

**THE MICRO-DYNAMICS OF
KNOWLEDGE DEVELOPMENT IN
MULTI-DISCIPLINARY WORK GROUPS**

by

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Abstract

Organisations, especially those with a business or commercial focus, have always had an interest in knowledge and learning whether they have used these terms to describe their internal processes or not. The acquisition and use of knowledge to create products and services has always been at the heart of any business venture, as has the development of the necessary skills and other actions within the workforce to deliver these products and services. It is only within the last twenty years that there has been any concerted effort to understand the processes that lead to the development of knowledge and that encourage and foster learning. This research examines the dynamics of knowledge development and its relation to learning in the team setting of one professional service company based in London.

Using a grounded theory approach a detailed examination of the knowledge development activities in three teams is carried out, as they work on three projects with different external clients. Data is collected from the interaction of team members during set team meetings and from the way ideas are initiated and developed over the life of the project. This is supported by detailed examination of the business and organisational literature.

The research provides insights into the way individual contributions to team discussions aid knowledge development as well as developing a picture of the nature of knowledge development - its dynamics and morphology.

Detailed descriptions, models and visual representations are used to record the results of the research. The research as a whole has a methodology that is replicable and provides hypotheses that can be tested by other researchers. It also offers insights of value to those managers, consultants and other professionals involved in knowledge development in organisations.

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Chapter 1

Introduction

1.1 The Origins of the Research

This research project has its origins in my own consultancy work in organisational development in the 1990s. The initial catalyst was project work I was undertaking in organisational learning and knowledge development. The general business climate was then, as it is now, fast moving with a continuous search for new ideas and insights that might provide any advantage over competitors. The result of this search was a rapid stream of new products, services and approaches to organising and managing businesses. Human Resource and Organisational Development professionals were as active in this search as were marketers and advertisers.

My concern at this time was not to simply offer new ideas in the areas of learning and knowledge development in commercial organisations but to develop empirical data on which to base these ideas so that they could be built into models and practices ensuring my work had a stronger and clearer rationale.

But as with so many research projects this one has evolved over time. That evolution has been, in part, a result of the fast moving nature of consultancy responding to the business world. It has also evolved as a result of the grounded approach taken as the basis of the research methodology. An approach in which patterns in real and complex

situations are sought and where the discoveries cannot be predicted from the outset.

In consultancy terms this project began at the intersection of two interests: adult learning and learning in organisations. My involvement in adult education and training over the past thirty years has resulted in various attempts to observe, study and understand learning processes in adulthood. This included an MPhil that explored issues facing professional adult educators. One stream of this interest has been on learning as an innate activity or function of the human brain and mind. This has led to a focus on 'natural' or informal forms of learning as distinct from learning emanating from planned and intentional educational activities.

Initially I wanted to pursue this idea of corporate learning through some research both in order to better understand the growing focus of much of my consultancy work and in order to contribute to the growing body of knowledge on this topic.

I decided to focus exploration on different business organisations, interviewing a cross section of employees in order to discover how and what they learned in the setting of their companies - looking for patterns through similarities and comparisons of both formal and informal learning. Although the focus was to be the learning experiences of individuals I was hoping this might lead to insights that enabled conclusions to be drawn at the corporate level.

It was at this point that an evolutionary step change occurred. For although it was relatively easy to find a selection of businesses and willing subjects it soon became clear how difficult it would be to collect meaningful data over a relatively short period of time available for part-time research. A short account of the first eighteen months of this research is recorded in Chapter 2 'The Cul-de-sac Year'.

The result of this experience was a radical rethink of how I needed to collect my data and led to the following conclusions:

1. To change my focus from processes in individuals to processes within groups. Processes in individuals are harder to observe whereas group interaction provided a more easily observable activity where verbal and non-verbal data were more available to the observer. I also felt that it moved me closer to exploring corporate or collective, as distinct from individual, processes.
2. To spend more time observing and listening to people engaged in the target activities I wanted to research and to see the development of thinking and behaviour over time.
3. To observe phenomena in situ, as they happened, adopting a naturalistic approach that I was familiar and comfortable with.

These decisions coincided with a change of work focus. I had been working as an external consultant to one professional service organisation which then asked me to join them full time. Throughout this research I shall refer to this organisation as *Fox King* in order to preserve confidentiality. I already had two years experience of providing consultancy support for this company and knew a lot about its culture,

structure and practices. The company organised its work around temporary project teams whose task was to solve problems posed by clients. This provided me with access to teams and, with the company's agreement, permission to follow the progress of these teams as they carried out their work. A more detailed description of Fox King is given in Chapter 3 Methodology.

The third evolutionary step came from changes in the business world in the mid 1990s. In the first half of that decade there had been a great interest in organisational learning. Peter Senge's work *The Fifth Discipline* was first published in 1990 and organisations became interested in the commercial value of learning. A plethora of books was written; consultancies sprang up specialising in helping organisations improve their ability to learn in order to maintain or improve their market position; and companies restructured and created new processes and procedures to enhance learning. Learning was heralded as a key to continued growth and business success.

A characteristic of the contemporary business world is the constant search for new insights, new theories and new models - anything that might increase profits and guarantee the future. This constant shifting of interest and focus has become popularly known as 'fad-surfing' - jumping from one approach to organisational and professional development to another. Ambitious managers and Human Resource professionals in many organisations exhibit a 'hunger' for whatever is 'different' and 'new'; anything that might improve their organisation's performance. This included new ways of structuring the organisation,

new processes and new practices. It was in the mid 1990s that the next wave of 'new' thinking hit the western business world. Instead of learning in organisations the focus shifted to *knowledge management*. This was supported by a new wave of literature, new models, and a new language. It resulted in new conferences and yet more changes within organisations to enable good practice in knowledge capture, knowledge storage, knowledge transfer and more recently knowledge creation. The company in which I was working followed the trends and managers began to explore ways of ensuring that work groups and teams contributed to the 'knowledge economy'.

As the focus of my consultancy work shifted from learning to knowledge development so the questions to which I needed answers also changed. As a consequence a new clarity of research focus emerged. I now needed to understand the process of knowledge development in more depth and I formulated my research questions around this goal. I wanted an answer to the question:

What is the nature of knowledge development in organisational settings?

a question which included gaining an understanding of the process and mechanisms by which knowledge was developed. In the light of the shift from learning to knowledge I was also concerned to discover more about the relationship between learning and knowledge development as revealed in this process.

This change of focus from learning to knowledge was, in some ways, even more fundamental in shaping the research than the methodological and practical issues already described.

Thus a focus for the research evolved that was pertinent to my own professional practice and my working context provided access to the sort of data I felt I needed to collect.

As a result of these changing circumstances the research has evolved into one that examines knowledge development and its relationship to learning as exhibited by teams working in a business setting.

1.2 The Structure of the Thesis

The detailed account of this research begins in Chapter 3 with an explanation of the Methodology adopted for the research: describing the nature of the grounded, naturalistic approach and its validity as a foundation to the research methodology; describing the procedures actually undertaken and including the issues and problems that were experienced on the way; and providing a detailed description of the organisation Fox King as the data collecting context.

The survey of literature in Chapter 4 focuses on knowledge management and development in organisational settings with a special emphasis on the business literature of the late 1980s and 1990s when the change from learning organisation to knowledge management was most evident. More recent literature is also referred to and one or two key comparisons are made with the broader academic context of education,

psychology and philosophy which also attempt to explain the nature of knowledge. In this thesis literature is examined after the Methodology as it is deemed to be part of the methodology.

The main data are described and key themes are identified in Chapter 5 'Emerging Themes' and Chapter 6 discusses the implications of this data providing the main interpretative discussion of the thesis. Chapter 7 provides a brief conclusion. The Bibliography is followed by Appendices that provide samples illustrating the Methodology and full tables of the collected data.

Chapter 2

The Cul-de-sac Year

This short account describes the initial direction of this research and explains why it was abandoned and outlines some of the learning from this early work.

The desire to understand more about learning in the context of business organisations emanated from a professional involvement in helping businesses develop their ability to learn, not just in the sense of aiding individual learning but also in a corporate or communal sense.

In the early 1990s there were a number of interesting debates within the organisational development world concerned with the relationship of individual and organisational learning¹. Peter Senge's book on the learning organisation, first published in 1990 (Senge 1993), helped to fuel this debate.

In addition to the individual vs. corporate learning debate I was also interested in the area of informal learning of people in the workplace. The fact that learning occurred in the workplace whether it was planned or not was an issue that featured in my work of helping organisations understand the impact of their cultures on their work and in helping them plan culture change.

¹ 1990 Conference on *Learning in Organisations* held in Newcastle and organised by Nord Long Inc.

This research set out to understand more of the processes of informal learning and the relationship between individual and corporate learning.

My preferred approach was using grounded research; in part because of the plethora of ideas already published on these topics in popular business books (see Chapter 4 Knowledge and Learning: From Theoretical Constructs to Commercial Commodities) but providing little in the way of clear hypotheses to test out and in part because of my own preference for working with real complex situations and discovering emerging ideas from themes and patterns. I had also used grounded methodologies before and therefore had a working knowledge of some of the approaches used.

The methodology was designed around six organisations that all had a reputation for their interest in people development and learning. Two were national retail organisations; another was in transportation, the fourth in manufacturing and the final two in the professional service sector. All were happy to provide me with access to documentation, senior management and employees.

Initial interviews with senior human resource managers enabled me to build a profile of each organisation - its training and development practices, its culture and general information about structure and processes. It also enabled me to identify a sample of employees at all levels who could be interviewed about:

- their experiences of learning - both formal and informal
- the sources of this learning
- the mechanisms for learning

Two initial, long interviews with each of twenty-four people were organised. After the first few interviews my sense was that the data I was gathering was very superficial. People were able to describe the events they had attended especially those that taught practical skills like how to use new computer software. They were able to evaluate the usefulness of such courses by referring to how much easier they were able to utilise the knowledge or skills they had gained.

However they had little common understanding of what learning was and how they experienced their own learning. Many only seemed to equate it with traditional areas of formal education. The idea of learning about their colleagues, learning about themselves, learning through coaching and mentoring, learning through role models, learning 'on-the-job', appeared to be alien to most of them. They either didn't have the understanding or the language to discuss their learning in anything but the simplest of terms.

This led me to redesign the interviews with attempts to change the language I used and to explain more of my terms to encourage a common understanding and starting point for their responses. This brought some improvement in the responses and it did encourage

them to think more widely about the nature of learning. But I began to think that the interviews were in danger of turning into teaching sessions about the nature of learning rather than places where useful data about people's experiences as learners was collected.

At this stage, about a year into the research, other things were beginning to happen. Some of the human resource directors I was in touch with were beginning to shift their focus of interest from learning in their organisations to the need to manage knowledge. My own work situation was changing and in my professional work new questions were requiring answers.

At the end of the year I reassessed progress and rethought my direction. In the light of my experiences I decided that I needed to see processes at work rather than ask people to talk about them retrospectively. This would overcome the language problem because I could use language and conceptual frameworks existing in the literature or of my own construction to interpret what I saw and heard. The need to explain this at a conceptual, abstract level to the subjects became redundant. Because the processes I wanted to explore could to some extent be invisible within individuals I decided I needed to use groups or teams engaged in shared activities where processes would be clearer through group discussion and interaction.

This culminated in a major shift of research focus and methodology which is taken up in subsequent chapters of this research. I brought closure to the work I had conducted in the six organisations by

writing an evaluation of their planned learning based on the experiences of employees and pointed to areas where informal learning could be better harnessed. This was submitted to each human resource or training manager with whom I was in touch.

Chapter 3

Methodology, Context and Procedures

This chapter begins with an examination of the methodological approach chosen for this research, looking at its underlying purpose and philosophy. It then describes the context of the research, with details of both the organisational and case study settings. This is covered in some depth and provides a backcloth to the third section of the chapter which looks at the way the methodology was actually applied in this research, as well as providing a reference point for subsequent chapters that examine the data and describe the analysis and conclusions.

3.1 The Philosophical Basis for the Research Methodology

The underlying approach to this research, which may also be identified with an underlying methodological philosophy, is that of *naturalistic grounded research* which has its roots in the work of two pairs of authors, namely Glaser and Strauss (key texts include: Glaser B.G. & Strauss A.L. 1967; Strauss A.L. & Corbin J. 1990; Glaser B.G. 1992; Strauss A.L. & Corbin J. 1998), and Guba & Lincoln (key texts include: Lincoln Y.S. & Guba E.G. 1985; Guba E. G. & Lincoln Y. S. 1992). Grounded research is itself rooted, in part, in the ethnographic studies of anthropologists studying the everyday, detailed activities of small relatively closed societies (Pollner 1987, Bate 1997).

Glaser and Strauss offer a framework for qualitative research, developed for sociological studies but now more widely used in other fields, including education, business and organisational studies (Babchuk 1996; Goulding 2002). The purpose of their methodology was to enable the generation of theory from data collected in its natural context. This was seen as distinct from more scientific approaches to research that worked with 'a priori' knowledge and a rigorous process of testing to verify theory already postulated. Glaser and Strauss identified two types of theory - substantive theory grounded in specific contexts and formal theory existing at a higher level of abstraction and more generally applicable.

The key to their methodology is the identification and labelling of categories identified within the data. This requires constant comparative work with the data where the researcher moves backwards and forwards through the data in order to discover the most appropriate or useful categories, comparing different elements of the data in the pursuit of this refining process.

The framework they propose for developing grounded theory has the following elements:

- Identifying initial conceptual categories in a particular group or setting - initially creating as many coded categories as possible generated by the researcher and from the data itself, but not by the pre-existing literature
- Using other comparative groups or settings to confirm or adapt these categories and also to generate new

categories or integrate associated categories, this process they call theoretical sampling

- Identifying patterns and linkages between categories
- Developing a substantive theory that describes and explains the emergent patterns and linkages
- Developing a formal theory that is predictive of other groups or settings

This methodology developed over thirty years ago has been adopted by others seeking an alternative to positivist and quantitative approaches to research or concerned to generate new theory rather than verify existing theory.

It is important to note that the careers and thinking of Glaser and Strauss have moved apart with differences of view and some acrimony. The different strands of their more recent thinking are represented in Strauss & Corbin's *Basics of Qualitative Research* (1990) and Glaser's response in *Basics of Grounded Theory* (1992). Glaser accuses Strauss of creating so many complex rules and procedures particularly around the categorisation process that the spirit of their original work is lost and the emergent nature of new theory is sacrificed.

Others have joined this debate demonstrating that Grounded Theory methodology is far from set but rather is in continuing development mode. Some accuse both Glaser and Strauss of moving the method more and more into the positivist camp and argue for a freeing-up of the method to reflect more constructivist orientation (Bryant 2003).

It is in this light that the work of Guba and Lincoln has also been used to help underpin the chosen methodology. They also support qualitative approaches (carried out by what they call an 'evaluator') to aid discovery of patterns in the data, which can then lead to drawing conclusions about the data and its 'worth'. They make much of the importance of the researcher's immersion in the data in its natural context. The features of their naturalistic approach is acceptance that any phenomena in their context involve a pattern of complex relationships that cannot be ignored; that the researcher has to work with this complexity without attempting to isolate any particular variables; that when comparing similar phenomena there will be similarities and differences and both have an important part in defining patterns that exist; that data needs to be collected with as little prediction as possible; and that the researcher is part of the research and not removed from it.

There is some debate over whether this type of research is primarily concerned with descriptions of phenomena or whether it includes evaluation. Guba and Lincoln suggest it is both but are concerned that evaluation is properly understood in terms of the nature of 'worth' and in relation to those to whom any judgements are presented. (Guba and Lincoln 1992 chaps. 3, 9 and 10). Others favour a more descriptive outcome, arguing that descriptions develop understanding of the nature of phenomena without the need for judgements being brought to bear (see Atkinson & Hammersley 1994 pg 248).

Guba and Lincoln argue for a free flowing approach to categorisation and the identification of patterns and links. It is for the loss of this freedom of which Glaser accuses Strauss and Corbin. This freedom allows the researcher to develop their approach in a way that fits them as well as in a way that suits the needs of the researcher. Methods are ultimately seen as being personal to the researcher - their style, their preferences, their way of thinking and their world view (Guba & Lincoln 1992 pp107-109; Stern 1994; Goulding 2002 p 35).

The approach taken in this research is derivative of Glaser and Strauss, Guba and Lincoln and the more general literature on qualitative methodologies (Agar 1986; Silverman 2001). The approach has also been heavily influenced by the anthropological approach to researching small societies and has itself, over time, accumulated many derivative approaches (see Illuminative Evaluation of Parlett & Hamilton 1977 and in Murphy & Torrance 1987). It works with what Geertz (1973) describes as 'thick descriptions' which involve recording phenomena in detail which in turn enables detailed analysis at a micro as well as a macro level. These descriptions, according to Geertz, enable encoded knowledge to be revealed. In this research the thick descriptions are in the form of background information about the organisation, Fox King, which formed the context of the data gathering as well as the detailed verbal interchanges between team members. It adopts a more free-form approach to categorisation that Strauss and Corbin

propound whilst retaining the key place of categorisation and pattern identification. The key elements of the methodology adopted here can be summed up as:

- Observing and recording defined and delineated phenomena in their natural settings, i.e. where the context is also a source of data
- The use of a small number of cases in which discourses could be studied in detail. These also provided the opportunity for theoretical sampling through comparison and testing of categories across the different cases
- The categorisation and coding of data extracted from observed phenomena - the categorisation was not based on the study of a number of cases in series where the categorisation is completed in case one before looking at the other cases. Case studies two and three were explored before categorisation was complete. In this way data collected and categorisation overlap
- Further analysis through comparing and linking categories and the subsequent identification of patterns within and between cases. The use of categorisation to help identify differences and anomalies within and between the phenomena
- A concern for developing valid results through a rigorous approach to data collection and the search for internal (different cases) verification through a constant comparative approach across the different cases and a demonstrable relationship with external contexts (i.e. the culture of the organisation and other knowledge regarding organisations and knowledge development

as represented in the literature search). This triangulation provides a more robust interpretive base to the analysis

- The formulation of substantive theory and the loose formulation of some formal theory. The acceptance that the researcher brings an interpretive framework to achieve theory formulation which can be informed by their past experience and professional training as well as the existing literature
- The researcher as instrument influencing the course of the research through choices made in categorisation, pattern identification, interpretation and theory formulation. At the same time attempting to retain some reflexive guard on influencing the nature of the phenomena under investigation or by biasing the observations, analysis or results to the extent that they are inconsistent with the data

There is no claim that the described patterns are open to immediate generalisation (i.e. are part of some 'universal truth'). They are, however, deemed significant within the phenomena researched because of their recurrence within one case study and across case studies. The issue of whether generalisability is possible or necessary in qualitative research where human activity is examined within contexts that are to some extent unique (i.e. never perfectly replicated in other places or times), is taken up by a number of writers on research methodology (see Silverman 2001, Banister et al 1999, Stake 1994, Reason & Rowan 1990, Guba & Lincoln 1992). The position taken in this research is in line with that of Guba and Lincoln (1992 pp 115 -120) who contend that it is 'fittingness' and

‘applicability’ that should be tests of the validity of any conclusions reached rather than the idea of ‘universal generalisations’:

... it seems useful to think not in terms of generalisations but in terms of working hypotheses that fit more or less well into a context other than the one in which they were derived.

(ibid p118).

The phenomena used to generate grounded theory were studied in the form of three case studies. Case study research is a recognised approach in qualitative research discussed in depth by a number of writers on research methodologies (Stake 1997 and Gomm et al 2000). Robson is clear that a case stands alone and is studied in its own right exploring both its uniqueness and similarity with other cases. A case is not studied because it is a sample of a wider population (Robson 1998 p 5). Remenyi observes that case study is increasingly used in research in business and organisational settings because it helps the examination of complex phenomena, allowing the researcher an ‘holistic perspective’ that mirrors real life (Remenyi et al 1998 p 163). Case Studies also help to provide boundaries to exploration, an issue that can be particularly important in grounded research.

3.2 Methodological Issues

Grounded research does however raise a number of methodological issues for the researcher which need to be examined before moving

on to looking at the way this methodology was applied to this particular piece of research. Four issues are highlighted here:

The first issue is that of finding and keeping focus. Exploring phenomena as they occur has the potential for leading the researcher into a myriad of fields and generating so much data that it becomes too complex to analyse. The creation of boundaries or a focus therefore is a significant aspect of the methodology. In this instance the focus of study has been defined in three ways:

i. By defining the content of the research. It has already been stated in Chapter 1 *The Introduction*, that the initial content focus was on *learning processes* and subsequently this was enlarged to cover *knowledge development and learning*. The reason for this change has also already been explained. Although the topics are large in themselves they do help to delineate study, curtailing extensive studies of other phenomena within the three case studies, such as 'group dynamics' or 'organisational culture'. Although both these phenomena are touched on in this research reference has been restricted to the occasions where they are observed to impinge on knowledge development or learning.

ii. A second boundary was around the context in which the study was to take place. It was chosen to study learning and knowledge in a business setting and in a single organisation. So the context was limited to the business world as exemplified by a private company.

In working in a single company - Fox King - a common baseline regarding corporate culture, language and practices was identified.

iii. Finally boundaries were drawn even tighter by the selection of one aspect of the structure of Fox King - client or project teams. These were chosen as the unit of study and provided a discrete, manageable entity because of their relatively stable membership and discrete life span. Further refinement was achieved by locating the data collection around specific projects in which these teams engaged. The period of data collection covered the totality of these projects from beginning to conclusion. In this respect it could be argued that time boundaries provided a further means of ensuring focus to this project.

The second methodological issue is the subjective role of the researcher. In grounded research, as with much qualitative research, the researcher is not considered to be totally objective acting outside the phenomena being examined. Many would consider this neutrality to be impossible. Instead it is generally accepted that the researcher will influence the social phenomena under study as well as bring a subjective dimension to other parts of the research process:

- in the choice of subject matter to be researched
- in the choice of subjects or cases to study
- in deciding how to record data
- in defining the coding of categories
- in choosing the eventual classification framework

- in identifying the patterns that would provide the focus for formulating theory

Pink talks about the importance of the researcher engaging in a reflexive practice that helps to maintain

‘an awareness of how different elements of their identities become significant during research. For example, gender, age ethnicity, class and race are situated and situate themselves in ethnographic contexts. Ethnographers ought to be self conscious about how they represent themselves to informants and ought to consider how their identities are constructed and understood by the people with whom they work’ (Pink 2001 p 20).

Another dimension of the subjectivity issue concerns the researcher’s relationship with the subjects of the research. In this instance this had to be given careful consideration because the researcher was known to the subjects and had worked with a number of them through various projects within the company.

A reflective diary was used in this research to stimulate researcher-awareness of their own involvement and potential impact on the research process.

The third methodological issue is sample size linked to the validation of the findings. In quantitative research rigorous data collection with a strong numerical component helps to guard the validity of the findings and sample size is usually critical in order to validate tests of significance and draw conclusions that can be applied to all the studied phenomena and beyond into the wider world. In the form of research carried out here validity is measured by consistency and quality of recording the essential data and through researcher-controlled transcription of all group interactions. Validity in qualitative research is traditionally achieved through triangulation of findings and by checking recorded data with the subjects involved. Silverman is highly critical of the value of either of these approaches on their own and offers a range of other means for securing validation:

- analytic induction - developing early tentative hypotheses from a sample data collection and then testing these as further data collection occurs
- the constant comparative method - using more than one case study as a means of comparing and contrasting the data produced
- deviant-case analysis - testing early ideas against other data and adjusting the analysis to account for any deviancy in the new data
- comprehensive data treatment - ensuring that ultimately all the data is incorporated in the final analysis
- using appropriate tabulations - tabulating and simple numerical ordering of data which helps to provide an

immediate overview and ensures that key relationships between the data are not overlooked.

(after Silverman 2001 p 236ff)

In the research carried out here validity was guarded by:

- using the literature themes as a framework for later stages of analysis, thus relating the interpretation of the data to the work of other practitioners and researchers.
- using three case studies for comparison and beginning the analysis in one and then applying this initial analysis to the other cases confirming and adapting the analysis in the light of other cases - theoretical sampling.
- working to incorporate all the collected data into the final analysis.
- carrying out a very basic numerical tabulation of the initial coded data.

The fourth methodological issue involves the nature of brain functioning in relation to the interpretation of phenomena. Neurophysiological research is beginning to confirm what cognitive psychologists have postulated for a number of years: in trying to comprehend any complex situation it is believed the brain focuses attention on selected elements in order to more efficiently make sense of what is perceived (Gallistel 2000, Rakic 2000, Gazzaniga 2000, Johnson 2005). To prevent this selection process closing down interpretations of the complexity too soon a number of frameworks are built using different possible classifications of the data and then

choices are made about which to use to help order phenomena for interpretation and explanation. (Zeki 1999)

3.3 Research Context

All the data collection was carried out with three project teams working for an organisation I shall call Fox King. The name has been changed because of the sensitive nature of the work in which they are engaged and to comply with their clients' request for confidentiality. Fox King is an international brand consultancy established in the mid sixties. During the period of the research it was an independently owned, private company with a staff of 260 distributed across five offices in London, New York, San Francisco, Madrid and Lisbon. London was the biggest office with more than 180 staff.

The research was carried out in the London office. Both the business and the geographical location were chosen because the researcher worked for the company at the London office. This ensured ease of access to project teams.

Fox King's work involves developing brands for businesses, local authorities, governments, public and voluntary sector organisations. In broad terms this entails researching the background to the business or organisation and developing new brands that will involve one or more of the following components - a name; definition or redefinition of its position in the marketplace; the nature of its brand including the values and personality underlying it; some visual

expression of the brand in the form of logos, stationery, interior and exterior building design; and ensuring there is an internal cultural expression of the brand.

The staff employed to carry out this work fall into four distinct professions and the company is structured around these specialists. Business consultants have a background in analysing businesses and market forces to understand how a business operates and how it fits in the market place, particularly in relation to its competitors. Consultants are supported by researchers who carry out desk research for them. Designers with a variety of design skills - two-dimensional graphic designers, three-dimensional interior and exterior designers, product designers and conceptual designers. These are supported by technicians who translate design plans to models, computer graphics, pictures, etc. The third group are Account and Project Managers who build relationships with the clients and help to manage the logistics of any project. The fourth group are support staff - human resources, accounts, and administration.

Project teams are the basis for delivering solutions to clients made up of a mix of consultants, designers and account/project managers. Project teams are not permanent entities but are formed around specific 'live' projects, and as a consequence are not uniform. They may be composed of anywhere between three and twenty people depending on the size and complexity of the project. The mix of functions also varies from project to project (e.g. one consultant,

one designer, one project manager; two consultants, four designers, three account/project managers). The life/duration and frequency of meetings also vary from project to project and from team to team. Projects may have a life of a few days to a few years and again this is dependent on the size and complexity of the project.

The culture and working practices in Fox King are relaxed and professional. Freedom and creativity are valued over detailed procedures and regulated meetings. One example of this is that people in project teams have both a specialist, professional function - research, design and account management - and a general, creative function - everyone is expected to contribute to defining the new brand which is the core to every solution offered to clients. This creative work usually takes place during project team meetings whilst the specialist work occurs outside these project teams. Project team meetings may also be used to keep people informed of progress and to ensure co-ordination of the various components.

Although there are no set rules as to how branding solutions should be created there are generally understood models of brands and branding that many adhere to in some form. These 'company models' form both important tacit and explicit knowledge held within Fox King. New people discover them by exposure to other more senior or experienced staff. But there is no formal requirement to stick with these models or even to learn what they are.

Although a project team may meet on a regular basis there is an inevitable exchange of views between team members at other times - impromptu meetings between individuals at desks or on the stairs and informal chatter in the local pub after work.

Project teams do not have appointed leaders although a senior designer or consultant will often be considered the leader of the project for the sake of client relationships and internal administration and record keeping. Project team meetings have no formal facilitator or appointed leader. Project meetings may work with an agenda drawn up by project managers but may equally meet with no overtly agreed agenda. In one sense progressing the work or solving a particular problem is the default agenda when nothing has been tabled.

It is important therefore to understand that these project teams are not closed systems providing highly controlled subjects for study. At Fox King they meet whenever there is a need, not according to some pre-planned timetable. This required the researcher to be flexible - abandoning other bits of work in order to attend a meeting called at short notice. Although, on the whole team membership and attendance at team meetings is stable during a given project there are times when this stability is broken, when:

- Not all members are required at every meeting
- Not all members are available for a particular meeting - generally meetings will take place whether everyone is there or not

- A team member leaves the project before it has finished
- A new team member joins the project after it has started

During the duration of this research there was little variation in the team membership on the three projects studied. In the first project there were two meetings when only three out of the four members attended.

Throughout the duration of the project I have been an employee of the Company and therefore not a neutral observer. This raises the possibility of the research being influenced by the team members' perceptions of me or my perceptions of them. In terms of my own knowledge of the Company I believe this has been an advantage. I know the Company well - its history, culture, procedures, the nature of its work. As my job is that of internal organisational developer I am familiar with a number of the team issues that existed before I began the research. As behaviour relating to the use of knowledge and to learning began to emerge in this research I have been able to relate these to my wider experience and understanding of Fox King as a whole. Special care was taken in the lead-up to this research to ensure that appropriate role boundaries existed and that people were aware of what I was doing.

Client confidentiality is one of the few, strictly adhered to rules at Fox King. This makes recording of meetings in any form a highly sensitive issue. In the three projects used here the clients were only present at the first meeting of the first project. In the other two

projects the client did not attend any of the meetings. To protect this client confidentiality client names have been omitted or altered as have the details of the final branding solutions.

The three teams chosen for this study were working on different projects.

Project Team One was responsible for developing a brand for a new international centre devoted to a well known film character. The main *solution* they were working to create was a definition of the brand for this Centre. The Centre was to be a major tourist attraction in London reflecting the qualities of the film character. The Fox King team was composed of one account manager, a designer, and two consultants, one trained as an architect - four people in all.

Team Two was responsible for advising a local Tourist Board on marketing a small seaside resort as a national tourist attraction. The discussions transcribed for this research all took place immediately after the collection of empirical data by the group during a visit to the town during which a variety of people were interviewed and observational work was conducted. There was a team of seven people consisting of three account director/managers, two designers and two consultants.

Team Three was responsible for making recommendations to the business and civic leaders of a Cotswold regional centre on how to bring renewal to the town. Again the discussions that were recorded

for this research occurred over a thirty-six hour period immediately after the team's visit to the town where they collected empirical data through observation, interviews and reading primary documents and through taking their own videos and photographs. There was a team of seven consisting of one designer, three consultants, and three account managers. A full analysis of team members by role and experience is given in Appendix D Team Members' Role and Experience

3.4 Procedure

This section provides a detailed account of how each phase of the research was carried out together with particular methodological issues faced by the researcher.

3.4.1 Preparing the research

I have already described in Chapters One and Two how the focus for this research evolved. Once I had decided to examine the nature of knowledge development and its relationship with organisational learning I began to consider the need to understand the mechanism of knowledge development and then to look at relationships with the learning processes in organisations. I looked for manageable and easily accessible units of study that enabled both observation and recording of these processes over periods of time.

Fox King offered the required components of the fieldwork. It was my place of work and enabled almost unlimited access to all business activities. Its primary work revolved around small project

groups devising solutions for clients. These groups although not totally closed systems provided bounded phenomena to study. The decision to study the work of more than one team was made to enable comparisons of more than one case study allowing for better identification of substantive patterns or themes. Initially four project groups were chosen but circumstances within the company changed as the work got under way - the economy took a downturn and the number of new clients decreased and the Board decided to sell the company and began to prepare for this by reducing staff in some areas. In the end three project groups were identified on the following basis:

- They were new projects that enabled me to observe them from the first meetings of the project teams
- They involved relatively small groups of people (no more than 10 members). I felt that recording interactions with more than this number might prove too complex with the potential number of interactions difficult to record and analyse. Also in my experience of the Company larger project teams were less likely to meet together as a whole group, with more of the work being carried out by sub-groups
- The projects were United Kingdom based in order to reduce travel and make access easier
- The projects were of relatively short duration - no more than three months. In the event two projects were

concentrated into three day events. This enabled me to follow the project from beginning to end

3.4.2 Preparing teams for the researcher's role

In the early stages I spent time considering how the role of observer and researcher should be enacted in the three project teams. I felt this careful identification of the role was important because I already worked in the Company, knew all the members of the three project teams, and had already worked, in a variety of ways, with a number of the team members. I was concerned to ensure that the appropriate boundary between observer and team members was created and my presence had minimal influence in encouraging team behaviour to deviate from the 'norm'.

I was not, however, tempted to believe that I could reduce the effects of my presence to zero but I did not want my presence to cause the group to behave differently, as if they had to 'perform'. It was important to observe and record the group behaving as close as possible, in the way they would have if I hadn't been there.

I believe a number of factors enabled ready acceptance of my observer/researcher role:

- one of my roles in the company was to observe groups in action in order to be better informed as to the organisation's work. This was recognised more as an information-gathering role than as an evaluative role

- my work in the company was hardly ever concerned with contributing to solutions for clients. I was not seen as an expert in client businesses
- most project teams in the company were used to having other people observing or 'sitting in' on their work
- the culture of the company was one of strong self belief which left them to some extent un-self-conscious and less concerned about how others might see them

I decided to give a clear verbal explanation of what I was doing, why I was doing it and of the observer/researcher role. I did this before the first formal meeting of each group. I invited questions and comments in each case. The only questions raised were to do with when the research would be published and whether they would get their names in print. My response to the latter question was that individuals would not be identified by name and where the reporting of direct speech was used to illustrate a theme emerging in the research fictitious names would be used.

My observation of the teams in operation and my prior knowledge of the individuals involved led me to believe that they accepted my role and were not excessively influenced by my presence. All teams quickly became immersed in their discussions and seemed to ignore my presence. There was little or no eye contact that I recorded, between team members and myself and on only two occasions did team members refer to my presence in the meeting. These were in joking terms and occurred in both instances right at the beginning of

team sessions, before formal work had commenced. Although these three teams didn't exhibit identical patterns of behaviour they all appeared to behave within the bounds of what I would term 'normal behaviour', as evidenced by my past observation of such teams.

