terms of reference. That doesn't mean they are rule bound, but are flexible, versatile and able to change according to circumstances. Where they are too rigid they tend, in our view to have a limited life.
Significance : **RQ2 sustainability/RQ7 integration within the organization.**

7.4.3.31 "Garville" (Maintenance Fitters) - Uniqueness

We like to think we're unique, or certainly, there are no other groups like us who are doing what we are doing … or if there are, not as well as we can do it. I don't mean to suggest we are isolationist, but certainly we like to think we are different, and significantly different from everyone else who is doing this sort of work … and this does galvanize us to a certain extent.
Significance : **RQ7 CoPs integrated within the organization.**

7.4.3.32 "RedCo" : Knowledge Acquisition

… how do we get knowledge coming to us …? There are so many different ways, but most importantly is that everyone knows what we want and where to get it. We have thought deeply about this … and it's probably the most important issue : what do we want, and where do we get it. Once everyone is on that track, we are taking off.
Significance : **RQ6 appropriateness of action.**

7.4.3.33 "RyanCo" : Group Reflection

I have been involved in a variety of learning processes over my lifetime, but the reflective part of development is possibly more significant. Being able to reflect on what I'm doing while I'm doing it has been quite a revelation for me. Before I always had considered reflection to be a 'past' event, but actually I see it as a 'past', 'present' and 'future' thinking process. Where it gets really powerful is where others in the team help to stimulate that sort of reflection … group reflection … and that can bond a group together.
Significance : **RQ9 knowledge integrated to support reflection.**

7.4.3.34 "HealthWise" : Linkage to Formal System

I'd be upset if we were not part of the organizations formal system, but I think that _____ knows the benefits we bring to adding value to the _____
Significance : **RQ7 integration within the organization.**

7.4.3.35 "West CC" : Socialization

I like the opportunity to talk with others who work here about the job … if I couldn't do that I would go nuts … the social aspect of work is of great significance to me.
Significance : RQ12 actors stories viz culture of CoPs.

7.4.3.36 "In Touch" : Practical Outcomes

… there has to be some kind of practical outcome coming out of our group, we are not just a talking shop that navel gazes … that would be somewhat pointless.
Significance : RQ9 knowledge integrated to support learning.

7.4.3.37 "Life Saver Union" : Mutual Respect

… mutual respect, or what you have just described as mutuality, is the glue that holds this group together …
Significance : RQ11 reported perceptions, beliefs and explanations.

7.4.3.38 "West CC" : Team Identity

… there have been instances where people went AWOL, or just didn't engage for weeks and then came back as if nothing had happened … I think those people were never fully accepted as part of the team, more like outsiders who had never become fully integrated into the team.
Significance : RQ7 integration into organization.

7.4.3.39 "Garville" : Mutual Understanding

… there has to be a degree of mutual appreciation of what each others' circumstances are, so that when there is a reason for an occurrence or an event, everyone at least knows why that situation exists.
Significance : RQ11 reported perceptions, beliefs and explanations.

7.4.3.40 "West CC" : Common Outcome/Domain of Interest

I think that if all have a common focal point, something you are there for, or have to achieve, that cements the team staying together … leadership means keeping the team directed towards a common outcome.
Significance : RQ7 integration into organization.

7.4.3.41 "SkillGov" : Face to Face

It's good to put a face to a name, and to meet up with the people you may have been dealing with for years … however, be aware, that sometimes they don't always live up to the image you have of them, and you might not live up to their image … sometimes people have said they wish they had not met.
Significance : RQ12 actors stories/culture.

7.4.3.42 "In Touch" : F2F/Virtual

People tend to come and go in virtual situations, there are less commitments than in a person-to-person interaction.
Significance : **RQ11 reported perceptions, beliefs and explanations.**

7.4.3.43 "RedCo" : Virtual Technologies

The thing is that there are so many more ways to network now, and what holds the group together is the opportunity to engage with others directly, - new technologies, third, fourth, fifth generation technologies are going to mean that virtual communities will become the norm.
Significance : **RQ4 organizational artefacts.**

7.4.3.44 "RyanCo" : Level of Interest/Domain of Interest

I didn't even know who, where or how old the other members of the community were … we were a community, but there wasn't much community spirit, the community was created by the level of interest.
Significance : **RQ11 reported perceptions, beliefs and explanations.**

7.4.3.45 "RyanCo" : Intranet/Trust Relationships

… the use of the intranet is only the vehicle for what we do … you've gotta have a personal contact, personal relationship with the rest of your team members … the intranet is only the way we connect technologically. Spiritually, personally, whatever, those things are made easy by the personal contact with each other. It's much more difficult to build trust with someone through the intranet, if you've never met them …
Significance : **RQ4 organization artefacts.**

7.4.3.46 "West CC" : Team Learning

When I found I was learning from my colleagues in the group, it kind of made my reason for engaging with them more meaningful … gave me a sense of purpose … until then I was in danger of reaching a point where I was beginning to think … "oh what's the point".
Significance : **RQ9 knowledge to support learning.**

7.4.3.47 "HealthWise" : Collective Learning

There have been a number of post project learning points that I think are stimulated by the fact that we can post up our comments without fear of ridicule, contradiction or evaluation … Personally, I am stimulated if the feedback I give is received in a non-judgemental way …
Significance : **RQ9 knowledge to support learning.**

7.4.3.48 "RailCo" : Team Learning in Post Project Reviews

A few times we've had the heart kicked out of us, by reactionary comments in the post-project review meetings. Under the Chairmanship of XXXX a no-blame approach was apparent … it gave many of the members confidence that what we said would be used constructively. Now, with YYY reviewing many of the

projects, people do not feel like telling it like it is … so a lot of it just stays inside … you don't feel like contributing, if you think you're going to get kicked in the nuts …
Significance : RQ10 knowledge to support learning.

7.4.3.49 "SkillGov" : Mandatory Use of Reporting

… if someone told me that all our reports and reviews had to be constructed in this style or this format, I would feel less inclined to make them, or be comprehensive. I know brevity is important, but when we were constrained to just one A4 side of analysis I think the quality went down … I often used to scribble notes to _____ and post them off to him, and I think he appreciated the fact that these were my spontaneous thoughts, and he valued them for their creativity.
Significance : RQ2 : structural components of CoPs.

7.4.3.50 "RedCo" : Use of Technology

… I think there is less reflection if you insist that all reports and evaluations have to be in a certain style. Personally, Lotus Notes constrains me.
Significance : RQ9 knowledge integrated to support reflection. RQ2 structural components.

7.4.3.51 "RyanCo" : Network Liaison

… there are a lot of networks out there … most are not co-ordinated in any way. We suspect there is duplication of effort, and energy … if this was co-ordinated then we might have more opportunity to have a role, and identity that we know was valued.
Significance : RQ7 integration within organization.

7.4.3.52 "SkillGov" : People Engagement

… it's the personal characteristics that make this board, not the software. The software often stops people from feeling that they can engage with other team members … it's hard to show your emotions in a constructive way electronically … you end up what they call "flaming".
Significance : RQ5 interplays of tension.

7.4.3.53 "HealthWise" : (Impediment) to Sharing

… I stopped sharing my expertise because I got pissed off with silly comments from a certain group of managers who thought they were being clever … all they have done is make me feel less inclined to help them.
Significance : RQ5 : interplays of tension. RQ8 (Impediment) to sharing.

7.4.3.54 "RyanCo" : Reciprocity of Action

When _____ sent me his sales leads, I felt under some kind of obligation to return mine to him. It took me a couple of months to respond, but when I did, I think he got three of four customers from them. He sent me a really nice note and a large box of wine … that went down rather well over Christmas. I think

*we feel differently about each other, more positive … certainly not in
competition with each other …*
Significance : RQ8 process of knowledge sharing across CoPs.

7.4.3.55 "In Touch" : Core Rigidity

*… we were so arrogant that we were doing everything right that we forgot to
look at the outside world to see if anyone was doing it better … and of course,
they were …*
Significance : RQ12 actors stories/culture.

7.4.3.56 "RailCo" : Problem Solving/Creativity

*… just like when you lose your car keys, there is a certain protocol you go
through that helps you to retrace your steps, and leads you to them … well, not
always, but sometimes. But just occasionally, something just pops into your
head and reminds you where you left them … I think creative thinking is a bit
like that, especially in product design … it might take weeks and then … bingo
you've got it, like it was there all the time trying to get out … We had that with
the continuous welded rail … it was a problem none of us could solve on the
TTT line, then suddenly three of us came to the same conclusion at virtually the
same time, at three different meetings …*
Significance : RQ8 sharing across CoPs.

7.4.3.57 "West CC" : Intranet

*… the _____ (intranet system) keeps us in touch, but doesn't force us to
participate if we don't want to …*
Significance : RQ4 organizational artefacts.

7.4.3.58 "RyanCo" : Creative Spirit Through Technology

*I loved it … I've always enjoyed creating things … ever since I was a kid …
moulds, paper maché, design, and of course what CAD has done for me has
released a creative spirit in me. I talk to various people about what I've done
this week, and I get ideas back … it's reciprocated. 90% of the time it's
interesting but not really applicable … it's the other 10% that I think is the most
valuable opportunity.*
Significance : RQ9 knowledge integrated to support learning.

7.4.3.59 "RedCo" : Crossing Boundaries

*I'd not really considered it until I got a call from _____ in _____ She
had me thinking that perhaps we could be working together on projects even
though we worked for different organizations. I'd never really explored that until
then.*
Significance : RQ8 sharing knowledge across CoPs.

7.4.3.60 "RedCo" : Openness – Lack of Fear

*To do things differently without fear of failure or retribution or at least negative
criticism, well that has to be worth something doesn't it?*
Significance : RQ5 interplays of tension.

7.4.3.61 "RyanCo" : Collective Spirit

We have a collective spirit. It's okay to experiment, but there has to be a benefit … so long as it moves a project along, that's okay.
Significance : RQ6 appropriateness of action.

7.4.3.62 "Garville" (Director) : Learning from Projects

… I think we're at the stage where what we learn from projects is either transferred directly or indirectly into the next project … We have a way of collecting the learning experience and at least we review that before the next project …
Significance : RQ9 knowledge integrated to support learning.

7.4.3.63 "In Touch" : Knowledge Sharing : Impediments to Sharing

It's easy … you either want to share or you don't … it's your choice, but there is a reason why you do or you don't … the do's are probably easier to articulate, like, than the don'ts, but when you explore the "don'ts", there are all sorts of reasons why people don't, or wont, share. Some of it is fear … some of it is power … some of it is confidence … some of it is about motivation … what it boils down to is the relationship between the group and the organization.
Significance : RQ8 knowledge sharing.

7.4.3.64 "RailCo" : Codification Knowledge

… that in the main people are helpful, they will go out of their way to assist others to acquire what they know, but unless that gets logged in somewhere, located in an accessible place, or 'put in the book' so-to-speak, then there is a very real chance that you could lose that knowledge if that person moves on, drops out, gets sick or whatever …
Significance : RQ9 knowledge integrated to support learning.

7.4.3.65 "RailCo" : Embedded Processes

The ever deepening cycles of post project reviews have tended to embed the principles or processes into the organization … a bit like wearing a hard-hat on site, or 'clunk-click-every-trip', after a while it becomes what would be an oganizational routine, so that goes on without even thinking consciously about it.
Significance : RQ9 knowledge integrated to support learning.

7.4.3.66 "Garville" (Director) : CoP As a Valid Source

… if you value and respect what communities of interest have to offer, there is a good chance that they will put an emotional investment into what has been accumulated and want to see the ripening of the fruits of their endeavours … it would be another factor in why people decide to stay or go …
Significance : RQ7 CoPs integration into organization.

7.4.3.67 "SkillGov" : Strategic Reorganization (Impediment)

A lot got demoralized after the 2002 reviews. The exercise was seen as another round of pruning and cutting back to the point that they either lost interest in their projects, or saw the importance of survival as being the most fundamental thing to achieve … everything else became secondary to that … we lost a lot of enthusiasm as people became concerned about 'watching their backs' and when that happens their creativity becomes dampened down.
Significance : RQ8 integration within organization.

7.4.3.68 "Life Saver Union" : People Processes

… "I don't think that you can make everything happen just by putting in a new computer system, or an intranet … it's people that make a difference here, not the technology …"
Significance : RQ4 organizational artefacts.

7.4.3.69 "RyanCo" : Voluntary Use of Technology

Use of Buzzsaw *was quite a revolutionary development for us, and it was more widely adopted when it was presented as something that we would find useful, rather than something we had to use …*
Significance : RQ4 organizational feature.

7.4.3.70 "SkillGov" : Consolidation of Learning

… the real-time capture of learning is what we are not so hot at doing … I don't know of a way that we can stop and log the lessons learned at the moment … as valuable as I know they will be … everything is a look-back at what happened rather than a look at what is happening …
Significance : RQ9 knowledge integrated to support reflection.

7.4.3.71 "RailCo" : Cross Project Partnering

At a company where I previously worked we were involved in a project called COLA which had links to partnering arrangements … it seemed to me that the participants in COLA were very willing to share their knowledge across projects and reflect on what others experiences might do for them.
Significance : RQ8 sharing knowledge across CoPs.

7.4.3.72 "RailCo" : Team/Group Knowledge Sharing and Learning

Extranets? … oh definitely … huge benefits for sharing knowledge between organizations. Intranets, internally as well ……
Significance : RQ4 organizational artefacts.

7.4.3.73 "RedCo" : Socialization

The number of organizational changes that took place didn't seem to have much of an impact upon the way we shared our knowledge and learning. What really

did seem to make a difference was when we were able to meet up and talk about what was going on …
Significance : RQ12 actors stories/culture.

7.4.3.74 "SkillGov" : Impediment to Knowledge Sharing

The politics of this place stifle the way we share our knowledge … why the fuck should we share with other departments when their manager is constantly trying to shaft ours?
Significance : RQ8 knowledge sharing (impediment) across CoPs.

7.4.3.75 "SkillGov" : Cross Boundary Sharing

" … there was obviously an opportunity to tell different parts of the service what we had learned and how we thought it might benefit them …"
Significance : RQ8 knowledge sharing.

7.4.3.76 "Garville" : Impediment to Learning

" … simply because we were making the same mistakes week after week, never really knowing how or why we were successful, and not knowing whether it was luck or judgement : we just didn't review …"
Significance : RQ9 knowledge to support learning (impediment).

7.4.3.77 "In Touch" : Impediment to Learning

" … there was supposed to be a combination of individual, team and organizational learning taking place, or at least that's what the consultants told us, but although we did discuss what had happened amongst ourselves, and we had regular team meetings, most of that never got into the management system at all …
Significance : RQ9 knowledge to support learning (impediment).

7.4.3.78 "In Touch" : Impediment to Learning/Reflection

" … no one took us through a routine where we could look back and reflect on what we had achieved …"
Significance : RQ9 knowledge to support reflection (impediment).

7.4.3.79 "TaxiCo" : Co-constructed Learning

"At the end of the day, usually about 9.30-10 o'clock, I have a sit down and look at the route plans, close my eyes and visualize the key features of the route … then I'll have a conversation with myself, in my head, about different ways to get from A to B. That really helps me to learn. Next day I talk about it with the others over breakfast".
Significance : RQ8 knowledge to support learning.

7.4.3.80 "RedCo" : Core Rigidities

… the different groups each have their own culture and ways of working … they also have different terminologies and technical terms for their particular

skills and trades. Although we do get to know what the majority of these terms mean, occasionally it is like they are talking in a different language …
Significance : **RQ12 actors stories/culture.**

7.4.3.81 "Garville" : Core Rigidities

… technicians and engineers use different ways of describing the same problem, which can be a huge issue if we are fault finding across shifts.
Significance : **RQ12 actors stories/culture.**

7.4.3.82 "RailCo" : Sharing Across CoPs : (Impediment)

… there should be a standard protocol for every fail-safe operation, but there isn't … sometimes a design engineer will use a different description for a failed system than the electrical engineer. Unless they are physically working together that's when the difficulties arise …
Significance : **RQ8 knowledge sharing (impediment).**

7.4.3.83 "RedCo" : Core Rigidities

… I'm not an electrician, so I don't understand half the jargon that these guys use …
Significance : **RQ12 actors stories/culture.**

7.4.3.84 "RailCo" : Common Systems of Work

… we were all over the place until we got some common systems of work installed … that's when I felt that the teams were working better together.

… it was virtually impossible to co-ordinate our work patterns, because each team had a different set of procedures … we became rather insular …
Significance : **RQ12 actors stories/culture.**

7.5   Discussion

This chapter has considered some issues in early participative fieldwork.

Issues of access and the identity of the researcher in the field was seriously

considered, and the status of the researcher with those members of the

communities under study was a significant factor. How much, and what, was

known about the research and by whom, was always an important issue for the

way I conducted my fieldwork. After some initial pilot work, I concluded that in

order to establish credibility with potential respondents, it would be beneficial if I

prepared a short portfolio type overview of the research aims and objectives, and the importance of maintaining anonymity and confidentiality. The activities that I would, and would not, be engaged in during fieldwork settings; the use of data recording equipment such as audio and videotape, and the protocols for conducting interviews, narrative feedback, and focus groups were all set out in a very straightforward document and collated into an A4 presentation binder. This helped to convince many respondents to co-operate initially, and was instrumental in assisting with gaining orientation of a partial insider in many communities.

The participative approaches of co-construction, co-learning, participation and collaboration developed after a period of trust building had established the credibility of my research approach, and rapport with respondents.

Data gathering techniques were initially kept fairly low-key, but in order to build and maintain a sense of trust with respondents, I found it was important to periodically keep them informed of what I was doing with the data, and why.

During co-construction of emerging themes and categories, I found it beneficial to introduce respondents to summaries of data, during sessions when we were discussing issues that were associated with the data, and frequently tangentially rather than directly. The benefit of having coded data sets and A3 sheets of Data Item Reorganization for data clusters made the task of co-construction much more participative and accessible than data stored and presented from lap tops. (A full worked example is shown in Chapter Nine). The data became the joint property of the community under study and individuals always had the final decision on detail and verification.

This first phase, although sometimes random, unpredictable, chaotic and eclectic, provided a substantial learning curve for me as a researcher, and enabled a verified set of themes to be established. Further, the evidence-base of my research questions was being established and enabled the next phase of the research, an action research inquiry in a community of engineers, to be conducted on a substantial footing. That inquiry forms the basis of the next chapter.

Chapter 8

Consulting with a Community of Engineers

This chapter considers aspects of consulting activity within a community of practice amongst engineering managers in a transport and engineering systems company based in London. The activity took place between February 2003 and November 2005. "LiteCo" was originally formed as a part of an amalgamation of five engineering groups.

The chapter is structured in four parts to reflect specific action research cycles over a thirty month consultancy period.

8.1 <u>Stage One : Entering the Field.</u> This considers the relationship between the researcher and the participants, including the client consultant relationship. This stage sees the development of a first order understanding of the issues of knowledge learning and reflection in LiteCo, and provides evidence for a number of my stated research questions. Here both researcher and participants are journeying around the action research cycle of choosing action, and discovery, and establishing some early co-constructions of what occurs within the knowledge flow processes at LiteCo.

8.2 <u>Stage Two : Project-based Learning.</u> This considers the second stage of an action research cycle where elements of reflection and sense-making were encouraged through co-construction activities in focus groups and workshops.

8.3   Stage Three : Extending the Field.   This considers the third stage of an action research cycle where cognitive mapping and reflexivity were encouraged through co-construction activities. In this stage the community members widened their participative membership to encompass customers within a particular project. The entry card project community was a Customer Community of Practice (CCoP) which provided a number of development areas towards understanding the extent of knowledge flows with LiteCo, and contributed to the co-construction of a subsequent model of knowledge flow processes, (see Chapter 12).

8.4   Stage Four : Leaving the Field : Culture Change.   This considers the final stages of the action research project where a merger of LiteCo with another organization required the different communities to consider some of the culture change implications. The project was nearing completion and the vignettes presented in all four stages give an indication of the different relationships between the researcher and respondents at various stages of the project. At best, they can only give a brief insight into the changing relationship over a thirty month period. However, the vignettes are selected for their contribution to each research cycle and for the provision of evidence for my research questions.

8.1   Stage 1 : Entering the Field

Anonymous Client Company   :   "LiteCo".

8.1.1   Anonymous Community Personnel : (Key informants)

(n.b. There were over 1000 people in this organization, some who came into contact with me a few times at workshops, or in the workplace. Key informants have anonymous names and codes for data reference and storage purposes.

Engineering Innovation (EI) Community

Key informants :

(M151)	Mark Magee	:	(Head of Innovation)
(M169)	Gordon Poole	:	(Innovation Manager)
(M158)	Graham Richardson	:	(Engineering Innovation Manager)
(M153)	Nick Knox	:	(Innovation Engineer)
(M154)	Keith Yoxall	:	(Innovation Engineer)
(M156)	Peter Bentham	:	(Innovation Manager)
(M157)	Glyn Robson	:	(Innovation Manager)
(M150)	Mick Engel	:	(Systems Engineer) (Agency)
(M171)	John Boston	:	(Innovation Consultant) (Ext.)
(M172)	Paul Smith	:	(Innovation Consultant)
(F152)	Jane LePrince	:	(Agency Engineer)

Engineering Innovation (EI) involves bringing together engineering specialisms into one co-ordinated operation. The EI group had achieved a lot in the short time they had been together since 2000. A team had been established; they had exceeded their productivity targets; they had developed management systems, and had supplied major projects within "LiteCo".

However, something was wrong, and when I received a call from Glyn Robson in late 2002 to explore ideas for "taking the team forward", I got a sense that things were not quite right in this team. Glyn asked me to meet with him and the Head of Innovation, Mark Magee at their Head Office in the heart of London's West End. Glyn and I had met a few times at various events and courses in London, but we had never worked together, so I was somewhat surprised, and a little flattered, when he gave me a direct introduction to Mark Magee. At our first

meeting, Glyn introduced me and then gave his apologies and retired to other tasks. Mark and I discussed the needs of the EI group. I got the impression that Mark was a very demanding manager who asked a lot more than individuals could deliver, but somewhere there would be a synergy that achieved his objectives. "This is what I want, help me to get it" was a phrase that I remember from his opening remarks to me. Mark and I talked for about 90 minutes and I agreed to meet key members of his team over the next few weeks. Mark agreed that I could employ whatever research techniques I liked, so long as I achieved his overall objectives. As I met with some of the EI people at their workstations, I was struck by how little there was in terms of personal identification around their place of work. One or two family photographs, but very few symbols that one could call personal. Everything appeared work oriented and visual extension of the data and systems that each delivery manager was working with. The EI group consisted of three kinds of members. Permanent staff employed by "LiteCo"; agency staff who were on fixed term contracts and consultants who were commissioned for special projects. Mark was keen to get these three groups and specialists harmonised into one cohesive unit that could deliver a more formalised innovation offering than was presently being provided. I sensed fairly quickly that these three kinds of membership brought their tensions into the workplace.

Mick Engel, (M150) a systems engineer discussed these matters :-

G.L.   Could you tell me a little, in your own description, what happens here between the perms, the agency and the consultants?

M.E.   In a nutshell, we all have our own agendas … As an agency engineer I know that I am only here for a specific period of time and then, "goodnight Vienna" … we are gone again … unless someone like Mark renews our contract for another term … so we are always working to Mark's agenda, whether its right or wrong … rather than that of the rest of the team.

G.L.   Does that create tensions, then?

M.E.   *Oh yes, tensions would be an understatement, the perms will just do enough to look like they are doing a reasonable job and keep their heads below the parapet, and the cons come in at a 100 miles per hour expecting everything to be geared up to their projects, because in reality that's all they have to worry about … whilst the agency people know that they have to deliver on their work but they don't have the security of the job or the big money the cons can earn.*

G.L.   *What sort of tensions, could you describe some to me? …*

M.E.   *Well like the whole administration function is geared towards ensuring the permanent innovation managers and their teams are properly serviced so they can function efficiently. If a con comes in and wants something, they usually get it because most people know that they have got the ear of Mark, or whoever, and so people will jump to their tune, but not to the agency people, who are treated like gypsies, you know, here for a short time then get told to move on …*

G.L.   *And how does that make you feel?*

M.E.   *There's a lot of uncertainty all the time. Mark has got a huge job to do and we are there to help him deliver a more innovative system, but there is always the feeling that we are operating in a limited time frame so no-one tries to integrate*

us into the whole organization … half the time we are focused on the job and the other half focused on trying to get people to help us so that we don't end up looking total dickheads … take a look around … see where the buzz is … it aint around the agency people, even though we probably have just as much technical knowledge as everyone else, we … err, err … we are like the uninvited guests at the wedding reception.

G.L.   *What do you mean?*

M.E.   *Everyone thinks they have a right to be here but nobody really knows why they are here in terms of the big picture … its probably down to the way we are recruited … we need the job and talk our way into the job, sure we are all well qualified, but once we are on it we have to find out what that job really is about.*
(M150; 04.03.03 : AudT. 28A, Narr P2)
<u>Significance</u> : RQ5 interplay of tensions

My interest over the way that individuals become enculturated, or otherwise, in this organization was assisted by my discussions with some of the external Consultants. John Boston (M171) responds to my question over how he came to be at "LiteCo".

J.B.   *It is about who you know in the first place, not what you know. My boss knew the M.D. of "LiteCo" and he gave my name to the Director of Engineering. By the time this got down to Mark I knew that I was already in here and it was just a question of scoping out the work, the deliverables, the usual stuff, and then get on and do it. I can come and go so long as at the end of the project what we say we are going to deliver gets delivered. Mark delegated all that contracting stuff to Graham (M169) who already had a fair idea of what Mark needed, so there wasn't really much negotiation, it was all cut and dried by the time Graham and I had finished our discussions.*

G.L.   *And how are you supported internally by the innovation team administrators?*

J.B.   *Very well really, whatever we say we want, we just go to PK (the administrator), and she arranges it for us, so that when we are here, we have first choice on things like meeting rooms, access to data-bases, facilities and so forth.*

G.L.   *And does it ever not happen?*

J.B.   *From time-to-time there are some glitches, but there is an understanding, perhaps implied more than anything else, that we really work for Mark's boss, or his boss's boss, rather than for the EI team.*

G.L.   *And do you?*

J.B.   *No, of course not, but if you can give the impression that you have the ear of the generals then the troops will always support you.*

G.L.   *And how do you get on with the agency people?*

J.B.   *Okay, but I feel for them sometimes 'cos they are between a rock and hard place … they don't really have the clout of the cons, but they still have to deliver, never really knowing where it is going to take them next. You can always spot an agency engineer … they are the ones walking around with worried looks on their face … a sense of uncertainty all the time.*
    (M171; 06.03.03 : AudT, 21A, Narr T1).
    <u>Significance</u> : RQ7 integration within organization

Paul Smith (M172), another innovation consultant, talked to me about these

relationships.

P.S.   *I really haven't got time to worry about whether the agency people are feeling good about their job, or otherwise … they are agency because they are agency and we are cons because we are cons. I mean, look, its Sunday, and who is in … all cons … no agency, no perms, just a few key managers and the rest is the cons … this what we do 24/7.*

G.L.   *Is that part of your contract?*

P.S.   *No … but its part of the way we work … to an objective … a clear target that has to be achieved come hell or high water … and we do … otherwise we'd be doing other jobs or going agency ourselves, which gives you the 9 to 5, but doesn't bring in the pennies. Most agency people are alright, but they don't want the ambiguity of being a consultant, working here, working there, but they want a steady number for a set period of time, when they can either renew or go back to their Agency and get other work. For them its steady, for us its frenetic.*

G.L.   *Tell me about how you cooperate together.*

P.S.   *Pretty well really, everyone kinda knows what they have to do, its just that we all do things in different ways. Consultants have a way of working which agency people and perms respect, the agency people need input from us from time-to-time and generally if there is enough notice we can always find the time to work it through at a p.m. (project meeting), so long as its booked and scheduled.*

G.L.   *And the perms?*

P.S.   Oh, good, I think Mark has got a good team together there, and everyone seems to have a clear role there … PK is brilliant, a real brick, you can call her any time on an issue and she can direct you to the right people almost immediately. Mark would be lost without her … unspoken hero. The S.E's (sequence engineers), are a good bunch too, sometimes a little introspective, but that's because they have been the victims of constant reorganization which "LiteCo" has been all about since the companies came together.
(M172; 06.03.03 : AudT, 33A, V7)

A view from a permanent Innovation manager, Gordon Poole reveals

what the internal dynamics of this team appeared to be to him.

G.P.   When we started back in 2000 there was a sense that we were all pioneers setting out on our little ship across the great uncharted waters of the merger. Most of the S.E's we have here today were around then, so in a way they have sailed these seas many times already. From time to time people come on board for a spell to help us, maybe make a trip or two, or three if they are good, but we were the original pioneers, got the t-shirt and all that. Agency engineers are fine so long as you give them clear objectives and help them in the first few weeks to find their way around … but if you don't, it can be a disaster … they do what they think you want, when its not what is needed at all. So, in some ways there has to be a mechanism to integrate agency people quickly and effectively so that … erm, they are all pulling in the same direction so to speak … otherwise you can waste a lot of time and it can be quite expensive to remedy.

G.L.   And is there this mechanism in place? I mean isn't there an induction procedure, protocol awareness and all those sort of things.

G.P.   In theory, yes, but in practice, no. There are procedures of course but people tend to get all this stuff electronically, sent to them, but not really discussed. I'd love to think that every Monday morning I could sit down with agency people and spend time telling them what it is we are trying to achieve long term, the long view, but life here is not like that … it is all short term targets and everything has to be done yesterday; the pace of change is so fast …

G.L.   So you don't really get the best out of people, is that what you are saying.

G.P.   I suppose I am saying that when we take on an engineer on contract we expect them to know what to do and how to do it our way. I know that's idealistic … but some of them are very versatile and can fit in very quickly … others who know their job don't always get into the groove … or choose to stay out of it …

G.L.   And the cons?

G.P.   The cons can do as they please so long as they don't fuck anything up and achieve their deliverables. They get paid to deliver, not to be the most popular guy on the planet … and I think everyone understands that. If a consultant says that things are not right then everyone tends to listen because you think that because they have worked here, there and everywhere, perhaps they have the benefit of experience and there might be something in what they are saying … but if an agency engineer says the same thing, there is often a tendency to think, yeah right, well if you know so much why are you still an agency then and not somewhere else … daft really and we may be missing opportunities, but it's a perception thing at the end of the day … and a question of time … time is always the enemy?

G.L.   How often do you guys get together to discuss these things?

G.P.   *Mark and I talk about doing something to get everyone together, but so far its not happened … You can watch the dynamics at pm's, where all the agency people get there early and sit together, the cons come in, still on their mobys to god-knows who, and the perms come in late usually because they've been to another meeting that's overrun. The agenda is thrust at them without much opportunity to explain why the item is on there in the first place or what action is being sought … it's a bit of a ritual … a ritual dance … a lot of defensiveness and little chance to be expressive and certainly not creative.*
(M169; 07.03.03 : AudT, 40A, Narr. P3).
<u>**Significance**</u> **: RQ11 reported beliefs and explanations.**

Nick Knox (M153) talks about socialization, or lack of it …

N.K.   *On the surface people are friendly enough, and basically quite good to work with … but there is this underlying tension that exists between those three groups all the time … Mark has tried really hard to pull them together, but there is still, what do you call it … a silo mentality where people withdraw into their silos in the way they think and act … you can see it in the diner … the perms sit together … the agency sit somewhere else, and the cons, well they are never here long enough to sit around having lunch, so there really is no social integration … people do stop and chat around the coffee point … would you like one by the way?*

G.L.   *No, its okay.*

N.K.   *But generally that's all superficial stuff, nothing really in depth … sure, people will e-mail each other and sometimes that can get an extended discussion going, but its usually within the groups and not between them. I've stopped sending mails to cons because they never reply, or say they've not received them … usually its because they have their own agenda and can't be asked to get involved in other peoples … (inaudible …), don't go out together or go shopping together unless its within their own groups.*

G.L.   *Nick … why do you think that is … I mean, what is it that stops you for example?*

N.K.   *I think its because the nature of the work prevents you from forming long term friendships … the friendships are more of convenience than company … I don't really get to know people in depth … agency people seem to be better at forming relationships than cons, and if you see a group of agency engineers sitting together in 'Machinos' (café/deli outside the organization) then you know something serious is about to happen (laughs) … perms people rarely go out together, just in two's and three's for shopping rather than for socializing, but me, I just go for a walk around the West End or just stretch my legs a bit … I've got no real incentive to invite people to lunch or anything, not that I'm unsociable 'cos I consider I am, really.*
(M153; 07.03.03 : AudT, 42A, Narr Int 2).
<u>**Significance**</u> **: RQ12 culture of the community.**

Graham Richardson (M158) an engineering innovation manager talked to me

about knowledge creation and sharing.