3.4.3 Literature search

The literature search was considered as part of the methodology carried out in line with grounded theory. Hence it did not take a lead in helping to formulate or frame any hypothesis to be tested in the research but was used to provide a framework of ideas, concepts, theories and models to place alongside the emerging patterns from the research analysis for comparison and as a further help in attributing meaning to these patterns. The literature search ran in parallel to the rest of the research and continued alongside the analysis and interpretation of data as patterns began to emerge. It is for this reason that the literature chapter (Chapter 4) is placed after this chapter on methodology.

3.4.4 Data collection

The main data that I had decided to record was in the form of speech and the verbal interactions between participants in the project teams. Consideration was given to the value of supplementing this with data collected from interviews with individual team members. These interviews could have provided some means of checking the researcher's observations and interpretations of what occurred in team meetings, offering a multi-perspective view of team activity. Such interviews might also have

uncovered data about knowledge develop and learning processes within the individual and unobserved domains. However in evaluating this approach it was judged that working in depth with individuals would have required a reduction in the number of teams studied in order to cope with the extra quantities of data collected. And critically reducing the number of teams would have reduced the number of comparisons and in turn the likelihood of discovering meaningful patterns. Thus the choice - between potentially greater depth or stronger comparative work - was made for the latter, with its reliance on data from team interactions.

In a group setting verbal contributions form the main observable and recordable phenomena indicative of the development of knowledge by the group especially where the overt purpose of the group is to develop knowledge in the form of solutions to problems posed by clients. Recording learning in groups is much more problematic as it can be argued that learning is evidenced more by actions and behaviour than by speech. The extent to which a relationship between the two can be discerned in short-term group interaction is one of the issues explored in this research.

The verbal data was supplemented by recording group behaviour during meetings. These observations of behaviour were not used as a primary source of data for analysis but supplemented primary sources by providing more information about the verbal behaviour with which they were associated.

Recording equipment was set up and started at the commencement of all meetings and then allowed to run without interruption, apart from changing cassettes in those meetings that lasted in excess of two hours.

Data recording was through the use of:

- a digital compact disc recorder with an external multidirectional microphone. The quality of this recording equipment is extremely clear even in group situations
- a digital video recorder with external multidirectional microphone. This was used to provide visual support for verbal transactions between people in the project groups (e.g. nonverbal behaviour that supplemented verbal behaviour). The video was not used in recording other social or cultural phenomena (see Pink 2001).
- researcher observations contributing to a log of behaviour relating to verbal interactions
- researcher's reflexive diary to identify feelings and reactions as the project continued and provide a guard to any potential researcher influence in the teams' functioning

The researcher sat outside the 'circle' of team members in a position that maximised the ability to observe all team members. The researcher made no interventions during these meetings and recorded non-verbal behaviour that accompanied verbal interaction including:

- long pauses for thought

- uncertainty or poor articulation represented by pauses, repetition, hesitancy, unfinished sentences, broken speech
- signs of emotional components or reactions to verbal interaction e.g. raised voices that were indicative of intensity of belief in what was being said, humour/satire/cynicism communicated through tone of voice, anger, frustration¹

The three teams met in various locations for various periods of time:

- The first team met on six occasions for a total of fifteen hours. The first of these meetings was held with two of the clients in their offices and it was agreed to keep the recording of the session as low key as possible. As a result recording was carried out, in this and subsequent meetings of this team, using a small digital audio recorder. The subsequent five meetings were held in meeting rooms at Fox King's London office
- The second project team met on five occasions for a total of ten hours in hotel meeting rooms on location. These meetings were preceded by extensive data collection in the field by team members, who brought their findings and experiences back to the team for use in developing a solution for the client. Digital video recording was used for all these team meetings
- The third project team met on five occasions in various meeting places on location for a total of twelve hours. These meetings were also preceded by data collection in the field

¹ Appendix A provides a sample of these observational notes

by team members. Digital video recording was used to capture all team meetings

At the end of each recorded session the researcher completed a reflective diary that identified the setting for the team session together with reflections on the researcher's own behaviour and reactions during the session. It has already been explained how this reflexive activity was carried out in an attempt to prevent undue researcher influence on group activity and on the research process.²

The verbal interchange for all sessions was transcribed verbatim by the researcher personally into Microsoft Word documents. Behavioural observations were added to these transcriptions.³ Because of the complexity of transcribing verbatim group verbal interaction this process took fourteen months, with the researcher working part time. The value of the researcher completing his own transcription was that where audibility was difficult the first hand knowledge of the meetings made it easier to decipher unclear words and phrases. It also had the advantage of ensuring the researcher's full immersion in the data - an important component of the analytical and interpretative parts of the researcher role which require moving backwards and forwards through the material and looking at individual contributions in relation to overall flow and direction of the discussions.

² Appendix B provides a sample of diary comments

³ Appendix C provides a sample of transcribed material

NVivo was chosen as the software programme to aid coding and classification of the data. NVivo is designed to enable flexible coding of qualitative data from transcribed dialogues as well as documentary and visual sources. Transcribed text imported into this programme is selected for coding and naming by the researcher. Selections may consist of anything from one word to extensive passages of unlimited duration. These selected, coded and named selections are termed nodes in the language of NVivo. They form the basis for the categorisation described by Glaser and Strauss and, subsequently, for identifying themes and patterns in the data. NVivo also makes it possible to create a hierarchy or some other relationship between the codes so that sub-themes and associated themes can be easily identified. These are termed child and sister nodes in the software. NVivo makes the comparison of coding across team sessions of one project team and between project teams much easier.⁴ Comparing passages that have been coded across team meetings or across teams is simply carried out by creating a report of a particular code. If more appropriate or alternative codes are identified at any stage of the research it is easy to change code names and coding schemes in NVivo as any changes are immediately carried across all data. It is important to underline that NVivo was used as a tool for sorting and reporting and was not used to generate or name categories or to provide any analysis of the data. This was all carried out by the researcher who controls the creation and naming of categories and decides which data is to be coded into each category.

⁴ Appendix C provides a sample of coded data within NVivo

One further form of data was collected through a long interview with the managing director of the company to gain his understanding of any organisational methodologies and the prevailing culture within the company. This was supplemented with the researcher's own reflective examination of these phenomena. They were used to provide a wider organisational context to the data collected in the teams.

3.4.5 Analysing the data

Over the three months of observation and data collection a total of thirty-seven hours of transcribed data was produced which amounted to a total of over 6500 individual team member contributions. These contributions formed an important unit of study and it was these contributions that were coded and analysed in detail.

A precursor to coding and analysis was the need to find a suitable language or nomenclature to identify the phenomena being described. This was not straightforward. One option was to use terms devised by others describing similar phenomena in other published studies. In particular I looked at the language used in studies of group dynamics and literary criticism, the former dealing with interaction in groups and the latter with 'content' (in particular Bales Interaction Process Analysis - Bales 1950, Belbin's Team Role Inventory - Belbin 2003 and Weber 1985 on Content Analysis). Another was to develop a glossary of terms specifically for this study. As no existing nomenclature was found that matched the

needs of this study, I decided to devise my own glossary. In doing this I had to ensure that the chosen terms would not be required to have other meanings in the text or if they did that there was a clear distinction made between the use of the term in its glossary sense and any other usage.

The key words used in this study are:

- Project*** this refers to the problem the group was set up to solve. Each of the three groups under study was engaged in one project - to find a solution to a problem identified by a client organisation.
- Topic*** this refers to the subjects being discussed or the major content focus of the discussions in the groups. Each of the three groups discussed a number of *topics* during the course of their work.
- Topic unit*** each *topic* can be broken down in smaller *units*. I have called these units *topic units*. They consist of lines of reasoning or ideas that are introduced into the group and then developed over time as the group discussion progresses. Topic units may be introduced and developed by one individual or taken up by others in the group. Many topic units are introduced, pursued for a while, left for a while and then returned to at a later stage in the group's life.

<i>Strands</i>	refers to the ‘journey’ of a topic unit during the life of the group. Because many of the topic units are explored for a period of the discussion and then left to be picked up later it is by isolating the strands that the development of knowledge can be better studied.
<i>Contribution</i>	refers to an element of uninterrupted ‘speech’ by an individual team member and varied from a single word to lengthy monologue
<i>The life of a group</i>	refers to the period over which a group exists to carry out a project and arrive at a solution. In the context of this study all groups exist only for the period of a particular project, after which they break up, the individuals being assigned to new projects. Group life varied from three months (but not meeting continuously), to thirty-six hours.
<i>Solution</i>	refers to the end product of a group’s activity, the goal of a discussion, and as such is the purpose for the group’s activity. However groups often arrived at a number of subsidiary <i>solutions</i> on the way to identifying a primary <i>solution</i> . The primary <i>solution</i> was the main purpose for the group’s existence; the problem that their client had asked them to solve.

Learning refers to evidence of change within the teams or within individuals, usually as a result of verbal interchanges within the teams.

The data was coded in NVivo in two ways or within two major dimensions. The first dimension was that of the contributions made by individual team members - looking at how individuals contributed to the development of the content of discussion within each of the *Topics* and to any changes in behaviour within their teams. Codes were defined and named in terms of the effects contributions had on content development and behaviour change. For example a contribution might have the function of introducing a new sub-topic or idea to the group discussion, another might provide examples to support existing ideas, and another might test ideas by asking questions. This nomenclature was not adopted from any other published work but was devised by the researcher partly in response to the data and partly in relation to the overall purpose of understanding 'how knowledge develops' or 'how learning takes place'.

This process began with Project Team One from which an initial list of codes was established. Names were chosen for each of the codes that provided a brief, abbreviated description of the nature of the coded passage identifying the nature of the individual contribution. (e.g. *Offering new language or imagery to describe something, Questioning to check feasibility*) . The identification of codes and code names was made by the researcher using a guiding framework

of knowledge development or learning as the guide. In this way the coding emerged from the data in the light of the focus of exploration (namely *Topic* and *Topic Unit* development and *learning*). At this point the literature surveyed for this research was not consciously used to guide this formulation of categories.

The transcripts from Project Teams Two and Three were then coded using the initial coding scheme from Team One as a guide but adding new codes when new types of contribution were identified or altering initial codes to encompass a new emphasis or wider meaning developed from the subsequent transcriptions.

When all the categories had been coded they were grouped with similar or related categories. In this three major types of contribution was identified which could be broken down into various sub categories and further differentiation identified in the sub-categories ⁵

A simple numeric analysis of these contributions was carried out to show the distribution patterns between individual team members and across teams. This consisted of calculating the occurrence of a contribution as a percentage of the whole. Two sets of calculations were made and plotted onto graphs. In the first set each contribution was plotted as a percentage of all types of contribution made within the team and used to show the general pattern of contributions for the team as a whole. In the second, contributions

⁵ Appendix E provides a full list of the named codes of individual contributions grouped in major and sub-categories.

were plotted as percentages of individuals' contributions against the total of that type of contribution in the team to show which team members made which type of contribution in their teams. The full tables from which the graphs were drawn can be found in Appendix F

The second dimension of coding involved an analysis of the content of the team discussions. Content analysis was more complex than individual contribution analysis because similar categories of content appeared and disappeared and later reappeared in the life of each group. In order to make this analysis thorough and to track how this content developed over the life of the group a two level hierarchy of content was identified and coded. The first level consisted of major topics under discussion. These topics were coded in Project Team One and then used to analyse the other two Project Teams adding and adapting the original list as appropriate.

In the first Project Team an initial analysis led to the defining of twelve different and distinct topics under discussion. Eight of these topics involved fewer than sixteen contributions from group members throughout the life of the team and appeared to be only loosely related or unrelated to the team project. Of the four remaining topics the least dominant involved just over 100 contributions at various points in the group's life and the largest more than 1300 contributions. All were related to the project.

Each of the eight minor topics was so limited that no evidence of knowledge development or learning, as acknowledged in the

research, could be discerned within the extent of the topic. It was therefore decided to categorise these topics together under the heading of *Other Subjects topics*. Although within themselves each minor topic revealed nothing of knowledge development I did examine them to see if they had any effect or influence on knowledge development and learning activities revealed through study of other the major topics.

The five major topics that were identified and coded were as follows:

1. Solution - where the groups discussed solutions to the clients' problem
2. Methodology/Approach - where the groups discussed the methods or approaches they would use to collect further data or communicate their findings to their client
3. Team Dynamics - where team members engaged in reflexive discussion about their behaviour or 'here and now' functioning
4. The Client - where teams talked about the client
5. Other Subjects Topics - where teams talked about issues or topics that were not directly related to the work in hand.

All three teams engaged in discussion, to varying degrees, over topics 1, 2, 3, 5. Team Three did not engage in discussion about the client.

Each of these major topics was then subdivided into topic units and coded again. The identification of these sub-codes followed the same procedure as with previous code identification. Because of the number of sub-coded topic units a basic quantitative analysis of these was carried out to identify the volume of discussion occupied by each and where they occurred in the life of the team.⁶ This was to gain some indication of the most significant sub-units by volume and to provide initial, even though cursory, patterns within the occurrence and morphology of knowledge⁷ development in groups

The final phase of analysis involved looking at the Topic Units in relation to each other and to the verbal interchanges of the group as a whole to identify learning, which as stated in the definition of terms above, was defined in terms of change.

3.4.6 Interpreting the data

This involved identifying patterns in the nature of team member contributions to knowledge development and learning by first describing the way each type of contribution contributed to knowledge development or learning and then by asking a series of questions and working backwards and forwards through the coded data to identify answers that matched across the team sessions and across the three teams and also identifying differences in answers between the three groups. The questions were devised by the

⁶ Appendix G contains the analysis of the sub-themes for all project teams

⁷ The term morphology of knowledge was created here and in subsequent sections to describe the general shape or form of knowledge occurrence within team discussions. This is dealt with in more depth in the next section and in the following chapter

researcher to help identify the nature of contributions in relation to knowledge development and learning. These questions were:

- Are some contributions more dominant than others?
- Are some contributions made more frequently by particular individuals?
- How do the teams compare and contrast in the pattern of types of contributions made?
- Is there any correspondence between type of contribution and the professional background of the team members who make them?
- Which are the significant types of contribution in knowledge development and or learning?

Identifying patterns in the knowledge development of topic units was carried out in three stages. All topic units, however small or large, were examined for patterns. Firstly the size, number and distribution of topic units were examined. A description of these for each team formed what I termed the morphology of knowledge development for each team. The three team knowledge development morphologies were then compared for similarities and differences. The second stage involved looking at developmental pathways or journeys in each topic unit. This process was conducted by asking a series of questions of each topic unit. Again the questions were devised by the researcher to help examine the nature of knowledge development. They were:

- How was the unit initiated?
- How did it relate to other topic units?
- What patterns existed in the way a topic unit developed and changed over time?
- How was it received? How did others react to contributions made within the topic unit?
- How did the topic unit conclude/finish its journey in the group?
- Did it contribute or feature in the final solution?
- What observable actions, if any, in team activity and behaviour, could be attributed to contributions

The third stage of interpretation of the topic units involved looking for similar and contrasting patterns in the answers to the above questions within team projects and between team projects.

Identifying evidence for learning was also carried out through examining the topic units looking for signs of behaviour change in individuals or in the team's activities and examining the link between these in relation to the knowledge development already identified.

The final element in the interpretation of data was examining the emerging patterns from team member contributions, topic units and evidence of learning in the light of the literature search looking at where patterns appeared to support or contradict the literature and where patterns appeared to have no parallel in the literature.

The patterns identified and the comparisons with the literature formed the basis for research conclusions and discussion.

The findings as reported in this thesis were generally in narrative form apart from graphic representations of the content of contributions and the relationship between members and types of knowledge development contribution both of which are presented visually using the software called Visio. It is important to note that these were visual indicators as distinct from statistically derived, quantitative devices and were devised to aid clarity of understanding.

3.4.7 Issues arising from the procedures

The sources of the data

Data collection in this research project was restricted to verbal interactions during organised, 'formal' team meetings. The very nature of the workplace and the culture of Fox King means that discussions about the projects could have taken place at other times. These discussions were unlikely to involve the whole team and could include:

- Telephone conversations between two team members
- Unofficial planned meetings between two or more team members (unlikely to be the whole team because the administrative energy required to bring everyone together usually resulted in these meetings being official and timetabled)

- Chance meetings between two or more team members in the workplace
- Chance meetings between two or more team members outside the workplace. One important social meeting place after work was the local pub and the researcher had anecdotal evidence that projects were actively discussed both between team members finding themselves there at the same time and between team members and other employees working on different projects

No attempt was made to track these more informal data sources because of the problem of gaining access to the impromptu or unofficial meetings. The possibility of interviewing individuals about their extra-team activities was considered but rejected for the reasons given earlier in this chapter (see pp 36).

There are also sources of data not available to the researcher namely the internal cognitive processes of individual team members - information processing, reflection, idea generation and emotional responses - which are not revealed by the individual and of which the individual may not even be conscious. These may also have influenced and generated the contributions of those individuals.

All the data generated from these other sources would be contributory to knowledge development and learning within the teams. This research, however, has a clear focus on the role of team interaction, particularly verbal interactions, in these processes.

The problems of observing and interpreting learning activities have already been explored in the previous chapter. In the event observable change was detected in the teams. This however may not have constituted the total learning activities of the group as some changes may not have been evident to the researcher.

Recording group discussions

More practical issues resulted from the use of group verbal interaction as the major source of data. Group interactions have a complexity that can produce problems for the researcher. There could be problems in observing relevant non-verbal behaviour as attention cannot be given equally to each team member at any one time. The video record aids the more accurate utilisation of this but in the first project team it was only possible to gain audio recordings and the non-verbal record relied heavily on the researcher's observational log.

Verbal interaction in group settings can also pose problems for the researcher as discussion is not disciplined to the extent that one person speaks at a time. There were times when people spoke over each other or one team member began a response to another before the first member had completed their contribution. The multi-directional digital microphones that were used had to produce crisp clear reproduction of all speech but there were many times when the transcription process was slowed down because more than one person was speaking at a time. In the event only a very few

instances of incoherent recording were encountered that prevented the complete, verbatim transcription of a contribution.

Researcher's potential influence on the teams

This has already been discussed to some degree earlier in this chapter. However in examining the researcher's reflective diary and in comparing the experience of observing teams in the research context with experiences of observing groups in the same organisation at other times and in other circumstances, it appeared that the researcher had no significant new effect on the teams.

The reflective diary revealed that there appeared to be no strong emotional reaction from the researcher to any of the team sessions.

Chapter 4

Knowledge and Learning: From Theoretical Constructs to Commercial Commodities

4.1 Introduction

This chapter looks at the way organisation and business literature treats knowledge and, to a lesser extent, learning and compares and contrasts this with the way other disciplines - particularly education and psychology - explain the two concepts. The learning literature is examined to throw light on its relation to knowledge and the extent to which it is treated as part of the same or distinct process. The term 'organisation and business literature' has been chosen because the material relevant to this study has been collected from a number of sources including both academic studies of organisations and more commercially oriented business books and articles. The focus on education and psychology as the baseline for comparisons reflects the strong interest that these disciplines have in the phenomena of knowledge and learning. It is important to note that the chapter does not attempt to provide an in-depth or comprehensive survey of literature in these other disciplines. Instead it identifies some of the key theoretical constructs that relate in some way to the thematic categories that provide the framework for the chapter.

After a general introduction to the two concepts in the literature the structure of the rest of the chapter is built around themes common to the literature. These themes represent the major

interests of the business and organisational world in respect to learning and knowledge. They are: 4.2 Definitions and Meanings (including classifications and typologies); 4.3 Value; 4.4 Sources; 4.5 Mechanisms and Processes; 4.6 Content; 4.7 Environments; 4.8 Individuals and Groups; 4.9 Agents of Learning and Knowledge. The literature on both knowledge and learning has something to say about all these themes although some are less extensive - so for instance the 'value' theme is more dominant in the knowledge literature than the learning literature. A summary concludes each theme. The chapter closes with an examination of the way the literature treats the relationship between knowledge and learning (Section 4.10).

It is not claimed that these represent all the themes within the literature but because of their regular treatment it has been concluded that they indicate key interests and concerns in the business and organisational world.

Knowledge and learning are two closely related concepts that in the last twenty-five years have become the focus of attention in the business world. Where they were once primarily theoretical constructs used to explain and facilitate human functioning and development they have become commodities to produce and exploit for commercial profit.

Although the two concepts are treated here as if they are closely linked the relationship between the two shows little sign of being

empirically researched and examined. Knowledge, together with behaviour change, are often seen as the two products of the learning process. Learning, as defined in terms of cognitive process or brain functioning, enables raw data or stimuli to be transformed into useable knowledge - stored and available for use (Eysenck 1993). Similarly in the educational world learning is understood as the process of making sense of experience - the resulting interpreted meanings constituting knowledge available to be utilised in future action (Jarvis 2004). Functionally the two seem inextricably interwoven.

The business and organisational literature on the whole handles the two quite separately. This can be explained in historical terms by the fact that they represent two themes fashionable at different times. Each has influenced thinking and development in organisations at different times over the past twenty-five years. In the 1980s and early 90s interest focused on organisational learning and the value of learning in a business context. Most of the literature concentrated on how organisations learned and the value of that learning: *The Fifth Disciple* (Senge 1993); *The Learning Company* (Pedlar, Burgoyne & Boydell 1996); *Becoming a Learning Organisation* (Sweiringa & Wierdsma 1992); *The Power of Learning* (Mayo & Lank 1994); *Towards the Learning Company* (Burgoyne, Pedlar, Boydell 1994); *Developing a Learning Culture* (Jones 1997); *Organisational Learning* (Probst & Büchel 1997); *The Living Company* (DeGeus 1999). The content of what was learned was largely ignored or taken for granted.

Knowledge Management occupied the same organisational space from the mid 1990s into the first part of the twenty-first century. The emphasis shifted to the value and use of knowledge. The deluge of organisational learning literature has been replaced by a torrent of knowledge management literature in which the term 'learning' only rarely appears. In this more recent literature we read about: knowledge sharing in *Wellsprings of Knowledge* (Leonard 1995); managing knowledge and codifying knowledge in *Managing Knowledge* (Wilson 1996); knowledge flow and leveraging knowledge in *Strategic Learning and Knowledge Management* (Sanchez & Heene [eds] 1997); knowledge markets in *Working Knowledge* (Davenport & Prusak 1998); knowledge transfer in *Common Knowledge* (Dixon 2000); knowledge creation, tacit, explicit and self-transcendent knowledge all in *Knowledge Creation* (Krogh G. et al. 2000), knowledge making, networks and communities of practice in *Organisational Knowledge in the Making* (Patriotta 2003).

Patriotta (2003) in his survey of the knowledge literature identifies four themes which he terms cognitive, knowledge-based, situational and techno-science. He believes that each provides a different view of the nature and purpose of knowledge. The cognitive approach focuses on knowledge as a product of individual minds with little concern for any collective dimension - as exhibited in the writings of Shank & Abelson (1977) and Morgan (1997). Knowledge-based organisations stress the link between knowledge and competitive advantage where knowledge is a product to be managed and traded. A good proportion of the literature of the 1990s focuses on this

including Nonaka & Takeuchi (1995) and Eisenhardt and Santos (2001). The situated approach stresses knowledge development as part of the learning process through the combined facets of action, context and process within communities of practice - see Lave & Wenger (1991), and Brown and Duguid (1991). Finally technoscience literature emphasises knowledge transformation over time from its generation to its institutionalisation and developing in a corporate setting as a product of social construction - see Latour (1999) and Knorr-Cetina (1981)

It is important to understand that much of what has been written about knowledge and learning in organisational settings - theories, conceptual and functional models, principles and practices - seems to have been developed from the writers' idiosyncratic experiences or the thinking and insights of practising consultants and organisational theorists. There is little evidence of rigorous empirical research with clear 'logic chains' between observable behaviour and general theories. Even as grounded theory the literature often lacks any evidence of valid data collection and analytical methodologies. Furnham writes about this in his introduction to *The Psychology of Behaviour at Work*:

Management scientists and consultants frequently talk about and produce "models" of such things as change processes, customer service or worker motivation. Most of these models are descriptive and heuristic; they are more like hypotheses about OB process, because they attempt to isolate the critical variables in the process

and describe how they relate to one another causally. But they are seldom tested, rigorously or not. As a result they remain hypotheses. And because they are not tested - indeed may not be testable - there is no way of knowing if they are correct or not..... Most of these models are process-specific and hence of limited general relevance. However, very few theories or models remain in OB which pretend to be inclusive or generalizable to many forms of work behaviour. (Furnham 2005 p 26).

Although Furnham's statement is very general both Pettifer and Patriotta write more specifically about unsupported knowledge theory:

.....(there is) a welter of inconsistent and often incoherent language and an over elaboration of theoretical frameworks which have not yet been subject to the disciplines of empirical analysis (Pettifer in Forward to Patriotta 2003 p viii).

.....proliferation of organisational knowledge theories has not been accompanied by parallel development of empirical studies. (Patriotta 2003 p8)

The organisational literature also makes only scant reference to knowledge and learning theories and models emanating from other disciplines like psychology and education. Much of the language and the constructs are created for and from the business and

organisational context. So the educationalist will discover only limited reference to Kolb's learning cycle (Mayo & Lank 1994 pp 134-138) and almost no references to the concept of 'really useful knowledge' (Johnson in Thorpe 1993) or the transformational learning of Mezirow (Mezirow 1990) or the andragogy of Malcolm Knowles (Knowles 1984).

It is perhaps for this reason that many academics question the validity of any theoretical underpinnings provided in the literature. Despite this lack of confidence from some quarters the themes developed here from the literature are considered to have validity as descriptions of the writers' experiences and rational thinking. Equally important is the impact that many of these writings have had on the way companies have reorganised themselves in order to maximise their ability to develop knowledge and learn in the quest for commercial advantage. This is particularly the case in Europe, North America and Australia where Peter Senge's work on the learning organisation is but one example of popular material that has changed practices in companies (Senge 1993). The fact that the themes represent common strands across the literature provides a form of triangulation.¹

4.2 Definitions and Meanings.

The business and organisation literature has created its own language and models for understanding and discussing knowledge and learning. Under this theme I will examine the attempts to

¹ Triangulation is used here to indicate the way comparisons between different sources can help to give validity to data.

define the concepts as well as look at associated words and concepts used to help explain their meaning. The second part of this section looks at classifications and typologies which offer a different perspective on understanding the nature of the two concepts.

4.2.1 Definitions and meanings of knowledge in organisations

Organisational literature provides a range of definitions and meanings associated with knowledge and its development. One important emphasis focuses on 'usage' and 'value'. Leonard (1995) defines knowledge as 'both raw material and finished goods in today's corporations.' (p3). In similar vein Sanchez and Heene (1997) define it as the 'stock held by organisations' (p6). They go on to offer a more abstract definition:

the set of beliefs held by an individual about causal relationships among phenomena cause and effect relationships between imaginable events or actions and the likely consequences of those events or actions (ibid. p 4-5).

Such beliefs which in this definition may change over time are distinct from 'certain knowledge' which the author sees as unchanging. This 'stock' forms the basis for the skills people employ, the decisions made, and people's general behaviour.

Knowledge is also closely allied, in the organisational literature, to organisational intelligence. Stewart (1998) identifies intellectual

capital in an organisation with 'packaged useful knowledge' (p67).

He describes this in more detail thus:

Intelligence becomes an asset when some useful order is created out of free-floating brainpower when it is given coherent form; when it is captured in a way that allows it to be described, shared and exploited; and when it can be deployed to do something that could not be done if it remained scattered around like so many coins in a gutter (p67).

But one of the most common ways of defining knowledge is in relation to the related concepts of 'data', 'information', 'understanding', and 'wisdom', which together are sometimes referred to as the 'knowledge value chain'. This is because as you move from data to wisdom (or understanding) resulting output increases in value. Stenmark (2002) provides a summary of definitions of the three most commonly mentioned elements of this chain by authors. An adapted version of this is provided below in Table 4.1 (see page 65).

One definition of 'data' that seems to have some agreement amongst the different authors is:

A set of discrete, objective facts about events structured records of transactions there is no inherent value in data It provides no judgement or interpretation and no sustainable basis for action data says nothing about its own importance or

irrelevance it is essentially the raw material for the creation of information (Davenport & Prusak 1998 pp 2-3).

In contrast Beller offers a very different view of data when he says that “data exists below the level of conscious awareness” (Beller 2000). In defining it in this way he draws attention to the fact that both information and knowledge exist when some conscious cognitive process has been carried out on data.

Author	Definition of data	Definition of information	Definition of knowledge
Wiig (1993)		Facts organised to describe a situation or condition	Truths & beliefs, perspectives and concepts, judgements and expectations, methodologies and know-how
Nonaka & Takeuchi (1995)		A flow of meaningful messages	Commitments and beliefs created from these messages
Spek & Spijkervet (1997)	Not yet interpreted symbols	Data with meaning	The ability to assign meaning
Davenport (1997)	Simple observations	Data with relevance and purpose	Valuable information from the human mind
Davenport & Prusak (1998)	A set of discrete facts	A message meant to change the receiver's perception	Experience, values, insights, and contextual information
Quigley & Debons (1999)	Text that does not answer questions to a particular problem	Text that answers the questions who, when, what, or where	Text that answers the questions why and how
Choo, Detlor, and Turnball (2000)	Facts and messages	Data vested with meaning	Justified, true beliefs

Table 4.1 Definitions of data, information and knowledge (after Stenmark 2002)

Information is seen to represent data that has been given meaning or has had value added by contextualisation. It is also seen to

represent data that is transformed into patterns so that it has more meaning and significance in the actions of any who receive it. In the words of Davenport & Prusak's:

..... it has a sender and a receiver. Information is meant to change the way the receiver perceives something, to have an impact on his judgement and behaviour (Davenport & Prusak 1998 p 3).

Knowledge on the other hand incorporates beliefs and commitments in a more complex 'mix that provides a foundation for action (Kolb 1979) and expressed here by Davenport & Prusak:

... A fluid mix of framed experience, values, contextual information and expert insight that provides a framework for evaluating and incorporating new experiences and information (Davenport & Prusak 1998. pp 5).

Both information and knowledge are seen as originating in the mind of the individual although, as we shall see, may later become embedded in documents, systems, and practices.

To complete the chain we have 'understanding' which involves the selected use of knowledge to guide thought, actions and emotional responses and 'wisdom' which is achieved by the continual refinement of knowledge to obtain better outcomes particularly where complex choices require an evaluation of the most appropriate knowledge from the store available (Beller 2000).

New understandings of knowledge in organisational literature have emerged over time. Krogh et al (2000) describe three stages of

knowledge study each carrying a different emphasis: Stage one was concerned with how the explicit, codified knowledge residing in a company was collected and made available to all - the focus was on storage and retrieval; Stage two involved exploring and understanding knowledge as a process - knowledge being created, transferred and developed as a day-to-day process; Stage three focused on understanding what drives the knowledge processes and particularly the creation of new knowledge (pp43-6).

In some of the most recent writing on knowledge from people such as Lave & Wenger (1991), Patriotta (2003) and Hildreth & Kimble (2004) knowledge is identified as a social construct that exists in a continually developing form. Patriotta describes this as 'knowledge in the making'. Eventually it becomes institutionalised where it remains 'sedimented' until a new wave of development alters it. To these writers knowledge is created in and defined by, the tension between context, action and process. The inseparable link between knowledge and action is also a central part of Griseri's argument in his critical view of management theory and practice. He emphasises the local nature of knowledge developed out of action and in turn guiding or prompting action and distinguishes between knowledge as truth and knowledge as utility - the latter not necessary being true but nevertheless working in practice (Griseri 2002).

Looking at definitions from further afield we turn to philosophy as well as education. Epistemology makes knowledge itself the subject and focus of its study. In this context knowledge is often linked to the rational process of 'justification' leading to 'belief' and, in

turn, related to the ideas of 'truth' and 'verification'. Audi (2002) explains that knowledge would not be possible without 'justified belief' (p3) and that justification involves having a reason - evidence - for believing. The link between knowledge and belief is described thus:

.....knowing is at least believing. But clearly it is much more. A false belief is not knowledge..... Plato formulated an account of knowledge which has sometimes been loosely interpreted as taking knowledge to be justified true belief (Audi 2002 p 214).

True to the philosopher's discipline Audi then goes on to qualify this statement by identifying the types of justification that would lead to true belief e.g. justification that hasn't been overturned or defeated by new evidence or argument.

Greco & Sose also support the notion that knowledge is a form of belief - believing something is true in a good way i.e. with some relevant intellectual merit (Greco and Sose 1999 p 6).

Philosophers have also driven the subjective/objective debate within epistemology - whether it is possible to know the world objectively or whether knowledge is coloured by our own thoughts and experiences. (ibid p 5).

Moving from philosophy to education we find knowledge often understood in terms of the content of teaching and within the realm of curriculum and curriculum studies where knowledge is defined often within institutional and political settings and

transmitted through the educational process (Page & Thomas 1977 p 95).

4.2.2 Classifications and typologies of knowledge

Classifications and typologies also provide a means of defining the essence and nature of knowledge and knowledge development. Sanchez & Heene describe a simple typology which bears some resemblance to the 'looped' learning of Argyris and Schon described in more detail below. It distinguishes between 'know-how' or practical knowledge like skills, 'know-why' or theoretical knowledge, and 'know-what or strategic knowledge' (p10). They also go on to survey a number of other classifications of knowledge offered by different writers (quoted in Sanchez & Heene 1997 pp123-4):

1. Explicit - Tacit distinction of Polyani (1974). Explicit knowledge is articulated and more easily codified, shared and known by others. It is transmitted in more formal ways within and between organisations. Tacit knowledge is related to experience and exists more in the background where it is contained within the practices, systems and cultures of businesses.
2. Scientific - Practical knowledge. This bipolar classification is reflected in the work of Hayek (1945) and he distinguishes scientific knowledge which is formalised and verified from practical knowledge which is linked to how things are done and not subject to the same rigour of verification.

3. Objective - Experiential knowledge. This is a distinction from Penrose (1959) which highlights similar differentiators to Hayek but this time on an objective/subjective continuum.

4. Migratory - Embedded knowledge. This is the work of Badaracco (1991) in which he distinguishes between migratory knowledge, which moves easily within and between businesses, and embedded knowledge which is less available for transfer.

Each of these classification systems present bipolar division between knowledge that is accessible and available and that which is present but less easily articulated or codified.

Scharmer develops the tacit-explicit classification further by identifying two types of tacit knowledge which he termed embodied knowledge and not-yet-embodied or self-transcending knowledge. Embodied knowledge already exists in the practices of a company, but there is also knowledge that is not yet present but exists in the imagination or is created in the moment of an experience (Scharmer 2000 pp 36- 41).

Scharmer develops a typology based on a two dimensional matrix. Along one axis there are three epistemological types -explicit, tacit, and self-transcending, and along the other, four ontological types representing four levels of corporate action - namely performing, strategising, mental modelling and sculpting. The resulting twelve knowledge types are shown in Table 4.2 below (Scharmer 2000 pp42-3).

Epistemological (E) /Action(A) Types	E1 Explicit knowledge	E2 Tacit knowledge	E3 Self-transcending knowledge
A1 Performing	Know-what	Knowledge-in-use	Reflection-in-action
A2 Strategising	Know-how	Theory-in-use	Imagination-in-action
A3 Mental modelling	Know-why	Metaphysics-in-use	Inspiration-in-action
A4 Sculpting	Know-for	Ethics/Aesthetics-in-use	Intuition-in-action

Table 4.2 Knowledge Typologies (after Scharmer 2000)

Patriotta (2003) provides one of the most recent typologies based on a dynamic, rather than a static view of knowledge. He identifies three types of knowledge which relate to the transformation that it undergoes with time. He calls these: 'Foundation knowledge' which is knowledge connected to the design of the organisation and based on the abstract and cultural assumptions about knowledge on which the organisation exists; 'Procedural knowledge' which is knowledge tied up in the routines and are part of the background to everyday life; and 'Experiential knowledge' which emanates from the everyday activities of human beings - solving problems, confronting issues, involvement in social settings - and in which he describes the mechanism of knowledge creation as 'common sense'. (Patriotta 2003, pp193-195). Over time knowledge develops from 'experiential to 'foundational'.

In philosophy, knowledge classifications tend to be less complex. John Dewey discusses some of the classical tensions between theoretical and practical knowledge. The former being, to many classical philosophers, a 'higher' form of knowledge than the latter (Dewey 1929)². Audi distinguishes between scientific, moral and religious knowledge. Scientific knowledge collects around the creation of generalisations about how things are. (Audi 2002 p250 f). From a more post-modern perspective Heidegger differentiates between practical and affective understanding which he linked with knowledge and theoretical understanding (Greco & Sosa 1999 p30-1).

4.2.3 Related definitions and classifications of learning in organisations.

Learning, like knowledge development, is seen in the organisational literature as a process; a process attributed to individuals, to groups and to the organisation as a whole. Individual learning in organisational contexts is strongly linked to change and to outcomes i.e. the consequences of learning. Learning is viewed as having an internal processing dimension with a resulting change in the learner. Probst and Büchel (1997) see it as the processing of knowledge in which changes in the knowledge base occur (p15) Marsick & Watkins also support this definition, describing it in terms of:

the way in which individuals or groups acquire, interpret, reorganize, change and assimilate a related cluster of information, skills and feelings. It is also primary to the way in which people construct

² Particularly Chapter 2 *Philosophy's Search for the Immutable*

meaning in their personal and shared organisational lives learning is continually influencing and is influenced by the way in which people construct meaning. (Marsick and Watkins 1990 pp 4 & 38).

This focus on learning as a process may be contrasted with the view that learning is primarily about outcomes or the results of processes.

This outcomes approach to learning leads some writers to describe 'changes' which result in the individual functioning more effectively. It is what people do, not what people know:

what and how much people have learned manifests itself through demonstrated behaviour; not through what they know..... (Swieringa and Wierdsma 1992 p 20).

This is also expressed by others as: enabling people to handle new situations or develop the ability to handle future problems (Probst & Büchel 1997 p4 quoting Peccei 1979); developing or improving competencies or the ability to act to achieve a goal (Swieringa & Wierdsma 1992 p20); behaviour change in order to adapt to new situations (Pedlar et al 1996 p146; Mayo & Lank 1994 p vii); and improving problem solving and the capacity for action (Probst & Büchel 1997 p167 and Watkins & Marsick 1990 Ch 7).

The two learning concepts that are most comprehensively debated in the organisational literature, however, are those of *organisational learning* and *the learning organisation*.

The term *The Learning Organisation* entered the popular organisational terminology in the late 80s, early 90s and is generally attributed to Peter Senge who developed a theory and practice for the learning organisation in his book *The Fifth Discipline*. He identifies five elements, core disciplines, or conditions for a learning organisation - personal mastery, mental models, shared vision, team learning, and systemic thinking.

At the same time that Senge was promoting The Learning Organisation three writers in the UK - Boydell, Burgoyne and Pedlar - were setting up The Learning Company, a loose network of academics, managers and consultants interested in researching on, discussing, publishing about and developing learning in organisations. The purpose of this activity was to help businesses become learning companies. They wanted to put learning at the heart of 'the whole organisation' and their simple definition was:

A Learning Company is an organisation that facilitates the learning of all its members and continuously transforms itself (Pedlar, Burgoyne, Boydell 1996 p 1).

These two schools of thinking - the learning organisation and organisational learning - have grown up side by side, the former having strong roots in the United States and the latter emanating from sources in Britain and other parts of Europe. The relationship and distinction between the two has been picked up directly by some writers.

The relationship between the individual and the corporate in organisational learning is taken up by a few writers. Swieringa and Wiersdma see organisational learning as the sum of individual learning or the interaction of individual learning:

A learning process takes place in and through interaction with and between a number of people. Obviously an organisation can only learn because its individual members learn. (Swieringa and Wiersdma 1992 p 33).

Burgoyne, Pedlar and Boydell also emphasise the importance of the individual but add another component, that of a particular organisational climate that ensures beneficial organisational outcomes of individual learning activity (Burgoyne et al 1994 p5).

Probst and Büchel, however, identify it as something more than just the sum of individual learning:

Organisational learning takes place through the medium of individuals and their interactions, which together constitute a different whole, with its own capabilities and characteristics The individual processes and outcomes are nevertheless prerequisites for organisational learning and form an important basis for it. (Probst and Büchel 1997 p 17).

A link between knowledge development and learning is offered by Probst and Buchel who see learning as the vehicle for one form of knowledge development:

the ability of an institution as a whole to discover errors and correct them and to change the organisations' knowledge and value base so as to generate new problem-solving skills and new capacity for action. (p 167).

On the other hand Marsick & Watkins, on the other hand, define organisational learning in terms of knowledge utilisation; as the organisation's capacity to create, diffuse and use knowledge in response to 'non-routine events' (Marsick & Watkins 1990 p229).

Turning now to the concept of learning in other disciplines we find that in education links are also made between learning and knowledge.

Learning is described as human action associated with the structured and intentional activities of acquiring knowledge and skills required to engage in social and economic activity. In this sense it has been associated with the term 'education' which is normally used to describe a planned process for enabling specific learning to take place. Education usually involves learning with some external support - teaching, books etc. (Jarvis 2004 pp 105,196).

Turning to classifications and typologies of learning there are a number of key models that are used extensively in the organisational literature

Learning is often divided into three types - formal, informal, and incidental - by a number of sources, and these are regularly used to distinguish between different types of learning in the workplace. Formal learning is defined as 'formally structured, institutionally sponsored, classroom-based activities.' (Marsick & Watkins 1990 p 6). Informal learning takes place in non-routine conditions. It may be planned and intentional but in an informal setting - through reading, watching a TV programme, during mentoring or coaching. It can also be accidental when someone learns about something they want to learn about, but in an unexpected way. It can occur as the result of discovering a new problem that needs a solution or in trying to make sense of something that has failed. Informal learning is in the hands of the learner and may even take place despite the organisational setting in which it occurs.

Incidental learning, which is sometimes classified as a sub-set of informal learning and has been defined as a by-product of some other activity, is never planned or intentional. It is seldom explicit and may remain hidden in the context of some other task. It takes place in every day experiences - learning by doing, learning through mistakes, interpersonal contact (see Marsick and Watkins 1990 pp 3-8 and 12-15). In their own exploration of learning types Swieringa and Wiersma identified conscious learning (formal and informal) as

being the most effective because people know what they have learned and how they have learned it. (Swieringa and Wiersma 1992 pp 20-22).

Marsick and Watkin also make a distinction between learning by professionals and others in the work place. It is suggested that professional learning has the following special characteristics: autonomous, self-organised and self-directed. This is because professionals are different and independent thinkers. They are not easily socialised into organisations and want recognition from their peers more than from their organisation. As a result they tend to have a narrow frame of reference which is often focused outside their organisation. (Marsick and Watkin 1990 Ch 5 p 101).

Mezirow, on the other hand, identified three domains of learning in the workplace which he called : instrumental - task-orientated, problem solving learning ; dialogic - the development of consensual norms often reflected in organisation culture; and self-reflective learning - the ways people learn to understand themselves through inter-relations with others. (quoted in Marsick and Watkins 1990 p 53).

Finally there is the hierarchical model of learning as that proposed by Argyris and Schon which has found applications in both the educational and organisational worlds Their hierarchy begins with what they term 'single loop' learning that results in change to actions in line with the 'existing governing rules' (Argyris and Schon

1978 p19). Others have described this as superficial behaviour and the adjustment of behaviour designed to overcome an everyday problem (Swieringa and Wierdsma 1992 pp37-42). The next level is described as 'double loop' learning where, according to Argyris and Schon, 'we learn to change the field of constancy itself.' (op cit 1978 p19) This is where the basic assumptions behind actions are questioned and changed. The possibility of 'triple loop' learning has been developed from the early work of Argyris and Schon and this is described as actions resulting in changes at the level of values and principles (Swieringa & Wierdsma 1992 pp37-42).

4.2.4 Summary

The plethora of literature has led to a confusing range of definitions and meanings around the concepts of knowledge and learning. If the business world has created its own language it is a multi-lingual mixture in which comparisons and translation are not straight forward. Amongst the conclusions to his detailed study of knowledge making in FIAT motor factories in Italy, Patriotta (2003) makes two summarising points regarding definitions. The first is summed up best in his own words:

We are left without a clear definition of what organisational knowledge is it can only be captured through metaphors and analogies e.g. commodity, performance, community, situation (p199)

The second concerns a plea for a language that reflects the dynamism, flow and fragility of knowledge.

Both these points may also be made about learning in organisations which also eludes a unifying language and, it could be argued, also needs defining in terms of a dynamic process that goes beyond the formal.

The preceding account does I believe illustrate how the business world has to some extent created ways of defining and conceptualising both knowledge and learning that take us outside the confines of the traditional academic disciplines.

4.3 Value of Knowledge and Learning

The business world in the United States and Europe is currently interested in the knowledge/learning dimension of organisational activity because it is perceived as having commercial value.

The value of knowledge and learning is approached in two ways within the literature: value because they form assets that enable a business to function and to retain some market advantage over competitors and value because knowledge and learning are commodities to sell to other businesses or direct to consumers. In associating knowledge and learning with commercial value a further issue is raised and examined - that of measurement. If knowledge and learning are to be identified as assets to a business or products to be bought and sold the question of how they are quantified and represented on balance sheets needs, according to a number of writers, answering. It seems, however, that this question is raised more than it is answered.

4.3.1 Knowledge and value

Wilson argues that *knowledge* is an asset that should appear on the balance sheet and he offers the example of how the cost of training, which he defines as 'buying in knowledge' - should be costed against the value added when the new knowledge is utilised (e.g. a new skill) and the changes it produces which are incorporated into the product or service sold (Wilson 1996 pp 37-9).

Wilson also believes that information and knowledge assets are so important that they require new ways of organising businesses:

the only basis for competition between organisations in world markets (which) requires a radically new type of organisation, with new structures, values, methods and objectives. (ibid. p 43)

Such assets, he goes on to say are internal to a company's employees and it follows therefore that:

a high staff turnover is serious it indicates the invisible but calamitous wasting away of organisational knowledge - the source of value to its customers and its competitive edge. (ibid. 1996 p 55)

This view is supported by Sanchez who argues that tacit knowledge has the most 'fragile value' because it tends to be locked up in people - once they move on the value of their knowledge is lost (Sanchez and Heene 1997 p 168)

Leonard defines, more closely, the type of knowledge that provides the competitive edge as 'core capabilities' or 'key skill sets' or

'combinations of know-how'. Because these are developed over time they are not easily imitated or bought in (Leonard 1995 p 4).

Hall goes further than this and locates the source of knowledge in all intangible assets of a company and as such they may represent the major part of the value of the Company (Hall in Sanchez & Heene 1997 pp 40-46).

This value is increased through mergers, acquisitions and partnerships between companies where different knowledge is combined and the knowledge pool extended and developed (Klavans & Deeds in Sanchez & Heene 1997 pp 103-118).

As mentioned earlier knowledge rather than learning is viewed as a commodity for sale, but at the same time it has also been described as 'a unique, durable and valuable raw material or resource' because instead of being depleted with use it actually accrues - existing knowledge is the spawning ground for new knowledge and this process can go on indefinitely (Leonard 1995 p 3f)

A more critical and cautious approach to the commodification of knowledge with customers/clients is also presented in the literature and some writers feel this requires careful consideration by 'knowledge producers'. They believe that sharing some knowledge can provide market leverage and may be an essential part of selling products and services. But, on the other hand, sharing or supplying too much knowledge may reduce that market advantage. This is

illustrated in the flow of knowledge to professional service companies from their clients:

Clients need to feel secure that client-specific knowledge (knowledge unique to their business) will not be used in ways that could diminish their competitive position. This implies that there may be factors that limit the opportunity for knowledge absorption from client alliances (Sivula et al 1997 pp130-2).

Another area of debate within the literature is focused on the relative value of tacit knowledge over and against explicit knowledge. Some would argue that tacit knowledge holds the greatest value because it cannot easily move beyond the boundaries of the organisation in which it exists. As such it is hard to replicate and therefore continues to provide the competitive edge for the possessor. However Sanchez & Heene challenge this on the grounds that articulated knowledge may also be difficult to replicate because of the differences of language, competencies and culture that exist between organisations and which may reduce the potential utilisation value of that knowledge in the new context. They go on to draw the conclusion that the value of knowledge is context related and what may be valuable knowledge in one setting may be of less value in another. In order to have value knowledge must be utilisable. It may depend on the presence of other related skills, knowledge or culture knowledge in order to have any value (Sanchez and Heene 1997 pp 165-170).

Others identify that the primary value is in knowledge that is sold to the customer either through a service or a product. Such explicit knowledge is what others pay for, and, depending on the nature of the contract, it more or less enters the public domain. Most of the value of this knowledge is extracted by the original owner/originator; its new owner will find this knowledge has reduced potential for providing a competitive edge. As indicated earlier there is value in companies holding back some of the explicit and tacit knowledge that has gone into producing their products or services, because it is the only way of retaining the value. It is for this reason that many professional service companies like management consultancies and organisational development consultants keep some of their processes and methodologies from their clients. So trading knowledge becomes a fine judgement of deciding what to give up to others and what to safeguard (ibid. pp180 -184).

Philosophy, on the other hand, is concerned, amongst other things, with the *validity of beliefs about knowledge* based on logical discourse using the rules of logic. If philosophy attributes value to knowledge it is in relation to its veracity. In the 1920s and 30s Dewey was interested in the relationship between knowledge and action because many philosophers valued knowledge because it was unchanging and unchangeable whereas action and experience were susceptible to change and uncertainty:

The chief task of knowledge turns out to be to demonstrate the absolutely assured and permanent reality (Dewey 1929 Ch 2).

Dewey wanted to argue for the value of the relationship between theory and action and that the value gained through action was 'secure' and should be 'prized' more than theoretical knowledge. In fact the two should inform each other. Therefore to Dewey knowledge had less value unless it bore some relationship with action or practice (ibid. Ch 2).

According to Greco & Sosa:

.... to say that someone knows is to make a 'value judgement'. It is to attribute some positive evaluative character to a person's belief (Greco & Sosa 1999 p 6)

It could be argued that a major preoccupation of philosophers involves testing the truth of knowledge. Scepticism and false knowledge gained through hallucination, dreams and false logic are also areas of academic interest for examining the nature and value of knowledge.

In education knowledge may be considered to have value when it is relevant or useful in ways defined by society. The concept of 'really useful knowledge' explains this very issue describing the way knowledge gains value from the social and cultural setting in which it is located. In its original form it was used to describe the knowledge needed in the late eighteenth and early nineteenth

centuries to identify the essence of radical or emancipatory education needed to liberate the under-classes.

It expressed the conviction; first that real knowledge served practical ends - ends that is for the knower 'Practical' however, was not an invitation to a vague pragmatism. The key discriminator was practical for what? And for whom? When 'practical' was specified more tightly all this came into view:

All useful knowledge consists in the acquirement of ideas concerning our conditions in life What we want to be informed about is - how to get out of our present troubles. (Johnson 1993 p 23)

4.3.2. Learning and value

The interest in the value of learning can be linked to the development of the 'economic society' where wealth creation is linked to competitive forces requiring ever-changing and adapting behaviour from society's workforces - often described in terms of effectiveness and efficiency. Such adaptation is often identified directly with the ability of the workforce to learn, which leads to an interest in valuing learning and encouraging and enabling it throughout life. Learning hence has become a political issue as governments act as guardians of economic prosperity and security.

In a similar way to Wilson's call for knowledge to be represented in a company's balance sheet Mayo and Lank argue that learning is an asset needing to appear on the balance sheet as a means of

accounting for its value. They identify this in terms of benefits to employees, customers, and shareholders. They argue that learning should be measured in terms of its impact on such things as return on assets, customer satisfaction, reputation, market -share growth, growth in productivity, increase in employee morale, increased commercial value of individuals and teams in the market place, replacement cost (having to buy in people with same skill/knowledge levels), increased ability to get better results from others, and increased personal performance, etc. (Mayo and Lank 1994 pp 7 & 219). This benefit analysis is summed up in their statement:

A Learning Organisation harnesses the full brainpower, knowledge and experience available to it, in order to evolve continually for the benefit of all the stakeholders. (ibid. p 7).

However they also identify one problem in evaluating learning and that is that the results are 'rarely overtly visible' and may not be immediate. (ibid. pp203-4).

4.3.3 Summary

Commodity value is a major preoccupation in any business. One reason that the business world shifted its focus from learning to knowledge may be due to the fact that knowledge is more tangible. The nature of knowledge and the knowledge incorporated in skills is easier to define and to trade than the process of learning. It is much closer to the concept of 'intangible goods' with which the business world is familiar. Value and knowledge are not unique to the business world and the debate in philosophy over the

knowledge-action distinction and in education over the nature and importance of 'really useful knowledge' also indicate this interest in value related to usefulness or usability.

Although the desire to measure value or effectiveness is a normal business response when accounting for assets, there is little evidence, in the literature, that the rhetoric of measurement actually works through to practice. But this is probably a reflection of the general problem of putting figures to invisible or intangible assets.

A strong theme common to knowledge and learning and running across the disciplines is the importance of relevance in assigning value. This can be interpreted in various ways - relevance to society, to the individual or to the market place.

4.4 The Sources of Knowledge and Learning

What are the sources of knowledge and where does the impetus for learning lie? To what extent do these rest with the individual and to what extent are they the domain of groups or organisational structures, cultures and dynamics?

4.4.1 Sources of knowledge

The knowledge available to organisations is seen by some to firmly reside *within* individuals. It exists in their training, their behaviour, their past experiences, their memories, and in their capabilities. In describing the shift in emphasis from resources to capital and now

on to labour, De Geus describes how companies currently recognise that the workforce carry knowledge and how to use it. As such they need to be viewed as key stakeholders in the business, outranking shareholders in terms of what they are able to contribute to the success of the business (De Geus 1999 pp 21-29)

Knowledge is also available in organisations by being embedded in systems, processes, procedures, structures, craft traditions, and culture. New employees will access all of these sources whether consciously or unconsciously in order to discover how to operate and behave in their new company. Wilson describes it thus:

Embedded knowledge is organisational knowledge which cannot be owned and used in isolation by an individual. It is more akin to the soul or culture of an organisation, in that it exists as norms, attitudes, relationships among individuals and groups, and ways of making decisions (Wilson 1996 p 36)

He goes on to describe how Rover benefited from this source of knowledge in the formation of its strategic alliance with Honda:

..... Rover slowly acquired embedded knowledge from Honda, in the form of working practices

(op cit p 36)

In addition to these internal sources there are also a range of external sources, deemed important because these provide the possibility of new knowledge for the company. Leonard lists the following external knowledge sources - other non-competing companies, competing companies, universities, vendors, national institutions (government), customers and consultants (Leonard

1995 Ch 6). The internet can be added to this list as a more recently identified source of knowledge that is rapidly gaining in importance because of its magnitude and ease of access (Hagel & Armstrong 1997).

The importance of knowledge is demonstrated by the interest in, and time devoted to, the formalising of knowledge sources. The preoccupation of the earlier stages of the knowledge revolution was in capturing and storing knowledge in databases, intranets and extranets. In this way knowledge-hungry employees have, in theory, easy access to officially recognised sources (Leonard Ch 5).

In the 'knowledge age' knowing where and how to source knowledge-needs is a key competency of almost every employee however simple or complex their job.

It is the more recent works already referred in Section 4.2.1 above (Hildreth & Kimble 2005, Patriotta 2003) that suggest a much more complex source of knowledge - through the interaction of a range of 'actions and artefacts' - where tension, breakdown and disruption may source new knowledge or cause old knowledge to be adapted.

Audi's work on epistemology identifies the following sources of knowledge from a philosophical perspective. He divides these into primary or basic sources that are not based on other beliefs and secondary sources that rely on previously held beliefs (Audi 2002):

- Perception which is a basic form of knowledge gained from experience and the work of the senses. Through seeing, tasting, smelling, hearing and touching the subject develops beliefs about the world directly around him or her and because these sense experiences normally are real (i.e. the different senses corroborate each other, the sense experiences by other knowledge sources) they gain the status of being justified beliefs (pp 14-49)
- Memory which is stored knowledge originating in past experiences or through one of the other knowledge sources. The act of storing the knowledge enables it to be available for future use - 'Memory retains belief and justification. It does not generate them Memory is not, then, a basic source of belief and knowledge (p 69)
- Introspection or knowledge from and about ourselves that is achieved through the conscious activity of the subject. To some it has even greater significance in sourcing knowledge - for one thing it can happen at will and is not reliant on external circumstances as in perception (p89)
- Reflection or reason is the mental capacity to extract knowledge and beliefs from propositions based on the nature of the propositions. Because of this reason it is one of the basic sources of belief, justification and knowledge; in a way that the other

.... sources ... are not, it enables us to know truths that hold not only in the world of our experiences but in any circumstances whatever' (p 123)

- Testimony is knowledge originally acquired by others and passed on. It is our social source of knowledge and there is some debate as to the validity of this as a basic source for the one receiving the knowledge (p 146)

An important theme in epistemology is the relationship between the subject - the knower, and the object - that which is known. In part of the classic tradition this involved the belief that all knowledge was possessed and given by God and therefore rested outside the individual waiting to be discovered or imparted. During the seventeenth century the scientific revolution expressed the same debate in terms of knowledge existing in the natural world waiting to be discovered. The existentialists of the 19th and early 20th Centuries saw knowledge as emanating from within.

In recent years this subject-object debate has been addressed by the constructivists school which views knowledge as the interaction between the subject and the object whereby knowledge 'out there' is taken and transformed by the mental processes of the subject (influenced by the values, past experiences, current state, emotional attachments, level of attention, etc). In this way each person constructs their own knowledge from the external world. (von Glasersfeld 1996). Social constructivism on the other hand:

.....sees consensus between different subjects as the ultimate criterion to judge knowledge. 'Truth' and 'reality' will be accorded only to those constructions on which most people of a social group agree (Heylighen 1993).

4.4.2 Sources of learning

Learning may be viewed as the result of interactions between the individual and their environment; where the environment provides stimulus through the senses or where there are problems to solve that promote the search for new ways of behaving.

But learning may also be sourced or initiated through the interaction of individuals in groups or teams or in informal social settings in the workplace. Swieringa & Wierdsma call this 'collective learning'. It begins with the individual as a learner but goes beyond this through the interaction of learners enabling new learning that didn't originally reside with the individuals involved:

The most significant learning is in discovering, collectively, a new point of reference in the collective will. The dominant feature of a learning organisation is its focus on learning, based on its collectively shared will (Swieringa & Wierdsma 1992 p 135).

Probst and Büchel also support this idea of social interaction providing a new dimension to learning. It 'constitutes a different

whole, with its own capabilities and characteristics.’ (Probst and Büchel 1997 p17)

The stimulus or catalyst for learning may be through some informal or formal activity, it may even be incidental i.e. occurring as an unexpected outcome to an activity, where the learning may bear little or no clear relationship with the activity that prompted it (see the earlier discussion in this chapter on types of learning). In formal situations the source of the learning or at least the knowledge exchanged in the ‘training’ activities may be the trainer or it may emanate from the organisation with its need for a workforce equipped with particular competencies or capabilities (Jones 1997).

Informal and incidental learning may be less reliant on institutional sources, relying more on the individual learners - either operating independently or in collaboration with others sharing the same experiences. Marsick and Watkins characterise informal learning as being in the control of the learner and more focused on work-place experiences - here the source of learning is more likely to be everyday experience.

The distinction, also discussed earlier, between those in the professions and others in the workplace also is seen to have implications in identifying learning sources. Referring to the work of Benveniste, Marsick and Watkins argue that:

Professions are not easily socialised into the organisation, because they have learned to think independently. They are more likely to question

orders rather than execute them with obedience. They draw on an extensive knowledge base which they update by reading, interacting with colleagues through professional associations and journals and participating in seminarsProfessionals want recognition from their peers more than the organisation (Marsick and Watkins 1990 p 44).

Their learning may therefore be more self-organised and self directed and their sources are more likely to be outside the confines of the company for which they work.

4.4.3 Summary

There are clear parallels and connections in the business literature and thinking in other disciplines. The emphasis on knowledge sources has shifted from being 'out there' - in the organisation, in the world, in creation, or in the teacher - to being 'within' and 'between'. Within the individual in the sense that individuals transform that which they experience and in the interaction between the individual and his or her environment and in social encounters.

4.5 Mechanisms & Processes in Knowledge Development and Learning

During the initial stages of this research the interest in the mechanisms and processes of organisational learning diminished and the focus shifted to how knowledge assets could be accessed, utilised and developed. In this section we shall explore the various mechanisms and processes described in the literature. It can be

argued that both knowledge and learning are naturally occurring assets because they are features of human existence and functioning. The literature however is more interested in how to enhance or maximise these assets and tends to focus on what can be done or what should be done to ensure increased 'production' or more effective usage. A wide range of mechanisms and processes appears in the literature I have chosen, some that recur in more than one source or that offer a distinctive approach unlike any others. Some are those utilised by individuals, others at the team or group level and some are multiple processes at work at organisational level.

4.5.1 Mechanisms & processes in knowledge development

In some respects processes and mechanisms associated with knowledge in organisations fall into a number of clear categories, namely - retrieval and sharing, storage and access and knowledge generation and creation. Much of the interest in knowledge processes has revolved around gaining access to tacit knowledge which was initially identified as knowledge locked up in individuals.

The shift of interest to knowledge as a social construct, that is fragile because it is at the mercy of a myriad of social forces within the organisation, leads us away from the more clearly defined management mechanisms to the boundaries between organisation and disorganisation. Here breakdown is the norm and it is flow and interruptions to flow that bring changes to organisational knowledge:

What is accounted for as organisational knowledge might be invalidated or subverted in the near future or distant future or else revised and perfected as a result of interaction, dispute, power play, agreement and collective search and decision (Patriotta 2003 p 9).

a. Articulation, Sharing, Transferring, and Capturing

These processes all relate to making the best use of existing knowledge which is held within individuals and needs to be made available to the whole organisation in order to conserve it and maximise its value as a resource. Sanchez and Heene describe how the individual possesses knowledge at four levels of mastery or levels of usefulness. At the most basic level is *reproduction* or the ability to recall knowledge; this is followed by *explanation* which is the ability to describe and give meaning to that knowledge to others; *application* is the level of knowledge used in different situations and *integration* is the assimilation of knowledge so that it can be used flexibly and appropriately in different situations (Sanchez & Heene 1997 pp 6-7).

One of the first issues tackled in the organisational literature is that of enabling knowledge held by individuals, which is tacit knowledge as far as the organisation is concerned, to be used by others and in fact to become explicit for the organisation. The vocabulary that has developed around these mechanisms and processes includes: articulation, sharing, transfer, extracting, and capturing. It is important to note that Polyani is clear that tacit knowledge cannot

be articulated although it may be demonstrated in people's behaviour (Polyani 1997 pp 135-146).

Before knowledge can be shared or extracted it has to be articulated by those who possess it. This is the second level of mastery described above. Articulation in the form of the spoken or written word, through visual representation, using demonstrations and even as a product of coaching, can all help convert tacit into explicit knowledge (Nonaka and Takeuchi 1995 p 28).

Explicit knowledge can then be shared or transferred passing it on internally from one person or area of the company to another. Leonard describes one example of this where everyone is enabled to be involved in new product, service or process development. In particular he says those who 'do it' have something to offer those who develop 'it' (Leonard 1995 ch. 4).

The sharing or transfer of knowledge between companies is also examined by a number of other writers. Companies need to feel that knowledge-sharing will not diminish their competitive position and management plays a role in encouraging this knowledge flow. Sivula et al, writing about knowledge transfer in the service sector, suggest companies may choose clients or the client mix in order to gain particular knowledge and to build a knowledge base. (Sivula et al 1997 pp 130-2). They also identify the determinants of knowledge transfer: 1. Transferability of knowledge. 2. Client willingness to share. 3. Service industry willingness and capacity to absorb

knowledge. Other factors that effect the process include: client gate keeping; the number of people involved in the project; agreement restrictions; site selection; the social context of the client; the extent to which knowledge/skills are tacit; prior knowledge possessed by service industry; and communication system (ibid. pp127-8).

It is also recognised that knowledge transfer can occur through different channels including: internal knowledge transfer which involves working with knowledge already in existence in a team or the business; external knowledge transfer which involves bringing knowledge in from outside (e.g. journals, clients, partners); and transfer through formal interaction (e.g. written forms, contractual relationships, project groups); transfer through informal interaction (e.g. face-to-face conversations). Each of these is associated with different patterns of behaviour (Wright 1997 p86-87). Sivula et al also distinguish between internal knowledge transfer and transfer at the interface with a client. In the latter instance, knowledge may flow from company to their clients or customer in the form of a product or service that is being traded and may flow from the client/customer to the company, which assists in the creation of the product, or the form of the service supplied (Sivula et al 1997 pp124-127). This dynamic flow is illustrated and summarised in Diagram 4.3 below.

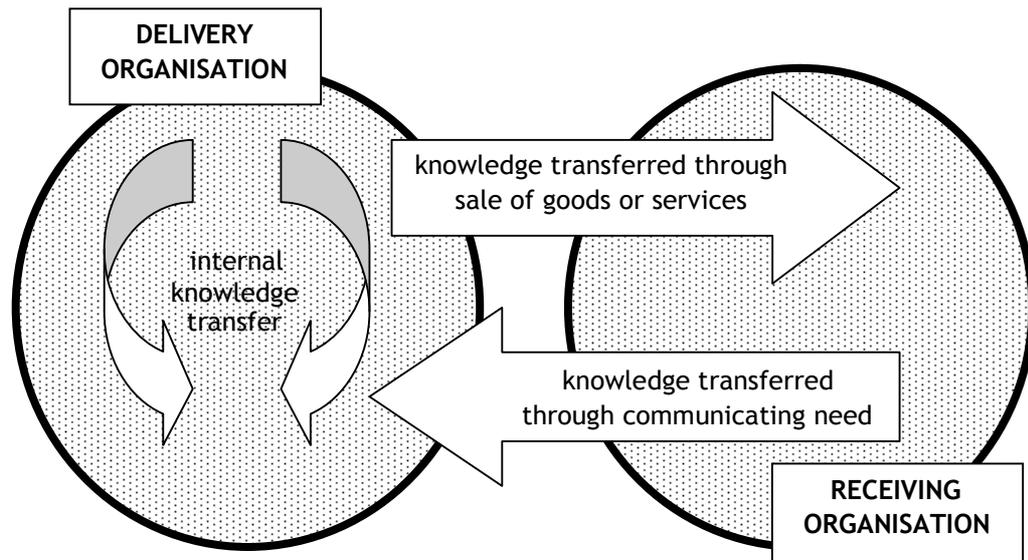


Diagram 4.3 Knowledge transfer model

It is also claimed that transfer is dependent on the culture of the company and informal cultures probably are most successful at informal transfer and so on (Davenport & Prusak 1998 p 93).

In identifying 'flows' of knowledge Klavans and Deeds approach the work on learning as an energy flow which has already been referred to as a mechanism for organisational learning. They identify three different flows of knowledge: 1. Scientific discovery - knowledge generated within and without - a free flow of knowledge that cannot be contained within organisational boundaries 2. Technical development to ensure the product is produced and delivered to customers - knowledge developed in this way is company specific and the company may actually create policies that prevent flow outside 3. Absorptive capacity which involves recognition of the value of external knowledge to help further adjustment and development of technical knowledge and encourages knowledge

generated outside to flow freely in (Klavans & Deeds 1997 pp 104-108).

The most obvious mode of transfer is through conversation and Davenport and Prusak devote a good deal of space to this (poorly practised) activity. They point out current threats to knowledge transfer:

Transferring knowledge through personal conversation is being threatened not only by industrial-age managers but also by the move to virtual offices (this) lowers the frequency of informal knowledge transfer (Davenport & Prusak 1998 p 91)

This process of knowledge flow or movement may be a passive activity achieved simply through exposure to knowledge held by others. It may equally be proactive and proactively hostile. A number of writers refer to knowledge capture or apprehension (see Sanchez & Heene 1997 p 173, Sparrow 1998 pp 46-50).