G.R.   *There are little groups within little groups who cooperate well together and collaborate together, and they will usually share thoughts and ideas amongst themselves … but there have been times when I've just known that one group has got the knowledge but won't release it to the others because it would weaken their position and strengthen the others.*

G.L.   *Like who, Graham?*

G.R.   *Like agency engineers and agency programmers for example … both want to be seen to be 'the business' … the solution providers … and neither want to be seen to be the ones that have to do the asking … and its probably worse between agency, whoever they are, and cons since there is always a lot of resentment over how much money consultants can earn on a project. So people hold back and wont share, even though you know they have probably got it, they feel they would be weaker for sharing it …*

G.L.   *And what do you think you could do as a team, say, to overcome this?*

G.R.   *I don't think it helps the way we organize the work here … we make it hard for people to be creative and innovative … we don't have the time or opportunity to change the way people think about things … its like we all have a job to do so lets get on and do it, even though there probably is a better way … when someone comes up with a system or programme that is really innovative we don't always provide them with the vehicle for getting that out into the open … so it may stay there with them, or they may share it with a small group of their mates, but not in the wider team.*
(M158; 12.03.03, AudT, 55B, Narr P2).
<u>Significance</u> : RQ8 sharing knowledge

Jane Le Prince (F152) an agency engineer explains :-

J.L.P.   *I'm a project engineer working on innovation and design. I've been involved in verification for some while so I think I know what I'm talking about, but there are some people who think I don't, perhaps the ones who have been here a long time, since the start-up … its them that often ask the stupid questions that take you nowhere, the blockers rather than the helpers … often one or two innovation managers will table your agenda items way down the list so that there is very little time to discuss your thoughts and ideas. I've shared some of these issues with other project people here and in previous places I have worked in, and I know there are better ways to achieve integration, but if you don't get given a voice you don't speak … perhaps its an age thing, or because I'm a woman, but there is not equality of time at the pm's.*

G.L.   *Who have you discussed this with, then Jane?*

J.L.P.   *There isn't really a way you can voice your concerns without appearing to be difficult, so you just get on and do your job, smile sweetly, and stumble to the next meeting, feeling generally demotivated… I've had a few mails from people, usually consultants, who have said that they thought I'd made some useful points at the pm's, but they didn't say anything in support … to be fair they didn't oppose either … but sometimes you feel you're up against old dinosaurs who have a fixed way of thinking and don't want to really change.*

G.L.   *Not Mark, not Gordon??*

J.L.P.   *I'd love to, but they are both so busy that you don't like to ask … I've even thought about bumping into Mark on his way home, but he lives in Central and I live in Essex, and anyway I think that would be naïve and pretty obvious … so things aint sparking … and if I do find something that works I keep it closed in often just with a small group of like-minded people.*

G.L.   *Inside LiteCo or outside?*

J.L.P.   *Both, and I hope this is confidential, but of course I discuss things with people outside, if they listen or if they can help my thinking then I'll call them, or mail*

them, and there's a lot of helpful people out there … maybe some of them out there work here, who knows (laughs), but most of the mails are with fictitious names.

G.L.   *And who are you, then?*

J.L.P.   *I'm junglegirl … pretty obvious isn't it? Once I had a really long blog going with some other engineers and just for a moment I thought that one or two of them might have been right here, they wasn't, but at the time it felt like it … and we really did move some mountains … better than any pm I've attended here.*
(F152; 11.03.03, AudT, 31A Narr P1).
Significance : RH5 interplays of tensions
Significance : RQ8 sharing knowledge

Discussing culture with Keith Yoxall (M154) an innovation engineer I

asked him about "LiteCo" ethos and plans.

K.Y.   *You know when you start here you are given a little book which sets out the strategic plan and there are sections on things like corporate mission, strategic goals, that sort of thing … there is a load of stuff in there about key performance indicators, risks balanced scorecard, that sort of shit, but nothing about values and beliefs.*

G.L.   *There is a mission statement isn't there?*

K.Y.   *Oh, there is, but do you know it? Bit unfair really, you have only been here a few weeks, but who really knows it. I often wonder if PW (Head of Engineering Excellence) even knows it … but anyway, we are given this booklet and on the second page there is all this stuff about building trust, and growing trust and all that …*

G.L.   *Yeah, yeah, its there …*

K.Y.   *It is, but who really tries to do it? There is something in there about developing a culture of innovation as well, and I asked Gordon once precisely how we were expected to do this, and he didn't really have a clue … just gave me a load of waffle really, so I asked a few people in EI about our mission statement goals and nobody really has any idea about how to achieve them … I mean if this was the SAS we would have it drilled into us from day one so that we would work as a cohesive unit.*

G.L.   *Do you still read it?*

K.Y.   *Yeah, its here, (pulls it from a drawer) and usually when I'm preparing for a pm I will read it and introduce my topic by saying … one of our strategic goals is, blah, blah, blah, and then open up by what I want to say … old Peter and Mark both start nodding like a couple of puppets and I'm already halfway there to getting a budget allocation on this or that project I'm working on.*

G.L.   *And do you live the corporate values yourself, Keith?*

K.Y.   *Interestingly enough the word 'values' is not actually written down anywhere in the strategic plan … (pushes it across the table towards me) … take a look, see if you can find it …*
                    (a pause)

K.Y.   *See its not there is it?*

G.L.   *Can't see it.*

K.Y.   *Its not there, believe me, so no-one really knows how to behave, I don't mean in terms of discipline, but in terms of thinking and ideas and helping each other to achieve support and enablement. We are rich in terms of technical knowledge, and piss poor in terms of cultural knowledge … if that makes sense.*
(M154; 12.03.03, AudT. Narr 4).
Significance : RQ12 culture of the community

8.1.2   Miscellaneous Narrative Data Sets

(M157) … it would be helpful if we were all singing from the same hymn sheet … like when we have our monthly planning meetings we set out the short term objectives and goals for the month and then look at them the following month to see whether or not they were achieved … and if not why not … not to blame anyone, but to improve our ways of working.
(M157; 17.03.03, AudT, 63A, Narr 1).
Significance : RQ9 management of knowledge

(M155) We are like a herd of wild horses here, wild, untamed, loads of spirit, all running in different rhythms in an uncoordinated sort of way … if we could harness that energy, tame the horses a little and coordinate the direction then we would be superb … but no-one has got the time to do this … all so busy doing other things.
Significance : RQ7 integration within organization.

(M217) There are a lot of things left unsaid.
Significance : RQ12 culture of the organization.

(M143) We do things one month and then make a few mistakes and do the same thing again and make the same mistakes … its like we never really learn from them.
Significance : RQ9 management of knowledge.

(F146) If only we could think aloud in pm's.
Significance : RQ11 reported perceptions.

(F109) We do a lot of talking … but not a lot of listening. Sometimes the talking makes people switch off … I've seen people leave meetings and then go away and e-mail the same people who were at the meeting.
Significance : RQ6 appropriateness of action.

(M191) We are a very rule governed department, suppose we have to be to a certain extent, but when there are so many rules it kind of stifles initiatives.
Significance : RQ2 structural components.

(M111) I like coming to work here, I do my job, socialize a little with some nice people, do a bit of shopping in the lunch-time, and go home at 5 or just after … I don't want much more out of the job, and I certainly don't live and breathe it … I have a life outside of work.
Significance : RQ12 stories of culture.

(M128) Some people know where everything is located, but not many of us … we know a lot of things, but knowing how to find the location is not one of them.
Significance : RQ4 organizational artefacts.

"LiteCo" offices are large open plan areas where individuals sit at work stations, sometimes partitioned off by chest-high dividers or filing cabinets. It was quite easy to see who was in and who wasn't, just by walking the perimeter of the floors. From time-to-time during February and March when I was in "LiteCo" Mark would see me interviewing members of his team, or chatting with them at the coffee point, and once or twice in *"Carchellis".* He never came up to me during these occasions, or when they had concluded, and this gave a few people a little confidence that I wasn't collecting "evidence" for Mark. Some time in March 2003 he telephoned me and asked if he could talk over my impressions of what I had gleaned so far from talking to his team, and would I meet with him that week. I was working at ACAS in central London and said I was unable to meet him during the day that week. He offered to meet me one evening close by to where he lived. My initial consideration was how to describe to him what I had discovered, that there were a lot of sub-group activities taking place, a lot of concerns, a lot of resentment and uncertainty and a lot of anxiety. I told him I had liaised with three or four communities, but they were acting more like defensive routines rather than the positive characteristics that Wenger and others describe in their research.

Mark had heard of the term CoPs, and had undertaken a little reading on the subject, but did not profess to know much about them. I summarized my findings by saying that although there was some evidence of community, there was little evidence of practice or learning. Whether Mark was surprised or not I do not know, but he was at that point genuinely disappointed that there was a considerable gap between what he believed was happening and what many of the engineers told me they believed was happening. I gave him a summary sheet of all the metaphors that had emerged in the narratives and these he found useful as a way of locating his own understandings with those of the

engineers who had given them. He asked me if I would come along to one or two pm's and Heads Engineering meetings to give an overview of my findings. My journal reflects my feelings at the time.

> *It was at this point that I knew my relationship with Mark had changed and that the relationship with the engineers had changed also. I am no longer a researcher who is interested in a study for research sake, but I am now a part of Mark's team. Have I compromised the confidentiality of those who have given me their descriptions of their world and now I am going to become an agent for the management of "LiteCo"?*
> (Reflective Journal notes 23.03.2003).

I gave my answer to Mark that I would be prepared to give my overview to the pm's and to the Heads of Engineering providing there was a decision taken <u>by them</u>, as to where to go next with my involvement. Mark communicated that he thought I was being unduly sensitive, but I was adamant that this was the way I wanted to proceed. I asked for 90 minutes rather than the usual 45, and Mark reluctantly agreed. At the meetings I presented my findings by putting up on a projection screen, clusters of metaphors told to me by the engineers.   I was really facilitating a discussion rather than presenting a set of conclusions, and I could tell by Mark's initial comments that he was not comfortable..

What my summary of findings had surfaced, was a challenge to the power dynamics that existed within Mark's team. Organizational control and authority structures were being questioned ; formal hierarchies of authority were exposed; induction, innovation and supervision issues were brought out into the open; job definitions, policies, specified procedures and the general motivation of individual members had been tabled under the umbrella of the metaphors of the lived experiences from the team.

Mark was not comfortable, and told me so, privately. I replied that the whole team might like to reflect on what had been raised, and in their subsequent discussions, give Mark an indication of what they thought they could do to rectify

some of these difficulties. Mark reluctantly agreed. I left "LiteCo" that afternoon not expecting to hear from Mark again. The tension between us was considerable and I recalled some of the difficulties that Neumann (1994 : 18) and others had addressed in their studies of the 'entry' phrase in management consultancy.

I was surprised to receive a call from Mark approximately ten days after the report back meeting, saying that the overall feedback on the whole exercise had been very positive and that he had received a large number of suggestions about how to make his team more cohesive. He said that he had taken quite a lot of time to talk to individuals and small groups about different issues, hoping to get a closer understanding of the problems, and he was encouraged by the positive reaction to these "micro-meetings". He had also had some good feed back from his key managers and some of the external consultants had commented how things had "seemed different recently". I recalled Watson's (1994) statement that "social construction was a benign process", and perhaps the ten days or so that had passed had given Mark a chance to reflect on his own management style and the opportunities that may have been missing. He was a bright young man, dynamic and clearly someone who was "moving-up" in his organization. He was a key player in a power-framed organization, yet he had overlooked the social realities of the people who made up his team. Things had already changed, he told me. His meetings were going to be more consultative, and he would ensure that people were able to plan the agenda for the pm meetings.

He was keen to spend more time with key members of his team and asked me if I knew of any good conference centres where they could go for a couple of days to reflect on the way they worked together. I gave him the names of a few that I

knew and he asked me why I would recommend them. I spoke about the need

for a relaxed environment, not a replication of the workplace but in another

location.

I talked with him about the need to have a venue that enabled small groups to

undertake conceptual mapping, use of visual materials to translate ideas from

conversation to concepts and action plans, and how to "make sense" of what

was going on in their world at "LiteCo". 'Would you encourage a bar' he asked.

"Why not, your people are all professionals and to deny one makes them and

you look foolish", was the essence of my response. Mark thanked me for my

suggestions, and we ended our discussions on a positive note. That evening

around 11.00 p.m. he called me again, at home, saying that he was still at work

with some of his team, and he had a request for me. Would I consider running a

two-day workshop for him and his team that would cover some of the issues of

the past, the current situation, and the future opportunities for the team? After

about 30 minutes of discussion we agreed an outline agenda that I said could be

presented to the attendees for suggestion and improvement, and the style of

facilitation and tools and techniques that I would consider using. By way of a

postscript to our conversation Mark mentioned that he was keen to encourage

the sharing of ideas about technical matters, but that he was worried about

encouraging sub-cultures of activity that could be seen to be divisive by the

Board of "LiteCo". What Mark meant by "sub-cultures" was the communities that

had already developed within his team, and were transferring and sharing

knowledge informally already through a variety of mediums, including e-mail, the

"LiteCo" intranet, and extranet systems with other organizations. To avoid

supporting these communities would risk losing out on the undoubted

advantages and benefits that could accrue. On the other hand, there was the

potential risk that investing in these communities would inhibit the organization-

wide knowledge sharing in "LiteCo", and could fragment the organizational knowledge base by encouraging the emergence of discreet, inward-looking communities with the Engineering Innovation team. I persuaded him that the time away would give us all the opportunity to discuss these paradoxes, and he confirmed that I would facilitate a three-day workshop at a venue of my choosing.

The workshop went well, with relatively few problems and many opportunities to use techniques such as causal maps, conceptual mapping, swot-analysis, and forcefield analysis. I took a decision to introduce Kolb's (1976) learning styles concept to enable all participants to map their preferred learning styles alongside those of their colleagues. A lot of the activities over the three days were undertaken in learning style groups, and this captured their curiosity and imagination. Learning styles became the entry point for a number of learning processes at a series of subsequent levels of complexity on a conceptual model of knowledge and learning in organizations.

One significant outcome from the three-day workshop was the opportunity to talk about trust within the team, and how the presence of a trusting environment would encourage a greater willingness to share knowledge and to achieve reciprocity. Mark's concerns that the team could become insular and exclusionary were discussed at length and the role of knowledge sharing within the team and between other teams was considered. The outcome was a series of mechanisms that encouraged both formal and informal communications and interactions with other groupings within the "LiteCo" organization.

The workshop attracted quite a lot of interest within the rest of "LiteCo" and as a consequence, one or two other managers of similar standing to Mark, contacted me with requests to discuss the possibilities of working with their teams.

8.1.3   Reflective Observation

This vignette is part of the early stages of an Action Research project which emphasizes the importance of a well designed study, clear plan of action and a scoped research methodology. In reality, many research or consultancy assignments are the result of "opportunist" engagements between client (representatives) and consultant/researcher where both see an initial benefit in working together. The client has a short term problem that he/she does not have the time or expertise to resolve, and the consultant sees an opportunity for entry into the client system. The stages of an Action Research process are rarely, if ever, discussed in these situations because the consultant does not wish to presume a long-term relationship, and the client does not wish to engage into a contract without first gaining some short-term benefits. The emphasis is upon the transaction, rather than the relationship, and the implied and explicit dynamics that occupy those early interactions. Neumann (1994) describes this as negotiating entry and contracting, which are seemingly straightforward tasks but often prove challenging. The consultants are aware that they cannot enter in order to clarify the unique situation of the organization until a detailed agreement has been reached and formalised. This contract-before-entry challenge creates difficulties because the consultant is faced with the dilemma of presenting their consulting practice as if the unique qualities of the client system were irrelevant. This speculative consultancy initially skirts around the culture of the system where communities, informal work groups, power dynamics and "hidden agendas" may be present but are not articulated. The exploratory action that often takes place without a detailed agenda depends

upon the consultant's ability to "read what is in the clients head" through experience, context, intuition and judgement. Making clear what you intend to deliver and want in return, is a classic textbook approach to consultancy, but the reality is far more "messy" and ambiguous.

Experienced consultants appreciate the difference between 'knowing what to do', and 'knowing what to do when you don't know what to do'.   Here humour, creativity, spontaneity, a capacity for collaboration, and intuitiveness all help the consultant overcome the early difficulties of aligning hidden agendas in the entry phase.

Many communities of practice operate "off" the organization chart, and in many cases are 'bottom up' initiatives that take place amongst groups of individuals who share common understandings that may not be recognized by the organization itself. Whilst it may be relatively easy to identify that a community of practice has formed (Wenger 1998) in a top-down intentional action as part of a knowledge-management strategy, it is less easy to identify the spontaneous, emerging community that may create itself by interested members irrespective of what their initial agendas might be. Sharing and learning within communities cannot be legislated into existence, and occurs when only members have the inclination and motivation to want to share and learn. The environment in which the CoP initially operates may be facilitative, neutral, obstructive or even prohibitive, to the creation and development of the CoP. (Cothrell and Williams, 1999). Only when the organization and the CoP align their mutual relationships and define identities and boundaries does the situation become clearer. It may well be that many CoPs are created as a reaction to power dynamics in organizations or are opportunities to establish identities within organizational cultures that had hitherto failed to recognize them. Member 'enrolment' into

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CoPs, therefore, can range from covert, to voluntary, to strongly encouraged, to compulsory. Selection processes may vary in consideration of the membership criteria, therefore.

<center>***   ***   ***   ***</center>

8.2   Stage 2 : In the Field

Project Based Learning within a Community of Project Managers ("LiteCo")

This extract illustrates the way in which a focus group of project managers came together to discuss a fundament engineering problem confronting them. They were a project CoP that had worked virtually for approximately six months on this problem and the focus group brought out some of their concerns. This was the first occasion the CoP had met for face-to-face deliberation on the question of Building Entry/Exit points (EEP's).

The extract focuses on a key stage of their discussions towards the end of the focus group and just prior to Action Planning.

Researcher/Facilitator : Geoff Lawday.

The focus group consisted of :-

Key Informants

Richard Tree (M212)	:	(Project Design Engineering Director)
Martin Tollman (M215)	:	(Project Systems Specialist)
Lee Feel (M219)	:	(Project Systems Specialist)
Matt Fitter (M220)	:	(LiteCo Business Manager)
James McAvoy (M228)	:	(Project Manager)
Dave Breadon (M227)	:	(Project Manager)

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Sandra Witt (F211)	:	(Engineering Innovation Project Manager)
Frank Foxley (M226)	:	(Deputy EI Project Manager)
David Peace (M225)	:	(Project Director LiteCo : Project Sponsor)
Lionel Olsen (M214)	:	(Project Technical Adviser)
Harvey Excel (M213)	:	(Project Technical Adviser)

G.L.   We've explored a lot of issues; we've had some excellent contributions, now I'm going to ask you to focus upon our key question, and it's a crucial one : "Are EEP's a lower risk than open entry points?".

We've heard that there are a number of EEP's both here and abroad where we have had very few injuries.

From the "LiteCo" experience there appears to have been no fatalities, no serious injuries to customers and one or two minor injuries to staff.

It has been argued by many here today that there has been a significant increase in footfall, and that the use of EEP's appears to outweigh the risks. What is your experience?

Although there are no comparative figures between non EEP's and traditional EEP's, it appears that users have positive perceptions about EEP's. There are also positive driver perceptions and overall a positive "Comfort Factor" associated with their usage.

So we've explored lots of issues, and we really are trying to answer the question : are EEP's a lower risk?

(M212) If you consider EEP's in isolation, and not in conjunction with other systems that can affect EEP operation, then, yes, there is a huge safety improvement, that's my opinion. But I don't think we understand enough about the system itself as a whole yet to conclusively say that.
Significance : RQ9 management of knowledge.

G.L.   You've made the point, consistently throughout the day that we do need to understand the system, the whole system more than we do.
(M212) Yes.

(M215) I think EEP's are a far safer system, and I think as an organization LiteCo should widen their use.

G.L.   … you mean, carry forward to other buildings, and maybe to other places? (Yes). Anything else you'd like to say other than that …? (No). (Thank you).

(M219) I'm of the view that EEP's are a good idea and their use and benefits greatly outweigh the non-EEP buildings.. We don't have a large sample to base our conclusions, but it's all we've got at the moment … to get a fair sample we need about ten years worth of data, and we've heard evidence world-wide which suggests that EEP's are a good idea, and there are other factors from experiences abroad …

G.L.   I think the worldwide view is important here and I'm going to ask Matt Fitter from LBL to come in now and give us his view …

(M220) *Apart from safety aspects, there are other benefits linked to the environment, where costs justify the economies of ventilation and you ask the question about risk, but as Colin said where there are hugely crowded areas in the Far East,, they can justify the cost of installation with issues like ventilation in order to get the safety benefits and …*
Significance : **RQ8 sharing of knowledge**

G.L. *… so the environment feeds the safety case …?*

(M220) *… yes, exactly, the environment feeds the safety case, you can pay for it on environment terms alone … I'm not sure whether you could do that in the UK … but the evidence is there … it's quite difficult to talk against the proposition for the new doorways …*

G.L. *I very much hope there can be an exchange of data … your experience world-wide could certainly help these guys in making the case, since there is not a great deal of data around.*

(M220) *Yes, we've got a lot of projects in the Far East and there are a lot of business cases around …*
Significance : **RQ8 sharing of knowledge.**

G.L. *… David Peace tells me there is a little bit of money in the travel budget … so we are looking for volunteers for a study tour to Hong Kong … Matt thank you for that.*

(M228) *With fifteen years experience I'd just like to say that people do leave items of clothing or other items in the building and then try to go back inside and recover them, which is a concern. At least with EEP's there is no way they can be able to get back inside.*

G.L. *… so the likelihood of an occurrence is reduced …?*

(M228) *It is reduced, people can't attempt to access the building … which can cause delays … so it improves the operation.*

(M227) *I'd like to reinforce the point that James has made, and I've been trawling through the incidents that I'm currently looking at, there have been three incidents recently where people have got into the buildings, two of them were very drunk, and that's two lots of families lives completely wrecked … that wouldn't have happened if there had been EEP's there … they wouldn't have got into the building. I don't think there is any doubt that EEP's improve safety. The only time there is a question mark is when things go wrong, which is what we've spent most of the day talking about.*

There is another point I would put forward which I think is an important one … somebody said this morning, I think it was Lionel, that customers have a perception, they perceive a safer environment. If that is the case, and I believe it is, you've got to keep it that way, you can't drop back, you can't "uninvent EEP's", they are here to stay.
Significance : **RQ11 reported perception.**

G.L. *… something you and I were discussing earlier, Dave, was about " throughput" on numbers down below.*

(M227) *… yes, I think, that is an aside issue, for the rest of the system. "LiteCo" has EEP's but I do believe that the implementation of EEP's elsewhere does give the ability to alter the way entry is handled. You can allow under certain*

conditions with EEP's more people into the building; it does have safety capacity implications …

G.L.　　*So coming back to our original question are EEP's a lower risk …?*

(M227)　*When everything is working fine, there isn't even a question …!*

(F211)　*I have to agree with what Richard Tree said about looking at the overall system, and innovation. I believe we need to re-run the fault-trees to see what has or needs to change, be it improved maintenance, or whatever …*
　　　　<u>Significance</u> : RQ6 appropriateness of action.

G.L.　　*We've got a re-run of fault trees as an issue here, a re-run of the analysis; who is actually going to do that?*

(F211)　*That's down to us in Engineering Innovation..*

G.L.　　*Okay, I'll put you down there in the action points to do that … and what have you concluded from today …*

(F211)　*From what I've heard today and also from a customer point of view, in EEP's buildings I'd feel safer, because I feel that somebody would not be able to cause me problems.*

(M226)　*I'd say overwhelmingly that EEP's are safer than existing entry points. If you look at entry points, LiteCo won't even allow it's own staff to work within 600 millimetres of the entrance even though with their training and experience they know exactly what is going on. And yet we find herds of people milling around sometimes drunk, children, blind people, whatever condition, without any protection from the hazards. So I think that EEP's are going to prove to be an enormous safety benefit.*

(M225)　*I agree with most speakers so far that EEP's are a safety benefit, but it is the perceived safety that creates more risk; things like the distance, and unexpected openings …*

(M214)　*… I think in the main it is a perception in many ways … we've only had two years of operating with EEP's. It could all change if we had a fire or there was a misalignment … there have been a lot of issues that have been identified, where we can classify them as high, medium or low, but there are risks which are there and I feel we should do something to identify where we are going (perhaps not in this session because I'm conscious of it getting late now), whether we are going to discount them, or whether something is going to be done about them.*
　　　　<u>Significance</u> : RQ11 reported perception.

G.L.　　*It is important, as you say, not to be complacent about the risks … Let's go back to the original question, and back to you Harvey …*

(M213)　*We asked searching questions about EEP's, and we've reviewed concerns. We need to demonstrate ALARP. (As low as reasonably practicable).*

G.L.　　*Are we able to say with any degree of confidence that EEP Buildings are any more times safer than Non-EEP Buildings? I heard figures before, informally that they are (say), three times safe; two times safer; are we able to hazard a guess, maybe an informed guess that enables us to say that EEP Buildings are more times safer than non-EEP Buildings?*

(M213)　*I think that would be oversimplifying it, just putting a number against it.*

(M215) I think what we would have to do is to take a comparison of buildings where we could, and another building which doesn't have EEP's. We could look at throughput of customers, especially at peak times, how many people you get in the area, and what you would be looking for is for issues of building management, especially where you haven't got EEP's. Certainly in the next two or three years we will be able to see what throughput can be achieved, but we will I think see that where overall we have EEP's this will allow say 10% to 25% more people down into the building.

G.L. At the moment we can't show it yet, we can't prove it yet …?

(M215) The new buildings are so large anyway, the floor area is so large, there is always enough space.

(M213) At the risk of sounding simplistic when comparing buildings, they have very good CCTV, they are highly manned, it's not easy to make straight comparisons. We need some robust figures when making comparisons. **Significance : RQ6 appropriateness of action.**

G.L. Okay, thank you all for your contributions, we won't push for a definitive answer on numbers, but we have had an excellent discussion and I hope your initial concerns or interest have been addressed. Shall we now move to action planning?

<p align="center">***   ***   ***   ***</p>

8.2.1 Reflective Observation

This vignette shows an example of knowledge creation by a project community during a facilitated focus group. Research into the processes of knowledge creation from a multidisciplinary project community perspective is fairly limited, (Newall and Swan, 2000). Senge (1990) suggests that creating knowledge at the team level is essential for long term team effectiveness, innovation and productivity. A social constructionist approach considers knowledge as a set of shared beliefs that are constructed through social interactions and embedded within the social contexts in which the knowledge is created.

The first process in knowledge creation involves boundary crossing where different community members are able to exchange and combine knowledge. Boundaries may be between communities of different disciplines, (i.e. engineers, systems, asset-managers, etc.). A further boundary might exist between clients, sponsors, and contractors. The expertise boundaries could be

crossed not only through knowledge sharing, but also through boundary objects such as drawings and personal conversations among community members. Hierarchical boundaries could be crossed by community members breaking down any barriers by valuing the expertise of others. The EEP's focus group was an attempt by the project sponsor, David Peace (M225), to bring together a number of experts who had uniquely distinct information and knowledge, rather than information in common.

Knowledge generation occurs where communities create knowledge by generating new or 'emergent' knowledge through social interaction. A fourth process in knowledge creation is knowledge integration, where different perspectives and knowledge of various disciplines are merged into the decision-making process. A fifth process involves collective project learning where learning takes place from the projects in which they are engaged. Collective project learning involves creating an environment for maximising opportunities for individual enquiry and learning. Problem solving becomes central to their ways of working and one-time failure is an opportunity for learning and understanding. Project teams allow a focus on a particular task, are time-bound and bring together different perspectives. Project reviews facilitate the consolidation of learning and assists with the concept of organizational memory. (e.g. see Hedberg 1981; Feldman 1986; Fortune and Peters, 1995; Garvin 1996; Department of Health 2000; De Fillippi 2001).

In David's example he brings together a community of project managers to discuss a specific problem and to generate new knowledge. The short vignette shows boundary crossing, knowledge sharing, knowledge generation and preparation for knowledge integration (action planning/decision making). The focus group was videotaped and detailed notes and transcripts prepared. All

participants received the transcripts and were able to insert amendments
(verification), for accuracy. The group then received all the codified notes,
discussion transcripts, action points and responsibilities which were kept on file
in the project manager's electronic repository for access by all members. The
focus group was facilitated to enable the project leader to take a full and active
role in discussions, rather than dealing with the mechanics of facilitation and
knowledge capture.

***   ***   ***   ***

8.3   Stage 3 : Extending the Field

Working with a Customer Community of Practice (CcoP) in "LiteCo"

Entry Card Project Community

The data transcripts (not sequential) have been illustrated as examples of how
key themes emerge in group narrative.

Key Informants

David Peace (M225)	Project Director "LiteCo"
Derek Holman (M279)	LiteCo - Proj. Man.
Kris Greville (M283)	LiteCo - Proj. Man.
Brian Sale (M280)	LiteCo – Proj. Man.
Joe Blick (M281)	LiteCo - Proj. Man.
Geoff Lang (M271)	LiteCo - Proj. Man.
Alan Lee (M282)	External Supplier - "Glentorn"
Nick Houseman (M284)	External Supplier - "Westcliffe UK"
Bill Purse (M285)	External Supplier - "Glentorn"
Richard Basin (M273)	External Supplier - "Isis""
Gary Harkin (M278)	External Supplier - "Go Group"

Lionel Olsen (M214)   LiteCo Century Project

Gabi Verity (F277)   External Supplier - "Force UK"

Henton Ampile (M272)   External Supplier - "Force UK"

Uri Anders (M276)   External Supplier - "Force UK"

Mika Walters (F275)   External Supplier - "Force UK"

(M225) Thanks for coming. Great to welcome you guys from Force, Isis, Go, Glenton, and you Nick, from Westcliffe … I know you've only just got back from the States and it is appreciated you are here …
(Socialization), (Informality), (Lack of formal introduction).

***   ***   ***   ***

(M279) "The question of ownership of the Entry Card … we really should be ensuring we have ownership, and we would need to set out our objectives quite clearly to ensure we achieve these goals" …
(Knowledge, Goals and Objectives)

***   ***   ***   ***

(M272) "Once we'd got that point across to the other companies and LiteCo, then we need to identify precisely what we need to know and where to get it. This is a high level decision with LiteCo".
(Knowledge Identification).

***   ***   ***   ***

(M272) "Let me make it clear, what I've been thinking about has to be translated into some form of common approach … that's why I came here today, to tell you about my ideas … I'll work off the flip chart if I may, just to let you see what I'm thinking, okay, first thing is …"
(Externalization)

***   ***   ***   ***

(M284) "Look we've already done all this in the States, we've got all the breakdown costs for trials here as well, so if you like I'll get them over to you, in confidence of course … wouldn't want them going walk-about, but I think you'll find them proving what DP has been saying …"
(Knowledge Sharing)
Significance RQ8 knowledge sharing

***   ***   ***   ***

(M225) "And could we circulate that to others in the team".