Sharing and transfer may not occur through simple communication from one party to another. This may not be enough, particularly if the recipient is not convinced of the value of gaining the knowledge:

It's never enough to just tell people about some new insight. Rather, you may have to get them to experience it in a way that evokes its power and

possibility. Instead of pouring knowledge into people's heads, you need to help them grind a new set of eyeglasses so they can see the world in a new way. This involves challenging the implicit assumptions that have shaped the way people in organisations have historically looked at things (Brown 1998 p 168).

Knowledge articulation, transfer and sharing are all well documented in the literature which appears to provide a clear and deepening understanding if these processes.

b. Codifying, storing and embedding

Codification is the process of putting:

..... organisational knowledge into a form that makes it accessible to those who need it. It literally turns knowledge into a code to make it as organised, explicit, portable, and easy to understand as possible (Davenport & Prusak 1998 p 68).

It could be argued that knowledge should only be codified if it has some continuing usefulness to the organisation. One issue is finding the appropriate medium for codification. Tacit knowledge is felt by some to be almost impossible to codify because it is less accessible to this overt process.

In relation to codification Davenport and Prusak suggest there is a prior need for 'knowledge mapping' which involves identifying the nature and sources of knowledge in the organisation so that it can

be located when it is required. Such sources will include people and groups as well as documents, databases and manuals (ibid. 1998 pp 72-80).

The actual process of codification may involve a number of stages including: identifying the subject matter in terms that both parties will understand: finding an appropriate language for codification; establishing a scheme for categorising and locating the knowledge; identifying the relationship between knowledge sets so that knowledge can be mapped. This leads to the creation of what Sanchez calls 'knowledge architecture' (Sanchez & Heene 1997 p172).

Wilson, however, describes codification in simpler terms as the stripping away of any irrelevances to give a precise and concise message which can be understood by a wide range of people (Wilson 1996 p 58).

Some companies have invested large amounts in finding IT solutions for extracting knowledge from individuals and codifying it for others to use. In contrast Hansen et al compare companies that do this with those that encourage face to face extraction of knowledge through dialogue and discussion (Hansen, Nohria and Tierney 2000 pp 56-58) and suggest that in some circumstances this may be more effective both in terms of cost and usefulness.

Storage of knowledge has also traditionally been seen as the responsibility of IT departments through the development of simple and complex transactional databases. More recently companies have moved away from databases to developing intranet and extranet solutions making retrieval easier and enabling more sophisticated and flexible control over what is accessed and by whom.

There is some debate over whether stored knowledge should be considered as knowledge at all or whether it is more correctly identified as information because of its temporary suspension from usage. This is only an issue for those who believe that knowledge is linked with action. Some rationalisation has been applied to this issue:

..... internal knowledge repository projects, we observe the storage of both knowledge and information. If the distinction between knowledge and information is seen as more of a continuum than a sharp dichotomy, most projects that focus on internal knowledge deal with the middle of the continuum - information that represents knowledge to certain users (Davenport & Prusak 1998 p 147).

In the early stages of interest in knowledge management in organisations the need was to find ways that knowledge could be extracted or articulated and then codified. But this thinking was questioned by those who doubted that tacit knowledge could be

codified at all. This was Polyani's position as cited above. There were also doubts as to the real value of codified knowledge to others because of the way it exists embedded in the subconscious of individuals or in the culture of the organisation. The key issue here was not codifying such knowledge but providing the conditions for it to 'thrive'.

The concern for how knowledge exists and is utilised in organisations is taken up by Wright who identifies the process of 'tangible knowledge integration', where knowledge is developed from practice and embedded in the production process or delivery process. He feels it is hard to replicate and codify because it exists in the product (Wright 1997 pp 85-87).

Wilson also talks of embedded knowledge as knowledge that has been assimilated and integrated into the heart and soul of the company. As such it has taken time to root itself through constant use, modification, and reification. It is no longer owned or used in isolation by individuals:

It is more akin to the soul or culture of an organisation, in that it exists as norms, attitudes, relationships ways of making decisions (Wilson 1996 p 36-37).

Silvula also identifies with this view when he refers to the knowledge that exists in the behaviour and routines that are involved in carrying out a task as embodied knowledge. He cites the

example of how knowing how to respond to a customer's complaints may be demonstrated by a customer complaints manager but may not exist in any written manual (Siluva et al 1997 p 125). Such knowledge is difficult to steal or export to other companies

c. Justifying, Development and Creation

Before new knowledge is available for more general use within a company it has to be 'justified' or 'legitimated'. Knowledge justification according to Krogh and Grand is the process by which knowledge becomes accepted and acceptable to a wider audience. This occurs for knowledge that comes from outside the organisation as well as that possessed by individuals and groups within. Justification involves the recipients in accepting the relevance of the 'new knowledge' after deciding:

Whether new concepts and individual beliefs are worthy of further attention and investment (Krogh & Grand 2000 p 16).

They go on to point out an underlying paradox in this process. In order for justification to take place the incoming knowledge has to be examined in the light of existing knowledge in order to judge how it fits. If the new knowledge challenges existing knowledge it has a greater chance of being rejected even though it may be important in contributing to the company's competitiveness in the market place. However new knowledge will not always challenge the old - it may add to, complement or develop what already exists, making justification easier.

It could be argued that there are three potential responses to the justification process. The first is rejection, where new knowledge is deemed irrelevant, of no interest, too challenging or incorrect and as a result is not permitted to be made more widely available. The second response is to return the knowledge to its source because it is felt to be in the wrong form or incomplete and requires more work before being 'presented again'. The third response is appropriation and integration into the knowledge base.

Finally Krogh and Grand offer some criteria that can be used in the justification process to judge knowledge, including: past experience, financial performance, technological data, customer satisfaction, competitive relevance, innovation, who holds it and who articulates it (Krogh & Grand 2000 pp 13-35).

Unlike justification the term 'knowledge development' is much less clearly defined. It could mean any change (new, adapted, accumulative growth) in knowledge possessed by an organisation. Nonaka and Konno look at four ways in which knowledge develops. The first is when one person's tacit knowledge is copied and utilised by another person. This may be an unconscious act as in taking on the behaviour of a role model, or more conscious and formalised as in the case of the apprentice learning from the experienced worker. This is the development of tacit knowledge to tacit knowledge. The second is development from explicit knowledge to explicit knowledge as in writing a report that requires bringing together and combining existing explicit knowledge. The result of this process is

the creation of new explicit knowledge. Tacit knowledge to explicit knowledge, which has already been touched on in this chapter, forms the third category of development and the fourth is the development of tacit knowledge from explicit knowledge. In this latter case explicit knowledge becomes integrated and assimilated so the recipients begin to use the knowledge in an intuitive way - perhaps subconsciously. There is according to Nonaka and Konno a spiral dynamic between these four components of the model that enables knowledge to be created and developed continually within organisations (Nonaka & Konno 1999).

Most recently an interest in the mechanism of 'knowledge creation' has replaced the preoccupation with tacit knowledge as the key focus in organisational knowledge management. Knowledge creation occurs in the activities of problem solving, experimentation, product development, and in all creative processes where something new has to be produced. It has been identified as the knowledge developed on the edge of current practice; the knowledge that makes sense of and takes advantage of 'emergent market opportunities' (Scharmer 2000 p 36). The writings on knowledge creation been pioneered, amongst others, by Japanese academics such as Ikujiro Nonaka and Hirotaka Takeuchi and through books such as *The Knowledge-Creating Company*, which examine the reasons for the success of Japanese companies in the latter part of the 20th century (Nonaka & Takeuchi 1995).

For Leonard knowledge creation is a continuous process because in any company knowledge is being continuously replenished (Leonard p 3) He believes it arises through experimentation and prototyping (prototyping is the articulation of an idea in any form - words, drawings, models):

The activities of experimentation and prototyping create two new capabilities. First, experimentation creates what has been termed “requisite variety” in products and processes Second, the act of experimentation sets up a virtuous cycle of innovation; this cycle can constitute such a dominant characteristic of the organisation that the ability to experiment and prototype efficiently and competently itself constitutes a competitively advantageous capacity (Leonard 1995 p114).

This stress on experimentation is also taken up by Wright who suggests that there are two approaches to creation. The first is through theorising and refining ideas and plans until something is useable and the second he describes as empirical exploration, trial and error or developing knowledge from praxis (Wright 1997).

Scharmer describes new knowledge in different terms when he describes the type of knowledge that provides the greatest competitive advantage for businesses today. He calls it ‘self-transcending knowledge’ or ‘knowledge not-yet-embodied’. This is a form of tacit knowledge but distinguished from embodied tacit

knowledge which is already embedded in the culture and practices of the organisation. He links self-transcending knowledge with the half-formed ideas, images, instincts, etc. held within the imagination. This is knowledge that is in the process of being formed, emerging knowledge (Scharmer 2000 pp 37-9).

Such knowledge is captured through three core activities. The first is 'shared praxis' which encompasses 'everything that people do together' (Scharmer p 50) and requires that distributed work is brought together and shared. This he believes is at the heart of team work. Second there is 'shared reflection' which includes 'all practices of sharing experiences and surfacing their underlying themes, puzzles and questions'. Thirdly there is the formation of 'shared will' when people come together and articulate some shared aspirations focusing on those things that people really care about and therefore have a commitment to (ibid. pp 49-51).

d. Leveraging

Leveraging knowledge refers to the ability to maximise the value of knowledge in a given situation. In a commercial setting this involves maximising the profits from knowledge possessed by the host company. Leveraging knowledge across organisations is a critical process. Knowing what to 'give up' to provide leverage, and what to retain in order to keep competitive advantage, is the key question:

Implicit ...is a tension between the benefits of leveraging knowledge and the hazards of losing

control of critical knowledge (Sanchez & Heene 1997 p180).

This problem has already been discussed in some depth in the section on Value above and the key to this is knowing which types of knowledge give a company strategic advantage and then only leveraging the minimum of this to deliver some solution (product, service, etc.) to a client.

Leverage may also be related to market conditions and in some settings 'know how' may be the knowledge with the greatest leverage, while in others it is 'know why' or 'know when'. Which to share and which to keep will also vary (Sanchez & Heene 1997 pp180-84).

e. The knowledge cycle

The mechanisms presented so far might easily be considered as linear processes, where knowledge is processed along a production line. Patriotta sees the development mechanism more in terms of a cycle or spiral (Diagram 4.4 below). Knowledge is created and made use of until it becomes institutionalised at which point it becomes temporarily embedded in the routines, structures and technologies of the organisation. Breakdowns and discontinuities in routines lead to another phase of utilisation and the creation of more knowledge.

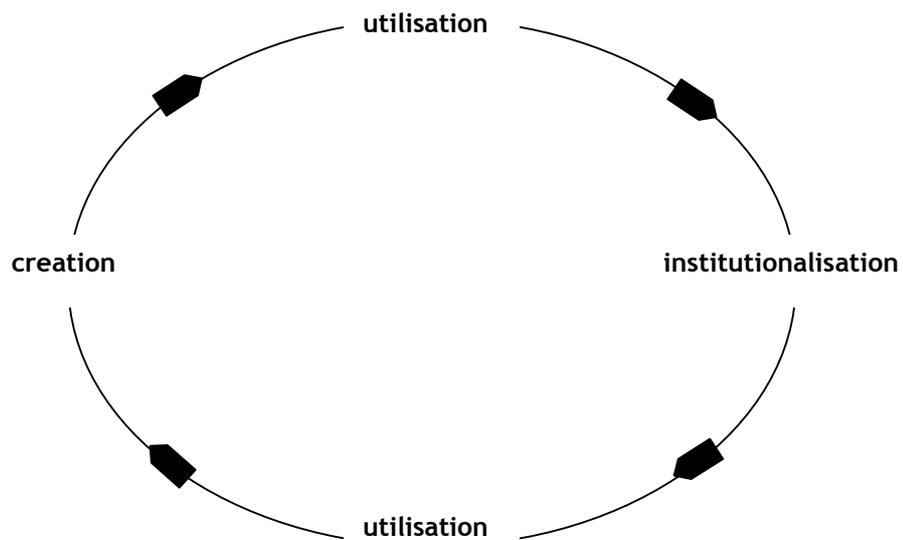


Diagram 4.4 The Knowledge Cycle (after Patriotta 2003 p 179)

f. Overlapping processes and structures

Interest in the rapid growth and success of Japanese companies in the Eighties and early Nineties also picked out knowledge development as a key to success. Nonaka and Takeuchi (1995) have documented the workings of a number of Japanese companies, particularly in the automotive and high technology industries. They identify integrated structures and processes that support rapid and innovative knowledge development. Their hypertext organisation (they describe Kao - a household products and chemical manufacturing business) is one in which a number of overlapping layers within an organisation work at developing knowledge and transferring it between business disciplines. The layers represent different technical and business functions within the company. This flow between different parts of the structure is a stimulus to both creativity and knowledge-sharing within the company (ibid Ch. 6).

They also describe overlapping processes within the car industry (Honda is the example they use) where the car manufacturing process that is traditionally linear in the west (design leading to prototyping, leading to component manufacturing, leading to assembly, leading to marketing and sales) is compacted and speeded up by overlapping these processes so that design work continues through the early stages of manufacturing and marketing and customer contact begins near the beginning of the concept development phase. In this process knowledge development in one area can influence knowledge development in another e.g. the marketing process may influence design and manufacturing of any new model because they are working, in part, side by side (ibid. Ch 7). It was this approach to sharing and developing knowledge which they believe gave the Japanese car industry the edge in the 1980s.

g. Other mechanisms

In contrast to the cycle described above, much of western philosophy also describes knowledge development as a linear, logical process by which knowledge becomes believable through the act of justification. Scepticism can play an important part in ensuring that knowledge obeys the rules of logic. Scepticism can lead to extreme pessimism especially when the sceptic's answer to question 'What can we know?' is 'Nothing'. Other sceptical positions relate to whether we can have moral or religious knowledge or whether we can have knowledge of the material world. (Greco & Sosa 1999 p 3)

Scepticism requires that a reason for belief is always provided thus creating a disciplined approach which always ensures that knowledge is properly grounded. However the sceptical position can lead to a never ending spiral of questioning the reasoning by looking at the reasons behind the reasons (Greco & Sosa 1999 pp 4-5). At best, it ensures that knowledge is tested because the questioning demands that what is known will stand up in its own right and will not beg important questions about the truth of that position (Greco & Sosa p 6).

Audi (2002) paints a more positive picture of knowledge development as seen from a philosopher's perspective when he writes: "Knowledge arises in experience. It emerges from reflection. It develops through inference. It exhibits a distinctive structure." (ibid. p 214).

4.5.2 Mechanisms & processes in learning

A much wider range of learning mechanisms and processes are described in the literature. In this section I have limited the review to those used in relation to organisational and group setting

a. Reflection

A number of writers emphasise the importance of experience as the 'subject matter' for reflection. Reflection is described as the action of referring back to past experiences in order to anticipate future consequences. Reflection leads to the reorganising and reconstructing of experience (Elkjaer 1999 p85). Others have expressed it as 'knowledge, beliefs, assumptions, actions and

process that influence our behaviour' (Preskill & Torres 1999 p 101) being under the spotlight of careful consideration. Reflection is also described as viewing things at a distance, more objectively in order to gain a new perspective (Wenger 1998 p 272).

The result of reflection may be self awareness in which individuals consider the impact of their actions and the behaviour of others with the hope of creating deeper understanding about an issue and about each other (Preskill & Torres 1999 p 93).

It is seen primarily as an individual activity but the advantages of reflecting with others are also discussed:

When they (practitioners) engage in reflection with others, they can gather more information with which to interpret their own experiences (Preskill & Torres 1999 p 102).

Despite the importance given to reflection as a part of the learning process Swieringa & Wierdsma complain that it is skipped over in the western world (Swieringa & Wierdsma 1992 pp 25-27) and Preskill & Torres suggest one reason for this which is that time is lacking for managers to carry it out:

A perceived lack of time is in part due to the larger organisational culture which has not yet made the shift from short-term to long-term thinking (Preskill & Torres 1999 p 102)

b. Dialogue

This is a process described by Bohm and identified by Senge as the key technique in 'team learning'. Dialogue is the exchange and development of ideas in a group during which individual assumptions and opinions are suspended, "allowing the group to discover insights not attainable individually." (Senge 1993 p10). Isaacs draws an important distinction between dialogue and discussion:

Dialogue is a conversation in which people think together in relationship Discussion is about making a decision it seeks closure and completion Dialogue is about exploring the nature of choice. To choose to select alternatives. Dialogue is about evolving insight, which is a way of re-ordering our knowledge (Isaacs 1999 pp19 & 45)

According to Senge, dialogue differs from discussion, in that it does not involve individuals defensively holding their ground in order to ensure their point of view wins through. It results in the group going beyond the meanings held by any one individual (Senge 1993 p233-249).

c. Single and Double Loop Learning

This hierarchy of learning, mentioned earlier in this chapter, that distinguishes between single, double and treble loop learning was developed by Argyris and Schön in the 1970s (Argyris and Schön 1974), although this is derived from earlier work by Ashby in the 1950s (Ashby 1952). It has been taken up and used by a number of writers interested in organisational learning.

Swieringa & Wierdsma work with the model quite extensively. They describe the outcome of single loop learning ‘..... (it) brings about changes in the existing rules... more of the same but better’ (Swieringa & Wierdsma 1992 pp 37-38). Although it is deemed superficial in the nature of the change that takes place, Pedlar believes this is the main way in which continuous learning occurs in organisations and that it is represented in the simple question, ‘How can we do this better?’ (Pedlar et al 1996 pp 147-149)

Double loop learning on the other hand involves questioning and changing the rules themselves. This will lead to changes in the knowledge base and the collective understanding held within the organisation. It could involve structural and process changes. Such learning may often be accompanied by the conflict that is associated with more fundamental change (ibid. pp39-41). Mayo and Lank see this level of learning as essential to the learning organisation:

Individuals must question the status quo, go back to root causes Otherwise the organisation will stagnate, get complacent, or get very good at doing one thing when their market needs something else
(Mayo & Lank 1994 p143)

Finally triple loop learning which brings changes at the level of values or principles can influence the very purpose of the organisation in terms of the type of business it does and its place in the market. The influx of a new CEO, radical changes in technologies or a major change in the market place may require a company to learn at this level (Swieringa & Wierdsma 1992 pp 41-42).

d. Conscious and Unconscious Learning

The distinction between conscious and unconscious learning is drawn by Swieringa & Wierdsma, where unconscious learning occurs without the realisation of the learner. In this way much of what we learn comes from experience, from imitation and through assimilation within the cultural and social settings of our lives. Conscious learning involves all those activities that are undertaken in order to learn, everything that forms part of formal education and training. They believe that:

Conscious learning leads to a higher level of competence, in that it is additive and on-going. Because people know what they have learned and how, they can decide to correct the process or continue it. In other words, conscious learning helps to develop learning potential By contrast, unconscious learning is repetitive..... (Swieringa & Wierdsma 1992 pp 20-22)

It is conscious learning that is required by organisations to ensure their development (ibid. pp 71-78)

In contrast Henry points to more recent research, which suggests that the unconscious processes information, learns and makes decisions in ways that we could not perform consciously:

....the unconscious mind can learn how to perform well in situations in which the conscious mind cannot begin to recognise, never mind articulate, what it knows

People gain this unconscious know-how by picking up subtle patterns through repeated exposure to specific instances (Henry 2001 pp 48-49)

In encouraging formal learning Henry suggests we should respect the unconscious that leads to much of what is called intuitive action and to understand that sometimes conscious awareness gets in the way of the unconscious learning.

e. Experiential learning

Experience is considered to be a primary source of learning and for most people experience is about everyday activity as distinct from more formalised learning through educational activities. Prange in his survey of organisational learning theories points out that it is the process most commonly encountered in the literature (Prange 1999 p 27). Revans places experience at the heart of his Action Learning model (1980). Swieringa & Wierdsma are also amongst these writers but they point out that experience alone does not guarantee learning; it is what people do with the experience (Swieringa & Wierdsma 1992 p 23). In particular it is the process of reflection on experience that leads to learning (Elkjaer 1999 p 85). Mayo and Lank argue that the value of experience is often lost because of poor reflection. They advocate the use of learning logs as a way of enhancing incidental learning by encouraging reflection (Mayo and Lank 1994 pp141-2).

Much is borrowed from the work of Dewey, Kolb and more recently Boud who have all contributed major thinking to this concept.

Garrick draws from one of Boud's list of assumptions underlying experience-based learning:

- experience is the foundation of, and stimulus for, learning
- learners actively construct their own experience
- learning is a holistic experience
- learning is socially and culturally constructed
- learning is influenced by socio-emotional context in which it occurs (Garrick 1998 pp 21-24)

He goes on to examine how social contexts exert a high degree of control over the experience and the way it is interpreted in the learning process. The idea of learning from experience has been embraced by many companies but there is a tendency for it to become simply a tool for increasing efficiency:

.... learning means proceeding to the correct answer in the most efficient way..... Experience at work is only valued if it contributes to learning about the most efficient outcomes being sought. If it does not it is discounted. Thus experience has no inherent value other than as a tool for enhancing motivation and achieving behavioural competencies, even though, in the post-Fordist context, skills are meant to be empowering. Experience and knowledge of learners and knowledge arising from this becomes a device, a means for best achieving a pre-defined end. Learner experience appears to be valued, but

its use is instrumental, selective and at best illustrative. (Garrick 1998 p 52)

f. Energy Flow

One image or symbol of organisational functioning, which has been adopted by those interested in organisational learning, is that of energy flow. The thinking emanates from ideas of fluidity and the patterns underlying the natural world associated with new physics (Tosey 1994 p 60-78).

Pedlar, Burgoyne and Boydell developed energy flow thinking to explain the dynamics of learning in their 'Learning Company'. The flow of energy occurs in two dimensions from individual to the collective (or corporate) and vice versa and from the inside to the outside and vice versa. *Policy* and *ideas* form the inner components, the former at corporate level and the latter at the individual level. *Operations* and *actions* form the outside components; operations representing organisational activities and actions the activities of individuals. The outer loops provide the experiences that source learning which in turn is converted to the internal schema of policies and ideas which in turn influence outer activities. (Pedlar et al 1996 pp 30-33)

The power of this model (illustrated in Diagram 4.5 below) at the conceptual level is in its integration of learning in the individual with organisational learning, together with the inner and outer components of the learning cycle. It appears to have important

descriptive value but has proved difficult to use for diagnostic purposes.

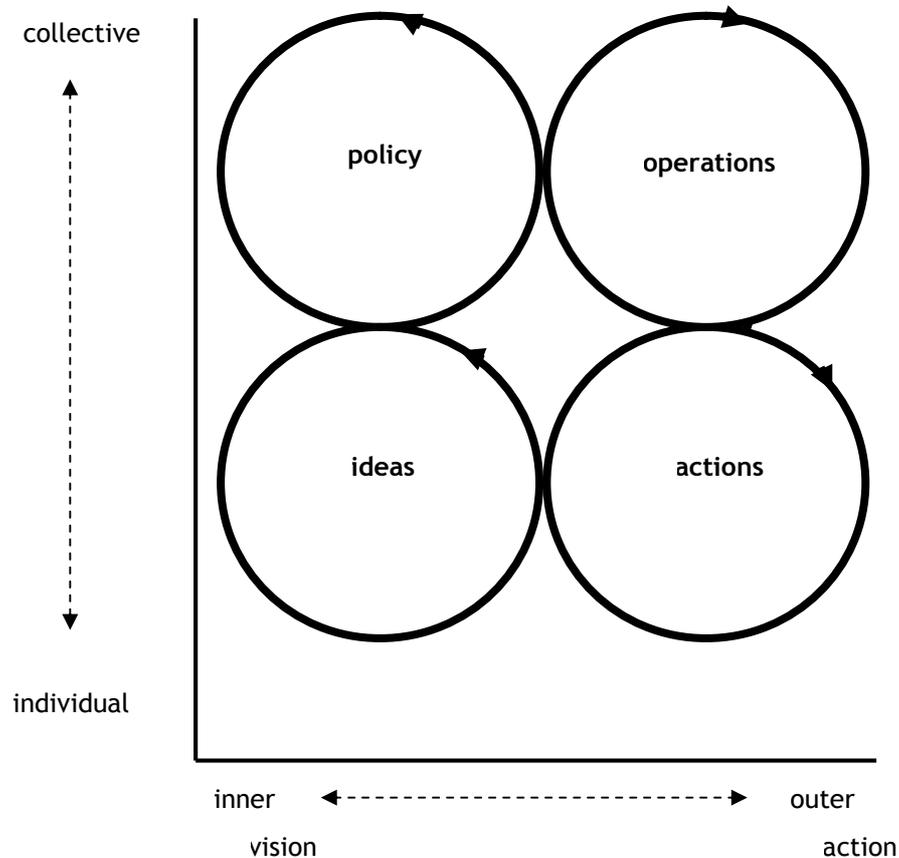


Diagram 4.5 Learning as Energy Flow (adapted from Pedlar p154 and Ashton p222 in Burgoyne, Pedlar & Boydell 1994)

Many of the mechanisms and processes of organisational learning have their roots in theories from outside the world of organisational and business studies. They are, however, numerous and there is little in the way of a unifying theory. Although some are more popular and pervasive than others this area of study lacks any agreed conceptual framework and is in the words of Prange an area of considerable interest 'desperately seeking theory' (Prange 1999)

4.5.3 Summary

In summary it is evident from the language and models that there is more unity of thinking and theorising within organisational knowledge than there is in organisational learning where there is a wider range of vocabulary, ideas, and explanations.

Amidst so much diversity of writing one common mechanism that does emerge is that of the cyclic nature of both knowledge development and learning as propounded by Patriotta and Kolb respectively.

4.6 Content

The subject matter of knowledge development and learning is often considered to be highly context-specific and in organisational terms covers anything of relevance to organisational and commercial life. Patterns within the literature are outlined in brief below.

4.6.1 Content of knowledge development in organisations

Nonaka & Takeuchi are two of the few writers who discuss knowledge content in organisations describing four types which they call 'sympathized knowledge', 'conceptual knowledge', 'systemic knowledge' and 'operational knowledge'. Sympathized knowledge is knowledge of shared mental models and technical skills and with the knowledge of concepts forms the basis of new products or services which then form systemic knowledge. Operational knowledge is knowledge of how to get things done e.g. processes, the application of policies and practices (Nonaka & Takeuchi 1995 p 70-73).

The majority of authors identify knowledge content as being context specific and even in organisations involved in similar areas of activity there will still be differences in the knowledge held. This differentiation constitutes the trading advantage one organisation has over another.

4.6.2 Content of learning in organisations

The content of formal learning within organisations is well documented through the brochures of training organisations and the documentation kept by organisations themselves. This content seems to focus mostly on learning within individuals and rarely identifies 'organisational learning' as the purpose for engaging with specific content. There appears to be very little evaluative research on the content of organisational learning.

Common content focus is usually in terms of skills development, knowledge acquisition or attitudes, or personal development all within individuals. Swieringa and Wierdsma (1992) refer to this latter area as learning about 'being' in organisations.

The content focus of management education and training is commonly in the skills areas of decision-making, negotiation, conflict management and team work (Swieringa & Wierdsma 1992). Arie de Geus (1999), on the other hand, believes in the need for a more restricted focus for organisational learning which he identifies as 'managerial decision-making'.

The focus does shift from individuals to the group and the organisation when issues of team work and team development are addressed and also when writers suggest that the focus for learning should be organisational change (where structures, processes and organisational culture are the targets). In these instances the content does reflect the collective nature of learning (Swieringa and Wierdsma 1992 pp 68-70).

4.7 The Environment of Knowledge Development and Learning

The contexts in which knowledge development and learning take place are seen to have an important impact on the processes and activities involved. These environments may help or hinder the creation and movement of knowledge and an organisation's ability to learn. In the literature these conditions are treated either descriptively - detailing the dimensions and the effects of environmental factors, or prescriptively - defining the conditions deemed necessary for effective knowledge and learning activities.

4.7.1 Favourable environments for knowledge development in organisations

The relationship between knowledge and the cultural context of the organisation in which it resides and is utilised is explored by a handful of writers. We have already looked at the assertion that knowledge may 'receive' its value from the context in which it fits. For instance when a particular range of skills have high value in one organisation but are of less use in another because the culture is different or other important associated knowledge is absent. In this

section we explore the main features of the knowledge environment that are believed to help (or hinder) knowledge development.

‘Dominant logic’ is a term coined by Krogh and Grand to describe the cognitive schemes developed through experiences and appropriated through past justification processes in order to determine the ways a corporation both approaches its core business as well as any new and as yet unencountered situations (Krogh & Grand 2000 p 19).

As such it defines the organisation’s mindset and forms the basis for action - categorising new events, assessing their consequences and consideration of appropriate actions. It is the yardstick by which new knowledge is justified, or rejected or to put it another way it regulates ‘the corpus of knowledge’ held in an organisation (ibid. 2000 p 23).

In order to understand the place played by dominant logic in knowledge justification we need to see dominant logic in terms of:

1. The corpus of knowledge - the paradigms that exist in the company, including ‘the basic delineation of the business boundaries (‘what is our business about?’), the implicit theories about the key factors determining success in the business - some referential success stories which serve as boundaries in the industry.
- 2 The images of knowledge - processes and arguments which are accepted as demonstrating the adequacy and robustness of an argument e.g. use of logical deduction, reference to traditions or

authority, precedence/analogues, novelty etc. These work differently in different businesses.

3. Ideological values - the overall values and value system of the business which provide the basic reference points for the business - its identification of success, its vision and any ethical and cultural frameworks (ibid. 2000 pp 21-23).

A more concrete approach to knowledge environments is through management processes which are singled out by a number of writers as important in helping create a supportive atmosphere. Sanchez sees the manager's role as identifying strategically useful knowledge; knowing how to transfer specific aspects of the knowledge from one individual to another; and knowing how to control the diffusion of knowledge - especially critical is the transfer of knowledge outside the company (Sanchez & Heene 1997 p170).

Leonard also seeks to isolate the management skills needed to succeed, in identifying: 1. the know-how to manage the activities; 2. the understanding of what exactly constitutes a core capability i.e. its dimensions (Leonard 1995 p 4).

There is certainly a consensus that command and control is the wrong context for knowledge management as it is for learning. Knowledge development needs a specific style of management

Knowledge as a resource needs managing - or to use a farming metaphor - husbanding. Like a cereal crop, the ground must be prepared for it to grow; the right conditions must be provided for it to be stored; and

it must be used and sold to provide an income
(Wilson 1996 p 50).

This type of management will enable people to be empowered so that control and co-ordination come from the people subscribing to a shared vision (ibid. 1996 p 50).

Dedicated knowledge management roles are requirements identified by some writers as being central to success in this area. Davenport & Prusak see everyone in an organisation as having some responsibility for one or more aspects of knowledge development but also see the need for special responsibilities for developing and maintaining knowledge software, librarians, and people within teams designated as knowledge workers (Davenport & Prusak 1998 p 108-109). They go further and argue the need for those who manage knowledge projects - responsible for people sharing knowledge within some project or the development of some knowledge management system etc. (ibid. 1998 p 112). In larger businesses the key management role would be in the hands of a chief knowledge officer. He or she must be able to evangelise or be an advocate for knowledge; design, implement and oversee a firm's knowledge infrastructure; manage relationships with external providers; provide critical input to the process of knowledge creation around the firm; design and implement knowledge codification approaches; measure and manage the value of knowledge; manage other knowledge managers; and lead the development of a knowledge management strategy (ibid. 1998 p114).

A third key contextual theme concerns the place and importance of the *team* as an environment for good knowledge development practice. Wilson is perhaps typical in his analysis and develops this theme in some detail. He begins by defining his *team* as a multi-disciplinary, semi-permanent group of people (Wilson 1996 p 63). He goes on to describe how teams should function:

Teams should be where everything comes together - they should be the focus for group learning. They should be guided by values shared across the whole organisation. They should be responsible to and for their own members and to and for other teams. It should be within and between teams that info is shared and where embedded knowledge resides (ibid 1996 p 63).

He goes on to list some of the 'processes within teams needed for them to maximise their use and development of knowledge:

Ideas are seeds of the knowledge harvest, but of course there is more to farming than sowing and reaping. Tilling, weeding, watering, winnowing, storing and taking to market - all spring to mind as useful analogies for essential team processes which must be performed for the knowledge resource to be exploited (ibid. 1996 p 133).

Wilson also sees teams as key to knowledge creation:

The collision of ideas occurring in a tight-knit multi-skilled team produces a kind of fusion fuelling

creativity and generating new knowledge The formulation of new ideas - 'one moment there is just a confusion of thoughts and memories chasing each other around inside your head, and the next moment there is an interesting comparison or contrast which suggests a new possibility. Confusion and profusion lead to fusion - the joining together of random thoughts in Brownian motion. For new ideas to form there must be a concentration of many random thoughts in the melting pot (an open mind) and the opportunity for something to crystallise (time for reflection) (ibid. pp 79 and 131).

Other factors and dimensions appearing in the literature include the establishment of knowledge measurement and feedback systems that will help to promote active knowledge development (Davenport & Prusak 1998 pp 151-153). The dynamics of power and status are referred to by Leonard who cites an example of a knowledge sharer whose feedback was discounted because they were seen as 'young and inexperienced' (Leonard 1995 p 132). This issue is also raised in the discussions on knowledge creation and justification:

Corporate knowledge creation includes the questions of who is actually allowed to contribute to the process; in which places development and innovation activities are concentrated and how the relevant people are selected (Krogh & Grand 2000 p 27).

By implication it is suggested that contributing to the generation of knowledge needs to be open to all involved.

The importance of a climate of experimentation is also identified by Leonard (1995 p 117-121). He believes it requires people who are prepared to leave the accepted and known behind and to try something new. This should be encouraged throughout an organisation and not concentrated into a Research and Development Department. Experimentation requires a willingness to take risks and for the organisation to accept failure as a part of business life. Leonard defines this as 'intelligent failure' and stresses the need to learn from such experiences, he talks of 'failing forward - i.e. creating forward momentum with the learning derived from failures' (ibid. p119).

Finally Davenport and Prusak provide a list of 'success factors' for knowledge development (Davenport & Prusak 1998 p 153-59):

- A knowledge-oriented culture - an orientation towards knowledge and lack of inhibitors
- Technical and organisational infrastructure - including appropriate roles and responsibilities
- Senior management support
- A link to economics or industry value - contribution made to the bottom line
- Some process orientation - a planned way of working

- Clarity of vision and language - acknowledging that words are defined and used differently even by people within the same team
- Nontrivial motivational aids - as an encouragement to share knowledge
- Some level of knowledge structure - like a repository to which everyone has access
- Multiple channels for knowledge transfer - face-to-face, email, web pages etc

4.7.2 Environmental barriers to knowledge development in organisations

Writers seem less interested in direct reference to the barriers to knowledge development in organisations although clearly anything that is the reverse to the positive conditions detailed in the last section could be considered hindrances.

Leonard uses the term 'core rigidities' to refer to obstacles to the use of knowledge:

The perplexing paradox involved in managing core capabilities is that they are also core rigidities. That is a firm's strengths are also - simultaneously - its weaknesses (Leonard 1995 p 30)

He sees that the activities that foster knowledge-flow - problem-solving, implementation of new processes, knowledge importing from outside - can also impede it if they are managed badly or inappropriately. He lists six core rigidities:

- insularity - lack of awareness of what is happening outside the company
- assuming 'more is always better' - continuing to pursue more of a good thing as if it is always better
- influences of the past - where the ingrained policies and practices of the past impede the present
- inability to innovate - failure to take up and exploit new tools and methodologies
- limited experimentation
- filtering external knowledge - to the extent that its value is reduced or removed (ibid. 1995 pp 30-41)

There is some overlap between this list and that of Davenport & Prusak who include: lack of trust, which prevents people from letting go of their knowledge; the existence of different vocabularies or frames of reference held by different groups or powerful individuals; lack of time; status and rewards favouring knowledge owners; inability to absorb knowledge from outside; a not-invented-here syndrome that rejects any new knowledge from outside; and a culture of intolerance of mistakes, failure, or asking for help (Davenport & Prusak 1998 p 97).

A more dynamic view is expressed in the writings of Chun Wei Choo who claims that problems in knowledge creation occur when one or both of two important tensions are mismanaged. First there is the tension between tacit and explicit knowledge where important tacit

knowledge fails to be passed on by learning. The second is that tension between exploration and exploitation where too much resource is placed into exploiting what already exists with a resulting failure to discover the new (1998 pp 249-254).

Finally we have a warning that knowledge needs too be used or it loses its value. It is perishable like milk and turns sour with over storage! (Nordstrom & Ridderstrale 2001 p32).

4.7.3 Favourable environments for learning in organisations

Systemic learning is believed to occur where learning processes are built into the fabric of the organisation so that learning is a part of the recognised way in which the organisation functions and develops. Mayo and Lank (1994) identify three sets of conditions that need to exist or be created for systemic learning to occur. These are: opportunity/access; policies/structures/practices; and modes of transfer. According to them all individuals need opportunities to learn and develop, which includes recognition of needs and time to attend events or to reflect on experiences. They also need access to learning and training activities and to other sources of potential learning. Such opportunities are also seen as a means of encouraging people to remain within the organisation ensuring that valuable assets are retained. Policies, strategies, structures and practices that promote learning and ensure that learning leads to change and development are also important conditions for systemic learning. They determine the ability of the organisation to adapt to its changing environment at a corporate

level ensuring that learning remains relevant to existing needs. Finally there must be the means by which the skills, experience and knowledge held by individuals and groups is made available to the whole organisation both for immediate consumption and for the future.

The proponents of the learning organisation have made much of the conditions necessary for such organisations to exist. Senge's well-documented conditions for the learning organisation are five fold: personal mastery; mental models; shared vision; team learning; and systems thinking. *Personal mastery* is defined as:

.....the discipline of continually clarifying and deepening our personal vision, of focusing our energies, of developing patience, and of seeing reality objectively (Senge 1993 p 7).

It is termed a discipline because, according to Senge, people need to give time to developing a way of focussing on the things that are important to them.

Mental models are deeply ingrained assumptions, generalizations, or even pictures or images that influence how we understand the world and how we take action. Very often we are consciously aware of our mental models or the effects they have on our behaviour (ibid. 1993 p 8). Individuals in isolation and in groups need to be able to unearth their own mental models to ensure that they are not obstacles to future thinking.

Shared vision is a team discipline where shared pictures of the future can be created, identified and developed and where a

commitment to these pictures is enhanced. It is at this point that learning begins to enter the corporate domain (ibid. 1993 pp 203-232).

Team learning focuses around the process of dialogue (already discussed earlier in this chapter) together with an understanding of group dynamics. This enables a team to learn together producing something that is more than that available to the individuals making up the team (ibid. 1993 pp 233-269).

Systems thinking is the discipline of seeing interrelationships between the different parts of an organisation, understanding how processes connect the different parts and being able to utilise the processes of change to interrupt cycles that reinforce the current patterns of organisational behaviour (ibid. 1993 pp 57-135).

Other writers and practitioners have their own lists of requirements or characteristics which may vary in the language used or the emphasis given to the different components.

Having looked at factors that enhance and encourage learning we shall now turn to environmental issues that are obstacles to learning.

4.7.4 Environmental barriers to learning in organisations

Barriers to learning within organisations are considered by many of the writers. They appear to fall into three main categories, the first two of which are closely allied: intrapersonal, interpersonal, and organisational or corporate.

Amongst intrapersonal and interpersonal obstacles Lines and Ricketts (1994 p 165-6) identify a range of inner fears and insecurities which accompany having to give up current understandings or that are involved in the process of unlearning (already discussed in this chapter). The sense of loss resulting from this process can lead to the rejection of, or resistance to 'the new', denial of the possibilities or even escape from learning situations. Argyris also believes that there are natural reactions from individuals when they 'retrospectively rationalise events in ways that favour them' or when they have a tendency to believe that people and situations are not changeable (in Marsick & Watkins 1990 p 177).

Probst & Buchel identify 'skilled incompetence' as an intrapersonal barrier which they see as a way of covering up problems and therefore reducing the chance of learning:

Skilled incompetence is the use of strategies based on theories of action aimed at avoiding loss of face. Explanations, distortions, inexactitudes, omissions, excuses and so on are skilfully deployed in the interests of keeping what one has (Probst & Buchel 1997 p 68).

Butler, on the other hand, identifies a lack of skills in utilising new understanding, concepts and beliefs because these require new sets of skills that the learners do not possess (1994 pp 200-213).

Another issue is focussed around that of management styles and practices which a number of writers identify as creating potential barriers. For instance a heavy command and control form of management that treats the workforce as passive and where new blood is always used to promote change, are all negative features described by Pearn et al (in Bourgoyne, Pedlar and Boydell 1994 p188). De Geus also approaches this barrier and describes it in terms of the centralisation of power, which reduces the learning capacity of the company (De Geus 1999 p224). Jones describes the lack of top management commitment to a collaborative culture as an attitudinal characteristic that works against the effective development of teams and of learning. (Jones 1997 pp 55-59). She also identifies how with a hierarchical management culture learning and training are associated with job insecurity because they lead to increased efficiency, which in turn means jobs can and are cut and redundancy becomes possible (ibid. pp 71-72).

The importance of structure is raised by some. On the one hand the presence of stable knowledge structures such as the development of internal storage systems are seen to be a barrier to learning - according to Probst & Buchel (1997 p 64). On the other hand Mayo and Lank point to the lack of structures and processes, which deny the systematising of the learning that is happening all the time and results in its loss. (Mayo and Lank 1994 p 3).

Jones also looks at barriers within organisational cultures and describes companies where there is a façade of encouraging learning within an unchanging culture:

Applying the rhetoric of team work, employee involvement, empowerment, etc. to describe hierarchically run groups using the rhetoric of teamwork and human resource value, while applying mindless cost-cutting through job cutstop managers hand over responsibility and to hide behind schemes, systems and techniques such as ... quality control circles external consultants ... investors in peoplemission statements codes of ethics.... benchmarking (Jones 1997 pp 72-73).

Although there is a good deal of overlap between these lists of positive and negative factors there still exists a diversity of language and an heuristic approach to theorising. Key themes can, however be discerned across both the positive and negative conditions for learning in organisations which can be summed up along two dimensions. The first is the organisational-individual and the second is the structural-dynamic. The first dimension includes such features as the culture and processes of organisation and the motivation and capability of individuals. The second dimension includes everything from the nature of structures and policies that determine what is allowed to happen to the style of management and behaviour of teams.

4.7.5 Summary

According to the literature environments do have an important impact on both knowledge development and learning. This impact ranges from context being a major contributor to knowledge development and learning to it being a more passive supporter of these processes. But the negative influences of culture, process, and capabilities are also widely acknowledged. The clear message is that knowledge development and learning are both highly context-sensitive activities.

4.8 Individual, Group and Organisation

One question often avoided by the organisational literature is the relationship between knowledge and learning as phenomena associated with the individual - the individual's mind, the individual's experience, the individual's skills, and the individual's behaviour - and the corporate or collective dimensions. Instead assumptions are made and positions taken that are left unexamined. Learning is clearly a function of every individual and knowledge as an element within that process likewise has an 'individual base', but is there something different about knowledge and learning in group and organisational settings that requires a different language, different models, alternative theories and perhaps even gives a different meaning to these concepts?

In much of the philosophy literature on epistemology there is at least an assumed position that knowledge is something possessed and used by individuals. But this is not to say that the social or

collective dimension is completely ignored by these approaches. The social context of learning and the importance of interaction in defining the nature of knowledge are assumed if not explored. In education society plays a part in helping to define what is 'useful knowledge' at any given point in time and groups help individuals in their search for meanings to attach to their experiences.

Audi, whilst focusing on the individualistic nature of knowledge, concedes that the social setting also plays its part. He describes 'testimony' as the primary social source of knowledge justification and belief and as such provides a social setting in which knowledge can be acquired (Audi 2002 p 256).

Some writing does however place the collective/social dimension nearer to the centre of explorations of these concepts. In social constructionism (Burr 1995) knowledge is seen as a product of social interaction where cultures or societies both sustain and control how individuals understand the world.

In recognising that collective knowledge development and learning processes are important in organisational life one further issue needs examination, namely the impact of power and the political dimension in these collective settings. The issue of power only exists in social settings where they are manifest in inter-relations. Although the organisational knowledge and learning literature offers little exploration of power issues, the wider organisational

development and behaviour literature does (Furnham A 2005, Hatch 2006; as does the literature on group dynamics (Cartwright & Zander 1968). Writers and researcher in sociology and education have written much more widely on issues of power (Paechter et al 2001, Usher et al 1997. Foucault 1977, Giddens 1971).

4.8.1 Knowledge and learning: Individuals, groups and organisations

The organisational literature appears to take one of three stances on the role of individual, group and organisation in relation to knowledge development and learning and often, as stated above, this position remains an unquestioned assumption. The three stances are:

- Knowledge and learning are primarily the activities or realm of individuals. Here the focus of exploration and explanation is on the individual functioning in an organisational setting
- Knowledge and learning are the activities or realm of individuals with the group or organisation being the dominant influencing context in which they are located. Here the focus is either on the interaction of the two or is on the nature of the organisation or team as the environment for learning and knowledge
- Knowledge and learning have a collective and organisational existence that is linked to, but different from, that within individuals. Here the emphasis is placed on defining this new collective existence

Representing the first stance described above are those who concentrate their writings solely on the functioning of the individual. Knowledge and learning are products of the cognitive activity of the brain creating internal representations of the external world. In a similar way an organisation is seen to operate like a brain:

.....fragments, neutralises and bounds the decision-making process to make it manageable (Krogh et al 1998 p 18)

Sparrow also states that the key to organisational learning is individual learning and he believes that by concentrating on the quality of the learning experience of individuals there will be an inevitable effect on the organisation as a whole:

A key to how (organisations really function) is an appreciation of how people actually behave and learn within organisations (Sparrow 1998 p 10).

Similarly Argyris sees organisational learning as primarily about individual learning (Argyris 1991 p81) and even throws doubts on the existence of learning at the organisational level (Argyris & Schon 1978). They argue that to identify learning as organisational is endowing the organisation with human attributes which it doesn't possess. This issue of reification is taken up later in this chapter.

Much of the discussion of tacit knowledge, implicit and incidental learning is also tied up with individual functioning (Quintas 2002 p 10, Stadler & Frensch 1998, Marsick & Watkins 1990).

In all these instances the:

.... bridge between the individual and the organisation is simple. No transformation takes place as the learning individual's knowledge becomes organisational. It is merely selected and aggregated Organisational learning is about aligning its knowledge with external reality (Spender 1999 p 121).

Amongst those adopting the second approach there is a shared view that the organisation, or team or group within the organisation, has an impact on the nature of the knowledge that individuals possess. The corporate may enable the integration of individual knowledge and learning sources, a view propounded by Grant, 'the primary role of the firm is the integration of knowledge' (Grant 1999 pp137). This integrating potential provides the organisation with the opportunity for combining that knowledge in new ways. He goes on to assert that the integrating process requires stability of social relationships and reasonable closeness of proximity between workers.

There is a dynamic progression of knowledge and learning moving from the individual to the organisation and in areas such as

knowledge creation levels of interaction between individuals become a significant factor (Sparrow 1998 p 50). It is here that the collective context begins to have an important impact on knowledge and learning (Cook & Brown 2002 p 88).

Sparrow also examines the concept of knowledge in the organisation as that wrapped up in routine performance programmes or standard operating procedures that guide people in the way they should act in given situations this knowledge is part of the social fabric of the organisation. He uses the term 'recipe knowledge' (Sparrow 1998 p 46).

Spender provides a clear picture of the third stance, aligning this position with the work of the sociologist, Durkheim, whose concept of collective conscience is of a different order to learning and knowledge activities of individuals. Durkheim identified the collective as having a major influence on the functioning of the individual living within it. (Durkheim 1964, Spender 1999). The nature of knowledge in the organisational dimension is implicit and beyond the consciousness of individuals who use it and act with reference to it (Spender 1999 p 122). Spender goes on to distinguish between collective processes and some team processes. Referring to the work of Weick & Roberts (1993), he differentiates between collective knowledge and knowledge generated in groups, in that the latter usually consists of individuals held together by affective ties that have an impact on the way knowledge is used. This affective dimension is developed through growth in team

relationships. The collective does not have these ties but still consists of available knowledge (Spender 1999 pp122-123).

We can summarise by saying that collective knowledge is probably unlike that possessed by individuals. It is not merely shared individual knowledge. It is likely to be embedded in the organisation's institutionalised collective practices and thus deals with the interaction between the individuals' practice rather than with what they can report explicitly. It is likely to be emergent and arise after the individuals begin to engage in collective practice. It is likely to be implicit and become evident through practice rather than through explicit analysis (Spender 1999 p 123).

Similarly Davenport and Prusak see knowledge as part of the fabric of the organisation particularly in the 'knowledge intensive organisation' where trading takes place in 'knowledge markets' where there is selling, buying, and the production of knowledge and where knowledge is the key asset embodying share holder value (Davenport & Prusak 1998 pp 25-51).

Perhaps the most recent work on corporate knowledge and learning is found in the writings about communities of practice. These are groups within or across organisations that share some common understandings and experiences and, as such, are considered to be the repositories of shared knowledge. Brown and Duguid identify such groups as the homes of 'dispositional knowledge'. This is a collective

form of knowledge that is created by, and resides in, communities of practice and is revealed through practice. When a problem confronts a worker they find the appropriate solution either in dialogue with others from their community or because they are able to draw on the corpus of knowledge that resides in the community (Brown and Duguid 2002 p 23-25).

Finally there is the school of thought that equates the organisation with learning. Nevis et al define organisations as learning systems in which knowledge is the key product of various interlocking learning processes and structural components (Nevis et al 1995). In this sense organisations only exist and function because they are systems in which knowledge development and learning go on.

In other disciplines it is probably the social psychology of small groups that has been the most extensively researched and documented. The relationship of the functioning of the individual in relation to the group is viewed as creating a dynamic of interactions. A number of writers see this as developing a progression within the life and activities of a working team from initial uncertainty through open conflict to true co-operation; expressed by Tuckman as the stages of Forming, Storming, Norming, Performing and Adjourning (Tuckman 1965) and by Bennis and Shepard as a groups progression from dependence to interdependence (Bennis & Shepard 1956). Others see people with different roles and experiences making different contributions to the group equating experience and seniority with risk taking and

power display within groups (Levi 2001, Johnson & Johnson 2000 Chs 3, 6, 7 and Bales 1950). The distinction between the conscious and unconscious life of groups is the focus provided by Bion's work on the way therapeutic groups function (Bion 1968).

4.8.2 Issues of power in knowledge development and learning in organisational settings

Traditionally power in organisational settings has been seen in terms of control and authority resulting from hierarchies and management structures. However new perspectives and frameworks for interpreting organisational power have appeared in the later part of the twentieth century.

Some have followed Marx's social ideals interpreting organisational power in terms of the struggle over stultifying controls resulting in conflict that produces the only basis for transformation (Furnham 2005 pp353). Others would identify organisational power with Foucault's view of the overpowering control of social constructed language and its resulting knowledge constructs (Foucault 1977) and writers on gender issues in organisations link power with masculine dominance over organisational structures and processes (Acker 1992). The feminist critique of power also has roots in the writings of Marx and sees power as having the potential to develop 'structures of domination' that ensure that power dynamics are enshrined in the culture as well as the functioning of the organisation (Giddens 1979). Finally from small group research power is equated with the inequalities that exist between group members - inequalities caused by expertise, gender, skills, positional power.

One pervading view of power has been in its relationship to uncertainty in organisational functioning (Pfeiffer 1981). Pfeiffer believes that power derives from being able to provide something that the organisation prizes highly and that the most prized of all is the ability to protect the organisation from uncertainty. Hatch supports and develops this idea further in her description of Strategic Contingencies Theory (Hatch 2006 Chapter 9)

In relation to knowledge, power has been associated with those possessing special knowledge relevant to a particular situation. This knowledge has been identified with some as 'expertise' and much has been written about the way experts have the power to control the knowledge that others require (Scarborough 1996).

A variety of ways of analysing and categorising power have been propounded. Amongst those that are most often quoted is French and Raven's sources of power of which they describe five - namely coercive power (forcing someone to do something against their will), reward power (the ability to give people what they want), legitimate power (power associated with a role or position), referent power (the power of personal qualities, charisma, popularity), and expert power (based on knowledge or skills possessed) (French & Raven 1959).

In summarising the analysis of power in organisations Hatch identifies two basic approaches - sociological approaches that are

concerned with the holders of power and political approaches that focus on the effect of power on organisational processes. Within this second type of power Bacharach & Baratz distinguish between that which is used to bring about desired outcomes and that which is used to block outcomes and may be hidden or even unconscious in its application (Bacharach & Baratz (1962)).

4.8.3 Summary

In their overview of the collective/individual debate Skyrme and Amidon (1999) conclude that generally in the literature the individual is the primary unit of focus either explicitly or by associating collective and individual in a mirrored relationship. Some writers leave the focus and the relationship ambiguous. It is only in more recent years that the concept of collective knowledge and learning have been identified and modelled as distinct but linked phenomena. They argue for an understanding that gives both equal importance (Cook & Brown 2002 p 75-76).

Despite the increased interest in this collective dimension few have explored the key dynamics of power and the political process as they are experienced in, and influence, knowledge development processes at team level.

4.9 Agents of Knowledge Development and Learning

Agents of knowledge development and learning are those that intervene between the knowledge developer or learner and the knowledge development and learning processes and can include consultants, facilitators, chair people, managers, teachers, coaches,

mentors, and trainers. This theme is given far less attention than the others identified in this chapter, but nevertheless is referred to by a range of writers.

4.9.1 Agents of knowledge development and learning

Knowledge exists and learning takes place in organisations whether it is officially sanctioned and there are people with formal roles to support it or not. But there is general recognition in the literature of the importance of catalysts for knowledge development and learning. There are three main agents represented in the literature - trainers/developers, facilitators and managers. A fourth agent of a different order is that of technology. Each of the three human agents may be represented by a particular role (and a corresponding title) and a particular style or approach for ensuring or enabling knowledge activities and learning.

Trainers are the traditional agents of learning in organisations especially in the areas of skills development. The training role in the organisational learning is often seen as distinct from the traditional training role in organisations. Traditionally the trainer is seen as the one who determines the content and method of learning - outcomes are identified beforehand and often communicated as 'learning objectives'. Where collective learning is to take place the educator/trainer must identify the problem or need as it is formulated by the organisation and then assist employees to reformulate it and solve it. Swieringa and Wierdsma describe this process as a combination of training and education (1992 pp 88-89).

The contrast here could be described as the difference between teaching and learning. Traditional training focuses on the teaching of skills and understanding - the content of which is determined by what professional trainers would define and distil as 'good practice'. In organisational and collective learning the focus is on the activities of the learner, employees, who are the ones who often identify the learning needs because they experience them. They are also responsible for finding solutions or approaches that tackle the problem or meet the need and they have to do this as part of their everyday working routine - not on a 'course' (Marsick & Watkins 1990, Senge 1993). It is Marsick and Watkins who locate the responsibility for this learner-focused training in the human resources department where training in its traditional form has often resided.

This picture of the trainer or educator's role in organisational learning links with the second agent described in the literature - that of facilitator. We first need to distinguish between the use of the word *facilitator* to describe a specific role and *facilitation* which describes an approach or style. The role of facilitator, for some writers, replaces that of the traditional trainer. Their job is to establish a climate of trust in collective learning settings, guide learning events and activities without imposing their views on the contents of the learning, offer new methodologies for exploring and engaging with issues, and working with those involved to ensure that the group dynamics are understood and that they support rather than undermine collective learning:

The facilitator is the proverbial Socratic gadfly who is always one step ahead of the group. This involves a depth of knowledge about organisations and people, fresh insight, courage of convictions, and willingness to challenge norms, be “naughty” and ask “dumb” questions (Marsick and Watkins 1990 p 74).

In the learning organisation there is a role for people with the title of facilitator.

Facilitation as a style of working which some feel may be adopted by anyone in an organisation to aid collective learning. A trainer or manager may act as facilitator in certain settings where it is appropriate to be the catalyst for learning. Sparrow offers a range of techniques for facilitating different forms of thinking in organisations. These include the use of metaphor, mind mapping, guided introspection, and storytelling (Sparrow 1998 pp 51-228). The dialogue process that is so central to Senge’s team learning model requires facilitation. In this instance facilitation involves understanding the nature of dialogue and the nature of groups and ensuring that the ‘rules’ are obeyed (Senge 1993 pp 246-249).

Models of education and facilitation identified as important dimensions of learning in organisational settings have their parallels in the adult education world where learning from experience, facilitating reflection, learner-centred learning, and the challenging of teacher-centred approaches and control have all been major themes over the last thirty or forty years (Merriam & Caffarella

1998). Mezirow's transformational learning is seen as being supported by a facilitator who aids the inward journey of discovery that can lead the learner to new ways of interpreting their world (Mezirow 1990).

Management as an agent of learning and knowledge development is discussed by writers in different ways. In some instances management is another way of saying 'organised'. Learning and knowledge activities in organisational settings need to be organised i.e. not left to chance. Organising these activities is the way to increase their commercial value to the business (Patriotta 2003).

Managers themselves are seen by many as key agents. Anyone in a management role has responsibility to ensure that the culture, structures and processes promoting and enhancing learning and knowledge activities are in place. Just as everyone in an organisation may be seen to have a part to play in sharing knowledge so all managers have specific knowledge and learning organising responsibilities:

The beliefs, attitudes and behaviours of the manager are at the heart of the environment of inquiry. Within a pedagogy of meaning, a manager creates opportunities for learning and becomes an active participant in it encourages people to ask questions and creates an environment in which intellectual play and socially mediated learning are

necessary and legitimate components of work
(Schuck 2004 p 205).

In parallel with a knowledge hierarchy there may also be a knowledge management hierarchy of responsibilities:

Top management has to redefine the organisational basis of the knowledge it owns middle managers work as knowledge producers to remake reality according to the company's vision (Nonaka, Toyama & Konno 2002 pp 58-59).

Some writers identify the importance of specialist managers particularly in the field of knowledge management. Knowledge coordinators are employed in some businesses with the specific responsibility of collecting, reshaping and disseminating knowledge that exists in other parts of the business (Horvath 2002 p 47).

A number of specific knowledge and learning competences are identified:

- the ability to integrate knowledge from different sources
Carlisle 2002 p 131)
- the ability to identify and work with the emotional dimension of learning and to help integrate the cognitive and affective sides of learning (Marsick & Watkins 1990 pp 235-237)

Finally the technological agent has been increasingly exploited over the last fifteen to twenty years. Computer-based training now brings some level of learner control to skills development through

in-house open learning centres. The emphasis is clearly on individual learners who can pursue structures learning programmes in their own time and at their own pace. In knowledge management software packages controlling the flow of knowledge are now quite sophisticated. Up to date information and knowledge, relevant to particular people's work, can be collected daily from both internal sources and through the internet and automatically disseminated to personal computers (Watkins & Marsick 1993).

4.9.2 Summary

There exist two schools of thought regarding the role and importance of trained supporters of knowledge development and learning processes. We have examined the elements of one in the preceding sections where the role of facilitator, manager has been explored. The second treats these two processes as naturally occurring in complex adaptive systems and believes that groups and individuals allowed to 'get on with it' with little or no formal intervention will find a way through that takes account of the complexities, ambiguities and tensions in the path. It is this interplay of 'actors' working in a network of connectivity that creates and transmits knowledge and stimulates learning (Callon 1999, Law & Hassard 1999).

4.10 The Relationship between Knowledge Development and Learning

Amongst the few writers who have directly addressed the issue of learning and knowledge management in organisations is Nevis who attempts to identify the relationship between these key concepts,

mapping the key learning needs and processes against three phases of knowledge development in organisations which he called ‘knowledge acquisition’, ‘knowledge dissemination’ and ‘knowledge use’. His diagram is reproduced below in Diagram 4.6

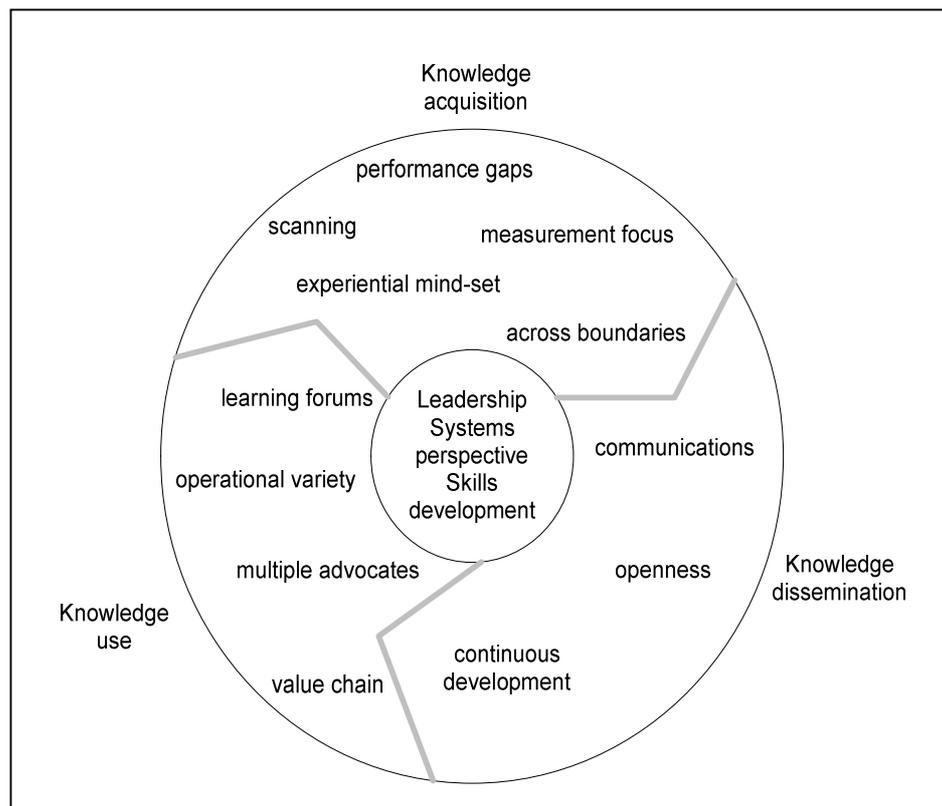


Diagram 4.6 The Relationship between Knowledge and Learning in Organisations (adapted from Nevis et al 1995).

In the situated learning of Pentland (1992) knowledge is embodied in praxis and learning takes place through involvement with a knowledge-rich community of practice (Lave & Wenger 1991). Where both learning and knowledge are related to action the distinction between learning and knowledge development becomes even less

clear. Patriotta (2003) however identifies learning with organising, where knowledge is put into practice and gradually becomes institutionalised. So organising and knowing are dual processes in which knowledge is embedded or managed (pp147-8).

The more knowledge is defined in terms of action the closer it gets to the notion of learning as change and the harder it seems to be to discover any phenomenological distinction between the two.

This literature review sets the scene for data collection and analysis which is to follow by:

- a. providing a variety of ways of identifying and naming the phenomena encountered in the field observations
- b. providing a number of possible frameworks for beginning to analyse and make sense of the data
- c. alerting the researcher to the nature of processes even though there is a wide range of language and descriptions within the literature
- d. providing a number of models and frameworks of practice devised by others that can be used in the interpretation phase of analysis and in Chapter 6.

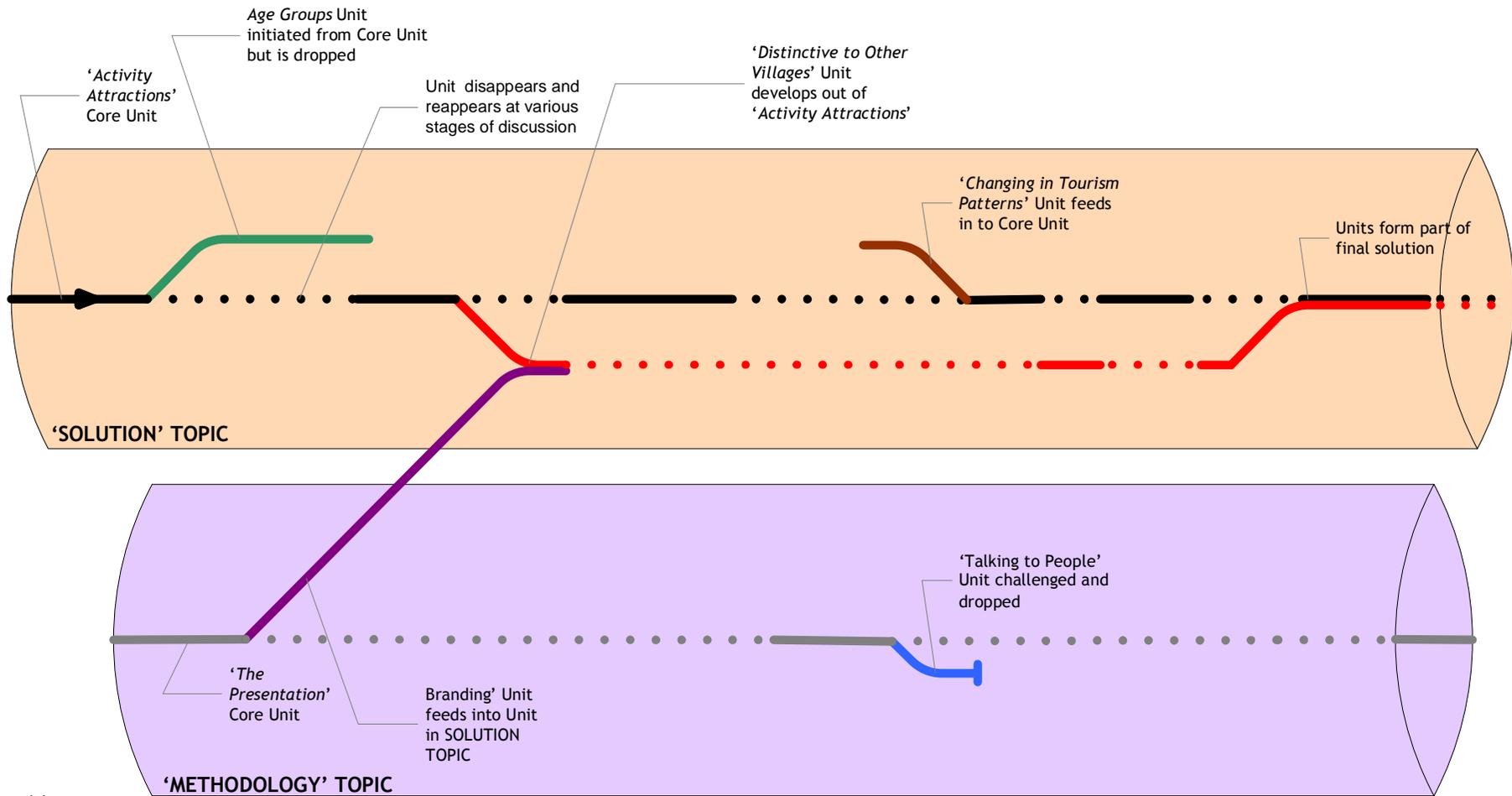


Diagram 5.26 Schematic Representation of The Relationships between Topic Units - Part of Knowledge Development within Team 2

Chapter 5 Emerging Themes

The preceding four chapters have set the scene for this research providing details of the research origins, methodology, procedures, and a survey of literature. I now turn to the results of the research.

This chapter describes and examines the data and identifies themes emerging from the analysis. In line with the grounded theory approach taken in this research the data is analysed by establishing a coding system that enables the categorisation of that data. It is examined from two perspectives. The first focuses on individual team members and the nature of their contributions in as much as they relate to observable learning or the development of knowledge within the teams. The second looks at the content of team discussions, exploring the way this changes during the life of the teams.

Emerging patterns were identified through comparing and contrasting the different coded categories both within and between the three case studies.

A number of important conventions are used throughout this chapter:

1. The terminology introduced in Chapter 3 Methodology, page 43 is adopted both in this chapter and in Chapter 6. Use of these terms is indicated by the use of italics.