(F275) "If you think it would help, but it is our property at the moment … so we wouldn't want it going anywhere for re-design …"

(M225) "No, no, no, no way … rest assured …"
(Knowledge Transfer) (potential "leaking")

***   ***   ***   ***

(M282) *The matter of 24 hour call. Issues of verification and clarification would need to be established.*
(Objectification)

(M225) *"Could we assess the potential impact of total breakdown in trial and final stages and then make that the universal … for every trial …?"*
(Knowledge Assessment)

<p style="text-align:center">***   ***   ***   ***</p>

(M281) *"Once we have that, we would need to make sure it was okay, for everyone, you know … how useful it is"*
(Knowledge Assessment)

<p style="text-align:center">***   ***   ***   ***</p>

(M214) *"We could look at past protocols and use them as a start-off point".*
(Protocols) (Learning from Past Experience)

<p style="text-align:center">***   ***   ***   ***</p>

(M273) *"Once you've done it could you look at planned and actual, and look at where the holes are, you know, where we are slack, how much over we are in terms of time and cost …?"*

(M225) *… would do this on every trial, I mean I'll raise it in review with M.S., but if you want the variances, I'll get them to you after each trial …"*

(M273) *I would, yeah, cos then I can reassess.*
(Gap Analysis/Reassess Objectives) (Knowledge Assessment)

<p style="text-align:center">***   ***   ***   ***</p>

(M279) *"This clearly demonstrates that LiteCo are in control of their staff and suppliers".*

(M280) *"We don't want the dog wagging the tail … (much laughter). (This was a reference to an earlier statement where customers were described by one manager as "dogs who needed to be fed bones").*

(M273) *"This also makes it easier to control our own people and contractors coming on sites … contractors may not be aware of "out of date" situations until they turn up on site.*
(Control/Power)

<p style="text-align:center">***   ***   ***   ***</p>

(F275) *We want to be associated with this group …*

(M276) *I want to be in at the start, and be there at the end …*

(M280) *I've got to get away tonight, but I wish I could stay, cos there's a lot of good things going on in this group …"*
(Identity)

<p style="text-align:center">***   ***   ***   ***</p>

(M280) *Keep me in the loop …*
(Participation)

<p style="text-align:center">***   ***   ***   ***</p>

(M225) *"Will you drop me a line as soon as this is ready …"*

G.L.   *Sure, soon as …*
(Communications)

***   ***   ***   ***

(M279) *"If I remember correctly ESA have put in a number of Mifore systems, like Nottingham, and the South Wales SWIFT project … I'm sure that's why they got their ITSO compliance so early …"*
(Know Why/Memory)

***   ***   ***   ***

(M284) *"It was ESPA … I used to deal with them on the Bracknell system …"*
(Know who)

***   ***   ***   ***

(M225) *Those of you who are not in a rush to get away, we've got a table booked for six o'clock, and you would be welcome to join us.*
(Socialization)

***   ***   ***   ***

G.L.   *Okay everybody, have a think about what we have agreed today and for each of you what you have agreed to do … just go over it in your head for a moment, before we get this in document …*

Long pause …

(M284) *I've just had another thought, why don't we get the material from Samsung and Wayfarer and see how our system compares to theirs …*

(Group agreed)

(M284) *(Later), that point that I made about Wayfarer, it just came out as we were sitting there, you know at the end staring out of the window … Wayfarer have already got all this … and it just came to me that they would in all likelihood share it with us …*

G.L.   *So it was worth missing your train for …!!*

(M284) *Absolutely, normally everyone just rushes off, but it was interesting how many stayed behind to talk …*
(Internalization) (Serendipity)

8.4   Stage 4 : Leaving The Field

Preparing for Culture Change within a Community of Asset Managers in "LiteCo"

This vignette shows a community of Asset managers preparing for a major

culture change within their organization. The culture change took place against

economic and financial uncertainty around the future of their organization.

Prospective partners who had originally intended to merge with "LiteCo" had reached a delicate financial position. There was much uncertainty about the future of jobs in the organization and contracts to engage in new work were being delayed. There was much uncertainty about sources of funding for the new merged relationship, and a "blame culture" was developing as executives in the proposed merger began to justify alternative arrangements.

The Asset managers described their transition from the old company structure to the newly formed merger organisation as a "transfer". They had discussed various issues, virtually, for many weeks and were now coming together at a facilitated workshop to decide the most appropriate ways to "transfer" from their old arrangements to their new arrangements.

Researcher/Facilitator : Geoff Lawday

Key Information

(M280)	Brian Sale	:	(LiteCo : Project Manager)
(M291)	Steve Cross	:	(Asset Manager : London)
(M294)	James Gray	:	(Asset Manager : London)
(M293)	Stephen Golding	:	(Asset Manager : Swindon)
(M296)	Steve Bunton	:	(Asset Manager : Swindon)
(M283)	Kris Greville	:	(Asset Manager : Birmingham)
(M297)	John Rainer	:	(Asset Manager : Birmingham)
(M295)	Dave Steele	:	(Asset Manager : International)
(M292)	Roy Gopel	:	(Asset Manager : International)

(M280) Need a different style of facilitating … preparation for transfer … old world to new world … need to know what we know … where are the gaps in our knowledge? … need to get some actions to fill the gaps … some new world thinking … if we are good, we will shine …

We all need a personal survival plan, both individual and collective. What are the next steps and when do we transfer … all around we need a bit of honesty and some mutual respect.
Significance : RQ6 appropriateness of action.

(M292) *Brack drive down prices, this means lower quality and a knock-on effect on contractors. Brack don't get where they are by doing shoddy work … they are high quality but only work to contract … the scope is what you see is what you get … this issue of "down-scoping" … is this a reality? We may not be so hot on variations in the contract from now on … the goal posts will shift … we will go backwards …*

(M294) *Don't really know anything about Tober. Will they be sharper on delivery? We will certainly have to improve on meeting dates … meet the clients targets … a (Anon) don't deliver on time and that's a problem … so from now-on-in its gonna have to be the same hymn sheet … hope we help each other … need some clarity. Tober are they into cost cutting … are they fiercely competitive, what about shoddy work.*
(Reflection on Action)

(M293) *Its been a voyage of discovery with LiteCo. The company disposition towards staff morale regarding the future which is very uncertain. We need to be sensitive to low morale … still don't know what LiteCo's perception is to contracted work and legal obligations. Everyone needs some assurance … there will be lots of storms.*

Don't wait to be told … tell them ourself … we will need to identify and propose actions on issues which inhibit progress. We have to decide how we overcome problems … set out a proposal … ensure xxxx(anon) and xxxx(anon) are not split up … therefore identify an approach to overcome difficulties. Everyone is worried, all our jobs are on the line … we need to hold the line.
Significance : RQ12 culture of CoPs.

(M296) *We will have to have a clearer idea of the organizational changes, and how they will affect the way we work. We are not compliance policemen, so we'll have to discuss with consensus why in the past we have been prepared to cut corners to achieve cost savings, the transition period will be critical.*

(M283) *Its important to understand how we have got where we have got … we have to address the good and the bad experiences and translate them into direction, strategy, options. This is the way we work in the future, in the new world.*

(M297) *We are on the cusp of a large change … we need to make sure our survival kit is intact … there are lots of them things we can do. Some of the Innovation Engineers will have to go somewhere else.*

Lots of new people … need to get to know them … in the past we've had little personal contact … it will be interesting to see the relationship between asset managers and the innovation team in the new world.

> Sure, lets reflect on our successes, but lets not wear the hairshirt … don't dwell on the past … listen to the objections and problems with honesty, and show some integrity.
> **(Reflection on Action)**

(M291) Its gonna be important to focus on the positive … bring out the key points that we want people to do … give them bullet point summaries of actions, who, what, why, by when … so everyone is committed to those actions.

(M293) I've decided to have more face-to-face contacts with my Innovation Engineers … which I don't do enough of. There are a lot of things that we need to establish fairly soon, especially that of identifying shared objectives …

(M297) I haven't decided yet which parachute I'm going to use …

> We are all pretty bad at employing conflict management techniques and that's something that we need to rectify …
> **(Reflection on Action)**

(M283) I'm going to improve the quality and regularity of my meeting with Steve … we don't always see eye-to-eye, but it might be better for all our people if we did at least try.
Significance : RQ5 interplays of tensions.

(M295) The issues that demonstrate the team have to be addressed … we don't really get into root cause analysis, and so we tend to treat the symptoms rather than the cause … and of course it never really goes away … people do get demotivated, especially when the future is unclear, but we have the power to challenge … to ask the difficult questions and not be fobbed off by some dumb-arse answer …
(Problem Solving)

(M296) Personally, I think that confronting difficult issues face-to-face will be high on my list of things to do.

> Its been too easy, as has been experienced so many times before … to send off a quick e-mail without thinking about the impact of that mail … even though the person receiving it is over the other side of the room, I've still sent the e-mail because its safe, impersonal, and avoids having to confront the person face-to-face, but face-to-face is what we have not done in this team … we have to book rooms to have meetings and the easy option is to have then virtually, which doesn't work, especially with difficult issues.
> **Significance : RQ2 structural components.**

(M280) I'm, going to stretch myself a bit more. I think that in the past I've been a little too soft with my teams, and my immediate bosses … this brings its own pressures, usually on me … so from now on its going to be more tough and less tender … I'm going to press for solutions.

(M292) I'm going to be expressing benefits a little more clearer in the future … in the past I've got things done with my guys by talking about objectives and features … but they often didn't really know how to translate that into 'what's in it for us'.

The need to 'sell' ideas is not just about the what … its about the 'what's in it for you' … so I need to … to … be … erm … more focused on the benefits and work back from there.

***   ***   ***   ***

8.4.1   Reflective Observation

Narratives in organizational inquiry and knowledge work take many forms, (Gold, Holman and Thorpe 2002). Narratives deal with the vicissitudes of human intentions, (Bruner 1996), and connect modes of knowing with modes of organizing. They can be seen as ways of enacting reality, giving existence to things and events and organizing the world : narrating is organizing. (Czarniawska 2003).

The use of metaphor in conversation has been recognized by many as significant speech acts, (e.g. Lakoff and Johnson 1980; Tsoukas, H. 1991; Perren and Atkin (1997); Doyle and Sims, 2002). This short vignette is significant for the way in which metaphor is used as a means of straddling different boundaries such as language and thought; past reflection – future planning; hopes and fears; rational and irrational thinking; semantics and pragmatics.

The vignette shows an extract from their workshop, and captures the mood of the community as it prepares to conclude the final planning for the transition from "old world to new world" : old leadership to new leadership.

The extract is considered significant for the high number of metaphors-in-use used by members of the community at that time, as they try to make sense of an uncertain future.

<u>Metaphors-in-Use</u>

old world to new world
new world thinking
if we are good we will shine
personal survival plan
drive down prices
may not be so hot
what you see is what you get
the goal posts will shift
we will go backwards
sharper on delivery
the same hymn-sheet
voyage of discovery
there will be lots of storms
jobs are on the line
we need to hold the line
not compliance policemen
cut corners
on the cusp
survival kit is intact
lets not wear the hairshirt
which parachute I'm going to use
don't always see eye-to-eye
treat symptoms rather than cause
stretch myself a bit more
been too soft
more tough, less tender
need to 'sell' ideas

8.5   Discussion

The chapter describes four cycles of activity in an action research project.

The first stage was significant for the tensions that arose as a result of
attempting to generate a formalised innovation offering. It would seem that
attempting to 'manage' the CoPs structures creates some degree of resistance
on members attitudes, and that where loose structures were encouraged, these
appeared to have greater sustainability. This stage also highlighted the fact that
for some workers, 'membership' in the workplace had a different personal
significance for some than others. In LiteCo, agency workers and permanent
staff saw membership of the community in different ways.

The second stage was significant for the insights into how problem solving activities developed when project-based teams were able to play an integrated part in strategic management initiatives and engage in cross-project knowledge transfer.

The third stage was significant for the importance of mutual trust building between clients and customers, where a sense of belonging and increased comprehension developed through face-to-face activity and project knowledge sharing.

The fourth stage was significant for the impact of strategic reorganization upon specific parts of the LiteCo communities, and reflected the ability of key managers to resolve potential conflicts through reflective practice.

The chapter has demonstrated how evidence for my research questions have been gathered.

In the next chapter, interplays of tension are considered in a specific worked example, providing evidence of data gathering and analysis leading to co-constructed outcomes.

Fig. 8.1 : Knowledge Flow Processes : Emerging Categories and Data Clusters, reordered by a group at "LiteCo".

Chapter 9

"Harleywide" : Interplays of Tension Within a
Project Community : A Worked Example

This chapter complements the phenomenological insights and lived experience

of consulting in communities of practice, demonstrated in previous chapters.

The purpose of this chapter is to provide, by way of a worked example, the use

of qualitative textual analysis using various coding processes. The data

collection and data analysis took place in the early phase of a multi-party project

mediation where the lived experiences of each party assisted in identifying

issues for dispute resolution. This chapter refers to one party ("Mike Fisher" :

M117) in the dispute. Coding refers to the process of analysing data.

The main stages of the interpretive process were :-

9.1   Stage One : Assembling, Summarizing and Packaging the Data

9.1.1   Initial scoping of the data.
9.1.2   Obtaining interview data and learning style profiles.
9.1.3   Undertaking transcript analysis.
9.1.4   Initial coding.
9.1.5   Undertaking data item reorganization.
9.1.6   Identifying enablers and disablers.
9.1.7   Respondent verification.

Stage Two : Reconstructing the Data with the Respondent

9.2.1   Aggregating the story.
9.2.2   Using theoretical memos.
9.2.3   The Conceptual Mapping Process.

Stage Three : The Conceptualization of the Problem

9.3.1   Significant episodes/events.
9.3.2   Cognitive mapping.
9.3.3   Establishing propositions.
9.3.4   Considering culture.
9.3.5   Considering relationships.
9.3.6   Considering identity.
9.3.7   Testing of the working hypothesis.
9.3.8   Transition period.

Background to the Project Mediation (Phase 1 : 6th October - 9th December 2005)

The first phase of project mediation began on 6th October 2005, after the "Harleywide" Project Director "Mike Fisher" (M117) highlighted that his engineering project management company and some of the contractors he employed were experiencing problems with one of his clients (STC) over a multi-million pound project. Mike indicated that the project was falling badly behind time, costs were escalating, and relationships were deteriorating fast.

Mike described how the overall project team, his company as the project managers, the contractors, and the client organization "that was once so cohesive as a project community", (his words), had deteriorated into a conflict laden series of tenuous relationships.

9.1   Stage One : Assembling, Summarizing and Packaging the Data

During our initial conversation on the telephone I took copious notes, and asked Mike to describe the situation that he believed existed with his client, Spry Technical Corporation (anon. STC)

9.1.1   Initial Scoping of the Data

My notes of our conversation revealed the following statements, emotions, opinions, attitudes and beliefs from Mike.

> *"… the whole project team is imploding …"*
> *"… relationships with STC and ourselves have reached rock bottom …"*
> *"… I believe they are looking for a scapegoat …"*
> *" …I'm worried some of the contractors will walk … (away)".*
> *" … we used to discuss everything, … every little fucking detail, now we don't discuss a thing …"*
> *" … all the project deliverables have been thrown up in the air …"*
> *" … the responsibility on our side is mine … it is really getting to me …"*
> *" … STC don't answer my calls …"*

> *" … we have whole teams sitting around on site waiting for instructions and they (STC) are not prepared to make a decision … the costs are spiralling out of control …"*

> *" … we've had low-loaders setting out from Swindon and arriving at Dagenham, only to be turned around and told to go back because STC had no documentation for them … you could not have imagined that three years ago at start up …"*

> *" … I'm worried that 'Chip' Gold will take his team from Turnpike and just pull up sticks and abandon the project …"*

> *"I'm feeling very demoralized about the whole project, you know, not sleeping … making stupid mistakes …"*

This initial data, and my notes of our telephone conversation helped me, as a researcher, to begin to frame my research question about the situation at S.T.C. This problem, although initially described by Mike as his own problem was affecting multiple lives, various organizations, different companies, and various communities. These were the interplays of tensions within the project community and Mike desperately wanted them resolved.

Becker (1986) emphasises that the focus of interpretative research is always on "how people do things together", whilst Denzin (1989) suggests answering "how" questions by going to concrete situations where persons interact. Further, Silverman (2001 : 297) argues that one's initial move should give close attention to how participants locally produce contexts for their interaction. By beginning with the question of 'how', we can then fruitfully move on to 'why' questions about institutional and cultural constraints. I wrote down a preliminary one line single statement :-

> *"How have relationships in the STC project community deteriorated so quickly?".*

This framing of an initial research question constituted the first step in the interpretive process. Much of the time, as I was working in this process, I was also asking "how is this happening here?".

10th October 2005 : I received a large file of confidential project notes from Mike which contained minutes of all the STC project team meetings since its inception.

The minutes were useful data for me in understanding different perspectives on the situation within the project team, particularly as they were drafted at different times by different companies who comprised the project community.

I correlated some of my interpretation of Mike's comments with events and decision points in the project team minutes. From the minutes I set out a time-line chronology of critical events. I invited Mike to meet me on November 1st 2005 in Luton which was a convenient geographical midpoint for both of us. The request letter set out the terms of the research project into the project community and requested a tape recorded semi-structured interview. Mike agreed.

9.1.2   Obtaining Interview Data and Learning Style Data

From this point on Mike and the data that he generated became anonymized, and Mike was assigned the code of (M117). I prepared a number of key areas that I intended to cover with him. These were summarized in my interview guide (Appendix 4.2). Respondent anonymity and respondent coding enables others to work with the researcher on the data, with an assurance that the real identity of the person can be protected.

1)   The researcher requested a meeting with the respondent (M117). (See Appendix 4.1).

2)   A semi-structured interview took place based upon a pre-prepared interview guide, (See Appendix 4.2). The interview was audio-recorded, transcribed, and anonymized. (Appendix 4.3.1 – 4.3.10).

9.1.3   Undertaking Transcript Analysis

3)   The interview transcript was read and re-read by the researcher for significant events, variables, leads, recurring phrases or common threads in the informant's account. Significant leads were numbered on the transcript and highlighted to emphasise their significance.

4)   As an example, on page one of the interview transcript, (Appendix 4.3.1) fifteen leads were identified. This process was repeated throughout each page of the interview transcript. Each lead represented a data item.

5)   Following completion of the lead identification for the whole interview, an interview transcript analysis was undertaken which indicated the number of data items within the interview, (Appendix 4.4.0).

6)   Each data item was separated into data strips from parts of the interview text. This had the function of reducing large amounts of text data into a smaller number of analytic units. From the interview with M117, the ten pages of interview text was reduced down to 125 data items in total. (Appendix 4.4.0).

9.1.4   Initial Coding

The researcher deconstructed the interview data from pages of transcribed text into a series of discreet events, happenings or statements. These events (data items) were part of the early stages of coding, sometimes called Open Coding

(Strauss and Corbin 1990), where the process of breaking down, examining, comparing and categorizing the data took place. The aim of coding is to open up the inquiry. During this stage, conceptual labels were assigned to specific phenomenon and the concepts compared against one another. The concepts became grouped together in a higher order through data item reorganization, and into clusters. The process of open coding allowed the researcher to add properties and dimension to each cluster and to make comparisons between them.

7)   The data strips were physically reorganised into small clusters where similar leads or variables appear to be grouping around common issues or events. These groupings or clusters were organised into hub-and-spokes patterns where each data strip represented an individual spoke. The physical area where the clusters of data strips were reorganised now resembled a mosaic of hub and spoke patterns.

Cluster A

7/01 letters on file.

7/02 not happy.

7/03 awkward position.

7/04 go to chairman.

and Cluster P

7/05 demolish relationship.

7/06 frustrating working with him.

and <u>Cluster X</u>

7/07 exposing company to risk.

8/05 attitude to risk management.

Each cluster of data items was assessed and given a title and identification number or letter which represents the hub of the cluster.

For Cluster A = "Defensive Positioning".

    Cluster P = "Strains in Relationship"

    Cluster X = "Risk".

The hub and spokes patterns (clusters of data sets), were grouped together physically and the process repeated until all 125 data sets had been reorganised into cluster patterns.

Looking for further evidence of emerging categories or themes within the data during this phase of deconstruction, required moving to a level beyond simply classification. Pattern coding enables the researcher to further understand recurrences, the similarities and differences, or what Kaplan (1964) described as "repeatable regularities". Pattern codes turn around four, often interrelated factors : themes; causes/explanations; people relationships; other emerging constraints. They are explanatory or inferential codes, ones that identify an emergent theme, configuration, or explanation (Miles and Huberman, 1994).

Bliss et al (1983) suggests that a visual network display of patterns helps to see how the components interconnect and further develops the researcher's conceptual framework. Lincoln and Guba (1985) calls this "discriminant sampling", where the patterns are explored in the next round of fieldwork.

9)   The clusters were then re-examined to see whether any further groupings, known as constellations, emerged. A constellation would be a group of hub and spokes clusters which could identify emerging categories of groupings or patterns. As an example from the M117 interview, data strips were organised into hub and spokes patterns, Cluster A (Defensive Positioning), Cluster P (Strains in Relationship), and Cluster X (Risk), had similar properties. The constellation now became an amalgamation of Cluster A (Defensive Positioning), Cluster P (Strains in Relationship) and Cluster X (Risk), and it was given a title or label which reflected its composition. In this example A + P + X are labelled "Contractors' Perception of Client Behaviour". Each constellation (shape) or category (title-name), was now be the subject of further analysis, either by the researcher alone, or with the respondent or with other parties in the project community.

At this stage the constellation (emerging category) was further analysed through mapping of the category for further interrelation of patterns. (This can be undertaken manually or with software such as Atlas/ti).

9.1.5   Undertaking Data Item Reorganization

10)   The whole interview data strips (M117) were manually mapped onto an A3 sheet, titled the "Data Item Reorganisation" sheet (Appendix 4.4.2). The data clusters (n=24) were now presented on a single A3 sheet and were used for an analysis of first-level pattern codes and categories by the researcher or with others (such as respondents/clients). The graphical display was not intended for closure but to form the basis for further analysis and verification.

From the example, 24 data clusters were labelled :-

a) defensive positioning
b) client distance
c) responsive action/activity
d) client protectionism
e) learning
f) information level
g) evaluation
h) client action/inaction
i) perception of client behaviour
j) client made changes
k) team cohesion
l) problem-solution focus

m) joint activity
n) culture/impact
o) knowledge sharing
p) strains in relationship
q) trust
r) client not forthcoming
s) reluctance to make decisions
t) team climate
u) clarity
v) openness hindered by client
     shortcomings
w) supportive/protective
x) risk

11)   The whole series of 24 data clusters, following further analysis, were

grouped into constellations or emerging categories. In the (M117) example,

there are ten emerging categories, some with more properties than others,

depending upon the respondent's initial replies or further verification responses.

From the example the ten emerging categories were :-

1.   Client behaviour and positioning
2.   Learning and Evaluation.
3.   Contractors' perception of client behaviour.
4.   Culture and Impact.
5.   Trust.
6.   Responsive-reaction/Action-Counteraction.
7.   Team Climate/Cohesiveness.
8.   Knowledge Sharing.
9.   Action by Contractor team.
10.   Project Clarity. (Project Clarity (Contract/Job Spec/Project Deliverables.

The data, now ordered into manageable emerging categories was explored in
another round of discussion and further data collection with the respondent. The
next step was to further reorder the categories into emerging themes, which was
initially the researcher's assessment and conclusions from the interview data.
The researcher explored the emerging themes with the respondent in order to
seek verification or explored the themes with others in a wider field. This
clarification pointed to more precise ways of verifying the patterns and
strengthened its external validity.

From the example, four emerging themes arise :-

        a)   Client Behaviour.
        b)   Cultural Impact.
        c)   Team Working.
        d)   Key Competencies.

The emerging categories comprising each theme were as follows :-

a)   Client Behaviour

- Client behaviour and positioning.
- Responsive-reaction/Action counteraction.
- Contractors' perception of client behaviour.

b)   Cultural Impact

- Culture and Impact
- Trust.

c)   Teamworking (Co-operation/Collaboration)

- Action by Contractor Team.
- Team Climate/Team Cohesiveness.

d)   Key (Project) Competencies

- Knowledge Sharing.
- Learning and Evaluation.
- Project Clarity.

The emerging themes represented what the researcher and the respondent

(following verification) agreed was going on in the case. Further explanations or

working hypotheses (working notes), were generated by seeking additional data

from the respondent in a further round of collection, either through direct

conversation, subsequent semi-structured interviews or examination of the

qualitative textual analysis sheets, (Appendix 4.4.3).

9.1.6   Identifying Enablers and Disablers

In this case (M117) the respondent was forwarded a range of documents for

verification, including the researcher's interpretation of what the respondent

considered to be :-

Enablers : (what worked, what helped, what assisted, etc., etc.), and

Disablers : (what didn't work, what was hindering, etc., etc.).

(See Appendix 4.5.0). The respondent was asked to comment on accuracy and

interpretation, and to reply in writing. The reply, once received was followed up

in further telephone conversations or subsequent fieldwork meetings. (See

Appendix 4.5.1).

The enablers and disablers were mapped alongside the existing data to enable

relationships to be graphically displayed, concepts to be described and the

relationships between them explored.

9.1.7   Respondent Verification

Mike returned the Interview transcript and had added some additional

commentary on the enablers/disablers documentation. At this stage, the

researcher had a number of data sources at his disposal.

1)   Telephone notes/memos of conversations between M117 and
            researcher.
2)   Researcher's initial research question(s) based on early M117
            discussion.
3)   M117 Learning Style responses.
4)   Interview transcript reconstructed into data strips (n = 125).
5)   Hub and spokes Data Item Reorganization network (24 clusters).
6)   Emerging categories (n = 10) linking data clusters to emerging themes.
7)   Emerging themes (n = 4).
8)   Enablers/Disablers (verified and adjusted by respondent).
9)   Interview transcript (verified and adjusted by respondent).
10)   Minutes of project meetings.
11)   Working notes of discussions and meetings between M117 and
            researcher during period 6th October 2005 and 5th December 2005.

The initial data collection at this stage, (once the respondent has verified and/or

commented upon the interview transcript and the enablers-disablers), was now

labelled with a main thematic category. In these early stages the summarizing

and packaging of the data was primarily undertaken by the researcher.

Four steps in summarizing and packaging the data had taken place at this stage. (From Denzin 1985; Patton, 1990).

(i)   Framing an initial research question.
(ii)   Deconstructing the phenomenon and past events.
iii)   Preparing a transition from the past to an analysis of the phenomenon in the present context.
(iv)   Undertaking phenomenological reduction where the researcher brackets out any pre-suppositions or prejudices (i.e. "STC are bad guys, Mike and the contractors are good guys") and prepares a tentative statement or definition of the phenomenon in terms of essential recurring features arising in the data. The tentative statement would later be summarized under a main thematic category, following co-construction with the respondent.

<div align="center">***   ***   ***</div>

9.2   Stage 2 : Reconstructing the Data with the Respondent

9<u>th December 2005</u> : I sought a further meeting with Mike to discuss the initial conceptual map that I had now reproduced on a large planning board. This meeting took place at my offices where all the documents and data were laid out for Mike and I to explore. Before Mike arrived I revisited the notes and memos from our conversations. I reviewed the summary of his Learning Style Questionnaire, familiarised myself once again with the full interview transcript, and the deconstructed texts and data strips on the Data Item Reorganisation sheet. (App. 4.4.2).

The use of the Learning Style data was based on "the learning loop", a concept that has emerged in different forms and research in studies of individual and collective learning. Consultants in organizational development draw upon the circular patterns of learning or learning loops that various theorists have developed over the past sixty years. (Dewey, 1938; Lewin, 1946; Kolb, 1976; Argyris and Schön, 1978; Schein, 1987; Nonaka and Takeuchi, 1995; Nonaka and Konno, 2000).

Learning style concepts have emerged from cognitive experiential learning (Kolb, 1976, 1984; Honey and Mumford, 1982). Kolb's Learning Style Inventory L.S.I., is commonly used in consulting practice, business schools and in organizational development contexts. It has been used to help describe individual learning and assist with problem solving processes. I had been using the LSI for a number of years, albeit as a way of representing initial learning orientations rather than the different dimensions to that of individual development. Gagne (1984) considers that using learning styles is a way to "set the scene" for understanding how individuals perceive their own preferences for learning, but may not be able to fully articulate it. Cuncliffe (2002 : 57), in her work on reflexive dialogical practice in management learning also uses learning style questionnaires to indicate how participants connect tacit and explicit knowledge.

9.2.1   Aggregating the Story : The Story and the Storyline

Mike brought further memos and letters from his contractors and we began the process of aggregating the data into a story, or what each of us described in a narrative about the central phenomenon encompassed by the main thematic category. We both attempted to conceptualize the story, moving parts of the data strips and emerging categories around until we were both satisfied that we had a conceptual map that reflected what themes and trends were represented in the data. As a researcher, I avoided "selling" Mike my analysis, but allowed him to come to his own conclusions based on our on-going discussions. We both agreed that the main overarching theme was the "Client-Team Relationship". At this time, I took extensive notes and drafted a number of theoretical memos.

9.2.2 Theoretical Memos

I preferred to code theoretical memo's under six separate categories,

occasionally extending this when circumstances dictated :-

*   initial, orienting, start-up etc. (IO).
*   new categories of the inquiry. (NC).
*   discovery/previously not considered. (Disc).
*   new thought directions/ideas. (NTD).
*   extending implication of existing concept. (EIEC).
*   Reflective Journal (my thoughts and my feelings). (RJ).

The whole data collection was allocated the main thematic category, in this

example, "Client-Team Relationship". The graphical representation allowed for

further exploration of the relationship of this main thematic category with other

concepts.

I discussed with Mike some of the key areas of knowledge transfer processes

that existed within the Knowledge Management literature (Blackler, 1992;

Beers, 1995; Nonaka and Takeuchi, 1995; Hanson, 1999; Hislop, 2003;

Probst, 2000; Wenger, 2000; Howick and Eden, 2004). We discussed the

Client-Team Relationship alongside four key areas of knowledge flow processes

within organizations and of relevance to the situation in his project community.

These were :-

i)   Social Processes.
ii)   Knowledge Sharing and Transfer.
iii)   Use of Knowledge (in this case knowledge of the commercial project).
iv)   Tacit knowledge, internalization and the respondent's sense-making.

Detailed notes were co-constructed and the linkages between the main thematic

category and the knowledge flow process explored and displayed in further

mapping exercises. Each linkage began as a story and then developed into an

initial conceptualization of that story.

<u>Social Processes/Client-team Relationship : (Discussion Notes : GL/MF
9th December (2005) : (Ref. M117, Narr. Box 2)</u>

Some members of the project team get on very well. Clearway (anon) people have a
good working relationship with Turnpike (anon). Roadstone are very friendly and co-
operative with all the others and invite them over to (their offices) regularly for informal
chats.

If I have a problem with J.E. (Johns Engineering – anon), I can pick up the telephone and
talk to Andy about anything. I went to his daughters wedding last June.

We had a problem over interpretation of the LRD spec. Turnpike, Roadstone and
ourselves had an awayday to thrash out the difficulties, but STC did not come along.
Colin cancelled at the last moment … didn't give a reason.

…… used to be very enthusiastic at the start ….. seem to have become reluctant to
socially engage. We rarely speak.

Unsure if Sandy Rowe (STC) rates 'Chip'. ('Chip' Gold at Turnpike) …… Unsure if they
rate me! (Mike).

……haven't had the time together to build up mutual trust ……

Roadstone have got a lot of expertise that would benefit STC, but they haven't asked for
it, and Ray (Dolder) hasn't offered it …… they never meet outside of the P.P.M's (project
progress meetings).

<u>Knowledge Sharing and Transfer/Client Team Relationship : (Discussion Notes :
GL/MF 9th December (2005) : (Ref. M117, Narr. Box 2)</u>

…… some of the contractors think they are in competition with STC …… but they are not
……

Turnpike and Johns Engineering meet on a regular basis.

…… some people think that the time pressure actually works against the exchange of
best practice methods and techniques ……
…… the motivation was there at the start, and now its dropped off. Can't really
understand why ……

…… some are better at exchanging ideas and solutions than others, and perhaps we
work to the lowest common denominator instead of the highest ……

"…… well oiled machine? …… Some are, some not …… well oiled, oh yes,
Don't know about the machine bit though ……".

<u>Use of Knowledge/Client-Team Relationship : (Discussion Notes : GL/MF
9th December 2005 : (Ref M117, Narr. Box 2)</u>

…… project has a lot of collective know-how that aint getting used ……
Nor is it being applied ……".

…… it's the same old routine …… doing things their way …… we do things our way ……
never do we meet ……

…… STC seem to have created barriers when they don't exist before …… culturally,
personally, operationally …… can't understand why.

What we learn at different phases, becomes a repeatable problem later down the line
…… not learning to use what we know we have already got .

PPM's (project progress meetings) are virtually sterile.