2. Individual team members are referred to by a single letter which is an initial of their name - eighteen unique initials will be found representing the total number of team members observed across the three teams. Those initials are: Team 1 - **D, F, M, N** Team 2 - **A, Al, J, L, Li, S, Sh**
Team 3 - **Ab, B, E, H, Jn, Mt, P**
3. All direct supporting quotes from the transcribed verbal interchanges in teams are referenced with key elements used in NVivo coding system which reference the team, the speaker and section numbers e.g. '**Team 3 Speaker Ab Section 78**' (refers to Section 78 from the Report derived from NVivo on the all contributions made by Speaker AB in Team 3) and '**Team 1 Methodology/The Presentation Section 150**' (refers to Section 150 from the Report from NVivo of the content of the *Sub Topic* called The Presentation which in turn is part of the larger *Topic* called Methodology).

The chapter is divided into five parts: 5.1 looks at the categorisation of individual contributions; 5.2 identifies the themes and patterns emerging from the analysis of individual contributions; 5.3 looks at the categorisation of content into *topics* and *sub topics* and the way these develop and change; 5.4 identifies the themes and patterns emerging from the analysis of content development; and 5.5 summarises the emerging patterns of both knowledge development and learning.

5.1 Individual Contributions

Individual contributions were coded into sixty-two different categories. A complete list of these is provided in Appendix D of this thesis. By bringing together codes that represented similar or closely related knowledge development and learning phenomena four distinct categories, were identified:

- Direct contributions to knowledge development and learning. There were forty-four types of contribution within this category.
- Indirect contributions to knowledge development and learning. There were fourteen types of contribution in this category
- Those that did not appear to make any contribution to knowledge development and learning. There were four types of contribution to this category which was labelled 'Unconnected'.
- Contribution style in which stylistic or 'form' characteristics were identified including incomplete, tentative and extended contributions. Nine distinct stylistic or contribution forms were coded.

5.1.1 Direct contributions

These form the biggest category with 44 types of contribution. They are identified as direct because they make a direct contribution to the development of knowledge. By bringing together similar and related categories a typology of direct contributions has been

produced to aid analysis and theme identification. This consists of three main sub-categories:

- a. Creating and extending knowledge
- b. Examining existing knowledge
- c. Supporting and rejecting knowledge

Each of these sub-categories is further subdivided (see Appendix D for the full typology of individual contributions). Tables 5.1 to 5.3 below give details for each of the three direct contribution sub-categorisations.

a. Contributions involved in creating or extending knowledge

Contributions that *created or extended knowledge* included the introduction of new themes or ideas. These represented the first time a theme or idea was mentioned in the group.

a. Creating & Extending Knowledge	1. Creating New Knowledge	
	2. Aligning Meanings	<ul style="list-style-type: none"> i. Speaker to other contribution ii. Two or more other contributions iii. Synthesising a variety of bits of information iv. Extending a meaning by joining up v. Reinterpreting meanings by using a different form of words
	3. Developing Knowledge	<ul style="list-style-type: none"> i. Adding new distinctive features, facets ii. Increasing a list of possibilities iii. Offering new language or imagery to describe something iv. Offering a different perspective /angle /interpretation /alternative v. Qualifying something already discussed vi. Deepening/enriching existing knowledge - more detail, from own experience, adding colour, making it more concrete vii. Adding an emotional dimension viii. Making comparisons ix. Responding to questioning

Table 5.1 Direct Contributions: Creating & Extending Knowledge

Potentially these contributions could contribute the key components of the solution offered to the client. These contributions were not derivations of ideas or topics already discussed by the team.

The example below represents the first mention of the cost of housing in the work carried out by Team One and the second taken from Team Two involves the introduction of the concept of 'personality branding':

We spoke to some young girls in the surf shop. A woman that had been in the business that had been here thirty years. The girl was saying that a flat to rent was £400 a week.

(Team 2 Speaker L, Section 62)

I was just thinking of something which is a different sphere about what environment do you have where brand is a personality when you go into a Richard Rogers' building you know its Richard Rogers - he doesn't have to be there.

(Team 1 Speaker F, Section 67)

The second type of contribution also created something new in the group but this time out of something that had already been contributed. This included bringing together two or more ideas already contributed to produce a hybrid or synthesised idea:

That sounds like a machine doesn't it and he said he wanted the building to operate like a machine as well. We could develop a machine metaphor in the presentation.

(Team 1 Speaker F, Section 47)

It also involved taking another team member's contribution and reinterpreting the idea through the use of other words:

So different levels of experience, different skills, different personalities, different values, different interests and how they contribute to achieving the task. So I suppose what that is saying is Is capitalising on the skills already available.

(Team 3 Speaker H, Section 89)

It can also involve taking themes from different parts of a discussion and integrating them:

We've got passion, we've got intimacy, we've got commitment, we've got this golden triangle of love. This is it. The 'B' brand should be about that."

(Team 1 Speaker M, Section 153)

This category of developing new knowledge was labelled *aligning meanings* and again had the potential to provide new ideas that could become part of the solution for the client.

The final item in this knowledge creating category involves taking ideas already contributed and *developing or extending* them by adding more detail, adding examples, providing lists of characteristics or providing a different way of viewing the idea or adding a different dimension like an emotional component. This development of existing ideas might be from the person who made

the original contribution or may be from others taking up someone else's idea and building on it. In this way an idea gains depth, detail and can become richer. This category of knowledge creating contributions had the greatest number of sub-categories. The examples below illustrate different ways in which existing knowledge was developed:

He is huge (a character already mentioned by others in the discussion). He's not as big as Jamie Oliver. He's not as popular but he's as well known.

(Team 2 Speaker L, Section 79)

When we talk about 'experiencing the place' that can mean work, retail, leisure, the physical environment, arts and crafts, the people

Team 3 Speaker Ab, Section 341)

You see my personal feeling is that this isn't about making signs and making logo. This is about putting P on the map and it's about communication and that's what the expression here might be, it might not be in the traditional sense.

(Team 2 Speaker Sh, Section 333)

b. Contributions involved in examining existing knowledge

Contributions that helped the group *examine* previous team member contributions form the next grouping of direct contributions. The effect of these contributions was to preserve or progress an idea by asking questions, evaluating or testing it. The categories are shown in Table 5.2 below:

b. Examining Knowledge	4. Questioning	<ul style="list-style-type: none"> i. To check feasibility ii. To elicit more information from someone else's contribution iii. To move people on iv. For clarification v. To understand or gain information vi. To confirm vii. Rhetorical
	5. Evaluating	<ul style="list-style-type: none"> i. Assessing value to/impact on client ii. Assessing value to work team/business iii. Adding to value iv. Assessing significance v. Assessing completeness vi. Assessing accuracy/effectiveness vii. Evaluating feasibility viii. Assessing appropriateness ix. Judging between different pieces of knowledge
	6. Testing	<ul style="list-style-type: none"> i. Challenging the validity/accuracy of a piece of knowledge ii. Testing connections/linkages iii. Testing rigour and logic

Table 5.2 Direct Contributions: Examining Existing Knowledge

Questioning took various forms and usually occurred in direct response to another team member's contribution. There were times when questions were directed at contributions made some time before and some were used to lead the team into exploring new themes or to move into new areas of work.

Questions that asked for more information or for clarification of contributions already made were a common feature of all three teams:

Are we targeting both these types of people or just one of them?

(Team 2 Speaker L, Section 29)

Are you talking about feedback before setting up the meeting or are you talking about approaching this meeting?

(Team 3 Speaker H Section 10)

The question, ‘What was it like when you went round and looked at the beach?’ (Team 2 Speaker J, Section 281) is moving the group into another area of discussion by seeking information not yet available to the team.

Evaluating contributions involved the assessment of another’s contribution. This included assessment of extrinsic value of another contribution either to the client or to the general discussion taking place:

I think that (the previous contribution) is very important because the values of the people who are in the film industry are very different to the values of the people not in the film industry.

(Team 1 Speaker F, Section 115)

The evaluation wasn’t always provided in such a rational manner and at times the contribution was clearly infused with the evaluators own feelings, views and opinions:

I wanted to be totally clear about whether we were excluding that end of the market because if we are I think it’s very foolish.

(Team 3 Speaker E, Section 42)

In these instances, as with the example above, rarely is any further rationale offered or none demanded by the rest of the team. Such forms of evaluation appeared to have the effect of influencing the

team to accept or reject an idea as much as those accompanied by a more reasoned argument.

Other forms of evaluation were concerned with the intrinsic value of a contribution i.e. evaluating its completeness or whether of itself it was a significant idea:

Did you discover why they wanted to exclude tourists? I don't see how we can argue for a focus on residents when we don't know why they hold that view.

(Team 2 Speaker A, Section 1011)

Evaluation wasn't carried out in any formal or structured way by any of the teams but occurred informally and reactively in response to the contributions made by others. It is not immediately apparent from observation or transcript analysis the extent to which evaluation contributed to the teams' efforts to find a solution for the client. There were times when an idea was not pursued after an evaluative comment although no overt decision was made to reject the idea.

The third type of 'examining knowledge' was through **testing** the logic and rigour of contributions or testing links being made - checking whether cause and effect connections made by other contributors were valid:

We can't say we want to go-up market if there isn't really anything to attract those people here

(Team 2 Speaker Li, Section 65)

Mt said that the empty shops provided a good example of the way tourism has declined but I don't think that is the only cause or even the correct cause of that....

(Team 3 Speaker Jn, Section 41)

As with the evaluative contributions it is difficult with the informal nature of these discussions to trace the impact of testing on the final solution. Testing has the potential to increase the strength and rigour of any piece of reasoning but as, on the whole, there seemed to be no formal response to these contributions, their effect, if any, had to be at an unconscious or subliminal level.

c. Contributions involved in supporting or rejecting existing knowledge

A list of all these codes is provided in Table 5.3 below.

The most common form of confirmation or seeking confirmation of contributions already made was a simple 'Yes' or 'Do you agree?' On other occasions the confirmation was followed by a reiteration, a summary, an extension or some form of caveat. Rejection or disagreement followed a similar pattern:

Yes to shareholder analysis. I think we need to describe these kinds of things to them.

(Team 1 Speaker F, Section 37)

Yes it will come But at the same time it will only come become apparent if you are looking for it.....

(Team 2 Speaker S, Section 110)

c. Supporting & Rejecting Knowledge	7. Confirming	<ul style="list-style-type: none"> i. Simple confirmation ii. Confirmation and extension iii. Confirmation and caveat iv. Summary or reiteration of something already discussed v. Rhetorical statement vi. Confirmation to underline, emphasise
	8. Seeking Confirmation	
	9. Rejecting	<ul style="list-style-type: none"> i. Simple rejection or disagreement ii. Simple rejection and extension iii. Rejection of own argument

Table 5.3 Direct Contributions: Supporting & Rejecting Knowledge

At times the confirmation or the rejection carried a clear emotional component. The contributor communicating the nature of their feeling through tone or volume in their voice or through the inclusion of emotive words or both:

I really object to B’s slant on why we didn’t pursue the music idea. I wanted to

(Team 3 Speaker Mt, Section 1051)

5.1.2 Indirect contributions

Indirect contribution categories were ordered using the same procedure as for the Direct contributions described at the beginning of Section 5.1.1. But in this typology there was only need for two levels as shown in Table 5.4 below 2. There were just thirteen different types of contribution which were sorted into three major categories¹ The term ‘indirect contribution’ was applied to this group because they did not contribute to the direct creation and development of the teams’ knowledge but to the way that

¹ See Appendix D for the complete table of categories

knowledge was gained or used. These contributions were concerned with methodology rather than the substance of the knowledge.

Contributions that involved how knowledge was gained included questions, suggestions and plans for how team members should be

10. Commenting on how knowledge is gained	<ul style="list-style-type: none"> i. The way people are organised ii. The process for gaining knowledge iii. The speed and pace
11. Commenting on how knowledge is used	<ul style="list-style-type: none"> i. With the client ii. Selecting knowledge what should be used and not used iii. Suggesting use iv. Seeking convergence or verification v. Commenting on the communication of knowledge to others
12. Moving the group on	<ul style="list-style-type: none"> i. Encouraging group to seek relevant information ii. General encouragement in the task iii. Illuminating how the group is exploring/gaining knowledge iv. Requesting something that will provide more knowledge v. Moving the group to explore something different vi. Using questions to identify what knowledge is needed

Table 5.4 Indirect Contributions

organised, the process or method by which knowledge would be gained and issues to do with timing. In the quoted samples below there is one example of an organising team member making a suggestion for how information should be ‘gathered’ and a second clarifying the focus for research:

It’s really important that we split the work up and decide
 And decide who will work on which part. Mt, B, H and P want to work on the book research and the rest of us and go into S to carry on the interviews.

(Team 3 Speaker Ab, Section 388)

This is about research, how to find out who the stakeholders are ... what the relationship is about. Not saying this is what it should be, but finding out about what it is.

(Team 1 Speaker M, Section 40)

Contributions that explored how knowledge was to be used and, in particular, how it should be communicated included lengthy discussions about the nature of the presentation to the client. They also included the selection of information that was to be passed on the client:

I think we could have a role in surprising the next meeting by defining 'the big idea of B is' So if we come back to him (the client) with this one word that surprised him but was completely true or articulated in a way other people can start to translate

(Team 1 Speaker N, Section 80)

Let's include a slide on other location branding work that we have done to support this credentials ... Or an example of where the tension between visitor and resident has been worked on or perhaps we need both.

(Team 3 Speaker B, Section 36)

The third category of indirect contributions consisted of what might be termed the facilitative role of moving the team on by encouraging it to seek new knowledge or to engage in the further exploration of issues already raised or identifying gaps in understanding that needed to be filled. It also included providing

reflexive commentary on how the process of knowledge gathering and development was progressing:

Shall we try and articulate what the brand idea is. I mean what the brand values are and get some sort of words?

(Team 2 Speaker A, Section 87)

I feel we've been good ... thorough in getting at what people want and we spent a long time doing it, can we move on to look at a possible range of activities

(Team 3 Speaker Mt, Section 765)

Indirect contributions were closely linked to direct contributions sometimes emanating from the groups interaction over the development of knowledge. In this example from Team Three discussions about the way town S related to the wider environment led to discussions about the sensitivity of presenting that material to the client:

Speaker E and the town doesn't look good when compared to the beautiful surroundings. It's run down and needs major refurb. I wouldn't live here.

Speaker Jn Yes but what we need to present to the client is a positive message, not bending the facts but providing some sense of optimism

(Team 3 Sections 87-88)

At other times indirect contributions stimulated the further direct development of knowledge in the group as in this example from

Team 1 where discussions about how to present the work to the client leads to a refinement of the knowledge itself:

I still think we should discuss our work on H.E. in the presentation as a case study. It hey why don't we link the brand personality stuff with the architectural possibilities for the new B centre as we did in H.E.?

(Team 1 Speaker N, Section 79)

5.1.3 Unconnected contributions

These formed the smallest category with 4 types of contribution see Table 5.5). Because of the small number no further classification of these themes was deemed necessary.

- | |
|--|
| <ul style="list-style-type: none">i. Subject not related to general subject themesii. Random connection madeiii. An aside to something happening in the group or surroundingsiv. Opening banter |
|--|

Table 5.5 Unconnected Contributions

These contributions appeared to have no connection with the work that the teams were undertaking for their clients and involved remarks made at the start of group sessions and to a lesser extent when group meetings were underway - they included sharing jokes, greetings and questions about wellbeing. Sometimes the contribution was in the form of an aside - for instance one team member asked another about a different project that he was engaged in. There were also contributions that related to the physical needs of the group - suggestions about stopping for refreshments or the need for a break or the need to open windows

Although these contributions were relatively rare and they had no direct connection with the problem being solved or the solution being developed some were related to the functioning of teams and so may have had some link with their effectiveness to operate.

5.1.4 Contribution styles

The final form of classification of individual contributions was in relation to **style** or **form** within the contributions. Three distinctive characteristics of contributions were identified and these are listed in Table 5.6. The first of these concerned the length of individual contributions, particularly where **extended contributions** were made. This characteristic was also taken up from a different perspective in the content analysis where the pattern of contribution size is identified in the analysis of *topic units*.

a. Extended contribution	<ul style="list-style-type: none"> i. Picking up and connecting a number of different points made ii. Pursuing a line of reasoning over 3 or more points iii. Sharing personal experience
b. Tentative	<ul style="list-style-type: none"> i. Uncertain of veracity of information being given ii. Uncertain of how to express themselves iii. Sentence started a number of times but remains unfinished iv. Change of view expressed within one sentence
c. Incomplete contribution	<ul style="list-style-type: none"> i. Unfinished sentence leaving meaning unclear ii. Interrupted sentence leaving meaning unclear

Table 5.6 Categorisation of Contribution Styles

Extended contributions stood out as distinctive because they were relatively uncommon and yet appeared to have a significant effect on team interaction when they occurred. These contributions were not punctuated by interruptions from the other team members who

appeared to listen for long periods of time. An extended contribution was identified by number of lines of speech attributed to individuals in the transcripts. Contributions of 20 lines of speech or more were considered extended. This was to some extent an arbitrary size definition but fitted a size pattern that emerged in the research where the bulk of contributions were under eight lines in length and ranged in content from single words (e.g. 'Yes', 'Why?') to one or two sentences encapsulating single thoughts, responses or ideas. Size contributions between eight and nineteen lines usually involved more complex arguments around a particular idea or response. In the following example the speaker is responding to another contribution developing a view as to how they should describe or sell their role to the client:

I think what we can't do though is go back and say hold on a minute, don't get too excited because that's us out of the door. I think we have to go in and position ourselves as the strategic partners looking, as you say at working out what the idea is, looking at the most we take sort of a positive stance, and say look here we'll be objective we'll challenge you because we think that's our role To challenge all these things as to whether this is the right description of Bond. Whether we could find the right way of actually making these things work in a Bond way and whether this is something that is actually going to benefit the business. Because this is I think you're right this is a completely different offer to anything they've dealt with before.

(Team 1 Speaker N, Section 19)

Those contributions over 20 lines in length many of which were very extensive - one involving 156 lines of transcribed speech and representing over eight minutes of delivered speech - involved multiple ideas and arguments. These contributions sometimes consisted of summarising and synthesising the past work of the groups and sometimes represented an individual putting forward a new argument or reinforcing an old argument with various strands and supportive examples. These contributions sometimes were supported with visual 'memory' like a PowerPoint presentation or flip chart sheets providing cues for the speaker. A portion of one of these extended contributions is given below. It represents a summary and synthesis of some data collection by one individual, mixed with his impressions and evaluative comments about what he saw:

He was quite upbeat about S um he talked a lot about the areas around about like H. , N. , C.² those are the main areas around it. He said the main kind of industries were electronic and medical equipment. He also said the shops were ordinary in a way. Woolworths was the biggest shop there is and the rest is pretty much charity and bargain shops. Which we found to be very much spot on. Lots of bargain shops, right beside one another was Bee Wise which is like a thrift shop and Bon Marche. When we had a look it's all one pound. The area is pretty poorish. The people in the street were a bit hippyish. Very new age, grungy, sort of

² The initials refer to specific contributors - see beginning of this chapter for fuller explanation

arty with quite a lot of youth. The police said that most of the crimes are drug related But because it's a small community they usually know who the criminals are They have a very high success rate and they get a lot of support from the public so it's a strong community

(Team 3 Speaker Ab, Section 28)

The second distinctive stylistic characteristic was labelled 'tentative' and described uncertainty in the contributions made by individuals. Uncertainty was conveyed by tone of voice and speech patterns such as long pauses or changes in the choice of words or ideas. The cause of the uncertainty was not usually apparent.

The final stylistic category was that of **unfinished** or **incomplete contributions**. Many contributions went uncompleted because of interruptions from other speakers and some because the speaker appeared to lose their thread or ran out of things to say. The majority of such contributions conveyed an incomplete message and therefore did not contribute to knowledge development or learning.

5.2 Individual Contributions: Themes and Patterns

Diagrams 5.7 to 5.9 below show, for each team, the contribution categories as a percentage of all contributions in those categories for that team. These diagrams do not purport to represent any statistically supported evidence but have 'face validity', offering a visual representation that shows the patterns of individual contributions. Five dominant categories are differentiated through

the use of different colours. Three of these are the three main **Direct Contributions** namely **Creating & Extending, Supporting & Rejecting and Examining**. The other two are **Indirect Contributions** and **Unconnected Contributions**. The Style category represented a different way of looking at contributions and was not included as it was felt that it did not show patterns in the same way as the others. Each of the five categories were divided into twelve sub-categories which were differentiated by sector marks on the graphs.

The percentage contributions were plotted on the graph and the points joined up. The area enclosed by this procedure was shaded white to increase the visual clarity of the contribution pattern.

Key to Diagrams 5.7 - 5.9

	Creating & Extending		Examining
	Supporting & Rejecting		Indirect
	Unconnected	30	= Percentage of all contributions

A = Aligning	M = Moving group on
C = Creating	Q = Questioning
Co = Confirming	R = Rejecting
D = Developing	Sc = Seeking Confirmation
E = Evaluating	T = Testing
Hg = Commenting on how gained	Un = Unconnected
Hu = Commenting on how used	

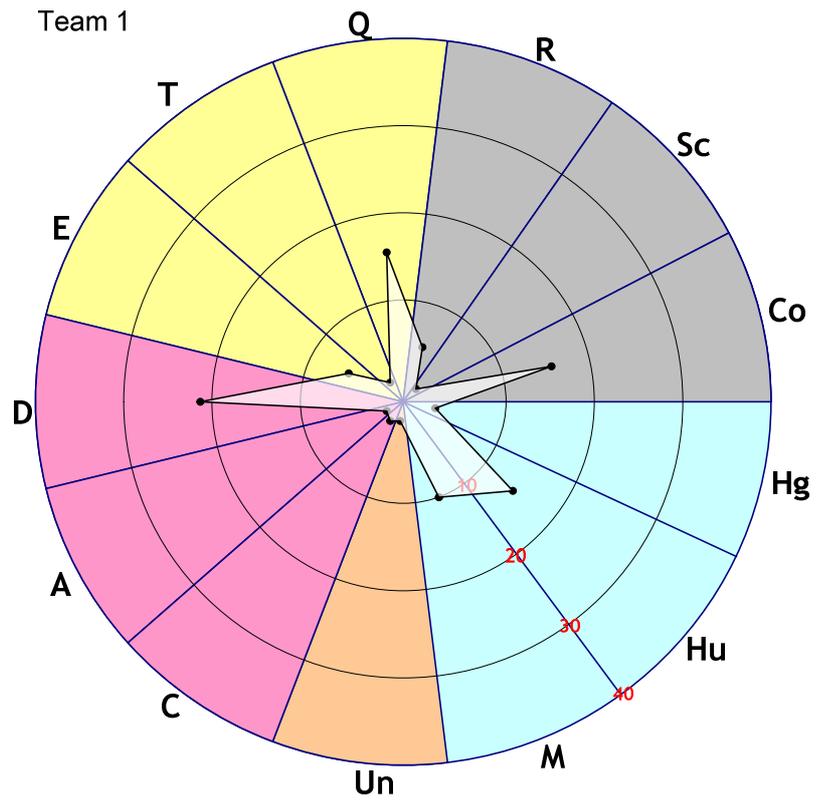


Diagram 5.7 Pattern of Contribution Categories in Team One

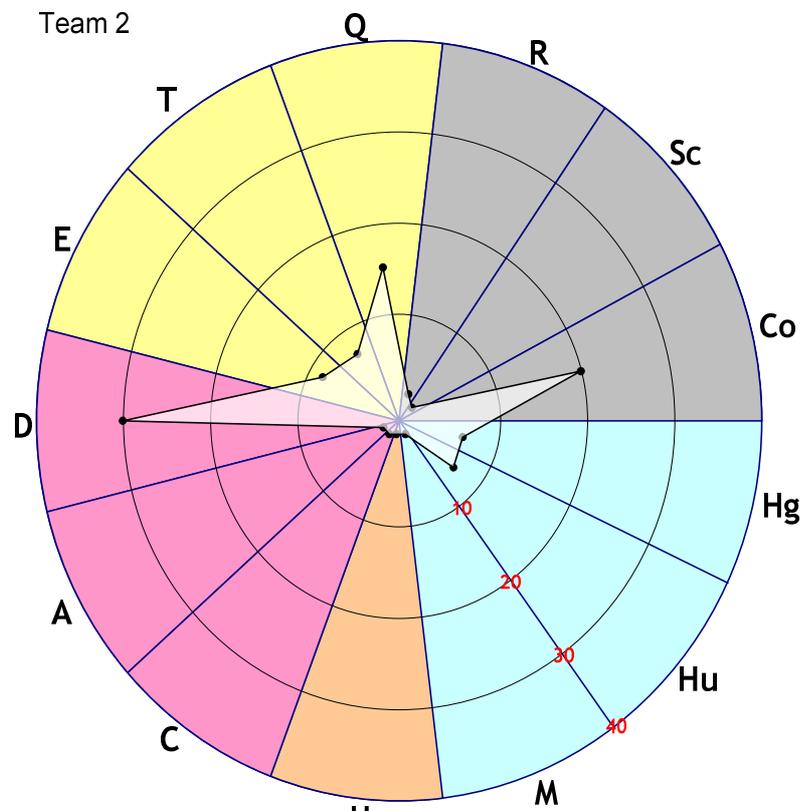


Diagram 5.8 Pattern of Contribution Categories in Team Two

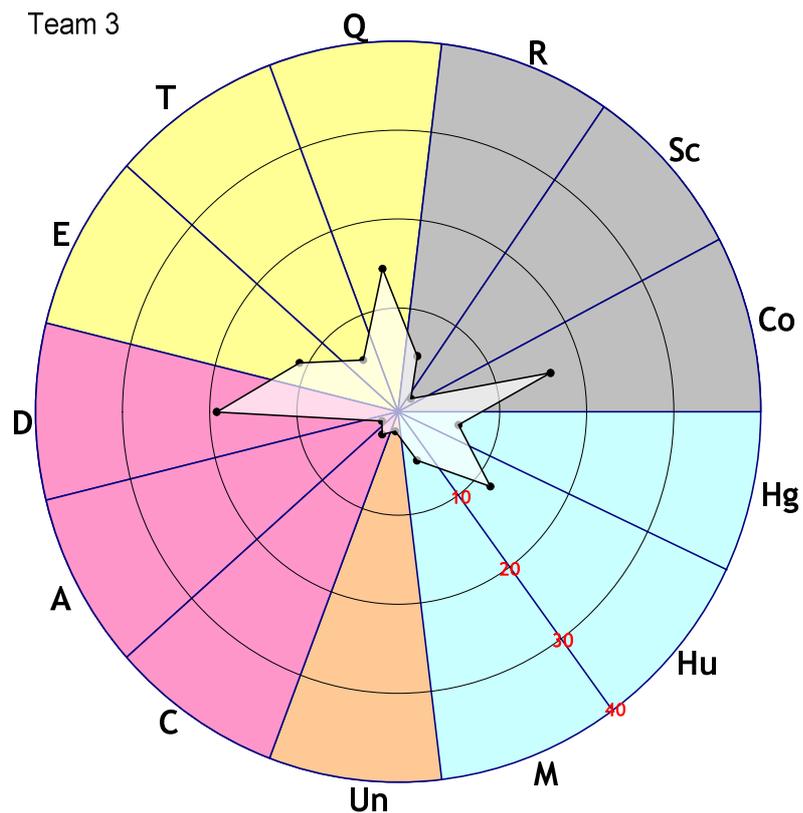


Diagram 5.9 Pattern of Contribution Categories in Team Three

The three preceding graphic representations illustrate the strong similarities between the contribution profiles of the three teams. Each of the teams has the same four categories of contribution strongly represented in their profile namely, **Developing Knowledge**, **Questioning**, **Confirming** and **Commenting on How Knowledge is Used**. These four types of contribution are the most commonly used in all three teams.

In Team One in addition to these four dominant categories **Evaluating** and **Rejecting** have a clear secondary role in the team pattern. In Team Two the **Developing** contribution category is even more dominant (30% of all contributions for the group) is accompanied by stronger representation of **Evaluating**, **Testing** and

How Knowledge is Gained. Team Three includes secondary contributions in **Evaluating, Rejecting** and **How Knowledge is Gained.**

All three teams also demonstrate similar patterns in weakly represented contribution categories. **Creating, Aligning Meanings, Seeking Confirmation** and **Unconnected** categories are all very small each contributing no more than 1% of the total, except in Team Three where **Creating** reaches to 2%.

Within the five main major categories coded by colour in the diagrams there are also similarities within the pattern of contributions. In the **Creating** and **Extending Knowledge** set of categories **Development** is by far the most dominant form of contribution. This represents the development of ideas that have already been introduced into the discussion. **Aligning of meaning** is a rare activity in all teams and similarly the introduction of new ideas is weak but as already stated above shows slightly higher activity in Team Three. It appears that a few unique ideas are introduced into the teams and that much more time is then spent developing these further.

In the **Examining Knowledge** set of categories much of the activity is in the area of **Questioning** which could be considered the least direct method for examining existing knowledge. The more direct activity of **Evaluating** is secondary and **Testing** is the weakest form of contribution, although in Team Two **Testing** reaches 7% of the

total the highest of the three teams. The less direct form of examining others' contributions dominates over the more direct and potentially more confrontational forms of **Evaluating** and **Testing**.

In the **Supporting and Rejecting** categories **Seeking Confirmation** is the weakest category followed by **Rejection** which reaches 5% and 6% in Teams One and Three respectively. It is **Confirming**, however that dominates all three teams reaching 20% in Team Two.

Of the **Indirect Contributions** commenting on **How the Knowledge was Used** was dominant over discussing **How Knowledge was Gained**, the latter reaching 6% in Teams Two and Three but of little significance in Team One. The facilitative contribution of **Moving the Team On** has its greatest impact in Team One.

Contributions that were **Unconnected** to the main content areas were low in all groups suggesting that little time was spent on discussion of other issues and that the teams were generally heavily focused on their prime purpose of finding solutions to client problems.

Apart from minor variations the patterns of contributions seem remarkably similar and help to develop a picture of the teams' activities where a relatively small number of ideas are developed with the help of strong **Questioning** and without recourse to potentially confrontational activity that might be associated with more direct forms of examining others' ideas through **Evaluating** or

Testing the logic of other people's arguments. This may be supported by the dominance of confirmation rather than rejection of others' ideas. This picture of a positive, supportive culture in all teams was supported by the observations and experience of the Researcher in attendance at Team sessions.

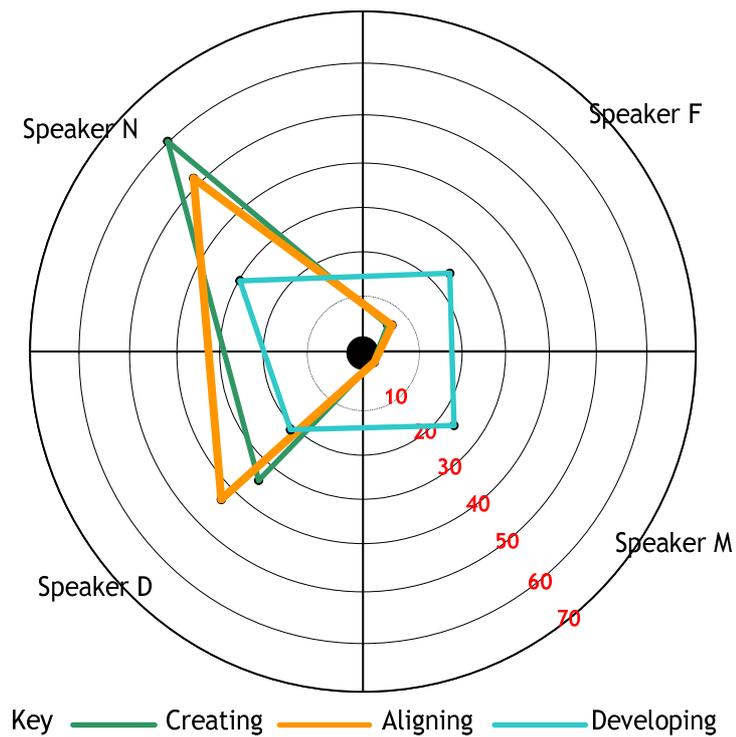
Teams also spent a significant amount of time, between 7% and 12% exploring how the knowledge was to be used mostly by discussing how the presentation should be structured and developed with the client.

We now turn to the contribution pattern viewed from the perspective of individual team members. These are represented in the graphs shown below in Diagrams 5.10 to 5.21. Four graphs have been produced for each team each showing the contribution pattern of the four main contribution categories of **Creating and Extending Knowledge**, **Examining Knowledge**, **Supporting Knowledge** and **Indirect Contributions**. Each contribution is plotted as a percentage of the total of that contribution during the teams' discussions.

The graphs illustrate some interesting patterns of contribution between the different group members showing which ones made which type of contribution most in the team

In Team One we can identify Speakers N and D as having more part to play in **Creating** new ideas and in helping to **Align Meanings** than the other two members of the group. The same two speakers also

contribute the highest level of **Seeking Confirmation**. Meanwhile speakers M and F are dominant in **Confirming** contributions. Speaker D stands out as being the dominant contributor to **Moving the Group On**. In a number of areas all team members contribute in equal amounts, particularly in **Developing** the ideas already contributed, **Testing** and **Questioning** and in **Rejecting** others' contributions.



**Diagram 5.10 Team 1 Individual Member contributions:
Creating & Extending**

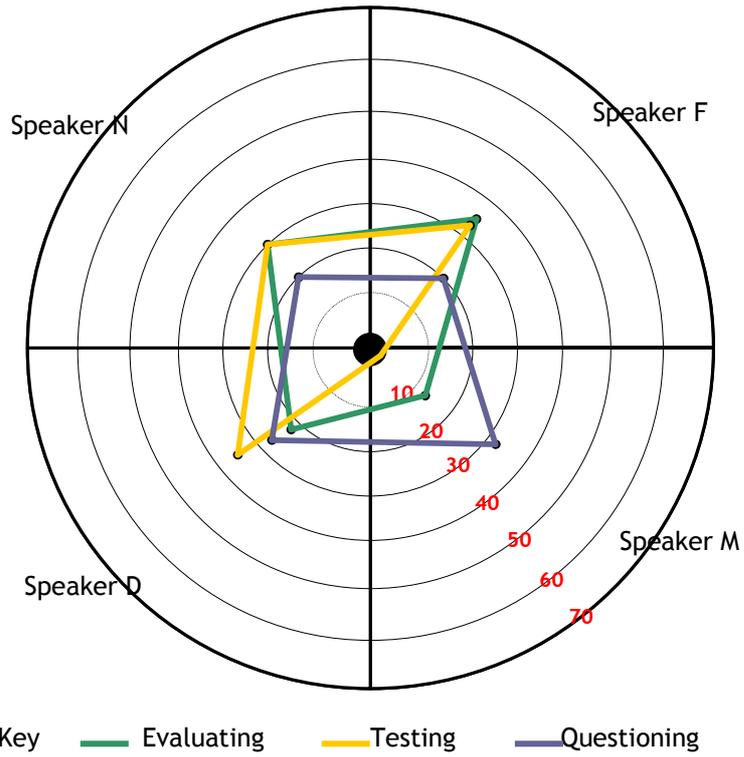


Diagram 5.11 Team 1 Individual Member contributions: Examining Knowledge

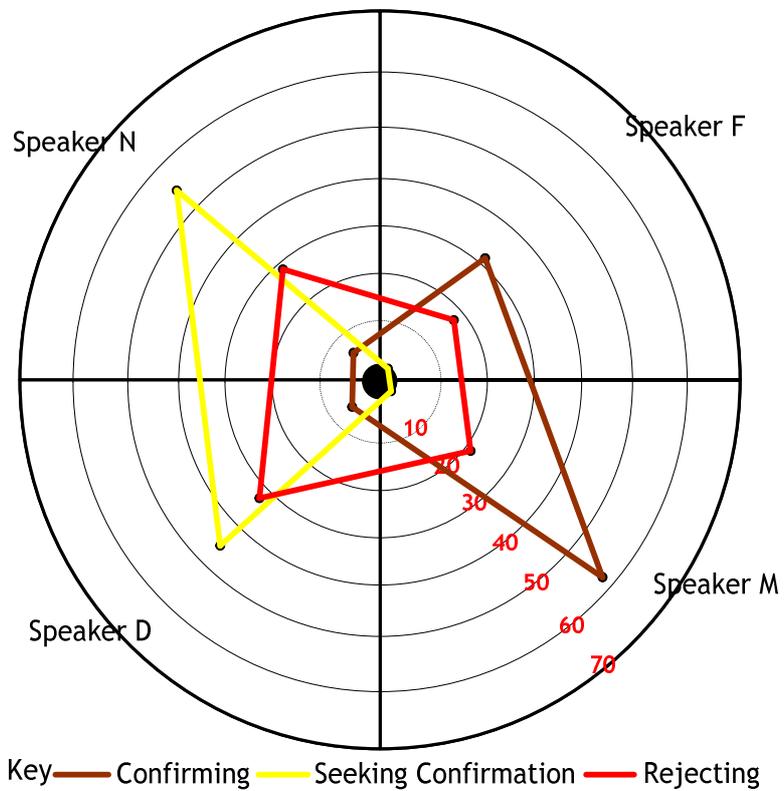


Diagram 5.12 Team 1 Individual Member contributions: Supporting & Rejecting

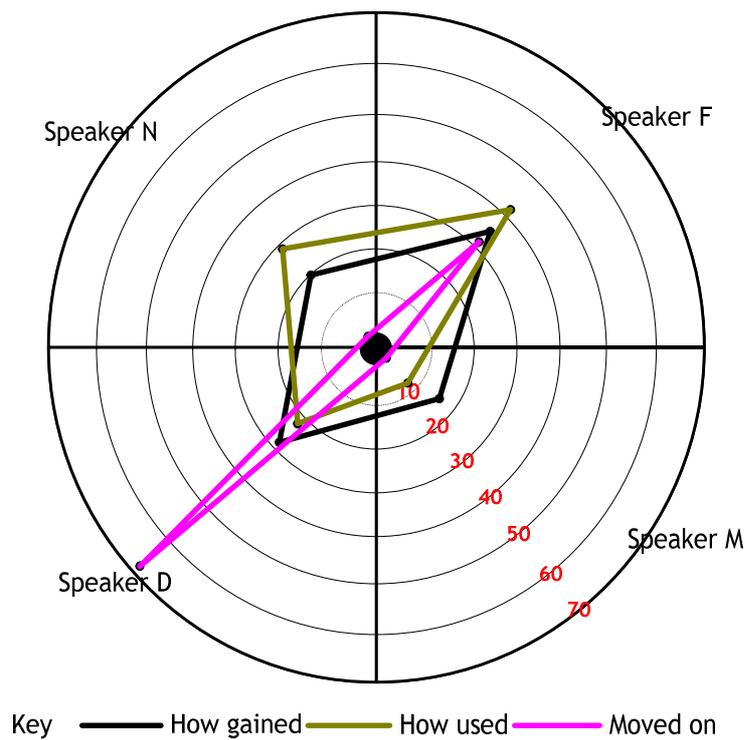


Diagram 5.13 Team 1 Individual Member contributions: Indirect Contributions

In relating these individual contribution profiles to the roles, seniority and experience of the team members we need to note that: Speaker N is a senior consultant, Speaker D is a senior designer, Speaker F is a junior consultant, and Speaker M is a middle ranking account manager. We can see that Speakers D and N are similar in seniority and experience in the company and that both take a dominant role in the creating and aligning of ideas and in looking for confirmation of their ideas from the other two team members. Speaker F, who is both young and inexperienced and M an account manager with a number of years' experience contribute significantly less to new ideas but are heavily involved in **Confirming** the ideas generated by the other two.

Team Two reveals a similar pattern to Team One in the first graph (Diagram 5.14). Two team members, Speakers L and J dominate in the areas of **Creating** and **Aligning** whereas **Developing** is more evenly spread throughout the Team. In Diagram 5.15 Speakers S and J contribute most to **Testing** others' ideas and least to **Evaluating** and **Questioning**. Speaker Al is clearly more involved in **Rejecting** others' contributions than other members of that Team (see Diagram 5.16) and least involved in more supportive contributions.

Indirect contributions show strong involvement from Speaker L with Speakers S and J having a role in **Commenting on How Knowledge is Gained** and **How it is Used** respectively.

When we look at the roles and experience of the individual team members we find that Speaker L is an experienced consultant and Speaker J is an experienced designer and that both are heavily involved in **Creating** and **Aligning Knowledge** and in either **Testing** or **Evaluating** and **Questioning**. They are also heavily involved in facilitative activities, Speaker L in all three areas of **Commenting on Knowledge Gained**, **Knowledge Used** and in **Moving the Team On** (See Diagram 5.17). Speaker Al is an experienced Account Director and was the focus of the only real controversy in any of the team sessions when he decided unilaterally that he was not prepared to take part in the presentation to the client.

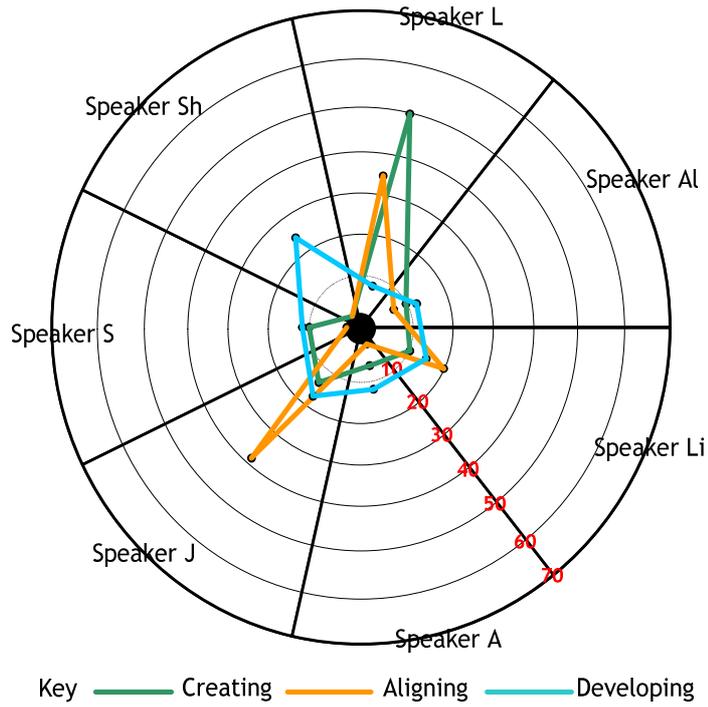


Diagram 5.14 Team 2 Individual Member Contributions: Creating & Extending

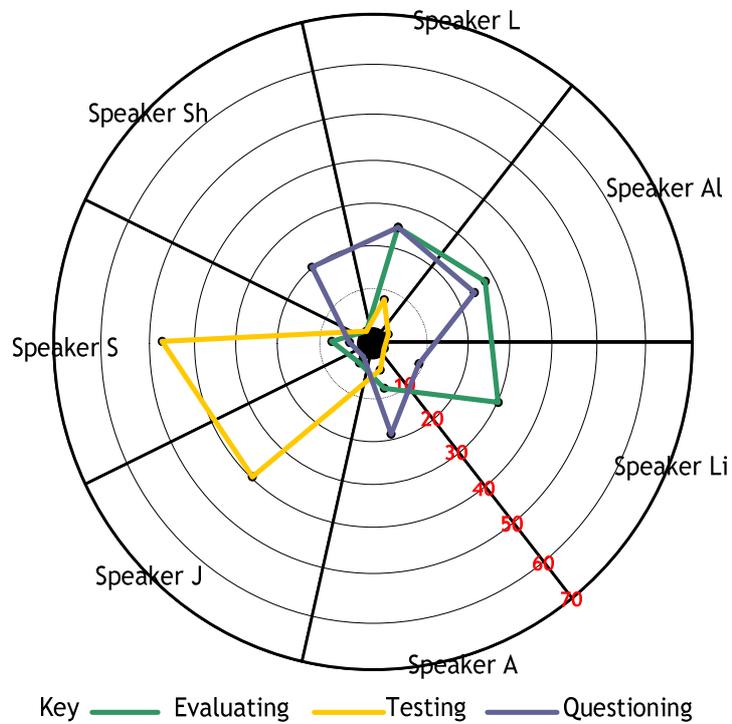


Diagram 5.15 Team 2 Individual Member Contributions: Examining Knowledge

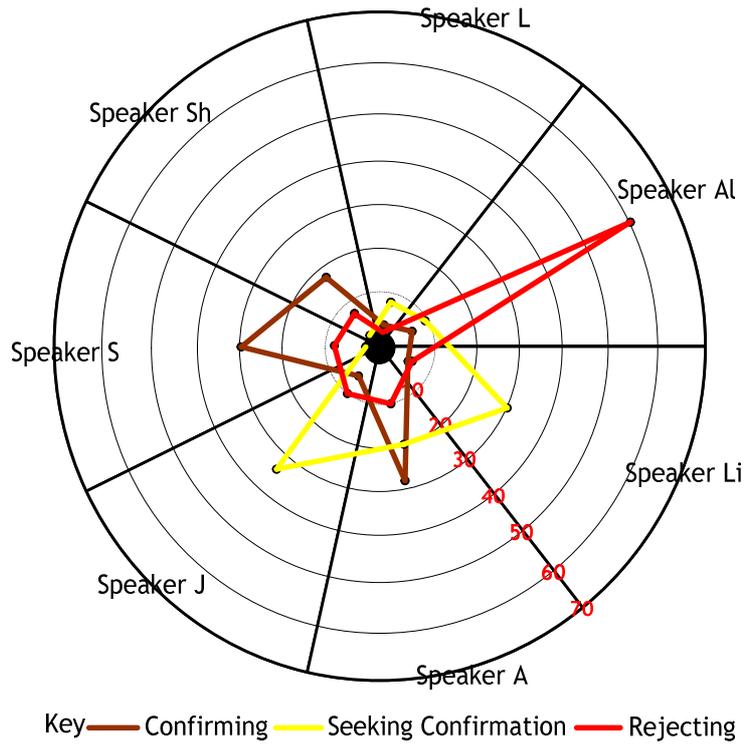


Diagram 5.16 Team 2 Individual Member Contributions: Supporting & Rejecting

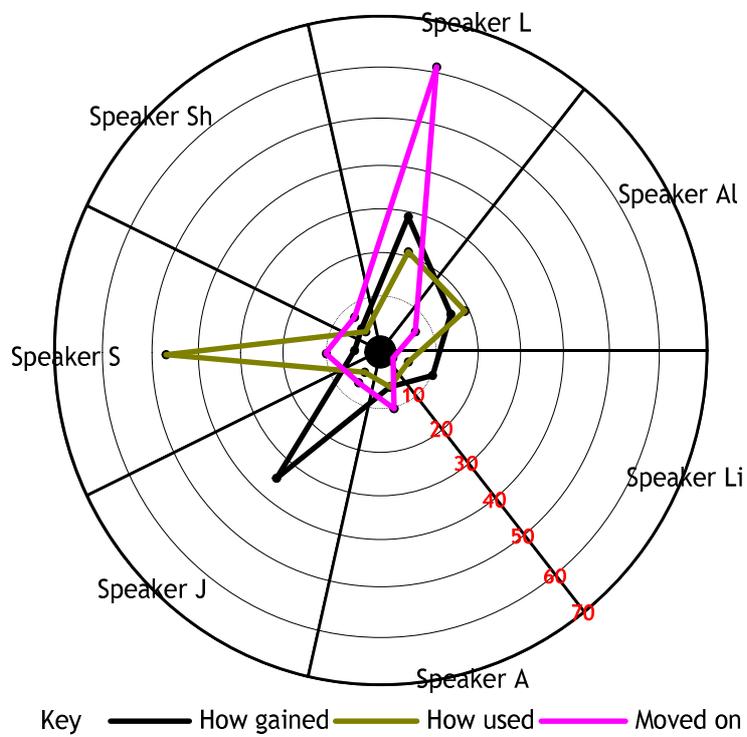


Diagram 5.17 Team 2 Individual Member Contributions: Indirect Contributions

This was seen as negative behaviour by the rest of the group and is reflected in this contribution pattern where he is the only member of any team that dominates in **Rejecting** others' ideas. Speaker A is an inexperienced account manager and her strongest contributions appear to be in **Questioning** and **Confirming**. The remaining Speakers are S, a junior consultant; Sh, a middle serving account manager and Li, a project assistant (the most junior of account management roles). Li plays a role in **Evaluating** and **Seeking Confirmation** of others' ideas despite her relative inexperience. S has a strong role in **Confirming** behaviour and perhaps more surprisingly despite her comparative inexperience also makes strong contributions to discussions about **How Knowledge is Used** and in **Testing** others' ideas. Sh on the other hand plays little role in making **Indirect contributions** of any sort but has more significant parts to play in **Confirming**, **Questioning** and, most significantly **Developing Knowledge**.

In Team Three **Creating** and **Extending Knowledge** activities are dominated by three people Speakers Ab and Jn who dominate in the **Creating** contributions and Speaker Mt who makes strong contributions in all three areas (See Diagram 5.18).

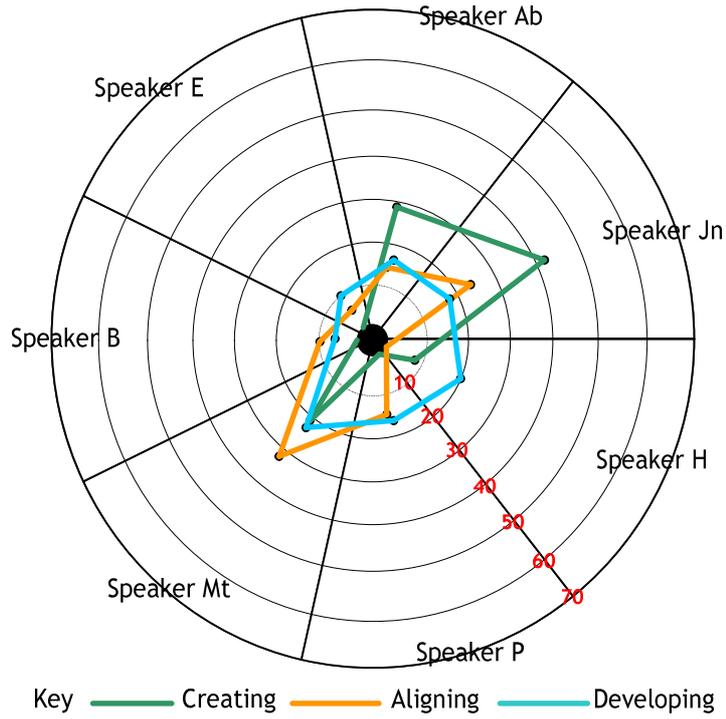


Diagram 5.18 Team 3 Individual Member Contributions: Creating & Extending

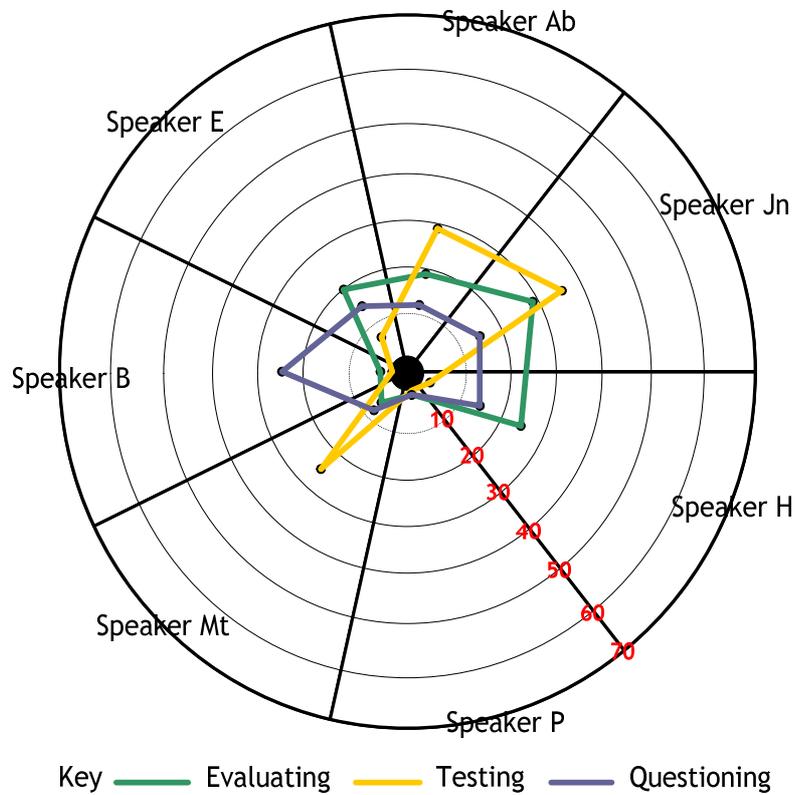


Diagram 5.19 Team 3 Individual Member Contributions: Examining Knowledge

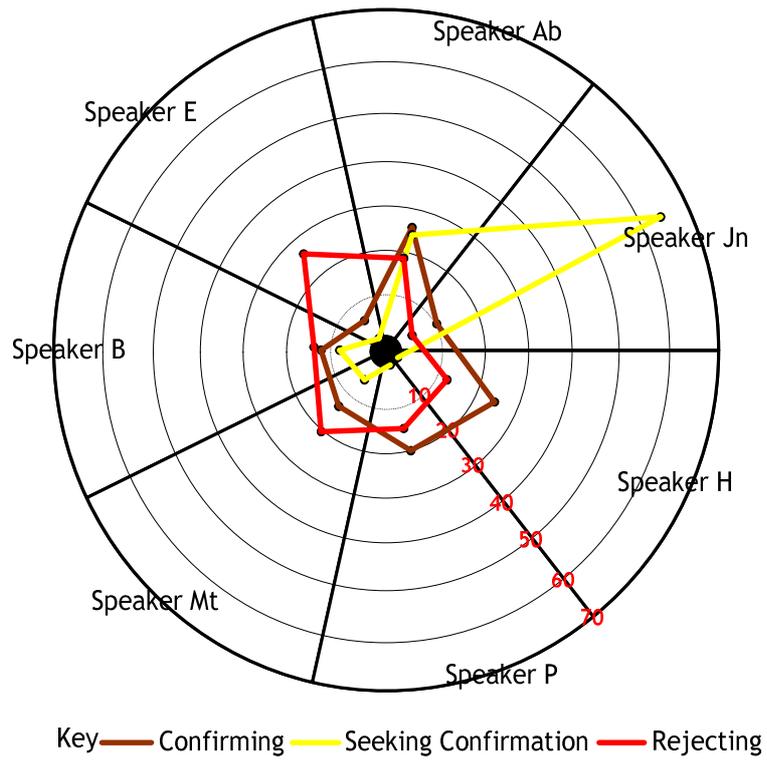


Diagram 5.20 Team 3 Individual Member Contributions: Supporting & Rejecting

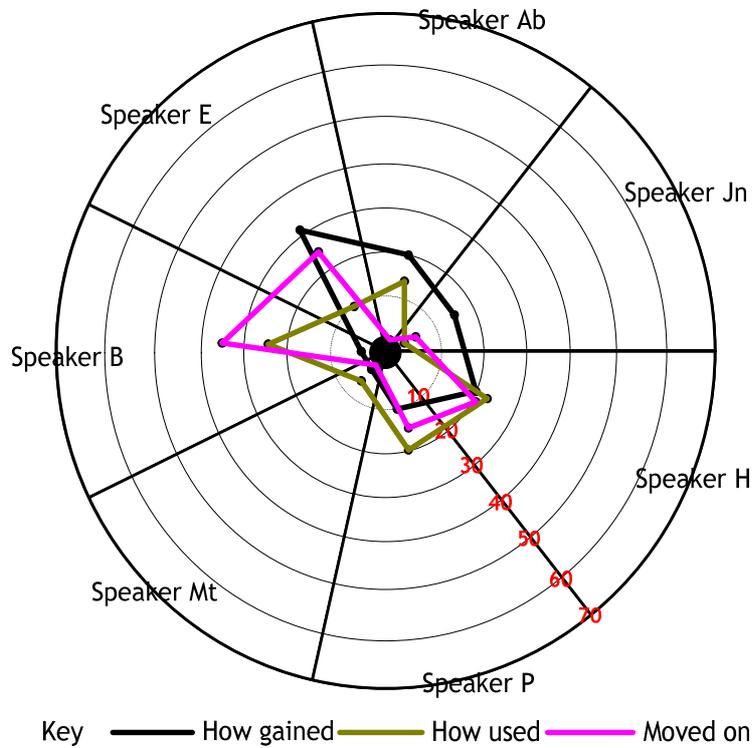


Diagram 5.21 Team 3 Individual Member Contributions: Indirect Contributions

The same three speakers make a strong contribution to **Testing** ideas developed by others (See Diagram 5.19) and they make comparatively fewer contributions in **Commenting on How Knowledge is Used** (See Diagram 5.21). In addition Speakers Ab and Jn play a greater role in **Seeking Confirmation** for their own or others' ideas, the latter in a marked way (See Diagram 5.20).

Speaker E plays less part in any of the **Creating** and **Extending** contributions but is much more active in **Evaluating, Questioning,** and **Rejecting** in direct contributions to knowledge development and in **Commenting on How Knowledge is Gained** and **Moving the Team On** in her indirect contributions.

The remaining Speakers B, H and P all show less involvement in **Creating** and **Extending** contributions and are generally more active in Indirect contributions. All also play some part in **Confirming**. In addition Speaker B shows more involvement in **Questioning** and H more in **Evaluating** behaviour.

In relation to their roles and experience in the Company, Speakers Jn and Mt are consultants - the former with more experience than the latter and Speaker AB is a senior designer.

The strength in helping to **Create and Extend** the knowledge in the team seems to rest with the senior designers and consultants in all three teams.

In **Examining Knowledge** the same group of senior consultants and designers play an important part in **Evaluating** and **Testing** - being strong in one or the other and sometimes in both.

This group also shows similar patterns of dominant behaviour in **Seeking Confirmation** (the exceptions being Speaker L in Team Two, Diagram 5.16 and Speaker Mt in Team Three, Diagram 5.20). They also play a much less significant role in **Confirming** behaviour when compared to their team colleagues (the exception is Speaker Ab in Team 3, Diagram 5.20). The greatest variety of behaviour for this group of people is in the Indirect contributions.

Those in Account Management - Speakers E, a senior account manager and B and H both junior account managers - and with less experience, namely Speakers P who is a junior consultant are all less dominant in **Creating** and **Extending**. But they play greater roles in **Examining** through **Questioning**, **Supporting** and **Confirming** and generally in more Indirect contributions.

This pattern is less clear when all three teams are compared with some similarities but also a number of variations. There is less creative involvement of account managers and the less experienced across the three teams except in the area of **Developing** where some play a significant role in their teams (see Speakers M and E in Diagram 5.10, Speaker Sh in Diagram 5.14 and Speaker H in Diagram 5.18). In **Examining Knowledge** this group has least part to play in **Testing** and tends to be more dominant in **Questioning**. In

Supporting behaviour the group show strong involvement in **Confirming** behaviour with exceptions in the form of Speakers Li and Al (Diagram 5.16) and E (Diagram 5.20). In the Indirect contributions **Commenting on How Knowledge is Gained** is the weakest overall (Speaker E, Team Three Diagram 5.21 is the main exception to this). **Moving Teams On** seems to be a strength of this group across the teams. The cross-team pattern, however, begins to break down with **Commenting on How Knowledge is Used** although on balance there is more involvement from this group than from the senior consultants and designers

There are also individuals who show very strong contributions in particular areas, standing out in relation to the rest of their team and other teams Speaker M in Team One strong in **Confirming** (Diagram 5.12), Speaker Al in Team Two in **Rejecting** (Diagram 5.16). Speakers D and L in Teams One and Two respectively both in **Moving their Teams On** (Diagrams 5.13 and 5.17) and Speaker Jn in Team Three in **Seeking Confirmation** (Diagram 5.20).

What is beginning to emerge is two groupings of team members defined by role and experience who reveal similar patterns of knowledge developing behaviour across all the teams. The implications of these patterns will be taken up in the next chapter.

5.3 Content Analysis

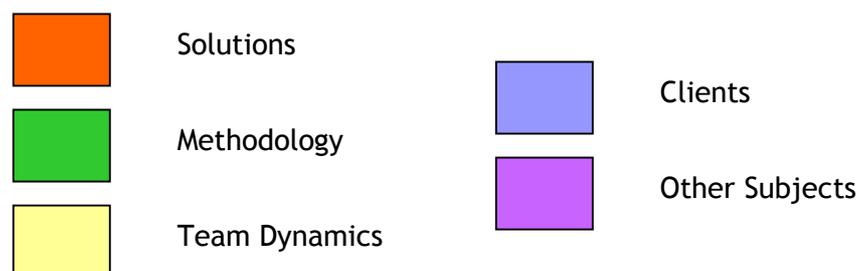
5.3.1 Topic analysis

I now move away from examining the nature of individual team member contributions to analysing the nature and development of

the content of discussions in the three teams. As already described in Chapter 3 on Methodology to aid this analysis I have initially analysed the structure of the content by identifying and coding main themes which I have called *topics* and then broken these down into sub-themes called *topic units*. We begin this section with an examination of the *topics*, describing briefly the nature of each and how they compare across the teams. We shall then turn our attention to the *topic units*. In the final part of this examination of content we shall look at how *topics* and *topic units* help to demonstrate knowledge development in the teams.

Five *topics* were identified as distinct major themes. These have already been identified through the names given to them, in Chapter 3, namely **Solutions, Methodology or Approaches, Team Dynamics, Clients, Other Subjects**. Diagrams 5.22 to 5.24 below compare the amount of discussion taken up by each of these topics in each team. Comparisons have been made by identifying the number of occasions each Topic is raised in discussion (i.e. the number of contributions) and expressing this as a percentage of the total contributions made in the life of that Team.

Key to Diagrams 5.22 to 5.24 Teams Discussions by Topics



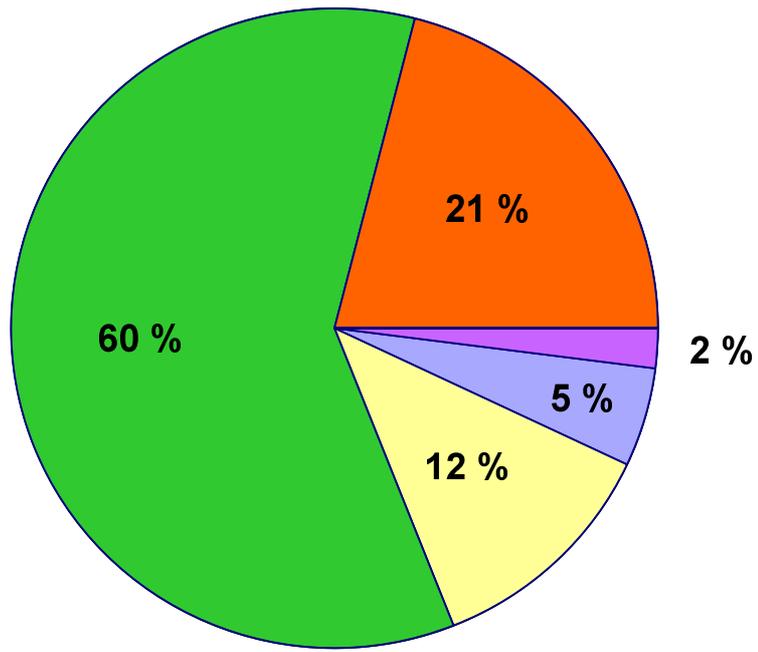


Diagram 5.22 Time Devoted to Topics in Team One

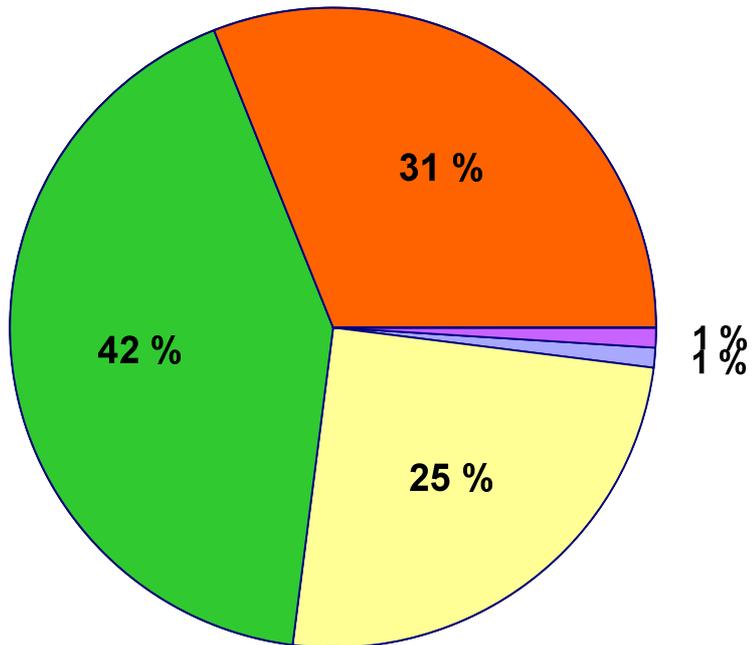


Diagram 5.23 Time Devoted to Topics in Team Two

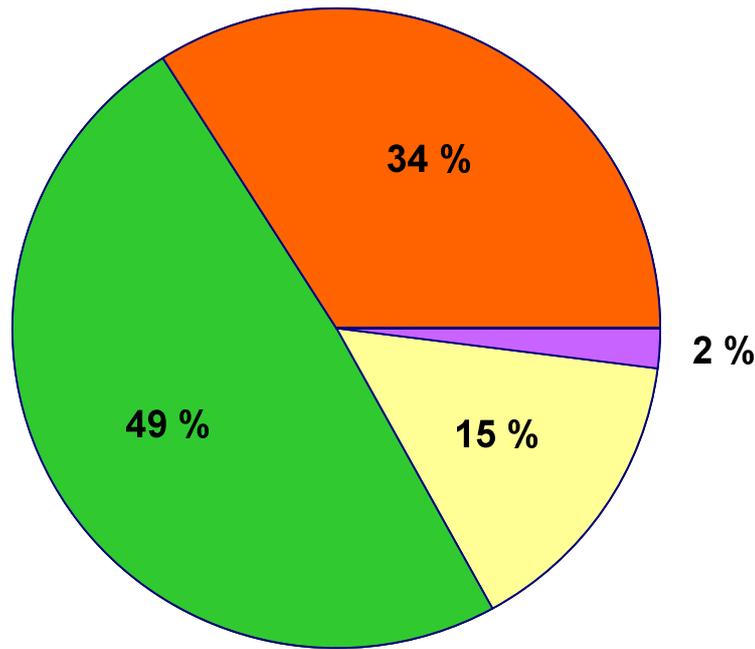


Diagram 5.24 Time Devoted to Topics in Team Three

The **Solutions** *topic* consists of all the discussion connected directly with solving the problems posed by the teams' clients. A mix of ideas, views, interpreted data from field work, descriptions, beliefs, examples, arguments all related to finding a solution. The solution is the knowledge being bought by the client and the development of the solution is the development of saleable knowledge. The three problems all involved identifying a way of branding and marketing places. Team One had the task of creating a brand for a new entertainment centre to be located in London which Fox King's clients wanted to gain international reputation. Teams Two and Three had the job of suggesting a way of revitalising existing towns in different parts of the country by identifying new ways of marketing old assets or suggesting new assets that would form natural magnets for regeneration.

The **Methodology** *topic* includes discussion about the language and terminology to be used, the roles different members in the groups should play in relating to and communicating with the client, and the nature of the presentation that would be used to communicate the teams' solutions back to the client. It occupies 60% of Team One's discussion - three times greater than discussions of the **Solution**. Teams Two and Three reveal markedly less dominance over **Solution** discussions (see Diagrams 5.22 to 5.24).

The third *topic* common to all three teams is that of **Team Dynamics** where teams discussed their own functioning and dysfunction. It includes discussing the difficulty in making decisions, the frustration of circular arguments, and people's feelings over the behaviour of other members of the team. Although it only takes up 12% in Team One and 15% in Team Three it was more dominant in Team Two reaching 25%.