> …… between the contractors, ourselves and STC we have some very sophisticated systems for exchanging information and knowledge about the project, but we haven't fully utilized the benefits, or co-ordinated our activities ……
>
> The project team are not fully integrated within their respective organisations, it is like they are an adjunct to them. This means that sometimes vital information or processes get lost in the overall scheme of each companies operations.
>
> …… sometimes we are afraid to admit to each other that we really don't know how their MIS (management information systems) actually work ……
>
> They have accused us of having "unfriendly" systems, and we have done the same back to them …...

Tacit Knowledge and Internalisation/Client-team Relationship (Discussion Notes : GL/MF 9th December 2005) : (Ref : M116, Narr, Box 2 and 4)

> …… there is over 250 years of project management experience sitting around the table ……
>
> …… Turnpike and Johns have worked hard at dovetailing their activities together …… they seem to think alike as companies in the project team ……
>
> …… they rewrote some of their procedure manuals and harmonized them where they could …… both have benefited ……
>
> ……internet has provided so many opportunities for like-minded people to cross reference processes. Clearway and Turnpike, and to a lesser extent, Johns, have adopted similar proj/man. activities …… we have brought in too …… Harleywide held a meeting last year where some of our staff showed them our system, and within a day Steve Green (Turnpike) called back to say they had adopted similar parts of the system. We now have virtually identical processes, especially around the proj. databases.

For the researcher, the process assisted in providing evidence linked to a number of his original research questions.

For the respondent the process enables him to see the inter-relationships within a case, and how the case was analysed by people other than himself. In this example, the respondent was managing a complex engineering project where the relationships between clients, contractors and project-managers had become strained. The process helped the respondent to explore the degree of understanding that existed within the findings and what factors influenced that understanding.

9.2.3   Conceptual Mapping Processes Involved in Case (M117)

There were a number of concept mapping structures utilized within this case :

Hub and Spokes Structures : This is a radial structure in which all the related aspects of the topic are directly linked to the core concept (hub), but are not directly linked to each other. The data items that comprise the spokes of the structure often need to be analysed in terms of the relationship with each other, as well as with other spokes on other clusters. It helps if each cluster is separately examined and analytical notes made of the linkages to other clusters and their constituent parts. Pasting each cluster onto separate sheets enables first order linkages to be established. Seeing the overall relationship on the "Data Item Reorganisation" sheet enables relationships in the data to become more easily identifiable.

Chain : The linear sequence of understanding shows how each concept is linked to those immediately above and below it. This is often beneficial in seeing how a logical sequence of events arises from beginning to end, (in the M117 example, defensive positioning leads to strains in the relationship leading to growing risk aversion). However, the researcher needs to guard carefully against the hierarchical nature of many of the links, since the data clusters are unlikely to have equal weighting, and emerging categories themselves are often highly inter-related, and may not necessarily be linear.

Network : A network is a highly integrated and hierarchical structure that enables the researcher to journey up and down the ladder of analytical abstraction and to acquire a deeper understanding of the topic. The network example given in Case (M117), which in itself is an amalgam of hub/spokes, chain and network, does not require the same architecture for each case. Each

case was considered unique and so was its architecture. Detection of similarity and difference, patterns and themes, relationships and trends, warrants an individual architecture. The researcher was working with the respondent in developing and testing propositions to construct an explanatory framework through synthesis and conceptualization, and contextualizing how experiences alter and shape the essential features of the process. If the architecture can be co-constructed with the respondent (where the viewer creates the data and ensuing analysis through interaction with the viewed), the construct validity of the research is improved.

<p align="center">***   ***   ***</p>

9.3   Stage 3 : The Conceptualization of the Problem

From the researcher's position the process of contextualization was to take what has been understood about the problem, or phenomenon, and work with the respondent to fit that knowledge to the social world of the project community where it occurred. I had become part of that project community in the sense that I was working with Mike on the inside, talking to and liaising with some of the other members of the project team, and eventually all the parties. I could not be anything other than part of the interpretive process.

My interpretations and Mike's interpretations became intertwined as we discussed and debated how each aspect of the project community affected Mike's lifeworld. We both shared personal experiences and discussed various projects that each of us had been involved in where things had not gone smoothly. We told stories and exchanged jokes about the difficulties. We identified respective milestones in our careers which impacted upon the way we were viewing the current problem.

My journal note for that meeting summarized my thoughts :-

During this afternoon, just after we had returned from lunch, I sensed that Mike had become almost relieved that he wasn't the only person who had problems in managing complex projects. I got the feeling that he had previously been 'demonizing' Sandy, Colin and Len (STC executives), when it might have been more advantageous to them all if he had tried to build bridges.
(Reflective Journal Notes : 9th December, 2005).

Mike and I had compared and synthesized the main themes of the relationship within the project community.

I had asked Mike to 'model' how he thought the other members of the project team would interpret some of the issues we had raised. We also discussed and visualized through conceptual sketches and maps, what current project team meetings might be like as interpreted by :-

    i)   Mike.
    ii)   Each contractor representative.
    iii)   The three STC executives (individually and collectively).

Mike wrote down a lot of detail, context and some of his emotions and feelings. His account of events and the situation went beyond facts and surface appearances of the project community. Emotionality and self-feelings played a part in Mike's thick descriptions (from Geertz 1983), as he contextualized his experiences in the project community. At the same time as Mike was writing his descriptions, I did the same, and although mine was nowhere near as comprehensive due to limited involvement, it gave us both a chance to give our interpretations of the interactive practices, communications and actions of the people in the project team. We had explored the process of action and interaction sequences and some of the unanticipated events that arose in the project team. (Mike called these "curved-balls").

I took a lot of interest in the detail of the verbal and non-verbal language that

Mike used during those meetings on that day, and what he concluded about the

opportunities and constraints created by communication for the project

community. (See Gergen, 1985; Burr, 1995).

From my journal note of the same day :-

> *Today was the first time that I heard Mike say that he took some of the*
> *responsibility for his own behaviour and some of the problems that*
> *existed in the project team. The culture and the relationships in the*
> *PPM's have been described in a different way with Mike at the centre of*
> *some of these issues rather than on the sidelines.*
>
> *Where previously at times he showed some discomfort in addressing*
> *many of these issues, today he seems quite willing to confront them and*
> *his own role in them.*
> (Reflective Journal 9th December 2005).

There were four areas I agreed with Mike should form the basis of our agenda

that day :-

1. Explore significant episodes/events within the community to determine
   how they relate.
2. Explore the culture of the project community.
3. Examine the relationships within the community.
4. Explore Mike's perceived identity within the community.

Towards the end of our meeting I invited Mike to revisit our agenda and to

develop some propositions or working hypotheses, that would summarize the

whole of our discussions and explanation of the data into one explanatory

framework.

9.3.1   Significant Episodes/Events

A number of significant episodes or events within the lifetime of the project

community were explored. Each one was personally and commercially sensitive

for Mike, but the process of using a Conditional Path was employed to examine

the factors within each event and determine the relationship between them. A

Conditional Path (Strauss and Corbin 1990) is the tracking of an event, incident or happening from action/interaction through various conditional and consequential levels in order to directly link them to a problem or a phenomenon. Tracing conditional paths helped to put parameters around each issue, and avoided becoming sidetracked by other non-related conditions.

I used Conditional Paths with Mike as a way to explore with him the composition of the episodes themselves in terms of communication; affect/feelings; his interpretation viz what others' interpretations might be; and action within the episode.

9.3.2 Cognitive Mapping

Cognitive Mapping has had a variety of interpretations in practice (Axelrod, 1976; Huff, 1990; Eden and Ackermann 1998) and is sometimes used as a model of 'thinking in action' through paying attention to 'theories-in-use' rather than espoused theories (Argyris and Schön, 1974). The map seeks to represent some of the beliefs, values and assumptions of a respondent's construct system modelled through the constructs (nodes) and linked by chains of action (arrows).

> "meaning is given to a construct not only by its content but also from the consequences attributed to it, and from the explanatory constructs that support it, (the belief chain) ……" (Eden and Ackermann 2000 : 95).

The theoretical basis of cognitive mapping owes its origins to Kelly's (1955) Theory of Personal Constructs, where 'man as a scientist continually checks the sense he makes of his world by using his current understanding (construct system) to anticipate and reach out for the future' ……

During my conversation with Mike during the mapping session, I occasionally asked him to reflect on "what action is required here?". The action-oriented

concepts assisted him in developing his working hypotheses/propositions and what action could arise from them. For many people mapping can be a relaxing creative exercise, and a cathartic experience where tensions can be reduced or released and translated into future actions.

His initial maps were not conceptually complex, but provided him with an opportunity to articulate through the schema, what he had been thinking about in terms of the relationships between the six companies within the project community, and his role in the relationships with them.

The purpose of illustrating the maps (anonymized and with some personal and commercial sensitivity removed), is to provide an indication of form rather than content.

Legend : HW = Harleywide (M117's project management organization).
           STC = Spry Technical Corporation (|Harleywide client).
           CW = ClearWay (Design Consultancy).
           JE = Johns Engineering (Steelwork fabricator).
           TP = Turnpike (Engineering Consultancy Group).
           RS = RoadStone (Infrastructure Company).

9.3.3   Establishing Propositions

Mike spent the last hour of the day reflecting on the significant episodes, and the discussions we had in terms of culture, relationships and identity. The context analysis helped the interpretation of communications, and the communications helped with the interpretation of further contexts. Mike drafted twelve initial propositions :-

9.3.4   Considering Culture

(C1)   Although we spend a lot of time together on this project some of the actions that take place in the project team led to mistrust between us.

(C2)   Overall, there is a preference for collaborative relationships within the project team, but ultimately we end up being competitive.

(C3)   The culture within the project team has become one of opportioning blame rather than finding root causes of on-going operational problems.

(C4)   Project team members have avoided sharing and transferring project knowledge for a variety of reasons.

9.3.5   Considering Relationships

(R1)   Relationships between project team members have deteriorated over the lifetime of the project.

(R2)   The responsibility for the quality and effectiveness of the project team rests with all participating organizations, but ultimately is the responsibility of Harleywide and me (Mike Fisher) as Proj. Man.

(R3)   The deterioration in relationships between the Project Manager and some members of the Project Team has prevented the development of expertise amongst all the team members.

(R4)   Lessons learned are not formalised and tracked across the project phases.

(R5)   The agendas of the PPM's are too rigid and do not allow enough opportunity for members to reflect their creative talents.

(R6)   Utilization of "what we know" is not properly co-ordinated amongst the project team members.

9.3.6   Considering Identity

(I1)   Roles and responsibilities of all project team members are not clear and need to be redefined.

(I2)   My role (Mike Fisher) needs clarification, and where necessary, renegotiated with project team members.

9.3.7   Testing of the Working Hypotheses (Propositions)

Mike concluded that one of the next series of actions he intended to undertake

was to visit each of the individual members of the project team and share with

them the initial working hypotheses he had formulated. He met with the

contractor organizations on a fairly regular basis anyway, but his main

consideration was to re-establish a relationship with the three principal Directors

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of STC, in terms of the project itself and the project environment in which they were operating. Mike concluded that the days running up to the Christmas period 2005 would provide an ideal opportunity to establish those meetings.

Mike and I finished our meeting on 9th December 2005 agreeing that we had drawn together a number of useful conclusions and he was confident that our interpretations had been conclusive. We agreed, however, that our interpretation was far from finished, certainly had not been exhaustive, and that there were undoubtedly other factors that would shape the situation within the project community. We agreed : interpretation is never finished.

9.3.8   Transition Point

Our meeting on 9th December 2005 represented the end of the phase between myself and Mike Fisher, following his request to help him resolve some of his difficulties.   What happened in this phase was more about assisting Mike to identify his own reality and relationships through an examination of the circumstances and contexts created by the texts. Creating the conditions for dialogue about the contexts took priority over trying to find a solution for Mike. This phase, spread over nine weeks of data collection and interpretation was the opening to further phases where the consultant/researcher was invited to work with the contractors as a community group, and later to eventually involve the client organization, STC, into the project mediation.

9.4   Discussion

This case illustrates the data collection and interpretation processes used by the consultant in the later stages of his research timeframe.

It emphasises the processes and interactions with a respondent in exploring the world of lived experience. The interpretations illuminated the phenomenon of managing complex relationships in a project community built up out of events and experiences that were described in detail. These thickly contextualized materials were the result of locating the respondent's experience during the situation, and attempting to reflect the respondent's point of view rather than that of the researcher.

Theoretical sensitivity, involving the subtleties and meanings within the data, was developed on the researcher's part by influences from the literature on Communities of Practice, Knowledge Management in project environments, professional experience through consulting in organizational change projects, and personal experience of working with individuals, groups and teams. The analytic process, involved in collecting and asking questions about the data took place over three levels.

1)   Assembling, Summarizing and Packaging the Data :-
       1.1   Framing the research question.
       1.2   Deconstructing the data (and past events).
       1.3   Establishing frameworks of interpretation linked to the present.
       1.4   Phenomenological reduction and establishing patterns.

2)   Reconstructing the Data with the Respondent :-
       2.1   Identifying themes, trends and relationships within the data.
       2.2   Reassembling after making connections between categories and themes.
       2.3   Identifying core categories and establishing central themes within the phenomenon.

3)   The Conceptualization of the Problem :-
       3.1   The cross checking of tentative findings with the respondent through the process of contextualization and dialogue.
       3.2   The development and testing of initial working hypotheses (propositions) with the respondent and the synthesis of all the available data into one explanatory framework. The respondent would further test the working hypotheses with others in the project community.

The empirical grounding of this case is emphasized in a number of ways :-

(a)   The materials illuminate the phenomenon as the lived experience of the respondent (Mike).

(b)   The way interpretations are built up from the events and experiences of the respondent.

(c)   There is process. (Levels 1, 2, 3).

(d)   There is interaction. (Meetings, Dialogue, Conversation).

(e)   Concepts were generated, primarily by the respondent himself.

(f)   Data had been respondent verified, as the basis for the early reconstruction of the interview text.

(g)   Concepts are systematically related and linked to verified categories.

(h)   There are a range of variations and consequences within the working hypothesis.

(i)   Process, including stages and phases, had been taken into account, including the linking of action and interaction, and a consideration of contingency of unanticipated events.

(j)   The theoretical findings are significant and are in alignment with other organizational learning practices in project management environments. (Kotnour, 2000; Kululanga et al, 2001; Howick and Eden 2004; Love et al 2005).

(k)   There has been reflexivity on the researcher's part, including sensitivity to the ways in which the researcher and research process have shaped the data.

9.5   Conclusion

This chapter has demonstrated through a worked example, the use of qualitative data and how that data has been used to emphasize the subjective interrelationship between the researcher and the participant, and the co-construction of meaning.

The data collection can be described as inductive in that the researcher had no preconceived ideas to prove or disprove about the case, but that the issues of importance to the participant (M117) that emerged from the conversations, interviews, and stories he told, were also of interest to the researcher.

The data was analyzed by constant comparison through a series of stages, developing theoretical sensitivity through the act of constructing from raw data to a co-constructed framework based on actions/interactions, categories, themes

and conceptual mapping. This interaction between researcher and the participant, brings to the fore the notion of the researcher as author. It is not the data which provides the window on reality, but the interactive process and its temporal, cultural and structural contexts which go beyond the surface and seek tacit meanings about attitudes, values, beliefs and ideologies. It is this interaction between the researcher and the participant that produces meaning from the data, whilst enabling the participant's experiences to be presented as readable theoretical interpretations.

This tension between producing a conceptual analysis of the participant's lived experience and still creating a sense of his presence in the text is demonstrated within the chapter.

The following chapters show how different participants' experiences and the researcher's understanding help to shape the overall interpretation of the data, assist in the development of both research-constructed and co-constructed models, and produce conclusions from the interpretation of the data gathered within the inquiry.
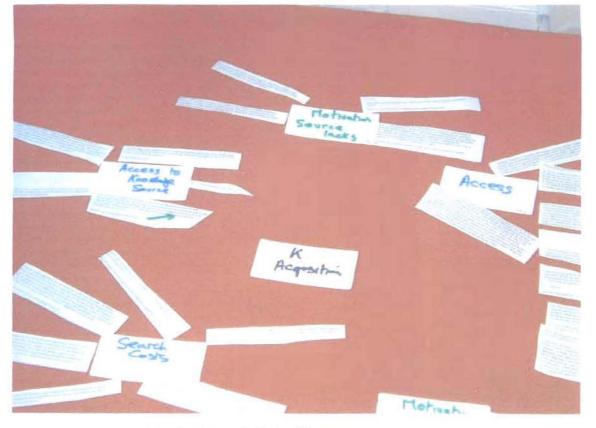
Fig. 9.1 (above) : Data Strips and Data Clusters

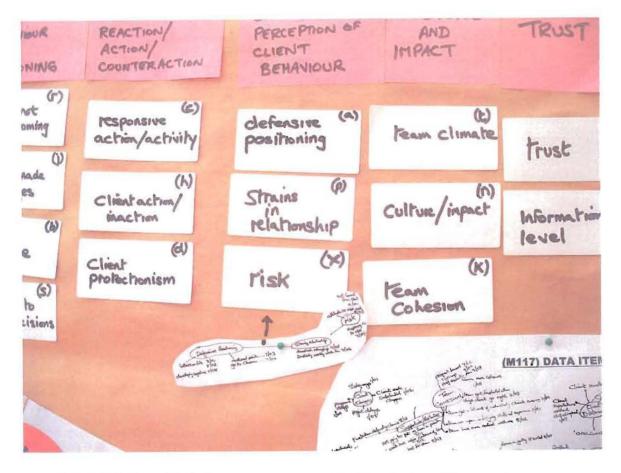Fig. 9.2 (below) : Data Clusters (reordered)

Fig. 9.3 : Relationship between data set and data cluster. Figure shows a particular data cluster highlighted for discussion

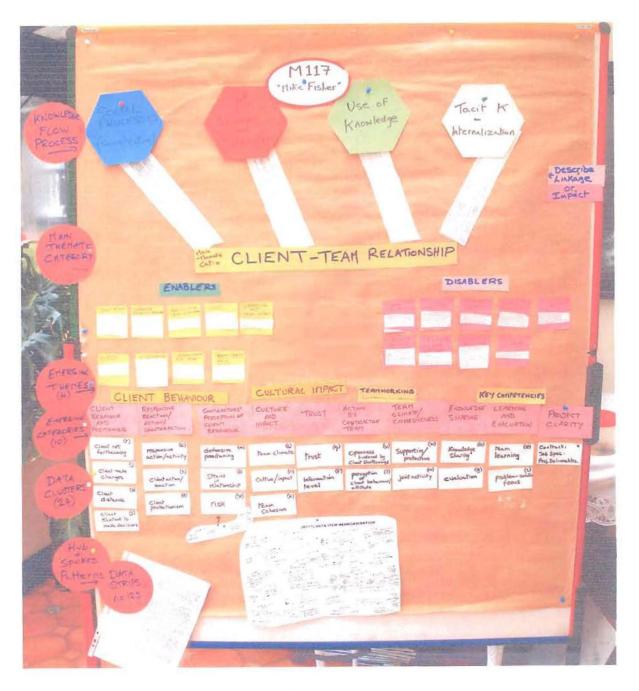Fig. 9.4 : Main Thematic Category "Client-Team Relationship" showing linkage to four knowledge flow themes. This developed into the initial conceptualization of the issue. The respondent (M117) was able to see how the case was analyzed by the researcher.
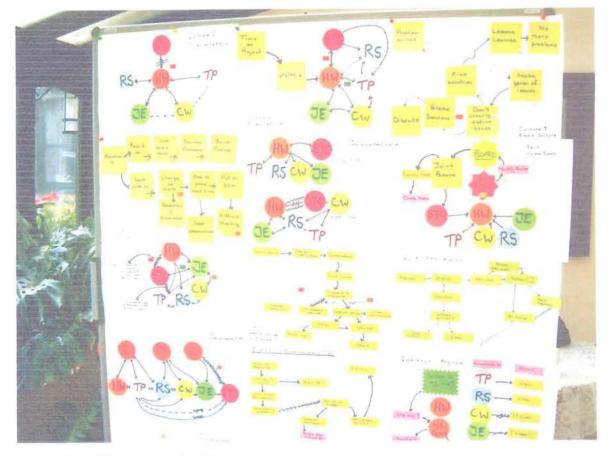
Fig. 9.5 : "Storyboard" of the issue, and cognitive map of respondent (M117) showing his conceptualization of the problem prior to formulating propositions

Chapter 10

Learning and Reflection

Introduction

This is the first of two chapters that reflects upon the literature, the experience of fieldwork and considers the responses and constructions of the participants in the communities of practice under study.

The objectives of the study was to focus on the interplay between knowledge, learning and reflection within workplace communities of practice, and the super-ordinate research question was :

> "How is knowledge, learning and reflection mediated in communities of practice?"

The structure of the chapter considers :-

10.1   Formal, informal and incidental learning.

10.2   Social mediation.

10.3   Situated learning.

10.4   Dimensions of on-the-job learning.

10.1 Formal, Informal and Incidental Learning

Distinctions between formal learning, informal learning and incidental learning should be made.

Formal learning refers to institutionally mediated, externally planned programmes of instruction; short professional training courses or college/university studies. Control is less 'self-directed'. (As I explained in Chapter Six, at some stage in my apprenticeship I attended a formal full-time

course of technical education returning to work in specific periods. There were few people in my workplace who had any details of what occurred in the formal programme. Only the Master Printer was aware of the content).

Informal learning, is predominantly experiential, non-institutional, self directed, intentional, involving networking, coaching, mentoring and performance planning.

Incidental learning is learning from involvement; learning from mistakes or trial and error; drawing on actions of others; hidden agendas; feelings and affect,;assumptions, opinions, attitudes, values and beliefs. Incidental learning is described by Marsick and Watkins (1990) as a by-product of some other activity such as sensing the organizational culture, or trial and error experimentation.

However, such distinctions do not make clear the ways that people learn unintentionally in particular environments or contexts, and so other perspectives are important to consider.

10.2   Social Mediation

A social constructionist perspective of knowledge construction views the socio-historical origins of knowledge and its appropriation through social mediation (Vygotsky 1978). This involves the appropriation of knowledge as the outcome of an interpretative construction, mediated by individuals' personal histories interacting with socially sourced knowledge. This emphasizes the mutuality between individuals and the social and cultural circumstances in which they act.

- Expertise is relational in terms of requirements of a workplace, work-group or a particular CoP.

- Expertise is embedded, being the product of extensive participation, social practice and the engagement within that practice as a full participant. Understanding is shaped by participation in the activities and norms of that work practice.

- Expertise requires competence in the workplace discourse, in communicative acts, in storytelling, in routines of practice and in the mastery of new understandings in order to perform and adapt existing skills.

- Expertise is reciprocal, where workplace practices shape, and are shaped, by the culture of practice.

- Expertise requires "knowing what to do" and "knowing how to know" in the appropriate problems and solutions, and what behaviours and norms are acceptable in terms of cultural activity.

10.3 Situated Learning

Situated learning (Lave and Wenger, 1991) refers to a broad approach which shares an emphasis on the importance of context in acquiring knowledge and skill. Some common propositions are the following :-

1. Learning is a social process.

2. Knowledge is embedded in practice and transformed through goal-directed activity.

3. High-level or expert knowledge and skill can be gained from everyday experiences at work, and in community and family life.

4. Domain-specific knowledge is necessary for the development of expertise (i.e. much of expertise relies on detailed local knowledge of a workplace, locality or industry).

Situated cognition suggests that knowing is inseparable from doing, (Brown, Collins and Duguid 1989, Greeno, 1989), and situativity theory suggests that knowledge and learning requires thinking-in-action rather than the storage of conceptual knowledge alone.

Contrasted with the individual perspectives, the community-of-practice perspective focuses upon the communicative aspects of practice and on the creative environment. The focus is on the individual's performance in the 'here and now' and on how the individual uses resources for carrying out various tasks. Thus learning is not regarded as an individual and mental process so much as relating primarily to social and cultural phenomenon.

Along with situated cognition, other concepts referring to this relationship are "Learning as Legitimate Peripheral Participation" (Lave and Wenger 1991); "Tacit Knowledge" (Polanyi, 1966); "Reflection-in-Action and Knowing-in-Action" (Schön, 1983); "Communities of Practice" (Wenger, 1998b); "Activity Theory" (Engestrom, 1987) and "Ba" (von Krogh, Ichijo, and Nonaka, 2000).

These concepts all have in common what Brown and Duguid (2001 : 200) consider :-

> "What individuals learn always and inevitably reflects the social context in which they learn it and when they put into practice".

Situated Learning Theory (Lave and Wenger, 1991), suggests that learning is situated, occurs normally, and is embedded within activity, context and culture. Learning is unintentional rather than deliberate. Thus, social interaction is the critical component of situated learning, where learners become involved in a "Community of Practice" which embodies certain beliefs and behaviours to be acquired.

As individuals participate more fully within specific communities of practice, what constitutes knowing continuously evolves, and through participation and enculturation within different communities, an individual expresses knowing through action.

Many of these concepts have links to Vygotsky's (1978) notion of learning through social development, where interactions in cognitive development and socially mediated learning become a crucial component of learning.

Situated learning at work, or on-the-job learning occurs through the participation and interaction of people and their collective sense-making activities within the form of the community of practice, (Wenger, 1998b; Gherardi et al, 1998).

The social learning processes of on-the-job learning include observation, dialogue, storytelling, interaction, and conversations between people.

Perhaps now is a good time to remind ourselves what Wenger (1998b : 14) suggested would be the intersections of intellectual traditions in his interpretation of a social theory of learning. These are a coming together of :-

- theories of identity
- theories of practice
- theories of meaning
- theories of power
- theories of meaning
- theories of power
- theories of subjectivity
- theories of collectivity
- theories of social structure
- theories of situated experience

The incomparable duality of the social and the individual gives Wenger's interpretation, a wide scope. He suggests that for individuals, it means learning is an issue of engaging in, and contributing to the practices of their communities. For communities, it means learning is an issue of refining their practice and ensuring new generations of members. Finally, for organizations, it means learning is an issue of sustaining the interconnected communities of practice

through which an organization knows what it knows and thus becomes effective

and valuable as an organization.

When describing the social fabric of a learning organization, Wenger (1996 :

161) argues :-

> "there are enormous differences in what and how learners come to
> shape (or be shaped into) their identities with respect to different
> practices … researchers would have to explore each practice to
> understand what is being learned, and how".

His failure to separate CoPs from learning communities places researchers into

a dilemma since not all communities of practice are necessarily places where

effective learning takes place. Further, his description of where to find

communities of practice is somewhat loose :-

> "Communities of practice are everywhere … they are so informal and so
> pervasive that they rarely come into explicit focus, but for the same
> reasons they are quite familiar. Most CoPs do not have a name and do
> not issue membership cards". (1998b : 6).

Attempting to assess how learning takes place within communities needs a

sharper focus than merely to suggest that CoPs are everywhere. So whilst the

notion that learning is a process of participation in a community of practice,

which has important implications for learning in the workplace, a researcher

would need to be clear that a community had formed.

By contrast, if we take Wenger's description of indicators that a community has

formed (1998b : 125), it can be seen that there are fourteen criteria to determine

whether a true community of practice exists.

1)   sustained mutual relationships – harmonious or conflictual.
2)   shared ways of engaging in doing things together.
3)   the rapid flow of information and propagation of innovation.
4)   absence of introductory preambles, as if conversations and interactions
           were merely the continuation of an ongoing process.

5)   very quick setup of a problem to be discussed.
6)   substantial overlap in participants' descriptions of who belongs.
7)   knowing what others know, what they can do, and how they can
           contribute to an enterprise.
8)   mutually defining identities.
9)   the ability to assess the appropriateness of actions and products.
10)   specific tools, representations, and other artefacts.
11)   local lore, shared stories, inside jokes, knowing laughter.
12)   jargon and shortcuts to communication as well as the case of producing
           new ones.
13)   certain styles recognized as displaying membership.
14)   a shared discourse reflecting a certain perspective on the world.

This very tight form of definition provides a starting point for identifying where a community of practice might be, but it would be preferable to focus upon the participatory practices and relationships that are observed, rather than trying to ascertain whether all fourteen of the criteria are in place. Indeed there are tight working communities where all fourteen conditions exist, but similarly there are others where workgroups exist and a number of the indicators exist, but they cannot be regarded as a community of practice. For example, there are networks that contribute to learning, but do not necessarily build identification with a practice, or possess certain styles that could be recognized as displaying membership. There are many more examples of virtual networks which are not geographically bounded, where knowledge is shared. The original concept of community of practice was defined to describe communities where people learned more by working alongside each other and not by sharing codified knowledge virtually or at a distance.

As chapter four shows, a community of practice has now spawned many different forms where geography is one factor. Where work is structured in different ways, or is subject to different contingencies, the learning potentials of the CoP will differ. Relationships can be tightly coupled, as in the case of the compositors chapel (Chapter 6), or more loosely coupled as in the case of the

customers community of practice at LiteCo (Chapter 8). Tightly coupled

communities would have sustained relationships over time, and would have

shared ways of engaging in doing tasks together. However not all communities

would necessarily be strongly coupled. There are many indicators that

communities may also have looser coupling, where constant reformation and

changing membership arises because of project duration, workflow patterns or

changing work practices. Similarly the framing of knowledge may also be tight

or loose. The dividing line between CoPs, networks and workgroups is not

clearly delineated, and attempting to define what learning takes place has to

take into account the considerable overlap between these different forms.

It is preferable, therefore to see workplace learning as understood in terms of

the communities being formed, or joined, and personal identities being changed.

The issue would be about becoming a practitioner, as well as learning about a

practice. This draws the focus away from abstract knowledge and situations,

into the practices and communities in which knowledge takes on significance.

If the community of practice is viewed in terms of the dimensions stated by

Wenger (1998b) as :-

- A joint enterprise as understood and continually renegotiated by its members.

- It functions through mutual engagement that binds members together into a social entity.

- A capability to produce shared repertoire of communal recourses, (routines, sensibilities, artefacts, vocabulary styles etc.), that members have developed over time …

…… the way people participate in communities of practice provides some

insight into the process of learning.

10.4   Dimensions of On-the-Job Learning

On the job learning and situatedness is a comprehensive activity that entails many different processes such as working, noticing, sense-making, thinking, making meaning, making decisions, innovating and conceptualizing.

Learners journey through different stages, and construct their own knowledge, where meaning and meaningfulness is an expression of the learner's existing understandings. Intrapersonal, interpersonal or infrastructural influences all impact on participants' situated learning behaviours.

I considered it appropriate to identify core dimensions of learning where different learning strategies can be most effective for different individuals in different learning situations.

By identifying core dimensions of learning, it is possible to create an awareness of the levels of learning that take place, the stages of learning that occur, and the learning activities that occur within each dimension.

Hierarchy plays a key role in the relationship between each dimension. Hierarchically-ordered categories of learning come via the arrangement of the structure of objects that orient activity, a hierarchy of cultural activity, a hierarchy of knowing activity, and a hierarchy of mediating tools and cultural artefacts.

10.4.1 Five Core Dimensions

There are five core dimensions which I have developed to encompass some of the theories of practice or action, and knowing, learning and reflection. The

dimensions are complementary to one another. Adaptive flexibility comes from an awareness of "fit" and "positioning" on each of the core dimensions.

10.4.2 Level One : "Balance of Processes"

I have described this level as a balance of processes because different learning strategies are employed when the process of learning takes place. Learning is a mixture of the following aspects : cognitive processing; learning orientation; mental models of learning and regulation of learning. Styles of learning vary from individual to individual depending upon their preferences of the processes available.

I have found that a useful way to begin to substantiate these balance of processes is to describe learning as a cyclical process, involving distinct learning stages that learners follow in sequence. These circular learning cycles are constructed from the classical learning theories of Dewey, Lewin, Piaget, Vygotsky, Guilford, Jung and others, and have been made suitable for learning populations by three different, but conceptually similar models. Kolb (1984); Honey and Mumford (1986); and Jackson (2002). These learning cycles, or learning styles describe the stages that learners follow in sequence, and each stage represents a different strategy.

To take Kolb's (1984) definitions and descriptions, the four styles are as follows :-

| Concrete experience | Doing and experiencing things and learning by trial and error. |
| Reflective observations | Observing experiences from many different angles and trying to understand the logic underlying problems before making a move. |

Abstract conceptualization	Reviewing information, analysing, and forming abstract concepts and generalizations before acting.
Active experimentation	Trying out ideas, theories, and techniques to see if these work in practice.

The awareness of learning styles gives a good foundation to appreciate multi-dimensional learning activities whilst achieving learning results.

In terms of a Community Model of Learning (Lave and Wenger 1991), the sharing of tacit knowledge would be a learning activity that would take place between individuals at this level.

In terms of a Reflective Practitioner Model (Schön, 1983) the articulation of espoused theory would take place at this level. In terms of a situated (on-the-job) model, (Berings et al 2008), the distinction between reproductive learning and developmental learning would be determined as to which was the learners dominant model.

Other activities that take place at this level are trial and error; responsive learning; sharing and comparing of information; adaptive learning (Argyris and Schön 1978); awareness of specific and critical learning incidents; awareness of relevant factual information; noticing, memorizing and representing; developing common sense activity on an everyday basis. Some of these activities are cultural and some of these are modes of knowing, and by starting with an appreciation of preferred styles of learning, an individual can begin to see the way in which other learning activities at this level occur.
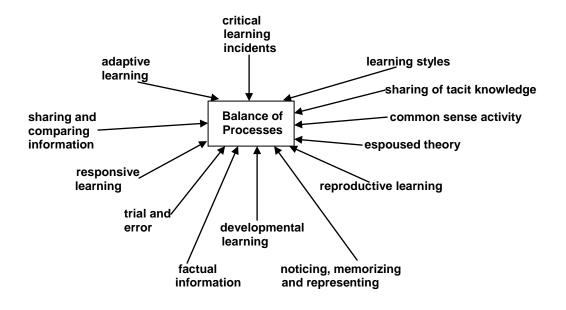
critical
learning
incidents

adaptive
learning

learning styles

sharing of tacit knowledge

**Balance of
Processes**

common sense activity

sharing and
comparing
information

espoused theory

responsive
learning

reproductive learning

trial and
error

developmental
learning

factual
information

noticing, memorizing
and representing

Fig. 10:1 : Balance of Processes

10.4.3 Level Two : Forms of Knowledge

At this level the learner is developing awareness of social meaning, socio-emotional learning such as learning alone, learning from others, or learning with others; and situational learning.

In terms of a Community Model of Learning, the creating of a concept would be a learning activity that would take place at this level.

In terms of a Reflective Practitioner Model, the development of theories of action, and reflecting before action would take place at this level.

In terms of a situated (on-the-job) model, the socio-emotional aspects of learning and sensemaking activities such as developing social meaning would take place. Other activities that take place at this level would be the development of rational thought and technical rationality; discovery and

exploration of dissonance and meaning; single-loop learning; acquisition of

"know that" knowledge; instrumental knowing and knowing what to do; and

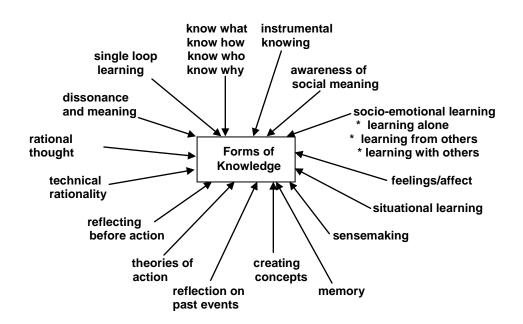reflection on past events, past actions or incidents.

Fig. 10:2 : Forms of Knowledge

10.4.4 Level Three : "In Use" Concepts

At this level, trans-situational learning takes place, where reflection becomes a

much more prominent activity, and a deliberation in orientation towards learning

occurs where tacit changes move from gradual to dynamic effects.

With cultural activity, gesture becomes an important social aspect, and

procedural knowing and communicative behaviour are more significant in terms

of knowing.

In terms of a Community Model of Learning, applying concepts in practice and

justifying the concept are learning activities that would take place at this level.

In terms of a Reflective Practitioner model, the concepts of "Knowing-in-Action", "Reflecting in Action (First Order)" and "Reflection-on-Action" would take place at this level. In terms of a situated (on-the-job) model, holistic and analytical learning would take place with context-sensitive skills becoming developed.

Other activities that take place at this level are Trans-situational learning; judging and judgement including evaluation, ethics, sense-integration and self-knowledge. At this level the negotiating of meaning, and exploring alternatives to dissonance becomes more apparent. Reflection on single or multiple contexts occurs. Double-loop learning, reflecting on personal experience and more systematic reflection takes place and meaning structures become well structured and integrated.
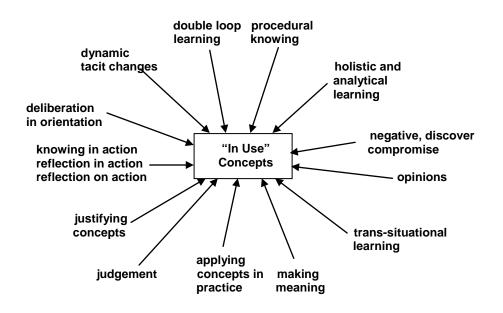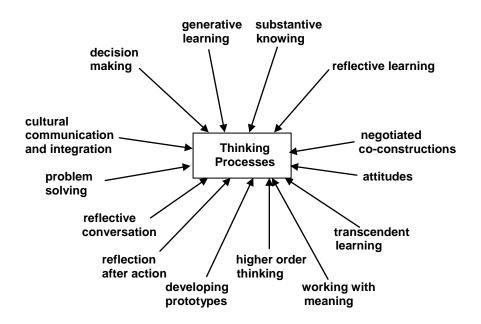

Fig. 10:3 : "In Use" Concepts

10.4.5 Level Four : Thinking Processes

At this level, the learner is developing substantive knowing, organizing what to do, knowing how to culturally integrate and uses activity as cultural communication. Here, working with meaning becomes highly significant; problem identification and problem solving become refined activities; learning becomes transcendent; and higher order thinking processes become refined (e.g. structure, relationship, comprehension, analysis, synthesis, convergence, divergence, induction and deduction).

In terms of a Community Model of Learning, the development of a prototype would be a typical activity, and the Co-construction of knowledge becomes more significant. In terms of a Reflective Practitioner Model, the conception of a second order Reflection-in-Action activity becomes developed, Reflection-on-action through reflective conversation, and Reflection-after-Action, are all activities at this level. It is here that knowledge is generated and critiqued through collaboration, co-working and in discussion in reflective teams. There is more reflection on the manner of reflection itself, self-reflection and the nature of knowing. Triple loop learning, and generative learning are activities at the level. More creative expression is present and narrative structures mediate the culture of transformative meanings. More Reflective Learning occurs. Reflective learning is the process of internally examining and exploring an issue of concern, triggered by an experience, which creates and clarifies meaning in terms of self, and which results in a changed conceptual perspective, (Boyd and Fales) 1983 : 100). The adoption of a reflective approach is a choice which an individual can make, and one that is associated with a deep approach to learning.

Fig. 10:4 : Thinking Processes

10.4.6 Level Five : Creative Processes

This is a transformative level where cultural methodology combines with

theoretical knowing in terms of "Knowing How to Know" mediated by cultural

structures and knowledge challenges.

Here the emphasis is upon experience as an interior phenomenon where

understanding and discernment of symbolic meanings are articulated. At this

level, symbolizing and conceptualizing assists transformative learning in terms

of reflective, restructured, idiosyncratic and creative activities. This is what

Batson (1972) calls "bringing to consciousness" where the learner becomes

conscious about his concepts, how they might be formed and how he might

change them. This is the level of meta-learning, meta-cognition and meta-

reflection. Meta-learning examines that part of meta-cognition that is concerned

with how we control or regulate ourselves in order to learn and learn better.

Here values and beliefs become integrated into ways of knowing, and self-reflexivity becomes prominent. Meta-learning describes the state of being aware and taking control of one's own learning. It describes the critical, reflective, self-evaluative process of being aware of one's own learning needs, problems and achievements.

There is a strong connection of meta-learning to meta-cognition, self-awareness, self-identity and reflection as a process. The product of meta-learning is new knowledge, whilst the process is thinking about ways to create routes to new learning.

Meta-cognitive knowledge (meta-cognitive awareness) refers to what individuals know about themselves, whilst meta-cognitive regulation is the regulation of cognition and learning experiences through a set of activities that help people control their own learning. In terms of strategic knowledge, knowing what (factual or declarative knowledge); knowing when (conditional); knowing why (contextual); and knowing how (procedural or methodological), have different levels or orders, and meta-cognition would assume the higher orders for all these modes of knowing.

In terms of a Community Model of Learning, the activity here is on making knowledge interdisciplinary and to make specific knowledge universal.

In terms of a Reflective Practitioner Model, meta-reflection takes the form of reflecting upon one's reflections, and requires more conscious and deliberate efforts to make sense of the sense of experience.

Meta-reflection is a process that is learned and refined with practice as part of an ongoing process of learning.

In terms of a situated (on-the-job) model, learning takes place by deep reflection about work experiences, critical reflection, reframing of events, and self-reflexivity. Innovating becomes a primary work activity, with creative problem solving and 'breakthrough' thinking occurring. Attention to relationships, and to each other's growth, learning and development becomes highly significant. Intuition, the immediate judgement based on feeling and the adoption of a global perspective towards problems, requires creativity, incubation and perceiving of information in a holistic way via the unconscious mind.
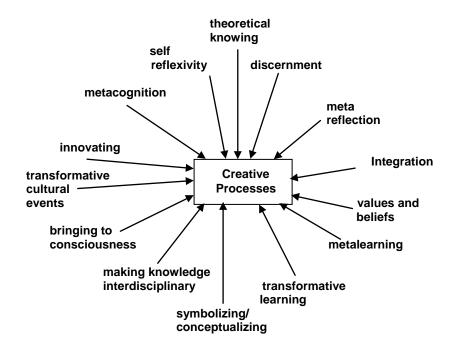

Fig. 10:5 : Creative Processes

10.5   Discussion

Lave and Wenger's (1991) seminal work on learning has become widely cited, but opinions about the work are polarized. It does however provide a useful starting point to address some of the challenges faced by learning in the workplace. My five core dimensions of learning and reflection are designed to overcome many of the difficulties associated by the attempts to widen the notion of community of practice from its original narrow concept, to that of a wider and often all-embracing notion that appears to apply to any CoP that meets Wenger's (1998b) criteria of whether a community has formed. The original end product of legitimate peripheral participation was the achievement of full membership. That was, and still is, perfectly feasible in narrowly defined, tightly coupled communities. However, when geographical diverse communities are formed, the dynamics of participation and membership are significantly different. Learning skills amongst members may be varied, values and beliefs may be significantly different, and subject matter expertise may have wide variations. Individual motivation in geographically diverse communities is recognized as significantly different to those in closely-knit workplace locations. Learning styles vary between members, and learning intentions can be significantly different.

A dimensional framework enables specific individual differences in learning approaches and local contexts, to complement the broad approach of learning in a social context, embedded in practice and transformed through goal-directed activity. I develop a model of knowledge and learning and explain it in more detail in Chapter 12.

The next chapter considers enablers and inhibitors in mediating knowledge, learning and reflection in CoPs.

Chapter 11

Reflections on Emerging Themes

Enablers that assist in the mediation of Knowledge, Learning and Reflections in Community of Practice

This chapter summarizes my reflections on the data obtained from fieldwork and the literature and draws a number of conclusions about enablers that assist with the mediation of knowledge, learning and reflection in communities of practice.

A number of themes are presented in this chapter. These are drawn from the literature, the interview texts, and my analytic notes from the numerous meetings and workshops attended during fieldwork in the 16 case organizations where many of these themes were co-constructed.

The chapter is structured in seven parts :-

11.1   Individual learning roles in CoPs.
11.2   The situated context of CoPs, workgroups and teams.
11.3   The role of management in mediating learning.
11.4   Learning environments.
11.5   Organizational culture and learning.
11.6   Technology and ICT.
11.7   Knowledge management framework.

11.1   Individual Learning Roles in CoPs

Participating in Work Group Activity **:** Wenger (1998b) describes the social experience of living in the world in terms of membership in social communities and active involvement in social enterprises. For him, participation is both personal and social. The amount of learning that takes place as a result of participation varies from person to person, but it seemed that a high proportion of respondents mentioned participation in work group activity as being

significant in providing the motivation to want to learn. Participation in group processes would include team-working towards a common outcome and goal. This also appears to confirm Wenger's (1998b : 56) point that participation involves all kinds of relations, conflictual as well as harmonious, intimate as well as political, competitive as well as co-operative. It appears that the level of participation is a stimulus.

Working with Co-workers : The opportunity to work alongside others, to observe and listen to others at work gives a sense of exploring other peoples' tacit knowledge. Where observation and discussion is combined, the opportunity for developing tacit knowledge is enhanced.

Consultation Inside the Group : Members of CoPs mentioned the importance of having opportunities to engage in consultation with immediate team leaders, or supervisors. Those that enjoyed good relationships with their immediate boss were also more favourable towards seeking and receiving consultation.

Consultation Outside the Group : CoP members welcomed opportunities to go outside their normal group to seek wider consultation with other groups within their existing organization, or outside it. A sense of responsibility was mentioned when liaison with outside organizations was available.

Individual Problem Solving : The level of involvement in undertaking challenging tasks and specific roles that provided an opportunity to engage in problem solving was mentioned a number of times by members of CoPs who sought challenges that were within their realm of competence. Where challenges were unsupervised, there was a tendency to avoid the risk-taking element of the problem.

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Group Problem Solving : Problem solving in groups was seen as being more rewarding and satisfying than individual challenges. Many examples of group problem solving were advanced as opportunities to improve the status of the community, as well as resolve the problem.

Experimenting with New Processes : A number of positive indications were advanced that suggested the rewarding sense of achievement that occurs from experimenting with low risk or pre-determined risk opportunities. Where risk assessment was made and supported by senior management, the level of involvement was particularly high and subsequent evaluation and reflection enhanced.

Time to Learn : A frequently cited problem was the ability of community members to find the time and opportunity to learn from talking to other members of the team.

Level of Intellectual Challenge : Most individuals preferred to undertake tasks that provided a degree of intellectual challenge, and structured problem solving.

Constructive Feedback : Regular and constructive feedback was appreciated by those undertaking tasks with a degree of challenge and responsibility. Some community members mentioned that learning and reflection was often prompted by receiving constructive feedback in the first instance.

11.2   The Situated Context of CoPs Workgroups and Teams

Usually individuals work within a group of some kind or another. The group provides an important backdrop to the way in which an individual locates a sense of purpose, creates their identity, develops self-confidence and undertakes processes of learning.

Group design is usually a planned decision based upon the number of individuals who have task-relevance expertise; the optimum number to achieve the task; the level of interpersonal skills to moderate doing the task, and the resources to undertake the task.

In Communities of Practice, the emergence of synergy is often spontaneous rather than planned, particularly where informal communities exist.

Some groups do not always perceive teamwork to be necessary to achieve task accomplishment. There may be a lack of willingness to attend meetings, or people may not be interested in hearing others' point of view and are not open to reframing. Learning in these conditions is often fragmented and un-coordinated.

As a group or a team develops, so they become valued as a context for individual learning and members become more open to negotiating points of view and understanding meaning. As team working becomes more sophisticated, so the opportunity for developing learning opportunity increases.

A number of factors begin to apply :-

- Where supportive relationships exist between members based upon mutual respect, the chances of learning being more successful are heightened.

- Frequent discussions between work colleagues at both formal and informal levels are considered helpful.

- When skill development and learning are discussed at team meetings, there is a more focused and supportive attempt to create learning opportunities.

- When work processes are considered, a community that incorporates learning opportunity into its deliberations will get more participation from its membership.

- Where teams are valued both as a context for individual learning and also as an efficient, effective mechanism for co-ordinating complex tasks, the likely impact is more sustained learning.

- Openness by listening and complementing each others views helps awareness. Where members cross boundaries to share information, a clear relationship to task achievement is likely to ensue.

- Experimentation that has a focus upon both individual learning and team learning is likely to ensure more long term success.

- Members who seek out views that may be disconfirming or challenging consider that their team has more chance of achieving sudden leaps of insight.

Inquiry with Questions or Requests : In communities of practice which encouraged an openness or curiosity, the level of questioning inquiry was noticeably higher. Questions were more likely to be asked face-to-face or on the telephone, rather than in electronic form, when issues were of greater significance for the group.

Seeking Data, Information or Knowledge Sources : CoPs that had developed their own systems of data or information storage and retrieval were likely to seek more complex or hard-to-find knowledge.

Requests for information from outside organizations was occasionally something that certain CoPs spent time strategically planning. This knowledge acquisition

factor was significant in CoPs where a high level of innovation was expected in their work outputs.

Locating Resources **:** Communities that spent a large amount of time locating resources for advantage tended to codify "know-who" activities regularly.

Post Project Reviews **:** Learning from mistakes, and lessons learned were apparent in communities where regular post project reviews took place at the end of each project.

Where project teams had more formal procedures for review, project audits and stage-reviews were also part of their more formal role.

Where the lessons learned from post project reviews were part of a dedicated infrastructure, the level of systematic and collective reflection appeared higher. The importance of learning between projects and learning within projects was a factor that a number of CoP members mentioned.

Reflecting **:** Reflection in both on-the-job activity and off-the-job activity was mentioned obliquely by a number of members, but there appeared to be a general lack of understanding about the full range of reflective practices available to individuals, groups and teams.

Learning from Others **:** Learning from others at work was acknowledged as an important aspect of the lifeworld of CoPs, but the concept of informal learning was not always appreciated as being of significance. Informal learning was often seen as something difficult to describe, yet most acknowledged the

significance of learning from others in everyday learning contexts. Where learning was incidental, this was not always articulated as learning.

Artefacts that Mediate Learning : Objects or artefacts that mediate social exchanges can range from plans; drawings; conceptual frameworks; concept maps; SWOT analyses; forcefield analyses; balanced scorecards; gap analyses; master production systems; failure mode effects analyses; and post-project evaluations.

Mediation occurs where the objects or artefacts represent past learning and this is represented in the tools used when individuals engage in social or organizational activities. They are both meaning-producing and practice-generating (Knorr-Cetina, 1981), and these objects or artefacts have a specific role in sustaining or transforming practice arrangements within organizations. Their potential lies in the opportunity to provide alternative points of view or modes of action.

Mediating artefacts such as plans, drawings, photographs, protocols, and procedures were often seen as important in structuring work and sharing information. Where such artefacts were easily available to group members the level of knowledge sharing appeared to be significantly higher. Where there were restrictions on the availability of specific artefacts, this was suggested as a factor in the reluctance of certain members to release information to others.

Feedback : Feedback was considered important by most CoP members but many were critical of formalized feedback sessions such as monthly team briefings where information flow was generally downwards. Specific examples

of dynamic feedback sessions suggested that generative learning occurs when feedback is carefully planned and executed.

Storytelling : Knowledge sharing by story telling allows listeners to internalize messages and build personal mental models of use. Although storytelling was acknowledged as important, and enjoyable, a number of examples were given where storytelling became an opportunity for digression rather than focus upon concepts, principles or other insights. Storytelling was considered to be particularly effective, when it provided the ability to negotiate new meanings to old problems or "fuzzy" situations.

Storytelling is highly effective for sharing understanding among community members, and has a strong emphasis in the transfer of visions.

Conversations : Conversations in one-to-one contexts were regularly considered to be helpful in mediating learning opportunities, particularly where one or both parties could get a sense of the other's perspective. Negotiating meaning between individuals in conversation was considered part of everyday practice, but many acknowledged that it was more complex where sensitive or political issues were present :-

- Some conversations at work are often inappropriate for developing learning and reflection. Those cited suggest that high level conversations tended to be more about performance issues rather than learning and development issues.

- Lack of development conversations and poor appraisals were often the cause of underlying workplace tensions. Those who were unable to reconcile workplace difficulties, or who had little or no opportunity to discuss critical issues, were often raising possibilities about seeking alternative employment arrangements.

- Some managers recognized the importance of involving staff and members in learning and developments issues at the level appropriate to

them. The impact of this was significant for the influence on workplace learning, development, and culture.

11.3 <u>The Role of Management in Mediating Learning</u>

Managers have a significant role in managing and mediating knowledge learning and reflection in communities. Being over-challenged or under-challenged has a detrimental effect upon morale and learning. The managers role in mediating the right balance between tasks that challenge and provide learning opportunities, is essential when allocating and structuring work.

Managers who consult with other teams and allow other members to do the same are frequently cited as those who help to develop mutual trust and co-operative arrangements.

Mediating tensions of learning conflicts, or more generally structural or work-related tensions is part of a managers role. Few had received formal training in workplace conflict resolution or mediation skills, but many had acquired competency and working knowledge through informal learning, incidental learning or experiential learning.

Managers have to balance learning needs of individuals and groups with the performance objectives of their role as defined by their organization. These are sometimes in conflict with each other, and part of the mediating role of a manager is to ensure the resolution of these (sometimes) competing forces.

- There needs to be a clear role for line managers and/or supervisors in terms of providing learning opportunities for team members. This is frequently an understated role.

- Managers who pay attention to the emotional, affect and sensitivities of the workplace, are viewed more positively by members of the community.

- Learning becomes enhanced when a tolerance of diversity exists. Listening and encouraging alternative suggestions, and adopting 'Janusian Thinking', often stimulates new and creative alternatives.

- Managers, supervisors and team leaders who have had coaching skills appear more tolerant to diverse and ambiguous situations.

11.4 Learning Environments

The context in which the individual is working and learning includes both the nature of the work role and wider dimensions, such as workplace culture, social interactions and management processes.

Context factors include allocation and work-structuring; encounters and relationships within and between community memberships at work; individual participation, and expectations of progress and performance.

Learning factors include the nature of the work challenge; feedback, support and trust processes within the workplace; and the confidence, commitment, identity, personal agency and motivation of the participants themselves. Learning environments are determined by a number of different constructs including :-

(i)   Modes of learning at work, which determines whether the principal object within the community was working or learning.

(ii)   Learning styles at work, which has implications for the nature of the work itself and the preferred learning style of the individuals undertaking the work.

(iii)   The learning climate at work, which encompasses space and time for learning and which is generally not controlled but may be mediated by insiders or outsiders, (i.e. national trades unions). The emotional climate at work at the community level, group/team level and organizational level is often understated. Empowerment issues can impact upon the workplace culture if not satisfactorily resolved.

(iv)   (iv) <u>Learning structures</u>, include infrastructure elements such as the relationship of learning to the organization hierarchy; the formal training and development programmes that exist externally and internally for members; the knowledge management system including the flow of knowledge around the organizational setting; and the situational context which exists in terms of physical and social settings that the community engages in.

The characteristics of work environments and learning structures varied considerably across the sixteen case study organizations and in the various communities that made up the inquiry. However a number of conclusions can be made across the communities which suggest :-

- Innovative and creative processes arise when communities are able to develop sufficient learning skills and have an opportunity to create something new or of value.

- Subject matter competence assists in generating an interest in further developing expertise, and provides the motivation for extending both informal and formal learning modes. Where management support communities in their quest for innovation, the nature of the workplace relationships becomes more collaborative.

- Flexible organizational structures and a willingness to grant autonomy to communities and workgroups generates a higher level of problem solving activity, decision-making and innovation endeavour.

Supervision : Supervisors often find themselves in difficult positions within communities because of the structural constraints of their roles. The dilemma for supervisors is encouraging a feeling of mutual support for teamwork and shared practice, whilst portraying themselves are regulators of rules, behaviour and discipline.

Mentoring : Mentoring usually takes place for new members and sometimes for training in new processes or technologies. Mentoring is often informal, (helpful to others), who undertake the role as part of the process of maintaining the morale of the community.

Site Visits : Visiting a practice was considered an advantageous opportunity to create learning opportunities, but generally by the outsiders to the visit. The significance of this was recognized by some communities who established specific agendas for knowledge exchange as part of the site visit itinerary.

11.5 Organizational Culture and Learning

Organizational cultures can be a double-edged sword for many companies. On the one hand it can help to create and sustain competitive advantage by accelerating the ability to anticipate and adapt. It can assist with agile solutions and rapid responses; can stimulate creativity, institutionalize organizational memory and assist internal and external effectiveness.

On the other hand it can impede the formulation of fresh ideas and strategies and inhibit their implementation. Culture can be a significant impediment to knowledge transfer, and create an inability to change people's behaviours. (See Watson, 1998). In a study of 453 firms, over half indicated that organizational culture was a major barrier to success in their knowledge management initiatives. (Ruggles, 1998).

A cultural approach to strategic management in knowledge-based firms suggests that an understanding of the strengths and weaknesses of the organization's culture should be the first priority; choices about those which are to be sustained and those which are to be recreated should come second, and all other strategic formation processes, should follow thereafter.

Culture involves much more than being a one-dimensional concept, a single attitude or a belief. It is more a collective term sometimes defined as a "system

of meanings", where at the level of the firm, it refers to a collection of beliefs, values, and assumptions, mechanisms and reward systems held by the members of an organization. It is this system of meanings and beliefs which help to define the way business is conducted by an organization, and the provision of sense-making in the internal or external organizing that goes on within the enterprise. Thus, it firstly is a collection of concepts which reflects a diversity of expression. Secondly, it may be multicultural, reflecting more than one culture alone. Thirdly, it is not a conditioning device to channel employees into a specific way of working, thinking or behaving, but more the outcome of a process of social creation, interaction and regeneration. Culture can operate at the level of the community/workgroup, the firm, at the industry/sectoral level, or at the national or even international level.

Characteristics of a knowledge-supportive culture include a safe environment, ethical and mutually respectful behaviour, an absence of micro-political activity, collaboration, and a common focus on achieving tasks to the correct criteria and standard.

Culture impacts on the success of Knowledge Management within organizations. There is plenty of evidence from the literature to conclude that higher KM performance is enhanced by a knowledge-friendly environment. Success depends upon the right match between organizational and work unit culture. Schein (1993, 2004) has consistently advocated organizational culture as a three-layer concept linked closely to knowledge sharing and knowledge creation. The top layer is the visible patterns of behaviour (structure, strategy, systems), the middle layer is the espoused values and beliefs (the goals of the organization and the means to accomplish the goals), and the bottom layer is

the underlying assumptions, (the 'taken for granteds' about the organizational

reality).

Culture can impact upon organizations adaptability and agility, enabling them to :-

- Anticipate potential market opportunities for new products/services
- Rapidly commercialize new innovations
- Adapt quickly to unanticipated changes
- Anticipate surprises and crises
- Quickly adapt the organization's goals and objectives to industry/ market changes
- Decrease market response times
- Be responsive to new market demands
- Learn, decide, and adapt faster than the competition
- Learn from experience

Culture can influence creativity, allowing communities and teams to :-

- Innovate new products/services
- Identify new business opportunities
- Learn not to reinvent the wheel
- Quickly access and build on experience and ideas to fuel innovation
- Learn to collaborate together.

Culture can influence internal effectiveness, allowing organizations to :-

- Attract and retain employees
- Retain expertise of personnel
- Capture and share best practices

Culture can influence external effectiveness, allowing organizations to :-

- Co-ordinate the development efforts of different units
- Increase the sense of belonging and community among employees in the organization
- Avoid overlapping development of corporate initiatives
- Streamline the organization's internal processes
- Reduce redundancy of information and knowledge
- Improve profits, grow revenues
- Shorten product development cycles
- Provide training, corporate learning; formal, informal and enable incidental learning to take place
- Accelerate the transfer and use of existing know-how
- Improve communication and co-ordination across company units (reduce bottle-necks

Culture can influence a wide range of initiatives, allowing organizations to :-

- Reach new information about the industry and market
- Increase customer satisfaction
- Support e-business initiatives
- Manage customer relationships
- Deliver competitive intelligence
- Enhance supply chain management
- Improve strategic alliances
- Involve communities in more strategic decisions

In many of the above areas, knowledge-sharing plays a significant part in community building, fostering a sense of belonging, and increasing collaboration and innovation. In these areas, the benefits of knowledge sharing over the contra knowledge-hoarding cultures have been assisted by the developments of on-line communities of practice, and communities of interests. Connectedness has grown with business and social networking sites, and the development of intranets and extranets has also enhanced knowledge sharing and knowledge transfer opportunities.

11.6 Technology and ICT

ICT enables people to communicate 'at a distance' and frequently obviates the need for face-to-face interactions. This has obvious advantages in terms of the ease of electronics exchange, but tacit knowledge is more difficult to share in electronic contexts. ICT has widened geographical boundaries and shifted the original definition of 'communities of practice' (Lave and Wenger 1991) where people worked alongside each other and engaged in face-to-face sharing of tacit and explicit knowledge.

In the strict sense of the concept, the community model of knowledge creation sees ICT as playing a peripheral role, placing knowledge as social construction

and the development of social communities, project groups and teams as the primary activity.

In a systems or network model of knowledge creation, knowledge is acquired through access to external networks and sources of information. ICT plays a more central role.

Work groups which adopt more of a community approach tend to consider that the discretionary use, rather than the mandatory use of technology, encourages participation and sustainability. These CoPs recognize that technology usage and preferences varies amongst members, and offer the view that mandating the use of technology has an effect on levels of participation and morale.

Sharing and comparing of information obviously takes place through ICT channels, including exchanges of facts, opinions, corroboration, clarification, descriptions and definitions etc. These first level concepts are frequently made easier by the speed and access of ICT. At other levels where discovery and construction of meaning and identity is also significant, ICT had less of an impact. In terms of identifying and clarifying dissonance, the restating or supporting of argument or negotiation, ICT was considered less effective than face-to-face. At another level, negotiation or co-construction of terms, principles, meanings, concepts, compromise, collaborations, integrations or accommodations, ICT had less of a role to play, and activity in the social construction of knowledge was much lower at these levels within the communities of practice. Where networked expertise requires large exchanges of data and information to take place, networks of interest, networks of expertise, or socio-technical interaction networks may well be the form. These groups often view their role as the exchanging of existing knowledge, whereas

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communities provide spaces for the joint generation of new knowledge. Although the phenomenon of virtual communities is new and relatively unexplored, the original concepts of Lave and Wenger (1991) as modified by Wenger (1998b) have been overtaken by rapid developments in ICT and spontaneously emerging new forms of informal learning.

The importance of knowledge transfer in ICT situations takes on another dimension around issues of why people are reluctant to share in ICT contexts. The "information hoarding" reasons that have frequently be offered in traditional face-to-face communities now seem to be accompanied by a different set of reasons, more to do with a lack of clarity about what information to post and concerns about its credibility. These barriers have much to do with personal confidence, but also raise issues about the way VCoPs are organized and managed.

Membership of tight-knit, face-to-face groups tend to make knowledge networks peripheral, where informality and support develops alongside preferred methods of working and knowledge sharing.

11.7 A Knowledge Management Framework

Evidence from the literature (Lesser and Prusak, 1999; Wenger, 2004; 2009 (forthcoming); Davenport and Prusak, 1998; Probst et al, 2000; Remington and Ragsdell, 2006; Brown, J. S. 2007) suggests that knowledge-based types of organizations could adapt the community of practice model as a dominant organizational structure, and integrate the stewarding of key competencies into the very fabric of the organization. I considered it important to develop an

integrated framework for knowledge management which can serve as a guideline for interventions aimed at structuring knowledge resources.

In the next chapter I demonstrate how an integrated framework might apply, based upon the work that was undertaken through co-construction in fieldwork activity, and in terms of developing an understanding of knowledge flow processes within organizations. This was based upon four themes of knowledge and learning processes, and sixteen categories of activity in knowledge flow.

These are :-

Formulation   (formulation of knowledge and learning)

    1)   Strategic
    2)   Identification
    3)   Acquisition

Generation   (generation of knowledge and learning)

    4)   Socialization
    5)   Knowledge creation
    6)   Knowledge development
    7)   Externalization

Utilization   ("In Use" : utilization of knowledge and learning)

    8)   Internal knowledge sharing
    9)   External transfer of knowledge
    10)   Transfer of learning
    11)   Knowledge usage

Consolidation   (consolidation of knowledge and learning)

    12)   Codification and combination
    13)   Knowledge retention
    14)   Knowledge assessment
    15)   Internalization
    16)   Reformulation

These themes have been co-constructed during workshops in four

organizations :-

    1)   LiteCo
    2)   Dragon Trust
    3)   Hostco
    4)   Harleywide

Included below is some evidence from the texts of interviews and workshops

showing how the themes have been constructed from the discussions around

knowledge flow processes within the organizations. Although they only

represent a small part of the accumulated data, they are selected here as

examples of how the data was developed into themes for an integrated

framework and models of learning and reflection.

11.8 Knowledge Flow Processes : Main Themes

Themes and categories are shown with evidence examples from significant data

strips.

Main Thematic Category	Emerging Theme(s)	Emerging Categories
formulation of knowledge and learning	1) strategic	goals; objectives; plans; targets; function; scope; group evaluation; dependence v independence; team building; equality v inequality initial perception; identified values; beliefs; ethos; vision; roles; leadership capability; purpose statement; mission statement.
	2) identification	knowing what others need; awareness of issues; project novelty; identity of community; romp up; strong/weak ties; 'knowledge by acquaintance'.
	3) acquisition	knowledge sources; human resources; search costs; motivation of source; motivation of receiver; score resources

First order informant concept (from data strips) with second order Emerging

Theme and Emerging Category are shown below : Examples

P.S. *No … but its part of the way we work … to an objective … a clear target that has to be achieved come hell or high water … and we do … otherwise we'd be doing other jobs or going agency ourselves, which gives you the 9 to 5, but doesn't bring in the pennies. Most agency people are alright, but they don't want the ambiguity of being a consultant, working here, working there, but they want a steady number for a set period of time, when they can either renew or go back to their Agency and get other work. For them its steady, for us its frenetic.*
(1) <u>Strategic</u> (goals/objectives)

We all need a personal survival plan, both individual and collective. What are the next steps and when do we transfer … all around we need a bit of honesty and some mutual respect.
(1) <u>Strategic</u> (identified values)

(M157) *… it would be helpful if we were all singing from the same hymn sheet … like when we have our monthly planning meetings we set out the short term objectives and goals for the month and then look at them the following month to see whether or not they were achieved … and if not why not … not to blame anyone, but to improve our ways of working.*
(M157; 17.03.03, Audt. 63A, Narr 1)
(1) <u>Strategic</u> (goals and objectives)

(F275) *We want to be associated with this group.*

(M276) *I want to be in at the start, and there at the end.*
  (2) <u>Identification</u> (identity of community)

(M212) *If you consider EEPs in isolation, and not in conjunction with other systems that can affect EEP operation, then, yes, there is a huge safety improvement, that's my opinion. But I don't think we understand enough about the system itself as a whole yet to conclusively say that.*
  (3) <u>Acquisition</u> (knowledge sources)

J.L.P. *There isn't really a way you can voice your concerns without appearing to be difficult, so you just get on and do your job, smile sweetly, and stumble to the next meeting, feeling generally demotivated … I've had a few mails from people usually consultants, who have said that they thought I'd made some useful points at the pm's, but they didn't say anything in support … to be fair they didn't oppose either … but sometimes you feel you're up against old dinosaurs who have a fixed way of thinking and don't want to really change.*
  (3) <u>Acquisition</u> (motivation of receiver)

generation of knowledge and learning	4) socialization	common goal; motivation of people; relationships; conversation and dialogue; stories and dialogue; valued for stories; storytelling in social situations; communications; trust in individuals; trust in the team; handling conflict; group identity; appreciative exchanges; safe environment; F2F; 'hidden agenda'; communicative or competitive; integration.
	5) knowledge creation	creative problem solving; creating time and space; thematic groups; newsletters and blurbs; virtual exhibitions; engagement with others; density of relationship; team spirit/togetherness.
	6) knowledge development	experimentation; continuous improvement; innovation; initiatives; redux; 'sticky' knowledge; experimental learning; technical development.
	7) externalisation	talk about it; 'what this means to me'; skills and know-how; cartoons and humour; visual metaphor; "knowledge objects"; examples, 'how-to explanations'; verbal metaphor, monuments.

You can see it in the diner … the perms sit together, the agency sit somewhere else, and the cons, well they are never here long enough to sit around having lunch, so there really is no social integration … people do stop and chat around the coffee point … would you like one by the way?
(4) <u>Socialization</u>   (integration)

(M272) *"Let me make it clear, what I've been thinking about has to be translated into some form of common approach".*
(4) <u>Socialization</u>   (common goal)

M.E.   *In a nutshell, we all have our own agendas … As an agency engineer I know that I am only here for a specific period of time and then, "goodnight Vienna" … we are gone again … unless someone like Mark renews our contract for another term … so we are always working to Mark's agenda, whether its right or wrong … rather than that of the rest of the team.*
(4) <u>Socialization</u>   (hidden agenda)

On the surface people are friendly enough, and basically quite good to work with, but there is this underlying tension that exists between those three groups all the time … Mark has tried really hard to pull them together, but there is still what do you call it … a silo mentality making them withdraw into their silos in the way that   …….
(5) <u>Knowledge Creation</u>   (tension in relationship)   (density in relationship)

G.R.   *There are little groups within little groups who cooperate well together and collaborate together, and they will usually share thoughts and ideas amongst themselves.*
(5) <u>Knowledge Creation</u>   (team spirit)

"*That's why I came here today, to tell you about my ideas … I'll work on the flip chart if I may, just to let you see what I'm thinking, okay, first thing is …*"
(7) <u>Externalization</u>   (talk about it)

utilization of knowledge and learning	8) internal knowledge sharing	well structured meetings; intranet systems; boundary crossing; group absorption; capacity; social networking; cultivating CoPs; active on internal systems shared mental models; knowledge sought; knowledge gained; reducing equivocality; who to ask? Single loop learning.
	9) external transfer of knowledge	extranet systems; applications; network participation; technical expertise exchanges; technical transfer; 'adaptive organization'/ sharing of discovery.
	10) transfer of learning	boundary-less facilitation; learning styles; learning with stakeholders; joint learning; benefit thinking.
	11) knowledge usage	Intellectual capital metrics; outputs; co-ordinated activity; discretionary use of technology; e-business; e-learning.

But generally that's all superficial stuff, nothing really in depth … sure, people will e-mail each other and sometimes that can get an extended discussion going, but its usually within the groups and not between them. I've stopped sending mails to cons because they have their own agenda and can't be asked to get involved in other peoples …
(8) <u>Internal Knowledge Sharing</u>   (knowledge sought)

So people hold back and won't share even though you know they have probably got it, they feel they would be weaker for sharing it …
(8) <u>Internal Knowledge Sharing</u>   (reducing equivocality)

One group has got the knowledge but won't release it to the others because it would weaken their position and strengthen the others.
(8) <u>Internal Knowledge Sharing</u>   (boundary crossing)

(M220) Yes, we've got a lot of projects in the Far East and there are a lot of business cases around.
(9) <u>External Transfer of Knowledge</u>   (implied)   (network participation

If they listen or if they can help my thinking then I'll call them, or mail them, and there's a lot of helpful people out there.
(9) <u>External Transfer of Knowledge</u>   (network participation)

(M284) "Look we've already done all this in the States, we've got all the breakdown costs for trials here as well, so if you like I'll get them over to you, in confidence of course.
(9) <u>External Transfer of Knowledge</u>   (network participation)

From what I've heard today and also from a customer point of view, on EEPs I'd feel safer, because I feel that somebody would not be able to push me over.
(10) <u>Transfer of Learning</u>   (learning with stakeholders)

There are procedures of course but people tend to get all this stuff electronically sent to them, but not really discussed.
(11) <u>Knowledge Usage</u>   (discretionary use of technology)

consolidation of knowledge and learning	12) codification and combination	formal v informal documentation; loose documents; controlled events; sound procedures; approved physical space; away-days; project studio; webs and networks; protocols procedure manuals.
	13) knowledge retention	gatekeepers; retentive capacity; meta-learning; $1^{st}/2^{nd}/3^{rd}$ order concepts; 'leaky knowledge'; learning history; mental models; org. memory; formal learning/informal learning/triple loop learning.
	14) knowledge assessment	benchmarking; site visits; failure analysis; cause/effect analysis; learning logs; lessons learned; swot analyses; force-fields; project-based learning.
	15) internalization	perception integration; unproven hypothesis; unproven knowledge; hunches and guesses; perceptual filters; distorted perceptions; embedding routines; confirming meaning/ understanding.
	16) reformulation	Knowledge from experience, learning from experience, reflection and new action; P.P.E../ A.A.R; 'unlearn'; reflexive processes.

(M273) *"This also makes it easier to control our own people and contractors coming on sites … contractors may not be aware of "out of date" situations until they turn up on site.*
(12) <u>Codification</u>   (controlled events)

We are in control of their staff and suppliers.
(12) <u>Codification</u>   (control)

(M191) *We are a very rule governed department, suppose we have to be to a certain extent, but when there are so many rules it kind of stifles initiatives.*
(12) <u>Codification</u>   (formal control)

Wouldn't want them going walk-about, but I think you'll find them proving what DP has been saying …
(13) <u>Knowledge Retention</u>   ("leaky" knowledge)

(M295) *The issues that demonstrate the team have to be addressed … we don't really get into root cause analysis, and so we tend to treat the symptoms rather than the cause …*
(14) <u>Knowledge Assessment</u>   (cause and effect analysis)

(M284) *… and it just came to me that they would in all likelihood share it …*
(15) <u>Internalization</u>   (unproven hypothesis)   (serendipity)

(M213) *At the risk of sounding simplistic when comparing sites, they have very good CCTV, they are highly manned. It's not easy to make straight comparisons. We need some robust figures when making comparisons.*
(16) <u>Reformulation</u>   (new action)

11.9 Conclusion

There are six sociological elements that enable and assist the mediation of knowledge, learning and reflection in communities of practice.

These elements interrelate within the social systems to mediate the situated learning behaviour of community members whilst they are on-the-job in workplace activity.

These elements are :-

1) The individual learning roles and learning styles of the members.
2) The situated context of the CoPs, workgroups and teams.
3) The role of management in mediating learning.
4) The learning environments that exist around the community.
5) The organizational culture and its impact on learning.
6) The impact of technology and ICT.

A suggested integrated framework for Knowledge Flow Processes is developed within the next chapter, which is one of the models for understanding how knowledge, learning and reflection can be mediated within communities of practice.

CHAPTER 12

Outputs : Conceptual Models of Learning and Reflection

This chapter presents two conceptual models of ways to help understand how knowledge, learning and reflection are mediated in communities of practice. They are outputs of the research in terms of concepts that can be used at different levels of abstraction and conceptualization.

The first concept is "A Framework of Learning and Reflection", and has an accompanying concept which facilitates dialogue at different levels of complexity. This is called "Platforms of Knowledge and Learning : Levels of Dialogue" and the two concepts can be utilized together to enable reflexive conversations to take place at levels ranging from surface structure to deep structure. These are shown in Figures 12.1-12.8.

Figures 12.9 to 12.11 show how the models were originally designed and have evolved over a period of time to their current form. All these models represent a contribution towards my professional development.

The second concept is a development model of "Knowledge Flow Processes", and is a conceptualization of Knowledge Flows within organizations. This is a co-constructed model and has been developed as a result of fieldwork in four organizations during this inquiry. This concept is shown in Figure 12.12.

The two models can be worked together through progressive build-up to facilitate awareness and understanding of the relationships between knowledge, learning and reflection, and what mediates them. This integrated framework is

shown in Figure 12.13. The early part of the chapter considers key issues which helped to inform the development of the models.

12.1   Key Issues in Knowledge, Learning and Reflection

Workplaces are now viewed as sites of "valid" knowledge and new ways that knowledge is being legitimized through various formal and informal workplace-based occurrences and practices emerge almost every week.

There is much interest in understanding how collective learning through groups, teams and organizations occurs, but there is little consensus on what organizational learning means, and even less on how to truly create a learning organization. (Pedlar et al 1991; Garvin 1993, 1996).

However, Antonacopoulou (1999 : 130) argues that there is limited research which examines how learning and knowledge affect individuals' responses to organizational changes. Her study identified two different forms of knowing : *i) Learning by knowing the same and ii) Learning by knowing differently* . Cunliffe (2002, 2008), argues for learning to be reconstructed as a reflective/reflexive dialogue in which participants connect tacit knowing and explicit knowledge.

Elsewhere, Czarniawska, B. (2001) highlights the difficulty of being a constructionist consultant where the logic of practice is explicitly formulated *("in the hope of provoking reflection which might help in further development",* 2001 : 63).

This chapter gives an example of the development of a model of learning and reflection, which the author has co-constructed with various respondents. It is

also presented as a response to Czarniawska, and indicates the possibilities for researchers and consultants operating in their respective fields to engage with respondents at different levels of social interaction.

12.1.1 Individual Learning

Learning from experience, long championed by educationalists has been taken up by many organizational developers as a significant and meaningful way to promote both individual and collective learning simultaneously, (Nonaka and Takeuchi,1995) Informal learning fits comfortably with new forms of work organization and new types of management, and has the potential effect of surfacing the tacit knowledge that often exists amongst individuals but rarely emerges or gets shared. (See Argyris and Schön 1974).   While knowledge is often thought to be the property of individuals, a great deal of knowledge is both produced and held collectively. Such knowledge is readily generated when people work together in tightly organized CoPs or Networks of Information, (Wenger et al 2002). Learning from experience, (Winter 1989), happens in everyday contexts and often occurs unnoticed, whereas experiential learning is a key element of a discourse which has this everyday process as its subject.

The value of this kind of learning is underscored today by interest in high-performing and learning organizations in which managers are challenged to take more responsibility for learning : their own and that of subordinates; the groups and teams which they lead, and the organization's learning. In these situations, learning is often defined as the process whereby knowledge is created through the transformation of experience, (Senge 1990). Learning can thus be described as increasing the capacity to take effective action, (Deming, 1982). Experiential learning models generally describe how a person continually cycles through a process of having a concrete experience; making observations and

reflections on that experience; forming concepts and generalisations based on those reflections and testing those ideas in a new situation, which leads to another concrete experience, (Kolb 1976, 1984; Honey and Mumford 1986). Thereby, what people learn (know-how), and how they understand and apply that learning (know-why), becomes fundamental. (See Hunt and Hassmén 1997).

Kolb's work, often seen as overly simplistic has been the subject of much debate, (see Holman et al 1997; Reynolds, 1997; Mettinen, 2000; Raelin 2001), yet remains enormously popular in management training and consultancy circles. As we progress in the twenty-first century, with virtual learning environments, we face another fundamental transition from knowledge understood as a matter of what one knows, to knowledge understood as a matter of what one can do. There are several strands in this transition, but the key direction is clear : from knowledge as contemplation to knowledge as action. The knowledge-in-action, (Schön 1983), that is most highly prized in the modern world is that which is produced in-situ in workplace contexts, in settings that are systemic, collective and oriented to production, profit and growth, (Schein 1993). This working knowledge, generated by, and in the work situation, becomes authentic if it can be put to work. Individuals, teams and organizations apply knowledge-in-action when they engage in systematic problem solving; experiment with new approaches; learn from their past history; learn from experience and best practice of others; and create, share and transfer knowledge quickly and efficiently throughout the organization, (Amidon and Skyrme, 1998).

12.1.2 Team Learning

A simplistic, yet widely used description of team development is the "forming-storming-norming-performing" model, (Tuckman, 1965), which generally implies a linear transition amongst its members. Such a model often overlooks the necessary conditions and processes that occur at each stage of team-learning. Where teamwork is perceived as unnecessary to task accomplishment, and experimentation occurs at the individual rather than group level it is likely that the team will be unlikely to emerge from its fragmented learning stage. Where members cross boundaries to share experiences and information, and experimentation is focused on individual and collective learning then the team could be considered to be at a pooled learning stage, (Marsick and Watkins, 1990). When a team becomes boundary-less as information is sought and given freely, and experimentation becomes frequent and bold at both the individual and collective level, then the team could be considered to be at a synergistic learning stage. In this stage the interaction between tacit and explicit knowledge is rapid and amplified. Knowledge is transferred between organizational boundaries and knowledge from different organizations interacts to create new knowledge. (Senge et al 1994). (Kimble and Barlow, 2000).

Teams often fail to reach their potential, or plateau in terms of their development because of the presence of one or more factors that inhibit the progress of teamworking. One may relate to the poor transfer of learning from one situation to another, where mistakes are identified but are repeated on a subsequent occasion. Another may be related to the lack of expertise and resources to help facilitate the learning into the wider organization, (Fletcher, 2003). This often occurs where there is a lack of insight at higher managerial or executive levels even though teams are performing relatively well. Another may be where

teamworking is differentially effective : working well in some parts of the organization but not in others, (see Argyris, 1990; Argyris and Schön, 1991).

Traditionally, various difficulties arise from the problematic levels of understanding on the part of individuals of the principles behind high performance innovations or concepts rooted in conversations and interactions between people and practice. There is now a stronger emphasis on socially oriented approaches to the understanding of learning and knowing. One of the notable consequences is the emergence of new units of analysis such as CoPs and its variants, "activity systems", and "social networks". In knowledge intensive work, creating an informational environment that helps employees solve increasingly complex problems and often ambiguous problems, holds significant performance implications. Frequently such efforts entail knowledge management focusing on the capture and sharing of codified knowledge and re-usable work products, (Nonaka and Konno, 2000).

12.1.3 Knowledge Creation and Knowledge Transfer

Integration of two core knowledge flow processes, knowledge creation and knowledge transfer, becomes significant. The target of a process for knowledge creation is to enhance the potential of creating innovations, (Huber, 1991; Dixon, 1994; Blackler, 1995). First, knowledge domain members start by creating collective tacit knowledge by jointly experiencing new work processes, use of technologies and relationships. Members must spend considerable time together, discussing and reflecting upon their experiences, explaining and giving sense to their own actions. The team then attempts to make these collective experiences explicit, through consensus on accurate descriptions of their experiences. Beers (1995) shows how these descriptions are used to develop new product or service concepts based on their experiences.

Tools or techniques (mediating artefacts) such as benchmarking, swot analysis, time horizons, scenario planning and risk analysis, are used to evaluate alternative decision making strategies during this process. The knowledge creation process typically happens in communities of practice or other small-sized groups whose role is to enhance the pace of innovation and reduce the time-to-market. One key factor in leading such groups would be project-leadership where mobilization of knowledge creation initiatives can be co-ordinated within the organisation, (Stata, 1989; Weick, 1995), co-ordinating real-time achievements with project objectives.

Knowledge transfer on the other hand needs to be used selectively : Not everybody needs to know everything at all times. Knowledge transfer needs to be worthwhile for all parties who must be interested in applying the knowledge transferred into their own activities to realize the benefits of the transfer. When knowledge is shared across disciplines, including success and failures, the potential for innovation is increased. Building upon trust between participants, the risk of repeat mistakes and "reinventing the wheel" is significantly reduced, and creativity and entrepreneurship are nurtured.

Knowledge creation and sharing in social networks often provides a rich and systematic means of assessing informal networks by mapping and analyzing relationships among people, teams, departments and even organizations. Although directors and managers are often adament that they know their organization, studies show that they have different levels of accuracy in understanding the networks around them, (see Davenport and Prusak 1998, Nonaka and Teece 2001). Social network analysis can provide an insight into the way in which work is or is not occurring in these informal networks. It can also reveal the extent to which the entire network may be disproportionately

reliant upon one or two key individuals whose absence may have a significant

impact on the effectiveness of the operation. Mapping a team's

interrelationships allows them to make explicit the underlying dynamic structure

that exists. Once there is a shared understanding of that structure they can

prescribe more sophisticated courses of action for future activities, tactics and

strategies. The amount of trust in an organization and its members' ability to

develop and deploy tacit knowledge together, enable more influence over the

fortunes of the company than merely using the official hierarchy. The process of

surfacing individual mental models and making them explicit can accelerate

individual learning, and at the same time reduce fragmented or situational/pooled

learning in favour of synergistic learning, (see Kim, 1993).

12.1.4 Organizational Learning

Every year around the world major catastrophies and disasters lead to loss of life

and serious injury. Disasters resulting in death at the Hillsborough and Bradford

football ground tragedies have prompted significant changes in the way sporting

events are attended. The *Marchioness* pleasure boat sinking, and the

Zeebrugge ferry capsizing both raised the issue of whether intent could be

ascribed to the corporate body since it lacked a "controlling mind". Repeated

failures in the UK oil industry preceded the 1988 Piper Alpha disaster which

became the worst oil industry off-shore accident when 167 employees died. The

subsequent Cullen report considered issues that went to the heart of how the

whole offshore oil industry was managed and run. These issues were part of two

key questions the final report sought to answer : what caused the disaster and

what could prevent a repeat of such an event in the future? (Woolfson et al

1997). All these disasters have one common factor. In each case information

existed that might have averted the disasters if the appropriate leaders had

access to the right data at the right time.

Although an organization may exist independent of particular individuals it should be recognized that individuals acquire information in problem-solving and decision-making activities, (Hedberg, 1981; Feldman, 1986). Through the process of knowledge sharing the organizational interpretation system in part transcends the individual level. This is why an organization may preserve knowledge of the past even when key members leave. Experience has been built up over many years in understanding the reasons for accidents, disasters and system failures in a number of fields. A systems approach takes a holistic stance on the issues of failure, (Fortune and Peters, 1995). It recognizes that many of the problems facing organizations are complex, ill-defined and result from the interaction of a number of factors. Specific action needs to be taken to ensure that important lessons from failure are quickly and reliably acted upon and that improvement is sustained.

Advances in the aviation industry over the last ten years demonstrate the potential to improve incident reporting systems in a relatively short space of time if the issue is given sufficient priority. The focus of the Aviation Safety System is on detecting and learning not only from accidents and serious incidents, but also lower-level incidents or near misses, some of which might have the potential to lead to a more serious consequence, (Toft and Reynolds, 1997; Smith and Elliot, 1999). Organizational learning often falls down when a "blame" culture exists where person-centred fault-finding takes precedent over systemic failures. Additionally, when little or no account of a "near-miss" occurs, the organization fails to learn from the experience; and when there is little culture of individual self-appraisal and the ability to self-appraise openly and frankly is absent, the negative effects of a "blame culture" will be reinforced.

12.1.5 Learning History

Many organizations are now using "learning-history" techniques as a management tool that captures the lessons of success and failure, (Roth et al 1994). A learning history is a narrative of a company's recent set of "critical episodes" or significant events. One of the major benefits that occurs is the building and sustaining of trust. Individuals who believe their opinions were ignored in the past come to feel that those opinions have been validated when they see them in the learning history document. The group discussions that accompany learning history reviews provide new opportunities for collective reflection. As trust grows it creates an environment more conducive to collective learning because such learning depends upon the candid sharing of ideas.

12.1.6 Organizational Memory

Every success or failure represents a part of history, a single instance that could be described more commonly as a case. A case is a contextualized piece of knowledge representing an experience that teaches a lesson fundamental to achieving the goals of the reasoner. A case represents specific knowledge tied to a context : it captures knowledge at an operational level and records experiences that are different from what is expected. Learning from experience helps the reasoner achieve a goal or a set of goals more easily in the future and warns about the possibility of failure or potential problems. New decisions are less likely to be rejected if they are imbued with the tradition and legitimacy of the past. Change that works by recapturing something that was there in the past has many resources on which to draw and a whole network of support on which to rely. A dynamic memory is one where remembering, understanding, experiencing and learning are inseparable from each other. The memory changes as a result of its experiences. Many major corporations are now firmly committed to the concept of "An Organisation with a Memory", (e.g. Dept. of

Health, 2000). Decisions that are critically considered in terms of an

organization's history and memory as they bear on the present are likely to be

more effective than those made in a historical vacuum. The future has no place

to come from but the past, and those who cannot remember the past are

condemned to repeat it!

12.2   Conceptual Model One : "A Framework of Learning and Reflection

Experience embraces conscious and unconscious dynamics; reflective as well

as action-oriented occurrences and all manner of interactions among subjects,

contexts and situations. Many approaches to learning, and especially

constructivism, consider that a learner is believed to construct, through reflection,

a personal understanding of relevant structures of meaning derived from his/her

action in the world. Piaget (1950) describes this as an oscillation between

assimilation of new objects into internal constructs and accommodation of these

constructs in response to new experiences that may contradict them.

Boud, Keogh and Walker's (1985) model of reflection in the learning process

treats reflection as a form of response of the learner to experience. In their view

reflection in the context of learning is a generic term for the intellectual and

affective activities in which individuals engage to explore their experiences in

order to lead to new understandings and appreciations. To differentiate between

learning and experiencing is an analytical construction used to make particular

sense of events located in cultural process and temporal terms.

Working with different groups and communities over the past few years, I began

to think about a framework of learning from experience which attempts to

integrate all of the processes of reflection, experiencing, conceptualization and

action into one activity where a "whole" view can enable individuals to make sense of what occurs when they talk of learning from experience as different from when they actually engage in learning from experience. The framework also attempts to assist with some of the difficulties associated with current models of learning which are favoured by many management consultants, and corporate trainers.

Taking as a starting point Piaget's (1950) concept of learning as an oscillation between assimilation of new objects into internal constructs, and accommodation of these constructs in response to new experiences that may contradict them, the model extends this. It presents the view that learning takes place as much *in the experience* as *from the experience.* Thus, conceptual frameworks need to be integrated into situations or within the practitioners sensemaking <u>at the time</u> of the practice. Conceptualization is built into the process of learning and knowledge through reflective/reflexive interactions.
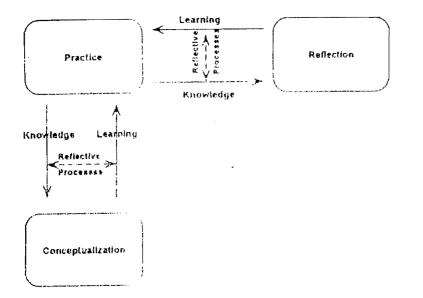
<u>Fig. 12:1 : Linking Conceptualization and Reflection through Practice</u>

A difficulty with conceptualizing learning, and particularly learning style, is that when individuals are described as having a "preferred" way of learning the aspects of matters that are "not preferred" are often left unaddressed. This is one of the weaknesses of Kolb's Learning Style Inventory, where individuals focus upon their "preferred" style of learning without concentrating upon other styles. (See Reynolds 1997).

Many people experience "in the grip" (Quenk, 1996), events (out-of-character episodes) which prevent them from undertaking successful interpersonal relationships. Individuals who suffer this dysfunctional experience need frameworks to discuss their thoughts and actions as they seek ways of returning to equilibrium. This is invariably an after-the-experience activity rather than a during-the-experience activity, which facilitates a conscious reflection of an experience previously located in the unconscious. Schön's (1983) concept of the reflective practitioner is a view of professional practice in which the knowledge and thought of a practitioner is evident most fully in the actions of the practitioner. Eraut (1994) argues that the terms "knowledge-in-action" and "reflection-in-action" do not imply conscious knowledge or reflection, but rather that the reflection that Schön is calling attention to is *in the action,* not in the associated thinking after the action. Here Eraut is suggesting that this process is one of meta-cognition rather than of reflection : a theory of different forms of perception, thought and knowledge. It is evident that reflection-in-action is undoubtedly a very elusive and puzzling phenomenon (Ghaye and Lillyman 2000), and the ability to state or describe what takes place during action, and to reflect on it, is often cited as one of the crucial difficulties of the reflective practitioner concept.

Argyris and Schön (1974) originally acknowledged that individuals may not be able to describe their theory-in-use, or may attribute to themselves an espoused theory incongruent with their actions. The problem of learning was thus described :-

> *"How can we change an existing theory-in-use or learn a new theory-in-use when we cannot state what is to be changed or learned?"*
> (Argyris and Schön 1974, pp. 9-10).

Expert knowledge means that learning, as well as the activity itself, often proceeds to an extent at least, intuitively or with the appearance of informed action or judgement without attendant thought. Polanyi (1958) has also argued that expertise cannot in principle be fully explicated for it embodies observations, distinctions, feelings, perceptual patterns and nuances that are too fine-grain to be caught accurately in a web of words. Thus, explicit knowledge cannot be easily converted into practical know-how, and conscious deliberate reflection may undermine the skilled performance. Polanyi influenced Schön (indeed both claimed to have identified a new epistemology), and the notion of reflection emerged when an answer to the above question was offered :-

> "*we must surface and criticise our tacit frames*".
> (Rein and Schön 1977, p. 243).

Although a lot has been written about the importance of knowledge in consultancy and in management, little attention has been given to the manner in which knowledge is acquired and managed. To address this, a distinction must first be made between tacit knowledge and explicit knowledge.

Polanyi states "*we know far more than we are prepared to believe",* and although he orientates his analysis in the philosophical domain, it is possible to draw some lessons from it for an operational domain. So when Rein and Schön suggest *"we must surface and criticise our tacit frames",* what exactly are they referring to?   I

see tacit knowledge as having two sides. Firstly a cognitive dimension :

paradigms, mental models, schemas, representations, etc. Secondly, a

technical dimension : know-what, know-how, know-why, expertise applied to a

specific context. It is towards the technical dimension that Dewey (1925) refers

when he identifies his two forms of knowledge : *knowing-how,* (that gleaned

through habit and intuition and *knowing-about* (which implies reflection and

conscious appreciation). Similarly Merleau-Ponty (1963) argued that through

practice we acquire patterns of behaviour which we then call up spontaneously,

whilst Ryle (1949) refers to "knowing-how and knowing-that". (See Chapter 3,

earlier). Behind the apparent in what we learn is an invisible body of

mechanisms and it is clear that tacit knowledge plays a central role in our

learning processes. We are not conscious of it but it comes into the scope of

practice, where it is properly abstracted.

In the way that many consultants and managers are quite at ease with problem

solving techniques that rely upon divergent forms of thinking (i.e. brainstorming,

creative choice etc.), or convergent forms of thinking (i.e. analytical evaluation,

decision analysis, probability theory etc.), they are less able to articulate forms of

thinking that constitute assimilation or accommodation (Polanyi (1950; Kolb

(1984). It is in these areas that embodiments of individual tacit knowledge are

found : "instinct", "impulsion", "reflex", "intuition", "serendipity", "perceptual filters",

"incidental learning".

Schön's (1983) arguments about the idea of reflective practice and the

professional-client contract becoming transformed within a framework of

accountability led me to discuss with various CoPs and individuals how to find a

way of describing how one or both parties could discuss the nature of learning,

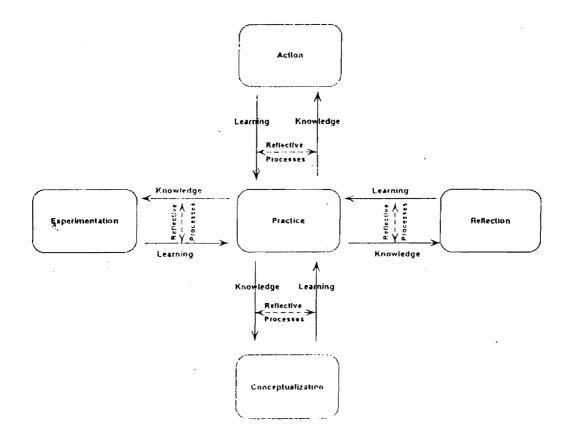knowledge and reflection in such a way that tacit knowing could be transformed into explicit knowledge.

Just as reflective practice takes the form of a reflective conversation with the situation, so the

> *reflective practitioner's relation with his client takes the form of a literally reflective conversation. Here the professional recognises that his technical expertise is embedded in a context of meanings. He attributes to his clients, as well as to himself, a capacity to mean, know and plan.* (Schön 1983, p. 295).

A framework for improving practice through experiential learning draws together the four key aspects of reflection, conceptualization, experimentation and action, and addresses both tacit and explicit matters by surfacing some of the core beliefs and underlying principles that might have remained submerged without the assistance of critical reflective practice.

The framework integrates the four key aspects, and recognizes that within each are orders of activity. The model views learning and knowledge creation not simply in terms of the subjects and objects of knowledge involved, but also in terms of their previous interactions and ability to project and speculate about potential interaction and to express their intention. Thus it is not a framework that concentrates solely upon after-the-experience events and learning, or looks at purely during-the-moment (reflection-in-action) events. It enables these to be connected to prior-to-the experience situations, through anticipatory activities such as planning, scenario building, strategic choice, highlighting possibilities and contradictions. Loughran (1996) has a similar cyclical model based on reflective phases (suggestions-problem-hypothesis-reasoning-testing). This also incorporates opportunities for retrospective reflection, contemporaneous reflection and anticipatory reflection.

Fig. 12:2 : Framework of Learning from Experience

In the framework, knowledge and learning are interconnected and mediated by different reflective processes. The current interest in "knowledge management" and creating "learning organizations" has frequently resulted in isolating knowledge and learning as separate concepts rather than integrating them. Within the context of individual and organizational change there is a need to examine how learning informs knowledge, and how knowledge generates learning. (Antonacopoulou, 1999). I take Dewey's (1933) proposition that phases of experience and thought need not occur in any set order or pattern.
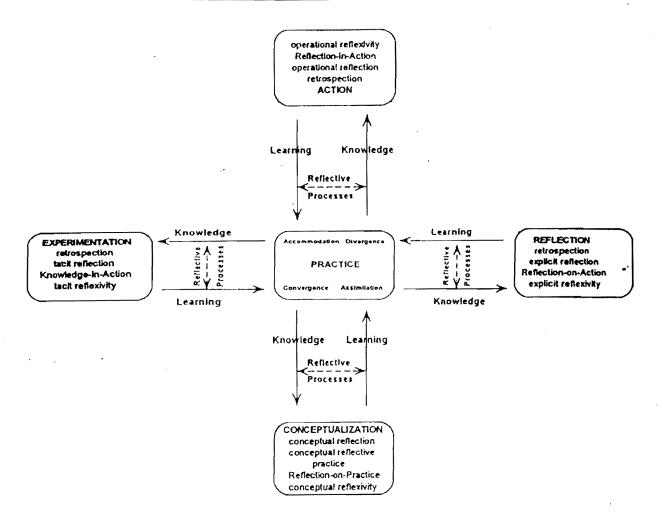
12.2.1 Learning Style as Entry Point

Thus the entry point on the framework depends upon an individual's preference. Neither does the learning *have* to occur in a cycle to be effective. Learning can occur between people through external relationships, processes of argumentation, reflexivity, dialogical and dialectical critique. It depends upon

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choice and preference. It is the individual's decision, where internal and external reflection can be incorporated into the same activity. Individuals can experience themselves as part of a situation in which they have a past, a present and a future. Locating individuals within their own unique situation enables them to explore change in the social and cultural contexts in which they operate. The framework is there to be used totally, utilizing all of its sectors, or partially depending upon the areas of attention required by the individual. A central point is the identification of his/her practice. In this regard it places the Kolb/Piaget concept of accommodation and assimilation, and the problem solving concepts of divergence and convergence at the heart of the framework. When individuals fully appreciate the basis for their preferences, they can begin to critically examine the reasons why they hold those preferences. They can begin to develop their least preferred processes, as well as those most frequently utilized. Learning and knowledge can be interconnected in any sector mediated by reflective processes which can be surface or deep structured.

There are some, however, who argue that Kolb's realist treatment of world and events, is problematic (Miettenen, 2000); and from a relational-constructionist perspective this is probably a fair criticism. Realist assumptions imply one reality, and the Kolb/Piaget concept has to be viewed with these limitations. What is important is to highlight that there is more than one reality, and that multiple realities could be narrated, (see Czarniawska, 2003). This could take place at a deep structured level where dialogical and dialectical processes can be introduced. In my view, the Kolb/Piaget concept is adequate for initial surface-level mediation and learners do appreciate the easy to comprehend nature of Kolb (or Honey-Mumford) learning style concepts.

Fig. 12:3 : Components of the Four Aspects

operational reflexivity
Reflection-in-Action
operational reflection
retrospection
ACTION

Learning   Knowledge

Reflective

Processes

EXPERIMENTATION
retrospection
tacit reflection
Knowledge-in-Action
tacit reflexivity

Knowledge

Reflective Processes

Learning

Accommodation Divergence

PRACTICE

Convergence   Assimilation

Learning

Reflective Processes

Knowledge

REFLECTION
retrospection
explicit reflection
Reflection-on-Action
explicit reflexivity

Knowledge   Learning

Reflective

Processes

CONCEPTUALIZATION
conceptual reflection
conceptual reflective
practice
Reflection-on-Practice
conceptual reflexivity

12.2.2 Retrospection into Reflection

Retrospection can occur in any of the four aspects, looking back at past events

or matters in context and creating a "general theory" for the occurrence. Thus

one could look back retrospectively at reflection, conceptualization,

experimentation or action. At a slightly deep level, Tacit Reflection during

experimentation or action refers mainly to individual perception. Giddens (1984)

discusses "practical consciousness" in connection with the nature of action,

arguing that action cannot be discussed separately from the body, its mediations

with the surrounding world, and the coherence of an acting self. Such non-

articulated, tacit reflection could be brought into consciousness when individuals

report their intentions through articulation or explicit reflection.

Operational Reflection refers to the mirroring/ reflecting back of one's actions or learning at the procedural level, where an individual acquires the steps in order to complete the task or operation. This knowledge may be acquired through routines or repetition. Conceptual Reflection refers to reflecting back about why things are done in the first place, sometimes challenging the very nature or existence of prevailing conditions or conceptions. This reflection could lead to new conceptions within an individual's mental model, opening up opportunities for discontinuous steps of reframing problems or complexities.

12.2.3 "Action Past, Present and Future"

Further deepening concentrates on Action, and later, Reflection-on-Practice. Knowing-in-Action, often difficult to describe or make explicit is what Schön discusses as "intuition", and he describes how :-

> *"reflection on knowing-in-action goes together with reflection on the stuff at hand".*
> Schön(1983, p. 50).

This is what is described as the ordinary practical knowledge, knowing that we manifest in the doing, the "instinct" or motor skills that we build into and reveal by our performance of everyday routines. Reflection-in-Action (bounded by the action present) is what occurs during but without interrupting our activities. It is the "attending-to", the "regulating", the "adjustments" that take place during the moment. The knowledge that is generated enables tasks to be undertaken spontaneously whilst undertaking real-time fine-tuning of the performance.

Reflection-on-Action (bounded by the action past), involves looking back at a task, event, or occurrence that has occurred in the immediate past. This can be a private introspective activity, or a public activity brought out in the company of others (DeFillippi, 2001; Raelin, 2001). I describe reflection-on-practice as a

conceptualizing process, reflecting about how knowledge and learning has been developed and used. It may involve conceptualizing about the sensemaking that has been acquired, or be considered reflections on values, contexts, beliefs or practice itself. Reflection is usually seen as a systematic thought process concerned with simplifying experience by searching for patterns, logic, structure and order. Schön (1992) advocates having a reflective conversation with the situation, reflecting on how knowledge has been developed and used. For Schön this meta-reflection involves :-

> *"a process of getting in touch with the understandings we form in the midst of action".*
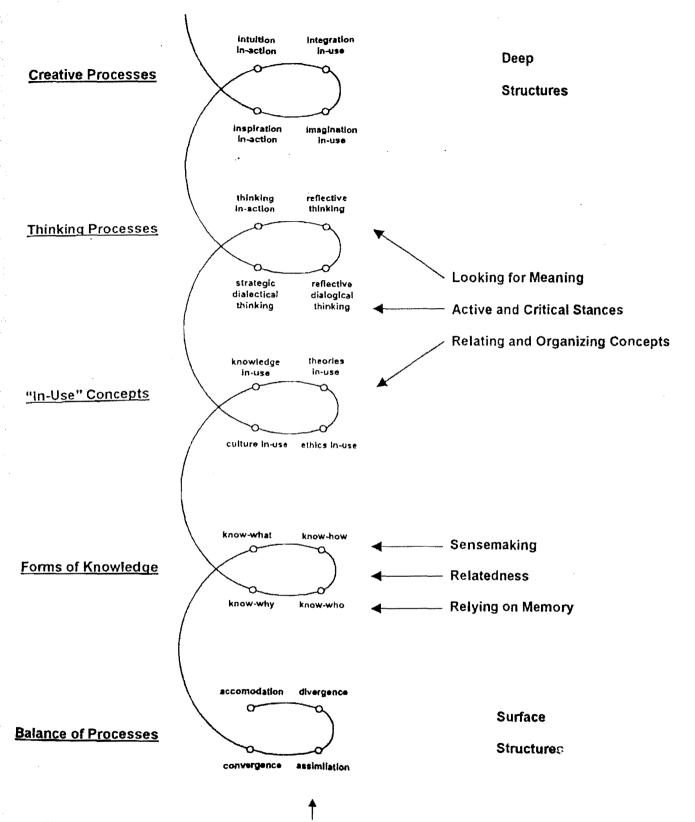> (Schön, 1992, p. 51).

12.2.4 Moving Towards Reflexivity

Deepening the process further, reflexivity means complexifying thinking or experience by highlighting contradictions, doubts, dilemmas and possibilities. (Chia, 1996). Tacit reflexivity involves opening up the "practical consciousness" through reflexive dialogue about those aspects that were previously so hard to articulate. Embodied reactions, reflexes or responses can be surfaced by reflexive dialogue *from within* (having a critical conversation with oneself). Externalizing that dialogue with others is one way of turning the tacit knowing into explicit learning. This might be events that take place regularly within communities of practice, or as Lave and Wenger (1991) suggest, take place where situated learning is located in the processes of co-participation highlighting the relationship between learning and the social situation in which it occurs. Here learning takes place in a participative framework and is mediated by the different perspectives amongst the co-participants. Chia (1996) talks of the intellectual critique from inside of practice where we question the way we relate to others, and where we ourselves are the focus. This critical practice would come from within the experience, the action, the reflection process itself,

or within the conceptualization. Self-reflexivity means developing an ability to question our own ways of making sense of the world. Reflexive dialogical practice means externalizing and reflecting on situations from "outside" and using explicit knowledge to explain experiences or actions. (Winter 1989; Cunliffe, 2002).

I take the view that where an individual has an understanding of his learning style preference, psychological preference, and metacognitive profile, he is well-placed to approach processes of sensemaking within complex situations. The framework provides an opportunity to engage in reflexive dialogue with others about aspects of learning from experience. The entry-point into that dialogue can be facilitated by a number of routes. Those with a preference for assimilation may wish to start with issues of reflection and conceptualization, accessing ladders of abstraction. Extroverts may prefer to engage early in reflective or reflexive dialogue, whilst introverts may prefer to internalize before engaging in explicit activities.
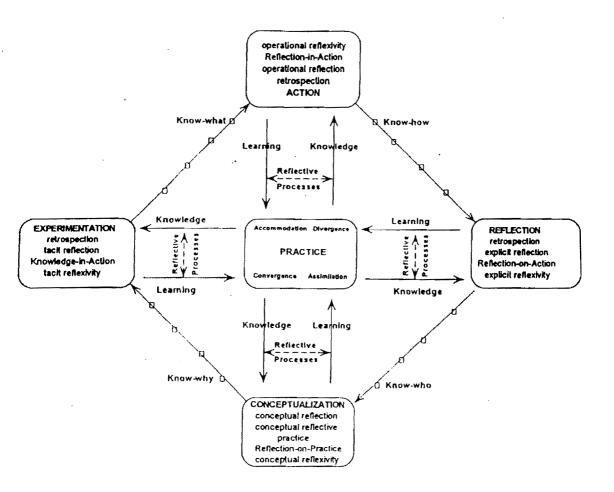
Having such awareness provides flexibility and choice in knowledge acquisition and learning. An individual may wish to address key areas of each aspect within the framework. These are organized into "platforms of knowledge" and learning (see Fig. 12.4), which conceptualizes levels of analysis. The platforms are levels of surface and deep structures of knowledge and learning. Surface structures would include : relying on memory, sensemaking, relatedness. Deep structures would include : looking for meaning, active and critical stances, relating and organizing concepts. Thus, issues could be addressed at a surface level, or through a more comprehensive and complex analysis.

Fig. 12:4 : Platforms of Knowledge and Learning : Levels of Dialogue

Creative Processes

intuition in-action   integration in-use

inspiration in-action   imagination in-use

Deep

Structures

Thinking Processes

thinking in-action   reflective thinking

strategic dialectical thinking   reflective dialogical thinking

Looking for Meaning

Active and Critical Stances

Relating and Organizing Concepts

"In-Use" Concepts

knowledge in-use   theories in-use

culture in-use   ethics in-use

Forms of Knowledge

know-what   know-how

know-why   know-who

Sensemaking

Relatedness

Relying on Memory

Balance of Processes

accomodation   divergence

convergence   assimilation

Surface

Structures

This is the entry point into early dialogue around issues of knowledge, learning and reflection. Each platform represents an increasing level of complexity, moving from surface structures to deep structures. At the highest level, meta-learning and meta-reflection are facilitated.
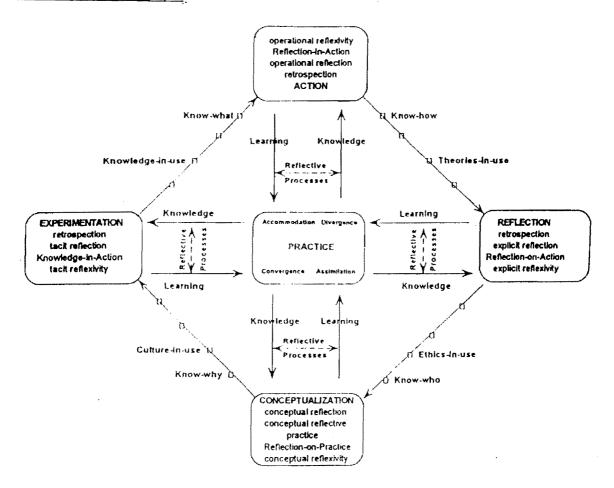
12.2.5 Forms of Knowledge

Individuals may wish to address forms of knowledge referring to the understanding of things. "Know -what" develops implicitly and become externalized by talking *within* a practice. This is often factual declarative knowledge. "Know-how" is practiced-based knowledge, learned by practicing and doing. It is a dispositional knowledge which entails an ability to *respond* to actual situations and gets things done rather than merely conceptualizing about them in the abstract. It is often procedural knowledge.

"Know-who" or "knowledge by acquaintance" is an understanding of self and others, and the basic forces (behavioural, psychological, emotional, affective) that make up the complexities of that individual(s). It enables one to compare,

contrast and draw distinctions between personal and styles, behavioural styles, types, traits etc., and to *identify* them in practice. "Know-why" is having an understanding of why things happen or techniques work, and the principles behind the practice. It is talking *about* a practice.

Fig. 12:6 : "In-use" concepts

12.2.6 "In-use" concepts

"Knowledge-in-use" is the development of knowledge about *doing things*. It is what turns the often implicit knowledge-in-action into use, by externalizing them. It is the practical talking within a practice (the "war stories", and "tricks of the trade" that exist in communities of practice). (See Orr, 1987 : 1990a; 1990b).

"Theories-in-use" are the "what and the how" of actual occurrences in practice, those that can be inferred from action. It is here that the consequences of an action strategy can be assessed (plan v actual) and where single, double or triple loop learning emanates.
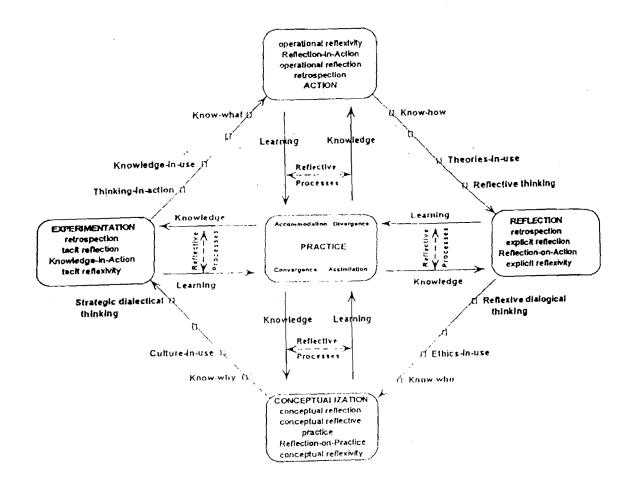
"Ethics-in-use" is the awareness of, and justification for, the use of personal and professional ethics in practice. It may follow critical reflection which challenges "the way things are done around here". Ethical knowing entails experience that causes the individual to reflect on situations and how they impact upon the individual's values.

Culture-in-use is a deeper awareness of cultures and the ability to be congruent within them. The ability to "fit-in" is partly about understanding those cultures, and aligning aspects of them with other concepts such as ethics. The recent interest in "cultural intelligence" reflects other developments such as relationship management and engagement management.

"In use" concepts provide opportunities to discuss occurrences of experiences as they happened, in the moments of practice, in the time of the event. The four concepts illustrated here (knowledge, theory, ethics, culture) are not exclusive to this level. They are reference points to be used at this "third-floor" platform, where looking for meaning, relating or organizing can be facilitated. Other points might include "values-in-use", or "beliefs-in-use", or "identity-in-use" etc.

The model is being gradually and progressively built-up. Individuals can reflect upon their previous interactions at different levels of complexity, and plan future interactions based upon those past events.

Fig. 12:7 : Thinking Processes

Fig. 12:7 : Thinking Processes

12.2.7 Thinking Processes

Thinking-in-action refers to an individual's awareness of his cognitive processes used during experimentation or action. These processing dimensions are mental choices : detail complexity versus dynamic complexity; operational versus strategic approach; short term versus long term orientation, and structured versus unstructured contexts within tasks.

Reflective thinking would be the conscious choice of ways to reflect. An individual might choose to adopt specific reflective tools or techniques (e.g. Mezirow, 1990; Loughran, 1996; Johns, 2002), to examine an event or occurrence. These are logical, objective analytical processes where we attempt to make sense of experience, sometimes by invoking theory. As Weick (1995)

has stated in his discussion of "future-perfect thinking" : reflection not only

involves intellectualizing the past but also creating order and shared meaning in

our conversations about the future.

> *"Sensemaking can be extended beyond the present. As a result, present*
> *decisions can be made meaningful in a larger context than they usually*
> *are and more of the past and future can be brought to bear to inform*
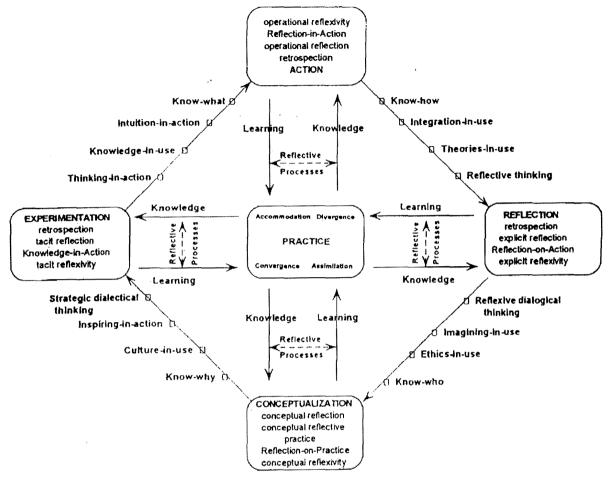> *them".*
> (Weick, 1995, p. 29)

Reflexive dialogical practice questions our ways of understanding and

challenges deeply held assumptions and suppositions that might impact upon

learning. Reflexive dialogue portrays each of us as practical authors and critical

questioners within our social experiences.

Strategic dialectical thinking involves challenging possibilities and

contradictions. This extends Dewey's (1933 and 1938) psychological concept of

reflective judgement, and develops synthesized dialectical thinking based upon

the philosophies of Hegel and Marx. Strategic dialectical thinking is highly

adaptive to new ideas that are still in their infancy, full of contradictions,

ambiguity or uncertainty. This has associations with other forms of thinking

such as "Janusian thinking". It can be used as a strategic planning technique, a

problem solving technique, or as a counter-point to traditional linear thinking with

a tendency for consistency and certainty. At this level, reality construction and

sense-making as a relational process, through responsive dialogue, is assisted

by helping individuals to identify different ways to reflect. (See Cunliffe, 2002;

Cunliffe and Shotter, 2006; Cunliffe 2008).

Here, we express the principle that communication is action, and that context

constructs communication, and communication constructs context. The person

position is an element of a story, and the story has a moral force. There are

layers of context linking feeling, meaning and action in patterns lived and stories told.

Fig. 12:8 : Creative Processes

12.2.8 Creative Processes

Intuition-in-action : Intuition has sometimes been described as the force that drives the knowledge spiral; a state of mind that transcends the "inside" and the "outside", based upon extensive embedded experience, practice and routine; a force that emerges in times of critical need.

It is occasionally heralded as the value of not always knowing what one is doing. Intuition-in-action is the holistic interrelations of situations drawn from a largely unconscious experiential data base.

> "I don't know why I hit the ball the way I did, it just happened".
> (Alan Shearer, Newcastle United footballer, speaking on "Match of the Day, December, 2002).

<u>Integration-in-use</u> : The transformation of tacit knowledge into explicit knowledge through articulation, and the internalizing of the explicit back into the tacit are aspects of organizational change that have recently come to the forefront of thinking in learning and knowledge creation (Nonaka and Takeuchi, 1995; Nonaka and Konno, 2000). These mutually complementary and interdependent processes can be seen in use when individuals form communities of practice to establish "best practice groups", integrating different forms of knowledge and learning.

<u>Imagining-in-use</u> : This means using extraordinary creative processes to envisage internal and external conditions; and on occasion to bring them about into reality. Imaginative constructions emerge from common sense observations : the world looks flat; entities that move on their own seem different from entities that do not, "thinking outside the box". While Piaget thought that such ideas tended to disappear with age, they have proven to be enduring. Some of the most novel and innovative developments have been stimulated by learning in unfamiliar settings and facing the clash of perspectives and challenge to conventional ways of thinking and reflecting.

As Moss Kanter observed :-

> *"Leaders must create a culture that permits discussion of half-formed embryonic possibilities".*
> (Moss Kanter, 2000 p. 251).

Imagination, derives from a deep appreciation of the way one set of ideas bears on another. It is the wilful act of establishing conceptual connections between hitherto unrelated ideas, impressions, bodies of knowledge and experienced phenomena in a manner which gives fresh insights into the subtleties of our lived experience.

"Inspiring in Action" : This is the timely emergence of latent artistry developed through the cycles of experience, reflection and conceptualization. It is concerned with bringing about inspirational change from ideas, actions and plans that are exciting, stimulating and transforming for the self and/or for others. "Pulling the rabbit out of the hat" at critical moments during occurrences and "Thinking dynamically on your feet", are the phrases that have described this phenomenon. It is a planning process that challenges the conventional and embraces high-risk, high-reward ways of decision making. Drucker (1985) observes that entrepreneurship is characterized by a violation of elementary and well-know rules, often as a result of naivety rather than anything else. In this sense entrepreneurship is "risky" for those who observe entrepreneurial behaviour, but not for the entrepreneurs themselves, since their thinking styles and world-views are likely to be vastly different from others.

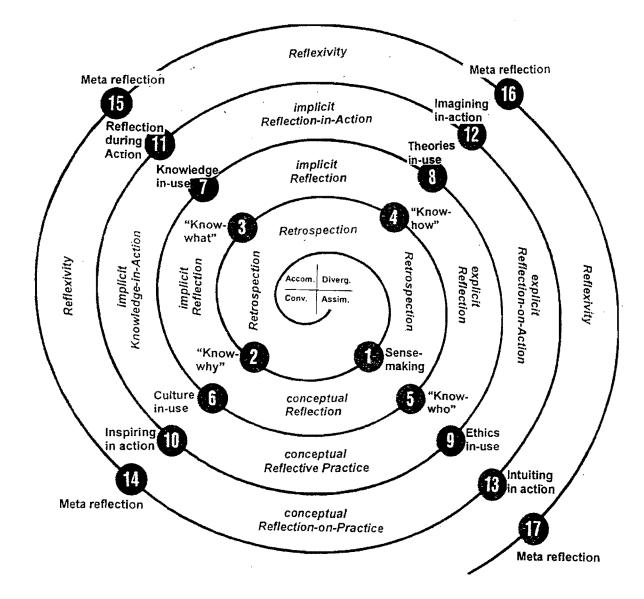## 12.2.9 The Models as part of my Professional Development

The model is part of my professional development which has been discussed, explored and revised with many of the groups, teams and communities that I have worked with in recent years.

The following conceptualizations show a number of key phases in the development of the model. The first (Fig.12:9) shows the model as a two-dimensional spiral model. Fig. 12:10 shows the spiral with forms of knowledge overlaid. Fig. 12:11 shows a further development which incorporate some of the learning and reflection concepts at different stages before the final (current) model shown earlier in Fig. 12:8. The early models were essentially two dimensional models and did not take into account different levels of experience, understanding, or aspects of meta-learning. By building in platforms where higher orders of thinking could be incorporated into the model, this enabled

individuals at different points in their development to discuss concepts of knowledge and learning at the most appropriate point for them.

Fig. 12:12 shows the development of a knowledge management flow of processes which incorporates all of the main thematic categories identified from the CoPs in the data. Fig. 12:13 shows the integration of the knowledge and learning framework nestling within the knowledge management flow of processes. This enables knowledge management to be discussed at different levels from different reflective and reflexive standpoints. Like many other conceptual models, it has its weaknesses and limitations. A conceptual map or model is aimed at expressing the meaning of terms and concepts used by others to discuss a problem, an event, or an experience. Its purpose is to help to find the correct relationships between those different concepts, and to help to clarify meanings of various terms, expressions, and interpretations used. It is therefore only a map, and maps have to be regularly re-designed to reflect the changing contours of what is happening on the territory. Maps help me to find my way around through my mental models, but 'walking the streets of experience' helps me to locate the concrete realities against the abstract concepts. Many of these have been co-constructed, others have been solely the results of my own reflections on knowledge and learning. These models represent a contribution to my professional development.

They have helped me to see that identity and power is a legitimate and desirable focus for understanding what is going on in the 'streets of experience'. They have helped me to consider meaning as something that can be opened up to inquiry and challenge. They enabled me to consider what occurs in situations from different perspectives, and different orders of critical evaluation.
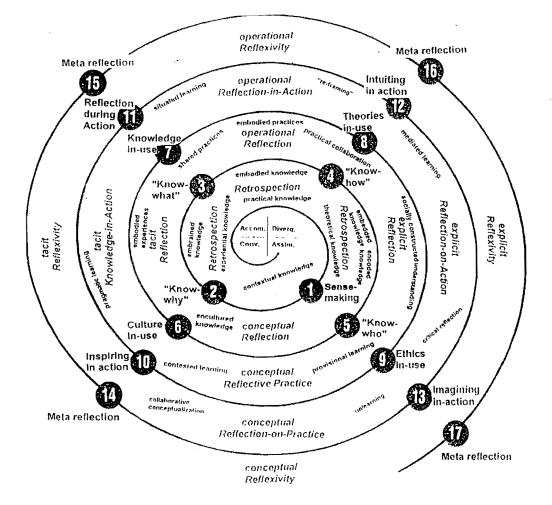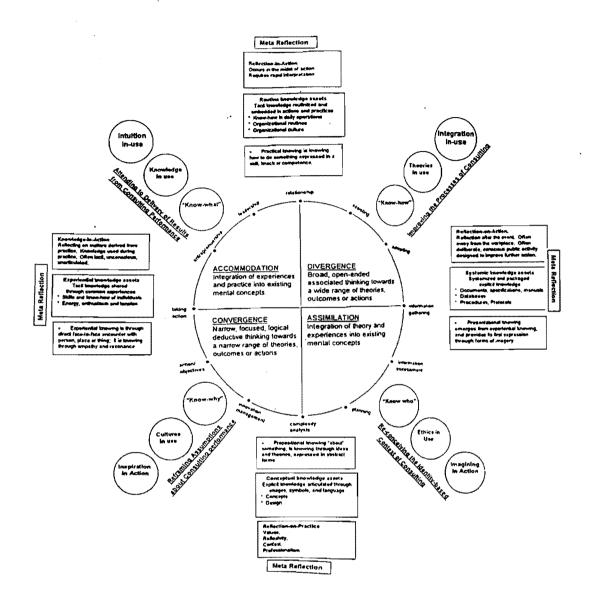
Fig. 12:9 : An early Two-dimensional Spiral Model

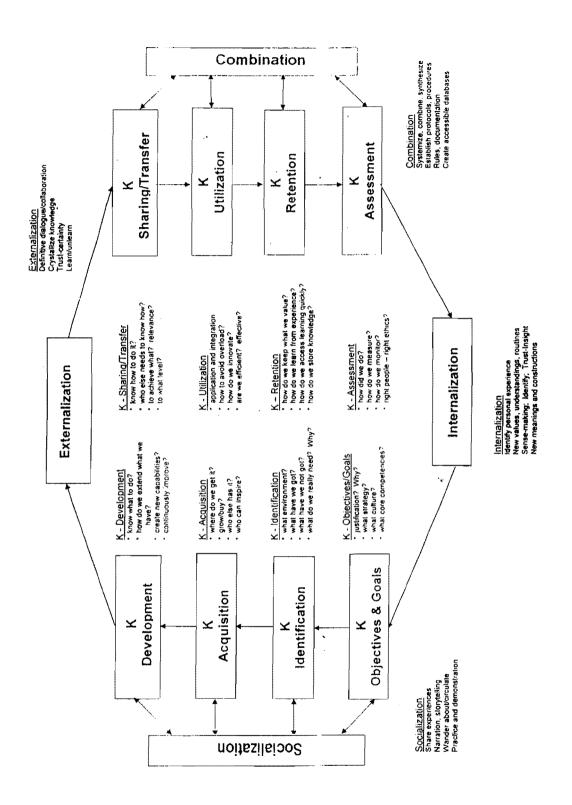Fig. 12:11 : Early Development Model with Learning Style at Centre

12:3 Development of Knowledge Flow Processes

This development of a model of knowledge flow processes was created during fieldwork in four organizations, LiteCo, Dragon Trust, Hostco and Harleywide over a thirty month period.

The model is a conceptualization of the way in which knowledge flows around an organization. It is a co-constructed model, created with different community of practice members in the four above organizations. Its purpose is to offer an integrated framework for knowledge management which can help to view knowledge as a resource for practical action. The theoretical foundation for the model is based upon Probst et al (2000), and extends their concept of "Knowledge Management building blocks". The conceptual model is shown overleaf in Fig. 12.12.

The model takes as its starting point that knowledge flows in and around organizations, and is generated both internally and externally. The question why some knowledge gets created internally is significant for the way organizations decide to develop and build up their knowledge base. Knowledge also "leaks", and flows between competitors, and whilst some companies have an interest in keeping and retaining knowledge assets, others have an interest in releasing knowledge into the public domain : knowledge being distinct from data and information. Knowledge relates to the whole body of learning, reflection, meaning and conceptualizing that individuals, communities, teams and groups use for solving problems. Knowledge is structured, embedded, context dependent, requires behavioural control, and cognitive patterns for action. Knowledge workers need to ask specific questions about what, why, where, when, how and who is best placed to create and share knowledge.

Fig. 12.12 : Development of Knowledge Flow Processes

12.4   Integration of the Two Models

It is possible to integrate the two models in order to be able to use the "Framework of Learning and Reflection", and its associated "Platforms of Knowledge and Learning" in a co-ordinated way with the Knowledge Management model of "Knowledge Flow Processes".

The integration of the two models shows how learning and reflection can become part of a wider part of understanding about the flows of knowledge within organizations. The integration model is shown overleaf in Fig. 12.13.

Knowledge management needs to be seen more as a people-related process and understood from the personal viewpoints of those who make up the community, work-group team or organization. At the heart of that process is culture where openness, trust and meaning take precedence over power and status. By understanding the knowledge flows, individuals can adjust their behaviours to ensure that processes of individual, team and organization learning have a direction and a dynamic.

Integrating the two models enables a practical model of knowledge flows and associated questions for decision-making to be used in conjunction with orders of critical evaluation. (First order : outside of the self. Second order : where relational contexts are invoked and I am part of the pattern. Third order : where cultural context and relational contexts are invoked).

A social constructionist consultant is concerned to employ reflexive responsibilities for identities, relationships and cultures for the way we communicate. The integrated model enables the 'business language' of knowledge management to become intertwined with the structuring of effective, reflexive dialogue at different levels of complexity.

Externalization
Definitive dialogue/collaboration
Crystallize knowledge
Trust-certainty
Learn/unlearn

Socialization
Share experiences
Narration, storytelling
Wander about/circulate
Practice and demonstration

K - Development
* know what to do?
* how do we extend what we have?
* create new capabilities?
* continuously improve?

K - Acquisition
* where do we get it?
  grow/buy?
* who else has it?
* who can inspire?

K - Identification
* what environment?
* what have we got?
* what have we not got?
* what do we really need? Why?

K - Objectives/Goals
* justification? Why?
* what strategy?
* what culture?
* what core competencies?

K - Sharing/Transfer
* know how to do it?
* who else needs to know how?
* to achieve what? relevance?
* to what level?

Combination
Systematize, combine, synthesise
Establish protocols, procedures
Rules, documentation
Create accessible databases

K - Utilization
* application and integration
* how to avoid overload?
* how do we innovate?
* are we efficient? effective?

K - Retention
* how do we keep what we value?
* how do we learn from experience?
* how do we access learning quickly?
* how do we store knowledge?

K - Assessment
* how did we do?
* how do we measure?
* how do we monitor?
* right people - right ethics?

Internalization
Identify personal experience
New values, understandings, routines
Sense-making; Identity; Trust-insight
New meanings and constructions

EXPERIMENTATION
retrospection
tacit reflection
Knowledge-in-Action
tacit reflexivity

operational reflexivity
Reflection-in-Action
operational reflection
retrospection
ACTION

REFLECTION
retrospection
explicit reflection
Reflection-on-Action
explicit reflexivity

PRACTICE
* Accommodation   * Divergence
* Convergence   * Reflection

CONCEPTUALIZATION
conceptual reflection
conceptual reflective
practice
Reflection-on-Practice
conceptual reflexivity

Intuition-in-action
Knowledge-in-use
Thinking-in-action
Strategic dialectical thinking
Inspiring-in-action
Culture-in-use

Know-what
Know-why?
Know-how
Integration-in-use
Theories-in-use
Reflective thinking
Reflexive dialogical thinking
Imagining-in-use
Ethics-in-use
Know-who

Knowledge   Learning   Reflective Processes

Finally, as a response to Czarniawska (2001), a Social Constructionist consultant can operate a systemic principle of consulting by linking patterns of connecting with own patterns lived, and stories told. Patterns make sense when we widen the pattern. However, a Social Constructionist consultant has to be a participant within the social and organizational process and not outside of the pattern. Participant and observer have to have simultaneous roles. Although consultant and community may approach problems from different directions, they engage and journey together across areas of work and activity negotiated. The subsequent rounds of activity and discussion, oscillate with reflective and reflexive processes at various levels of complexity, and between them they navigate the zone of proximal development, reflecting together, and learning from each other.

Fig. 12:14 : A Social Constructionist Model of Roles in the Client-consultant
     Learning Process

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Chapter 13

Conclusions

This chapter consists of ten sections and draws together the conclusions of the research.

13.1   Revisiting the Objectives of the Research.
13.2   Commonalities in Findings.
13.3   Key Sociological Elements.
13.4   Key Knowledge Flow Processes.
13.5   Conceptual Conclusions.
13.6   Claims for Rigour and Trustworthiness.
13.7   Propositions.
13.8   Knowledge and Consulting Practice.
13.9   Critique of the Research.
13.10   Future Research Agenda.

13.1   RevisitingThe Objectives of the Research

In Chapter one I set out the objectives of the research, which was to ascertain how knowledge, learning and reflection was mediated in communities of practice. The aim of the research was to take evidence from the lived experience of members of the communities, and to identify if there were any common findings across the range of responses from members in the communities under study. Another intention was also to establish a model, or set of models, that would assist in understanding the relationship between learning, reflection and knowledge within situated activity, and the social dynamics of workplace communities.

My intention was to try to co-construct those models and frameworks and to use them in a practical way for the personal and professional development of myself, and those who I was working with in areas of knowledge-intensity through my consultancy practice. During the lifetime of the inquiry, the models were developed and refined, and in part, have contributed to many of the findings of

this research, by way of co-constructed activity. As a researcher-consultant, I was working on the inside of communities of practice and developing some solutions to internal problems with the members of those communities. The models appeared to help and appeared to work. They still do, because I still use them and they generally seem to gain client approval. The short conclusion to the question about the success of the models is a positive one.

The three central themes that were running through the overall inquiry were :-

- Professional Practice

- Knowledge in Organizations

- Communities of Practice

The first theme was significant to me in undertaking a professional doctorate with a practice-based orientation. My professional practice has been enhanced by keeping this theme constantly in focus during the research inquiry.

The second theme was to highlight the nature of knowledge in organizations and to clarify the relationships between important components of knowledge in organizations. The co-constructed model of "Knowledge Flows in Organizations" has been a helpful conceptualization of the way knowledge moves dynamically within organizations and their workplaces.

The third theme, focused upon the practice of the researcher-consultant undertaking empirical research into the relationship between knowledge, learning and reflection in Communities of Practice. In particular, the super-ordinate research question was designed to ascertain how these were

mediated, and the focus was to understand this from the actors' perspective. The lived experiences of the participants was obtained through qualitative data collection using a participatory action research approach.

The factual conclusions for this inquiry are based upon the evidence collected in field-settings and comprise qualitative text which has been analyzed into emerging themes and categories.

Evidence from some of the textual data has been presented in the fieldwork chapters in the thesis (Chapters 6, 7, 8, 9), and worked examples are also included. It is not my intention to report material which has already been included in previous chapters, but to direct attention to relevant and significant data which confirms much of the findings.

The full range of research questions were as follows :-

RQ 1) How is knowledge, learning and reflection mediated in communities of practice.

RQ 2) How are structural components of CoPs built and sustained?

RQ 3) How are epistemic components of CoPs built and sustained?

RQ 4) How do organizational features or artefacts facilitate knowledge, learning and reflective processes?

RQ 5) How are interplays of tensions within CoPs resolved and/or reconciled?

RQ 6) How is the ability to assess the appropriateness of action within CoPs developed and sustained?

RQ 7) How are CoPs integrated within the organization?

RQ 8) How is the social construction of knowledge and the process of sharing knowledge across CoPs facilitated?

RQ 9) How can CoPs and the management of knowledge be integrated to support learning, meaning and reflection in workplace practice?

RQ 10) How does my own experience of a CoP connect with, and offer insights about other workplace communities?

RQ 11) How have people in CoPs constructed their reality, and what are their reported perceptions, beliefs and explanations for what occurs within these workplace communities?

RQ 12) What does the actors' stories and narratives reveal about the culture of CoPs.?

13.2 Commonalities in Findings

There are two broad areas where the findings show some commonalities.

1)   The key sociological elements that influence the interplay of knowledge, learning and reflection in communities of practice.

2)   The key components of an organizational knowledge system, with respect to the knowledge flow processes within it.

13.3 Key Sociological Elements

The key sociological elements that were common to all the communities of

practice within the inquiry were as follows :-

        i)   Individual learning roles in CoPs.
        ii)   The situated context of CoPs, workgroups and teams.
        iii)   The role of management in mediating learning.
        iv)   Learning environments.
        v)   Organizational culture.
        vi)   Technology and ICT.

These key elements interrelate within the social systems to mediate the situated

learning behaviour of community members.

13.4 Key Knowledge Flow Processes

There were four key areas which were consistent across all cases :-

        a)   Formulation of knowledge and learning.
        b)   Generation of knowledge and learning.
        c)   Utilization of knowledge and learning.
        d)   Consolidation of knowledge and learning.

The textual evidence for the development of these main thematic categories is located within the fieldwork chapters 6-9. In chapters ten and eleven, I reflect on these themes and begin the process of interpreting this factual evidence into conceptual findings. There are 41 conclusions to the 12 research questions.

RQ1 : The super-ordinate research question was :-

"How is knowledge, learning and reflection mediated in communities of practice?"

The main findings set out in chapter eleven are that the six sociological elements interact in a variety of ways to mediate within the social systems. Each community is different, but the six elements have an impact upon learning to a greater or lesser degree in all of the communities in the inquiry.

RQ2 "How are structural components of CoPs built and sustained?"

The main findings are that where organizations encourage loose CoP structures, these appear to assist greater sustainability. Additionally, a desire for practice and practical applications sustains CoPs. Individual and team learning stimulates higher activity of CoP membership. In terms of the utilization of knowledge and learning, the discretionary rather than mandatory use of technology encourages participation and sustainability. The general finding was that technology usage should not be mandated. There was evidence that a link between CoPs and organizational networks and structures assists CoP group identity. It was found that people engagement was a more significant factor than technology support. Where people were placed into unfamiliar roles and knowledge sharing, the likelihood of disruption was higher. Some tightly knit CoPs developed core rigidities, resulting in a lack of engagement and synergy with other CoPs. The presence of internet systems frequently provided the link between CoPs and official organizational information networks. It was found that codification of knowledge processes was essential to ensure continuity between what knowledge is retained and was not lost when an employee or member leaves a CoP (internally or externally).
(The textual evidence for these conclusions can be found on pages 231, 232, 235, 238, 241, 259 and 279).

RQ3 "How are epistemic components of CoPs built and sustained?" The evidence for this was largely from the literature where Wenger (1998b) defined the epistemic components of CoPs as :-

- Theories of learning.
- Theories of social constitution.
- Theories of practice.
- Theories of identity.
- Theories of situatedness.

Thompson (2005) found support for ways in which an organization can provide helpful support to communities, without constraining the delicate dynamic by which they are sustained. There was some evidence of this in terms of the creation of loose organizational structures around which CoPs might interact, but on the whole the evidence for this was thin. It was found that there were wide variations in CoP epistemic and structural characteristics. CoPs have 'unique' personalities, and recognizing these assists individual and group identity.

RQ4 "How do organizational features or artefacts facilitate knowledge, learning and reflective processes?"

Specific artefacts were highlighted in chapter eleven. These can range from plans, drawings, photographs and analysis and evaluation tools. These tools are useful in reducing ambiguity through their use in problem solving processes.
(Evidence from fieldwork cases can be found on pages 235, 236, 237, 240, 242, 244).

(Evidence from the literature also confirms the findings that specific artefacts can facilitate learning by enabling more mutual trust in problem solving situations. See Knorr-Cetina 1981; Macpherson and Jones 2008; Bechky 2003; Carlile 2002, 2004; Taylor and Robichaud 2004; Tsoukas 2002).

RQ5 "How are interplays of tension within CoPs resolved and/or reconciled?"

A full worked example in chapter nine shows how a tension was addressed in fieldwork by the co-construction of solutions between research and client. Tensions may be of identity, of power, or of participation.

There was little evidence to show that CoP members had specific formal mediation skills in resolving such tensions, but a number of examples of informal mediation processes emerged from the cases under study. These were generally incidental learning experiences, or experiential learning situations, which on a number of occasions were shown to be highly effective. Interplays of tension were usually resolved through shared understanding and negotiated meaning.
(Evidence from within the text can be found on pages 234, 241, 242, 253, 258, 259).

RQ6 "How is the ability to assess the appropriateness of action within CoPs developed and sustained?"

Evidence from the fieldwork found that knowledge acquisition processes need to be universally understood amongst CoPs and organizational groups. Where they were, there was usually a clarity of focus about what knowledge was to be acquired and how it could support learning and development.

Another finding indicated that allowing individuals to co-construct what issues were worth identifying, helped them to engage with their reflections and experiences through increased participation.
(The evidence from fieldwork can be found on pages 232, 237, 238, 243, 259, 270, 271, 278).

RQ7 "How are CoPs integrated within the organization?"

A main conclusion here is that by encouraging CoPs to play an integral part in strategic knowledge management initiatives, an essential part of the linkages between strategic value and intellectual capital is maintained. Support for identity, relationship building and mutual respect builds trusting and enduring CoPs.

Further, with regard to the utilization of knowledge, where organizations encourage open and transparent viewpoints, experimentation within CoPs becomes more active, both individually and collectively.

CoP involvement in assembling internal and external data or documentation, and acknowledging the source, was seen as a sustaining factor.

Strategic reorganization impacts upon the collective spirit of CoPs where major change initiatives overlooked their presence or value.
(The textual evidence for these conclusions can be found on pages 232, 233, 234, 236, 237, 238, 239, 241, 242, 243, 254, 259).

RQ8 "How is the social construction of knowledge and the process of sharing knowledge across CoPs facilitated?"

The main elements of the social construction of knowledge comprise of sharing and comparing information; discovering and exploring concepts; and co-constructing and negotiating terms, meanings, identities and relationships.

Evidence from the cases indicates that face-to-face activity was considered essential to the process of sharing knowledge. It was found that in many cases technology was only a sustaining activity between meetings. Face-to-face activity was considered essential to the process of sharing knowledge. It was found that in many cases technology was only a sustaining activity between meetings. Without face-to-face, many CoPs tend to struggle to survive long term. Virtual communities demand a higher technological component. Building mutual knowledge, developing trust between members, and a sense of belonging leading to increased comprehension appeared more complex through computer-mediated interactions.

Cross-project knowledge transfer amongst CoPs was enhanced by collective learning/team learning. Where CoPs were valued as a context for individual learning, members will be more willing to cross boundaries to exchange information.

New corporate knowledge becomes established when explicit and tacit knowledge is generated, shared and codified.

Knowledge sharing within CoPs was considered to be a routine and uncomplicated activity. Sharing knowledge between CoPs was seen as more complex sharing between CoPs and the formal organization was seen as power-laden, problematic and complex.
(**The evidence from the cases for these conclusions can be found on pages 233, 235, 236, 242, 243, 244, 245 246, 259, 268).**

RQ9 "How can CoPs and the management of knowledge be integrated to support learning, meaning and reflection in workplace practice?"

Evidence from the cases suggest that a specific domain of interest stimulates learning in CoPs. Individual activity in CoPs is sustained by reciprocity. Benchmarking and prototyping facilitates a challenging spirit within CoPs. Interim and post project evaluations facilitate the consolidation of learning through recurring cycles of tacit/explicit knowledge exchange.
(Evidence from the cases can be found on pages 234, 236, 237, 238, 240, 241, 242, 243, 244, 245, 259, 268).

RQ10 "How does my own experience of a CoP connect with, and offer insights about other workplace communities?"

My autobiographical account of my apprenticeship in a composing chapel was documented in chapter six. The purpose of the chapter was to present my own account alongside Lave and Wenger's (1991) examples of participation and learning and Wenger's (1998b) concepts of joint enterprise, mutual engagement and shared repertoire. Conclusions to that chapter are contained on page 108.

A significant conclusion was that although composing chapels were considered to be examples of tight socially cohesive workgroups, at times they became fragmented and open to internal conflict and tensions. The issues of off-the-job training were significant and relevant for understanding whether a CoP could regulate tensions between formal and informal learning; on-the-job and off-the-job training.

Further, my account confirmed the common theme running through the research about the ambiguity of supervisors (overseers), being the first source for learning. This point was emphasised again in Chapter 11.

The account also demonstrated examples of where contacts for learning were created informally. See page 186 regarding "learning the dangerous" (Cook and Yanow, 1993) also mentioned in the literature.
Other evidence from the literature that confirm some of my conclusions are : Hughes, 2002; Coburn 1983; Sykes 1960; Engeström 1987.

RQ11 "How have people in CoPs constructed their reality, and what are their reported perceptions, beliefs and explanations for what occurs within these workplace communities?"

The evidence for this is interspersed throughout the textual evidence gathered during fieldwork. Issues such as "mutual respect"; "mutual understanding"; "commitment", "customer perceptions", "risk", are some of the conclusions which are presented.
(Evidence in the text can be found on pages 239, 240, 256, 259, 269, 270).

"What does the actor's stories and narratives reveal about the culture of CoPs?"

A wide range of evidence emerged about workplace culture and frequent incongruencies between the culture of the communities and the organizational culture prevailing within the organization. These were either tensions of identity, or tensions of power, and although the evidence was widely dispersed, organizational culture was a common sociological element in every case organization within the inquiry.

Richness of stories and narratives stimulate socialization processes encouraging the release of tacit knowledge. This facilitates creative processes and provides more fertile ground for learning and reflection at different levels.

Storytelling, and conversation were considered essential to maintain the cultural fabric of CoPs.
(Evidence from the texts can be found on pages 233, 234, 239, 242, 245, 246, 259, 278).

13.5   Conceptual Conclusions

1)   Knowledge, learning and reflection in communities of practice are

mediated by the situated workplace interaction of six key elements of individual

learning; the situated context of CoPs; the role of management in mediation;

the learning environment; the organization culture and technology/ICT.

2)   Within a knowledge management framework four themes and sixteen

categories of knowledge flow dynamically to assist the process of understanding

learning and reflection.

13.6   Claims for Rigour and Trustworthiness

Credibility   There is confidence in the truth of findings.

Transferability   The findings of this inquiry have applicability in the context of others.

Dependability   The findings are considered stable over time.

Confirmability   Many of the findings are confirmed by the subjects.

Respondent   Data has been taken back to some of the respondents

<u>Validation</u>	for validation.
<u>Context</u>	The researcher believes the context is suitable and findings could be related to other settings.
<u>Reflexivity</u>	There was critical self examination by the researcher.
<u>Audit Trail</u>	A number of worked examples are provided in the thesis.
<u>Thick Description</u>	There was description to contextualise the study, and certain findings can be transferred within similar environments.

13.7 Propositions

<u>Proposition 1)</u> The formulation of knowledge and learning in communities of practice consists of strategic objective setting; identification of knowledge requirements, and analysis of the most appropriate sources to acquire this knowledge. This is positively related to the way in which organizational culture and individual encouragement are perceived by the community members.

<u>Proposition 2)</u> The generation of knowledge and learning in communities of practice consists of socialization processes, knowledge creation and development and opportunities for tacit/explicit exchanges. This is positively related to the knowledge-in-use within an organization and the way in which knowledge and learning is located within the shared experiences of the community members.

<u>Proposition 3)</u> The utilization of knowledge and learning in communities of practice consists of knowledge sharing processes, knowledge transfer, transfer of learning and knowledge usage within and between organizations and their component elements. It is positively related to the way in which knowledge is perceived as a transferable resource and the way it is viewed as part of a reciprocal act.

<u>Proposition 4)</u> The consolidation of knowledge and learning in communities of practice consists of the combination and codification of knowledge assets and the retention and assessment of the value of those assets for future purposes. This is positively related to the way in which explicit knowledge is converted into routines and embedded in actions and practices in everyday operations. Through reformulation and learning from experience the whole process of knowledge creation continues dynamically.

***   ***   ***   ***

The propositions are advanced as the researcher's understandings of the lived

experiences of the members of communities of practice, are not co-constructed.

No claims for generalizability are made beyond the local setting of each CoP. However, it is considered that the findings of the inquiry would have applicability in other similar contexts.

13.8 Knowledge and Consulting Practice

Throughout the inquiry, there has been an emphasis upon the co-construction of problems; joint participation in agreeing the best form of actions to address problems; attempting to be inclusive about participation, and treating knowledge as situated.

The methodology of participatory action research enabled the practice-based theories of organizational knowing to be applied.

A recent piece of supportive evidence for this approach was presented by Hicks, Nair and Wilderom (2009). Others such as Davenport and Prusak (1998); Schein (1987); Greeno (1998); and Clark (1995) have all generally supported this approach.

13.9 Critique of the Research

The boundaries of the research posed a number of specific challenges for me. Few researchers have attempted to understand the relationship between communities of practice and learning and reflection from inside the communities. This is understandable, because CoPs are by definition extremely hard to define. Any individual can be involved in numerous communities of practice varying from their immediate workgroup to a community of interest. The very definition, or lack of one, makes identification difficult. Even when all fourteen factors stated by Wenger (1998b) are in place, it is by no means certain that the

members of that community see their relationship in the same way as Wenger has defined it. The process of defining the membership of communities of practice takes away their very essence, because they thrive on their informal nature. Any attempt to impose formally upon CoPs risks losing their sustainability. This makes problems of access to CoPs quite a challenge. Many groups were operating as a CoP but did not appear aware of the term, or of the form. In many ways this is because of the tight, local nature of communities as originally defined by Lave and Wenger (1991) being overtaken by social and technological developments.

Recently revisiting some of the respondents from TaxiCo, revealed that instead of using clipboards and an A to Z of London as part of their knowledge, their artefacts now included satellite navigation systems, and ways of knowing appeared to have changed accordingly.

Studying CoPs from an Activity Theory methodology would have been interesting and insightful, and may have enabled the scope of the research to be focused in different ways. At times, researching the lived experience of the respondents generated some fascinating but voluminous data.

Undertaking a professional doctorate with a practice element meant an additional level of analysis that demanded a constantly reflective and reflexive approach. This was exceptionally rewarding, but the scope of the inquiry required constant managing.

13.10 Future Research Agenda

The scope of the research did not include examining Virtual CoPs. Some of the challenges, strategies and practices of VCoPs in knowledge management environments make them an attractive potential future research agenda. Much of the literature tends to assume that all communities have similar characteristics, and the concepts of CoPs and VCoPs are often incorrectly treated as a one-dimensional construct. Some of their structuring characteristics such as geographical dispersion, membership and levels of participation, make them unique. The technological component brings members experience into different environments to those of traditional CoPs. The issue of discretionary rather than mandatory use of technology poses some interesting challenges which I intend to explore in future research opportunities.

Chapter 14

Contribution to Knowledge and Professional Practice

14.1 5 Claims for a Contribution to Knowledge

1)   This inquiry has provided a gap in the knowledge of consulting with

communities of practice. Few people have undertaken consultancy activity from

the inside of communities of practice. From the sixteen case studies in this

inquiry, four were conducted as insider research in collaboration with the

participants and members of the community teams. The remainder of the cases

were conducted using participant observation or observation techniques.

2)   The inquiry has demonstrated the application of conventional research

instruments in new fields of investigation. Consultancy as a practice is largely

under-conceptualized, and communities of practice, although attracting plenty of

interest in the literature, do not reveal many insider research projects from a

consulting perspective.

3)   The inquiry draws direct parallels between the experience of the

researcher-consultant during his working time as an apprentice compositor, with

the seminal work of Lave and Wenger (1991) who based much of their research

in "Situated Learning : Legitimate Peripheral Participation" on the cases of five

different kinds of apprenticeships. This work formed the basis for the early

notions of communities of practice. Lave and Wenger were not members of

these apprenticeship communities : they were outsiders who were researching

them 'at a distance'. The research claims unique insider knowledge of an

apprenticeship experience lasting over five years and has conducted

retrospective research on the experience.

4)   The autobiographical evidence of insider fieldwork has been compared and contrasted with communities of practice in sixteen case organizations. In four of these organisations I operated as a researcher-consultant with limited insider status. I was working within the organization as a consultant with a practice-based mandate, and was afforded the opportunity to engage in research into the existing communities of practice within these organizations. This is a somewhat unique research situation.

5)   Outputs from the research consist of two conceptual models which assist in understanding how knowledge, learning and reflection are mediated in communities of practice. These models have a practical application and were used in real time with some of the participants in the research. The models have endured over time, undergoing refinements.

A conference paper was produced in 2005 and a practical demonstration was delivered to a conference of the Institute of Reflective Practice later that year.

The concept models both have practitioner applications and are being used currently in consulting environments. One model, the "Framework of Learning and Reflection" is claimed as the author's contribution to knowledge both as a personal model, and as a developmental model for others.

A second model, "Knowledge Flow Processes" is claimed as evidence of originality in using the work of Probst et al (2000) which forms the theoretical basis for the model. However, the model has undergone extensive refinements during co-construction with the participants in the inquiry, as is claimed as a contribution to co-constructed knowledge and practical application.

14.   Professional Development

Since Lave and Wenger's (1991) study of situated learning within apprenticeships, and the origins of the term 'Communities of Practice', beginning with Orr's (1987) studies of Xerox technicians, the concept has changed significantly. The notions of communities of practice as I understood it in 2001 when I first became interested in the subject have shifted to one that is heavily influenced by the impact of knowledge management in organizations and ICT as a medium for communications. The key changes over the last seven years can be summarized as follows : Membership characteristics have moved from fixed to variable. Interests of members have moved from a fairly static, common basis, to that of frequently changing interests and priorities. Members previously, drawn from within one organization, are now drawn from others outside including clients, collaborators, contractors and customers. Community activity previously stimulated by regular face-to-face meetings, are now challenged to maintain virtual contact and reduce carbon footprints. Leadership previously provided by small groups or individuals now have frequent changes over time. Members who were co-located locally are now distributed organizationally and geographically.

Establishing virtual communities of consumers and users are the imperatives of major manufacturers of goods and services. The complexity of knowledge-intensive work has been accompanied by the rapid growth of social networking amongst societal groups worldwide.

Professional Study

Since beginning this time-line of professional practice (see Chapter 1) the world of professional study has also changed. There are on-going discussions about

some key aspects of doctoral education in the UK, including tensions between that of producing a product (a thesis of adequate quality) and process (developing the researcher). (See Park, 2007). Perhaps these tensions arise because some DBA candidates seek a focus upon themselves as learners as much as upon a focus on contribution to theory, and/or a contribution to practice.

Doctoral level students often require a significant element of learner managed learning, reflecting the pedagogical aspects of some of the concepts mentioned earlier, such as reflective practice (Schön, 1978); Tacit Knowledge/Learning, (Polanyi, 1966); Agency (Bandura, 1977); Communities of Practice, (Wenger 1998); Situated Cognition, (Lave and Wenger, 1991); and Place (Vygotsky, 1934/1978). Most probably the learner managed process occurs within the tacit understandings of this student as he journeys along the pathway of professional development. Looking back at the aims and objectives for the Luton DBA programme published in the participant's manual (September 2001), it is possible to check off where I think I might measure up against these. Where I am strong? Where am I weak? However, this list only provides the absolute minimum in terms of what is required : (it is the map, but it is not the territory). Somewhere along the journey of professional development it becomes apparent that an awareness of how one learns is probably more important than merely satisfying a list of aims and objectives.

Metalearning

So, the DBA now becomes a vehicle for helping me to address a range of challenges, not least of which is understanding myself and awareness of how one learns. Metalearning, as the critical, reflective, self-evaluative process that

makes one want to question everything, be satisfied with nothing in terms of personal understanding, and looking for fault lines in every situation in order to improve it. Metalearning, therefore, becomes the process by which I think about how I actually learn, and how that learning can assist me to learn and develop more effectively.

Taking control of one's own way of learning (Biggs 1985), means regulating thinking and behaviours in ways that will achieve desirable outcomes and results for a particular context. And now, as I recall the "Structure of Magic", (Bandler and Grinder, 1979) and all the energy and enthusiasm that I had for outcome thinking and reframing, I began to realise that once again I am confronted with a situation that I know more than I can possibly tell. Only this time, I am the one who knows more, rather than the blood-stained apprentice looking for answers, when really the way forward would have been to look for meaning and identity. Yet, for all the metacognitive processes such as planning, organizing, self-instruction, self-monitoring and self-evaluation, I still could not replace the feeling that gnaws away, that perhaps there was a huge gap in my knowledge about the nature of large scale research projects : something I had never really been involved in. All my research, on different Masters degree programmes, to this D.B.A., had been small scale, micro interventions into companies, and the world of the people who worked there. The environmental context of forethought - performance - self-reflection suited me for professional purposes, yet I had never worked on large scale surveys. So in February 2004 I applied to the ESRC Survey Link Scheme to gain fieldwork experience on a large survey using quantitative data collection methods. The National Travel Survey on behalf of the Department of Transport ("Natcen"), provided me with plenty of experience of fieldwork, and an opportunity to go outside of my "qualitative-social-constructionist" comfort zone. Moreover, it helped to extend

my capability, which included my commitment to continuous learning, extending my awareness of specialist techniques and testing my intellectual skills in other paradigms. I had changed, and my thinking had changed. I was more confident operating in different research contexts where previously I might have politely declined for personal reasons of inadequacy. Consciously, going into zones where previously I would have been uncomfortable, was part of this development journey.

Professional Practice

Kemmis (1985) argues that practice is a rich and complex notion whose nuances remain elusive for many researchers. It was when I heard him argue that both communities of practice and their practitioners, along with their clients, consultants and researchers, could thematize and explore problems and issues of practice, that I felt that all my research trials and tribulations on this DBA had been worth the experience.

Instead of viewing practice as an object of study, I began to view it more in a multi-dimensional way, using multidisciplinary and multi-method approaches. Firstly, to see practice as individual behaviour, viewed through different lenses : behavioural, cognitive, relational. Secondly, to see practice as social interaction and taking different viewpoints to examine the same interaction really does help.

Thirdly, to see practices as intentional action shaped by meaning and values : the *verstehen* of empathetic understanding. Next, to see practice as socially structured as shaped by narrative, discourse, tradition and ritual. Finally, to see practice as socially and historically constituted as described by a critical stance. Yes, I've spanned the whole range of the six paradigms of research, but there is

no doubt from reading this thesis where my preferences are located. However, the development of professional practice means to recognize and respect diversity in the understandings of practice (Kemmis 1985), and tolerate and welcome difference. This is not just to be eclectic, a term which has good, and not-so-good connotations for some people. Neither is it just to be holistic, although that is helpful at times.

More, it is an attempt to recognize that practice, and especially professional practice, has to be both reflective in the way that Schön (1987) and others would describe it, and reflexive, where people involved in practices 'observe themselves' in the conduct of their practice : before, after and during the event. "In use" narratives help to rectify some of the criticisms that accompany Schön's work; i.e. that he does not take sufficient account of some of the practical issues which face practitioners, (e.g. Eraut, 1994; van Manen, 1991). Reflexive dialogue helps to understand how our own assumptions impact on the world of others and what we might do ourselves to modify our professional practice to a greater or lesser extent.

<p style="text-align:center">***   ***   ***   ***</p>

GLOSSARY OF TERMS

AC	Abstract Conceptualization
AE	Active Experimentation
App	Apprentice
AppFoc	Apprentice Father of the Chapel
ASE	A Psychometrics Research Organization
CCE	Consultants Competencies Evaluation
CCops	Customer Community of Practice
CE	Concrete Experience
Chapel	Trades Union
'Clicker'	Composing "team leader"
'coffee machine'	Informal alumni KM group at CASS Business School
CollvoP	Collectivity of practice
CoNoP	Constellations of Practice
CoP	Communities of Practice
CPP	Consultants Psychologists Press
DBA	Doctoral of Business Administration
D.Eng	Doctor of Engineering
DIUKW	Data, Information, Understanding, Knowledge, Wisdom (Ackoff 1989).
EBK	Evolution of Business Knowledge
EBOK	Engineering Book of Knowledge
EdD	Doctor of Education
E/I	Extraversion/Introversion
EIQ	Emotional Intelligence Questionnaire
ESFJ	An MBTI Type (example)
FEA	Flexible epistemic artefacts
FFA	Force Field Analysis
FOC	Father of the Chapel
GA	Group Analysis
HR	Human Resources
ICT	Information and Computer Technology
J/P	Judging/Perceiving
KasD	Knowledge as Data (Spender)
KasM	Knowledge as Meaning (Spender)
KasP	Knowledge as Practice (Spender)
KIF	Knowledge Intensive Firms
KN	Knowledge Network
'leaky'	Knowledge which moves too easily out of the organization
LSC	London Society of Compositors
LSI	Kolb Learning Style Inventory
MBTI	Myers Briggs Type Inventory
MD	Managing Director
MSG	Multi-party Steering Group
NGA	National Graphical Association

NoI	Network of interests
NoK	Network of knowing
NoP	Network of practice
'O'	Overseer
OccComm	Occupational Communities
OB	Organizational Behaviour
OBB	Organizational Buying Behaviour (workshop)
OD	Organizational Development
OL	Organizational Learning
OrgL	Organizational learning; the study of the learning processes of and within organizations.
PARC	Palo Alto Research Centre
PhD	Doctoral of Philosophy
PM	Project Meeting
PMMTS	London Printing Machine Managers Trade Society
'poetics'	A dialogical approach to management inquiry
RO	Reflective observation
RSM	Regional Sales Manager
S/N	Sensing/Intuition
SCOT	Social Construction of Technology.
'ship'	Companionship. Team(s) of compositors within a Chapel
SN	Social Networks
'soc'	Society (short for London Society of Compositors)
'sticky'	Knowledge hard to move to other parts of the organization
'strong ties'	Arise from long-term, frequent, sustained interaction. Lots of overlap.
SWOT Analysis	Strengths, Weaknesses, Opportunities, Threats
TA	Typographical Association
T/F	Thinking/Feeling
TU	Trades Union
TUC	Trades Union Congress
UK	United Kingdom
USA	United States of America
VCoPs	Virtual Communities of Practice
'weak ties'	Arise from infrequent and more casual interactions. Little overlap. Faster/good bridges
ZDP	Zone of Proximal Development

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