The fourth Topic, **The Client**, is only discussed in Teams One and Two, representing 5% and 1% of contributions respectively. These discussions involved talking about what the client was like, how they saw the issue or problem, their motivations and how they might react to different solutions.

The final *topic*, which was simply labelled **Other Subjects**, represents all the remaining minor topics which did not relate to the Teams' work or functioning. These never accounted for more than

2% of contributions in any team and ranged from jokes to asides about other projects that individual members were involved in and from calls for tea or lunch breaks to discussions about the weekend's activities. All interchanges involving these minor topics were very short usually only occurring once and occupying no more than a few words or a couple of sentences.

It was decided that for the purpose of this analysis of content three of the five *topics* described above would be analysed in more detail in order to look for evidence and patterns of knowledge development and learning. **Solutions**, **Methodology** and **Team Dynamics** all occupied significant amounts of each team's time and involved significant team member interchanges to provide evidence of development within the discussion. They also all played a clear part in helping the group towards the development of 'saleable' knowledge. The Other Subjects Topic is discussed briefly later in this chapter but it was decided not to pursue any detailed study of the Client Topic because of its relatively minor nature and the difficulty of identifying any clear development in the discussion.

The topic units provide a more detailed picture of the discussions revealing more of the complexity of the development of knowledge in these three areas.

5.3.2 Topic unit analysis

A record of the coded *units* identified in each *topic* is provided in full in the tables in Appendix G. These tables show the breakdown of *units* for each *topic* in each of the three teams. Each *unit* is coded

and named in relation to the subject content of that *unit*. An example of this can be found by looking at the **Solution** *topic* in Team One which contains a *unit* coded **Centre - Film**. This *topic unit* includes all contributions that help to develop thinking about the relationship between the client's new centre and the films they produce. Another example in the **Methodology/Approach** *topic* in Team Two contains a *unit* coded **Presentation** which includes all contributions that develop the theme of how the solution should be presented back to the client. In Team Three the **Team Dynamics** there is a *unit* coded **Leadership** which represents all contributions to discussions around the experiences of leadership within Team Three during this project.

Each *unit* is further analysed in terms of size measured by the number of contributions (see Chapter 3 'Methodology, Context and Procedures' page 44 for a definition of *contribution*). *Units* are then ordered, under each *topic* by size with the largest *units* at the top of the table. The smallest *units* are further differentiated by using purple type face.

Within each *topic unit* further analysis of the size of *contributions* has been carried out showing three levels of *contribution* size:

- One line *contributions* - which represented the shortest form of *contribution*, anything from one word to a sentence and represented a simple response to someone else's *contribution* or presented a new idea with no explanation or justification

- Medium sized *contributions* of over eight lines of transcription and where an idea or response was developed with explanation or justification

- Long *contributions* of over twenty lines of transcription that consisted of complex presentations of ideas with justifications and exploration. This corresponds with the extended *contribution* described earlier in this chapter when discussing the analysis of types of contributions (Section 5.1.4 above).

It is important to note that the transcription line numbers used to differentiate between medium and long *contributions* is to a large extent arbitrary and is based on sample examination of the two types of *contribution*, one in which a single idea or response is offered and explained and one in which two or more ideas are offered with fuller justification or explanation. These types of *contribution* were then related to the size of *contribution* identified as lines of transcription.

Turning now to look at the *units* within each *topic* we find that the **Solutions** *topic* breaks down into between eighteen and twenty *topic units* across all three teams (see complete list in Appendix H). Of these only one to three units dominate the discussion. In Teams One and Three one theme dominates in each team - **Centre Films** in Team One and **Good Living** in Team Two. In team two there are three dominant *units* - **Brand Values**, **Activity Attractions** and **Who**

are the Customers? These have been identified as core units and are discussed further in the next section of this chapter

The **Solutions** *topics* in each of the three teams were also composed of a number of very small *units* ranging from twelve *contributions* down to a single *contribution*. These *units* showed little or no signs of knowledge development instead they consisted of unconnected contributions around a common theme, or repeated contributions around the theme or a single comment or question, or a viewpoint that was not developed further. In the tables In Appendix H these minor *units* are printed in purple to distinguish them from those *units* in which knowledge developed over the life of the team

Analysis of the **Methodology/Approach** *topic* demonstrates similar results for all three teams with a small number of dominant or core *units* and a number of minor *units* in which knowledge development could not be detected. The total number of *units* for this *topic* ranged from seventeen in Team One to twenty three in Team Two.

In all three teams two *units* appear to dominate. The first of these is dominant in all three teams, namely **The Presentation**. The second is different for each team - **Our role** in Team One, **Tackling Task 2** in Team Two, and **Deciding on data needed** in Team Three.

The **Team Dynamics** *topic* shows more variation across the teams than the other main *topics*. In Team One the topic is made up of fourteen *units* of which ten are minor in nature. Three of the

remaining four *units* in which there is evidence of knowledge development all consist of between sixty and sixty-eight *contributions*. Team One occupies less time exploring **Team Dynamics** than the other two teams.

In Team Two the same number of *units*, fourteen, consists of only one minor *unit* and two more dominant *units* - **Learning Tips** and **Defining Turning Points**.

In Team Three this *topic* consists of twenty-six *units* of which exactly half are minor and two, **Leadership** and **Decision making** dominate.

The *Clients* *topic* is only discussed in Teams One and Two with more *contributions* in Team One which were categorised into seventeen *units* of which only five showed signs of knowledge development. In Team Two there were only five *units* of which only one showed signs of development.

The *Other Subjects* *topic* was most diverse in Team three with twelve *units* of which four showed some sign of knowledge development. Teams One and Two had seven and five *units* respectively. Each *unit* in this *topic* was discrete and did not, in general relate to the subjects discussed in the other *units*. This *topic* corresponds to the **Unconnected** category identified in the analysis of *contributions* (see Section 5.1.3 above). The *units* covered a wide range of subjects - buying books, jokes, websites, Swedish proverbs,

the Royal Family, the weather, holidays, refreshments, wine, being drunk, umbrellas, living in London, and hobbies.

The analysis of the content of team discussions included the categorisation of the length of *contributions* within each *unit*. This analysis is shown in the tables of *units* provided in Appendix G.

In Team One the *units* in the *Solutions* topic show the greatest number of medium-to-long *contributions* with almost 20% of all contributions in that *unit* consisting of eight lines or more and only 35% made up of one line *contributions*. In the same Team, medium-to-long *contributions* amount to 7% of all *contributions* in that *unit*.

Teams Two and Three have far fewer medium and long *contributions* and of these Team Two also has a high proportion of one line *contributions*.

5.4 Content Development; Themes and Patterns

Having examined the data within content development we now turn to the patterns and themes that emerge both within team discussions and between teams when comparing *topics* and *units*.

5.4.1 Topics

In the same way that *contribution* patterns show strong similarities across the three teams so do the *topics* that formed the content of discussion and the amount of time given to each.

The **Solution** *topic* does not dominate any teams' discussion. In fact it takes second place in every case (see Diagrams 5.22 to 5.24 above). Of the three teams it is Team Three that spends most time focused on the **Solution** and this amounts to twice the amount of time spent by Team One. This may appear strange as this *topic* represents the knowledge being developed to 'sell' to the client.

It is **Methodology** that actually dominates team discussion. This includes discussions about how to obtain and use information as well as how to communicate this to the client.

The third most prominent *topic* may also appear unusual. The **Team Dynamics** *topic* reflects time given to discussion of the team itself. In Team Two this occupied almost as much time as discussion of the **Solution**.

5.4.2 Core units

One pattern that exists within the *unit* structure in all three teams is that the **Solutions** and **Methodology/Approach** *topics* have a small number of *units* that represent the core of knowledge development in those areas. This is also true for the **Team Dynamics** *topic* in Teams Two and Three. The discussions represented by these larger *units* started, ceased as other ideas were taken up and then reappeared a number of times during the life of the team forming a continuing 'weave' running through the Teams' activities. When the theme was returned to it might be to reiterate something mentioned earlier or to add to something mentioned earlier or it might appear

to have no apparent link to discussions that had already taken place on this theme. Table 5.25 below shows the core units in all three teams:

Team	Core Solution Units	Core Methodology Units	Core Team Dynamics Units
Team 1	Centre-Film (43%)	The presentation (35%) Our role (16%)	
Team 2	Brand values (21%) Activity attractions (17%) Who are the customers? (14%)	Tackling task 2 (21%) The presentation (16%)	Learning tips (25%) Defining turning points (17%)
Team 3	Good Living (31%)	The presentation (32%) Deciding on data needed (21%)	Leadership (24%) Decision-making (20%)

Table 5.25 Core Units in all Teams (% of total contributions for all units in that Topic)

5.4.3 Common content

Common content can be identified across the three teams. In the **Solutions topic**, where the content of *contributions* might be expected to differ because they address different problems, there were two similar categories of content:

1. Branding - the language and concepts of branding are apparent in all three teams. In Team One four specific *units* had a brand focus, **Brand Structure**, **Brand Code**, **Personality**, and **Ambition**.

An example from Team One is given below:

Do we need to have a sub-structure, a sub-branding structure, you know slight variations in what the

brand's about for the exhibition spaces, the restaurant, or is it one brand fits all?

[Team 1/Solution/Brand Structure, Section 78]

Similarly in Team Two the most dominant *unit* is on **Brand Values** with branding also featuring in a second *unit* coded as **Who are the Customers?** The dialogue below is taken from Team Two:

So positioning³ is 'the number one choice'?

It's 'the first choice'.

No, 'one choice 'unmissable' perhaps.

'Unmissable' would be closer to a position statement

[Team 2/Solution/Brand Values, Section 133-137]

In Team Three branding is integrated into a number of units and is less explicit in that branding terminology is less apparent. The key brand focused *units* are - **Good Living, Amenities and Facilities, How the Town Feels:**

Good living ... I like it ... it's the big idea.⁴

[Team 3/Solution/Good living, Section 566]

2. Reference to other examples - reference is made to other projects, examples, and solutions as a way of drawing comparisons, or in order to make a point:

The other point that we talk about when we are talking to our clients is about owning the idea.

³ *Positioning* is a technical term used in creating brands for businesses

⁴ *Big idea* is a technical term used in creating brands for businesses

Everybody uses this phrase ‘I’m hoovering the lounge, the carpet’ or whatever else and the point is that Hoover had this tremendous positioning where they owned the verb, they owned the whole idea of vacuum cleaning carpets but they got complacent, maybe a bit arrogant and they lost the plot. People were then saying, ‘I Hoover the lounge’ with Dyson

[Team 1/Solution/Personality, Section 22]

I’m just getting my head round why it wouldn’t be a dot com type thing

This is a valid point. Ryanair change their name to Ryanair dot com

[Team 3/Solution/Brand Values, Section 158-159]

And from Team Three:

Orange has a simple clear idea about hope in the future and Orange being part of that. We need a big idea at the centre

[Team 3/ Solution/Living geography, Section 324]

The **Methodology/Approach** *topics* explore two aspects of methodology. The first is concerned with ways of collecting, analysing and interpreting the data and the second is focused on the best way of communicating the solution to the client. There is a great deal in common across the three teams in both of these areas:

1. Preparing the Presentation - in terms of number of contributions this area of discussion and knowledge development is dominant in this *topic* in all teams (35% in Team One, 21% in Team Two and 32% in Team Three). It involves discussion about the contents of the presentation and the mode of delivery and incorporates discussion as to the most effective way of gaining support for the solution from the client. There are similar discussions over wording, the images and examples to use to support the argument and ways of ordering the material or sequencing the explanations and rationales:

I don't know if we should put John Utram into this presentation

But it's nice to have anecdotes to throw in because again it says we know ... we know the market place

[Team 1/Methodology/The presentation, Section 190]

.... So we go 'this is what we found' and 'this is what we decided to leave behind' And 'this is what we build on, which we call personality'

[Team 2/Methodology/The presentation, Section 273]

Use the word 'Good living' I think 'Living geography' is weaker ... it will mean more explanation. We can include ... use good visuals on that.

[Team 3/Method/The presentation, Section 129]

2. Branding methodology. As well as the use of Brand concepts and language to help develop the **Solutions** mentioned above, there is also discussion in all teams about the method of branding. This is associated with the methodology adopted within Fox King the company for whom all the team members worked and on occasions is referred to as 'the FK way'. In Team One these discussions are represented in the **Branding** and the **FK Process units**; in Team Two by the **Branding, The FK Way**, and the **Big Idea units** and in Team Three by **Define the Idea** and the **Branding units**:

And our perspective is it's ideas that actually drive leaders and inspire and engage people. So FK if you like is all about big ideas but it's about making sure that those big ideas are clearly communicated. But it's also about creating compelling stories that get people really engaged.

[Team 1/Methodology/FK process, Section 19]

Can you explain to me what a position statement is?

.... I don't think I even know what it means.

It's a value You know 'the number one global choice in technology'

It's not a tag line?

Passard's positioning statement is that it is 'for individuals'

So it's something about who it's for

Basically it's about ... 'where do you want to be'

It's your place ... where you are in the market.

[Team 2 /Method/Branding, Sections 67-98]

The big idea is the core around which all else collects
Yeh. The centre of the circle around which we need
to identify comcommunications and
behaviour

[Team 3/Methodology/Define the idea, Section 12]

3. Organising the task. A number of *units* in all teams focus on discussion about how they should organise themselves to get their work done or how they should prioritise the discussion. These discussions vary in focus and emphasis between the teams. In Team One *units* include discussion about allocating what tasks should be allocated to individuals and which require the team to work together (**Our Role and The Team units**); the methods to be used in collecting data (**Our Methods**) and issues of the timing of the work and where it should be carried out (**Time and Place**):

First we start with the research phase it's not the brand. This is all about research - how we find out who the stakeholders are, what the relationship is about what about competitors

[Team 1/methodology/Our methods, Section 40]

Team Two also discusses how people are organised to do the work (**Who does what and Together or Groups**). The logistics of 'what needs to happen and when' is discussed in four different

units - Tackling Task 2, Task 1 vs Task 2, How do we start? and How do we reach a conclusion?. Methods of collecting data and overall issues to do with timing are covered in two smaller *units* -

Talking to People and Timing:

This is just my feeling that we should split into two groups

[Team 2/Methodology/Together or Groups, Section 398]

In Team Three organising the work is represented by eight *units* - logistics (**Structuring Work, Deciding where to go, and Transport needs**), methods (**Deciding on data needed , Need for focus, and Need for brainstorming**), timing of the whole project (**Timing'**) and finally the value of working together or in subgroups (**Together vs. sub groups**):

If we get transport for this afternoon do we all need to go?

Could we split into two teams so that one stay and work through the desk research and the other does interviews ... we missed

..... and to work on the second bit of the task....

[Team 3/Methodology/Structuring work, Section 47-49]

4. Methods and approaches used in other projects.

In the same way that reference is made to outside examples in *units* within the **Solution topics** so in all the discussions about **Methodology and Approaches** reference is also made to the

ways things were done on other projects. In Teams One and Two this is identified with a separate *unit* coded **Other projects** and in Team Three this discussion is part of the *unit* coded **Deciding on data needed**:

We've got proposals that we've done that might be similar. The proposal we did for Disney. And then there's the proposal we did for Playboy.

[Team 1/Methodology/Other Projects, Section 114]

I think it's quite interesting the way when I collected stories for how they branded Hull. Our project is getting rid of the shackles of quaintness and theirs was all about Hull had no sense of pride

[Team 2/Methodology/Other projects, Section 103]

What other locations have we done apart from Great Britain?

We did the Sweden project and the Hull project. Both needed work on geographical distinctives and attractors.

[Team 3/Methodology/Deciding on the data needed, Section 49]

5. Modes of communication - refers to how the solution should be communicated including the medium to be used, special

emphases and the tone of voice to be used. In Team One this is represented by **The Pitch, Positioning, Partnerships and How we need to be:**

I think we need to go in and position ourselves as strategic partners We take a positive stance and say 'look we'll be objective, we'll challenge you because that's what we believe our role is

[Team 1/Methodology/Partnerships, Section 19]

In Team Two it is found in **Reinterpret and Challenge, How we communicate, Video Diary and Wording:**

Could we do a video diary?

I rather like the video idea. Could we set it up here?

[Team 2/Methodology/Video Diary, Section 163 & 167]

In Team Three it is represented by **Video and Recording, Reframing the task, What questions to ask, Identifying key words, and Recommendations:**

If we emphasise 'Living' we can develop it in a few other ways around quality nature of benefits etc.

That can be a sort of tone of voice thing - you know communicating pace or luxury or aspiration

[Team 3/Methodology/Identifying key words, Section 231-232]

The *Team Dynamics* topic contains a range of *units* that have some commonality across teams but also show distinct differences as they represent discussion of issues about the functioning of the team and the individuals within it.

1. Leadership within the team is an issue that has some prominence in Team One (**Doing Presentations**) and Team Three (**Leadership**) where it forms the main *unit* within this *topic*. It also features, but less prominently, in Team Two (**Leadership/Facilitation**). Most of the discussions focused on the lack of leadership or of clarifying who was responsible at particular points in the meeting:

Who is taking charge of the presentation?

N will make the presentation with D

How was that decided?

Well they're recognised as the senior players by the client.

[Team 1/Team Dynamics/Doing Presentation, Section 143-146]

I think someone should decide ... we need leadership!

[Team 2/Team Dynamics/Leadership and Facilitation, Section 364]

I think what really concerns me is to think that we're all in the same position, I feel there is a real lack of anyone feeling that they've got authority. Nobody

should be taking the lead but at the same time you shouldn't be frightened of being more decisive because you're frightened of what people are going to think that you haven't got authority

[Team 3/Team Dynamics/Leadership, Section 220]

2. Decision-making and communication are also team processes that are discussed in all three teams. Again this is usually in relation to poor decision-making and communication. In Team One these are represented by *units* coded **Cross purposes** and **Being clear**:

We're talking at cross purposes though aren't we?
Because we need to define an idea.

I appreciate that we are slightly at cross purposes because when you use words to describe the idea that's the core of it, ultimately the idea has got to be manifest in the space.

[Team 1/Team Dynamics/Cross Purposes, Sections 156 & 166]

In Team Two this discussion is pursued in the *units* coded

Decision-making and Not listening/taking seriously:

And now that we are talking about it can I say something about the decision-making process. I think that the reason we are all concerned and taking a long time, because we are all going round in circles

.... is because we are trying to consider everyone here.

[Team 2/Team Dynamics/Decision-making,
Section 318]

In Team Three it is recorded in **Open communications, Listen more, Going off track and Honesty:**

I think there has been good open communication in this group. We have been pretty clear with each other even when there have been fundamental differences .. when we've seen things differently. I don't think anyone has been afraid of saying what was on their mind.

[Team 3/Team Dynamics/Open communications,
Section 26]

3. The way individuals fulfilled particular roles, either in relation to their professional backgrounds or their experience or personal preferences, is taken up in a number of ways - **Individual functions** (Team One), **Roles and Relaxing/Being light-hearted** (Team Two) and **Need to understand team roles and Uses of peoples' specialisms** (Team Three):

We've thought quite carefully about why we should be here so I think it is to our advantage to explain a bit about ourselves, what we do, our roles.

[Team 1/Team Dynamics/Individual functions,
Section 481]

Maybe after concluding our first task now is the time to just allocate responsibilities. Maybe we should have done that at the beginning.

OK what roles are we taking on?

[Team 2/Team Dynamics/Roles, Section 326-327]

I think you have been the initiator coming up with ideas and starting discussion and R has been more of a doing bod, wanting to get out there to collect stuff.

[Team 3/Team Dynamics/Uses of Peoples' Specialisms, Section 561]

4. Reflections on, and reactions to, features of behaviour in individuals also can be found in all three teams with different issues being raised in each team. In Team One *units* cover **Challenge, Being subversive and Being late**. In Team Two there is **Speculation/expectation, Reaction/responses, Feelings and Splitting hairs** and in Team Three **Impatience/frustration, Too polite, Spontaneous, Going off track, and Punctuality**:

I think it's worth being subversive I think this project is all about being subversive Doing something unfamiliar that they haven't done before.

[Team 1/Team Dynamics/Being Subversive, Section 362-363]

We're being very polite with one another because we don't know one another very well. What everyone has to say we are giving equal weight to.

[Team 2/Team Dynamics/Reaction/Responses, Section 315]

Polite is what I would describe it ... we have haven't we been too polite accepting what everyone says.

[Team 3/Team Dynamics/Too polite, Section 4]

5. The **Team work unit** in Team One, **Team involvement in the next meeting unit** in Team Two and **Team vs. task, Team passion and Team members neglected units** all in Team Three form a common element of discussion around the functioning of the team as a whole:

We have a meeting later in the week.

Actually I'm not there that week.

Really.

Cos we're on holiday next week.

But we're a team in this together!

[Team 1/Team Dynamics/Team Involvement in next meeting, Section 174-179]

I don't think there is an ideal team thing that works and that's something I shall take away from here.

[Team 2/Team Dynamics/Teamwork, Section 942]

Can we retain our sense of team if we split into two groups?

We need to do that to get the job done otherwise we just haven't got the time.

[Team 3/Team Dynamics/Team vs Task, Section 441]

As well as common themes within the **Methodology/Approach** *topic* there were also discussions that were unique to the experiences of particular teams. In Team Two time was spent examining the lack of structure in achieving the task (see **Lack of structure**) and in Team Three there two important *units* within this *topic* (important in terms of the number of *contributions*), focussed on the lessons the group had learnt as a result of working together (see **Learning Tip** and **Defining Turning points**)

In the **Client** *topic units* in Teams One and Two (the only teams to feature this *topic*) there are two common themes namely: how the client is to be approached (coded **How to approach them** in both teams); and speculation about the clients beliefs, knowledge and possible reaction to the solution (see Team One - **Expectations of Fox King's, Knowledge of Bond Character, Ability to Change** and **They are relaxed** and in Team Two - **Their Brief** and **Knowledge of the wider industry**):

I think that's speculation. I think what he could be asking us to challenge is the specific idea he came up with rather than the overall concept.

[Team 1/Client/Expectations of FK, Section 154]

They will know about the competition ... down here anyway. Do we state the obvious?

[Team 2/Client/Knowledge of the Wider Industry, Section 1493]

Team One also focused some discussion on particular individuals in the client team, attempting to interpret their behaviour and motivations (see **The Old Bloke** and **Understanding Ian**).

Finally in the **Other Subjects** *topic* a wide variety of discussions are exhibited across the teams most of which are brief and many involving six or less short *contributions*. It is possible to gather the *units* around six main types - Taking breaks (see **Taking breaks** in Team Two and **Tea break** in Team Three); Social icebreaking (**Feel of place** in Team One, **The Weather** in Team Two and **Umbrellas** Team Three); Personal stories (**Holidays** in Team Two, **Being drunk** and **Wedding Team** in Team Three); Personal interests (**Going to museums** in Team One and **Wine** in Team Three); Humour (**Swedish sayings** in Team One, **The Royal Family** in Team Two and **Humour** in Team Three). The final category was subjects that emanated from *units* in other *topics*. These *contributions* were made in response to past contributions that actually were tangential to the original contribution - as if one idea sparked off another that to the listener seemed completely unrelated (see **Gripe Websites** and **Take over** in Team One and **The ability to draw** , **Creativity** and **Living in London** in Team Three).

5.4.4 Unit sources and origins

In developing an understanding of the way knowledge develops and learning occurs in the team work the first area of analysis focuses on the sources or origins of *units*, in other words how the ideas in *units* were initiated. The following starting points were identified. They are examined in order of occurrence with the most prevalent first. All the origins identified below were present in each team and no team could be said to have a preference for a particular source, in contrast to the others.

1. Originating from within other *units*. This was the most prevalent source of new *units*. Some of the units that acted as catalysts for the development of new *units* were in the same *topic*. An example can be found in Team One the *topic unit* within **Solution** coded **Real World** developed out of discussions about the relationship between the proposed new centre and the cinema film and character on which it was to be based (the *unit* coded **Centre-Film**). A long discussion about the nature of the character in the film and the importance of understanding the film in order to define the centre led to this comment from one team member:

I think this is to make 'Bond film' into 'Bond real world' because I think it's a bit different - film and real world.

[Team 1/Solution/Centre-Film, Section 263]

This led to a fuller discussion about the relationship of the new project to the films:

It's a slightly different role to celebrating Bond there is almost a dual role.

It's the story of Bond rather than the experience of Bond.

The way I see it you are trying to put people in the position of experiencing the story but not experiencing the movies.

[Team 1/Solution/Real World, Sections 6, 12 &18]

At other times the originating *unit* was within a different *topic*. In Team Two the **Presentation unit** from the **Methodology topic**, which involves discussing the most important messages to communicate to the client included one contribution about messages from the team's own learning:

OK. Can we not over analyse every point. The point is do we want to go through all this now and distil stuff that we are going to put down into a presentation. Would it be more beneficial to think about key points in the project, turning points for us ... we could start off thinking about our own flashpoints and see what that sort of edge that might provide for the presentation.

[Team 2/Methodology/The Presentation, Section 172]

This led to the initiation of **Turning Points**, a *unit* in the **Team Dynamics topic** which went on to identify specific learning of

team members on the project. It opened with a team member referring back to the previous discussion, something that had remained in his memory:

What I thought was quite good was 'flashpoints' in this team. There were very specific ups and there were very specific downs.

[Team 2/Team Dynamics/Turning Points, Section 524]

At times the new *unit* was initiated without a break with the same speaker or a new speaker developing a new line of thinking and discussion directly out of the previous line of thinking and discussion. At other times there would be a delay before the new idea was introduced with the speaker referring back to a past *unit* of discussion, sometimes with reference to the visible record on the flipchart or power point.

2. Originating from personal statements made by individuals. These include comments, views, questions, problem formulations and other statements from individuals and they formed the second most prevalent source. These appeared to have no clear links with other *units* but emanated from within individuals, from their own reasoning processes, their own beliefs or questions posed around issues or problems that the individual perceived.

The unit, **FK attitude to 3D** opens with a question from a team member in Team One and leads to a short discussion of this issue:

I suppose another question for that as well is what is the ambition of 3D in Fox King? Because I'm not clear about what the ambition is.

[Team 1/Team Dynamics/FK Attitude to 3D, Section 17]

In Team 3 the **Too Polite** *unit* came from the observations of one individual regarding the way the group was working and led to a full discussion of the effect of this on the groups work:

I think we've been very polite with each other and there hasn't been that level of disagreement that that is creative pushes us to think more. Agreeing all the time, only E got shirty with me when I tried

[Team 3/Team Dynamics/Too Polite, Section 76]

3. Originating from other projects. This was where a unit was initiated out of ideas, comparisons and questions stimulated by the experiences individual team members had had on other projects. Projects that stimulated new lines of thinking and discussion included those of a similar nature to the one currently being tackled by the team or something fundamentally different in terms of the solution being sought but nevertheless providing some useful insight into the current project:

We've got proposals that we've done that might be similar. The proposal that we did for Disney

Team 1/Methodology/Other projects, Section 114]

With Sweden we asked questions in a sort of hierarchy from detailed and specific that people found easy to answer to big picture questions that once they were confident they had a go at. It worked OK.

[Team 3/Methodology/What Questions to Ask, Section 332]

4. Originating from general knowledge or experience. Team members drew, to a lesser extent, on their own personal knowledge or experience that was unrelated to other project work and used this to initiate new lines of thinking and discussion. The *Perception unit* within the *Solution topic* in Team One is initiated by one team member's memory of pictures featured in the Guardian newspaper some years before:

..... you see a skinhead running towards you and you automatically think that this is trouble, you know because it was in the time when there were a lot of football hooligans, and then the camera angle changes, you see them from behind and see him wrestling with a guy in a suit and you say 'I was right, here he is about to give the guy a good kicking. It's not until you see the final angle which shows the proper perspective, you realise that what is actually happening is that this guy has run down the street to pull the business man out of the way of a pile of falling bricks

[Team 1/Solution/Perception, Section 22]

This leads the team into a relatively short and quite intense discussion of the importance of people's perceptions when they come to the new centre and how the design needs to create the perceptions that the founders want.

5. Originating from work outside the team time. Team members indicated on a few occasions that they had been working on the problem outside the team meetings. By bringing the results of this thinking back into the team session they initiated new lines of thinking and discussion. The first example below is the opening statement of the **Brand Code** *unit* in Team 1 and the second illustrates two team members working together on the issue outside the team time:

I did some thinking (outside the group time) about what the brand was.....

[Team 1/Solution/Brand Code, Section 34)

We think we've cracked the big idea

[Team 2/Methodology/The Big Idea, Section 53]

Evidence for this work beyond the formal team meetings could only be collected when direct reference was made to it in the team time. This however was relatively rare. There may have been many more occasions when initiation was the result of work outside.

6. Originating from group interaction. Of all seven means of initiating *units* this was the least evident or the least easy to identify. It involved the creation of new *units* as a result of group interaction where one or more ideas came together to produce something new.

The **Being Thorough** *unit* (Team One/Client Behaviour) begins with a discussion about the client's comments at an initial meeting. One team member talks about how much thinking the client had done and another team member translates this into thoroughness which is then pursued by the whole group into a discussion of the implications of this to their work.

In Team Two a new discussion about being modern and rooted in the twenty-first century leads into a focus on creating a website (see Team Two/Solution/Website).

In Team Three the **Good Living** *unit* began with a discussion about how to make the place attractive to tourists and residents alike (Team Three/Solution/Good Living)

In summary it can be said that the great majority of units were initiated by individuals within the team meetings. Some new ideas and lines of discussion come from outside the team meetings. Ideas that emanate from true team interaction seem to represent the smallest category of forms of origination.

5.4.5 Responses, reactions and the emotions

Responsive interchanges between team members provided the continuity between contributors that aided or halted the development of knowledge within the teams. The main forms of response to others' ideas were:

Confirmation

Disconfirmation

Rejection

Challenge

Questioning

Ignoring

Some reference has already been made to a number of these forms in the analysis of types of *contributions* identified earlier in this chapter - for **Confirmation** see pages 183-184 above; for **Rejection** see pages 183-184 above; and for **Questioning** see pages 180ff above. In this section I will look at the types of response not explored earlier in the chapter together with the impact of disrupted contributions and emotional responses.

1. **Disconfirmation** represented a reasoned and detailed form of rejection of an idea presented by one individual usually involving a more complex discourse and is distinct from a simple rejection or a rejection with a simple, supporting justification attached. Another characteristic of disconfirmation is the apparent absence of any strong emotional component to the interchange. It formed

a phenomenon evident, on a number of occasions, in Team One's discussion but absent from Teams Two and Three.

In one instance in Team One an idea was introduced and developed by the junior consultant on the team. She argued that the new centre would be like a theme park with rides and games derived from Hollywood feature films which would enable visitors to derive entertainment through reliving familiar scenes. The senior consultant, later supported by the senior designer, dismantled this idea on the basis that it was not original, nor in line with the vision of the client. They argued for a more 'sophisticated' solution that enabled people to spend time living like the character in the film with themed restaurants, shops selling related goods and services, a branded credit card, opportunities to test drive the film characters' cars and a champagne-serving cinema where the Hollywood films were continually being re-shown. This was, to them, a means of working on visitors' aspirations.

This interchange had an important effect on the final solution where the need for 'real world' experiences as against 'vicarious entertainment' became the dominating theme. The very act of disconfirmation seemed to help clarify an important component of the solution.

2. **Challenges** involved a shorter, less reasoned form of response to others' contributions that often came in the form of a question

or a statement of a contrary viewpoint. These were communicated as much through the tone of voice as through the words articulated. A challenge usually represented a contrary viewpoint or interpretation of the data that the team possessed. There were times when the challenges lead to a change in direction:

The residents are on the whole happy with the visitors. There seems to be an acceptance that they are an important part of the economy.

The residents I interviewed were far from happy they feel seasonal visitors keep the economy unstable The reason the bigger shops have closed is because they can't sustain it through the winter.

[Team 3/Solution/New Residents vs. Tourists, Section 54]

In the example above the challenge lead to a generally accepted view that the two groups of stakeholders lived more in tension than harmony.

At other times the challenge went unheeded. As in this example of an energetically posed question which was then debated and finally dropped:

Wasn't the craft thing peripheral to the main?

[Team 3/Solution/Art & Craft Section 102]

3. A powerful form of rejection of ideas was by **ignoring** them. There are numerous examples in all teams where an idea elicited no response and it was never raised again.

In Team One that was true of the metaphor of the **machine**, the **triangle of love** concept, using dreams, **using stories** in the presentation, the idea of '**client schizophrenia**', taking account of **big egos**, and the value of **hypersurfaces**. In Team Two ideas that were ignored included: allowing for **coach parties**, communicating the **feel of the place**, visiting other towns, reversing roles, and having reflection time. Team Three ignored: **setting up a university**, pursuing **wealth**, discovering **the heart**, doing something about **neglected team members**, and the value of **resistance**. Many of these (indicated with the use of bold type) were coded as distinct minor units (See Appendix G).

There is no clear indication within the observed interactions as to why ideas were ignored.

4. There were also occasions in all teams when ideas and thoughts were poorly articulated and incomplete. This phenomenon has been already been identified and briefly discussed in the analysis of *contributions* recorded earlier in this chapter (see page 192). In viewing the same phenomenon from the perspective of knowledge development a more detailed pattern emerges. Because some ideas were incompletely expressed it cannot be

stated with any certainty that these were lost to the group as they may have been raised again at a later stage.

There were also times when other team members were able to complete the incomplete communication or gain meaning from these fractured, poorly expressed or interrupted verbal contributions:

We need to include bigger more monumental the presentation needs its missing we must

Yes we need a case study of a significant architectural project, something that will prove a good cred.

[Team 1 Methodology/The Presentation/Section 79]

Finally in this section I would like to turn to the effect of emotional responses which have also been referred to briefly in the section on *contributions* discussed earlier in this chapter (see pp 178-179, 184). These were identified both through the recordings of the team discussion and the researcher's observation notes kept for each team session. Strong emotions were exhibited rarely within the three groups and the following represented the main occurrences of clearly identifiable emotional behaviour in the Teams. Each in some way appeared to influence the process of knowledge development and learning within the teams :

1. Strong enthusiasm - where an idea or view expressed by one person was strongly supported by others. Strongly supported contributions usually involved longer discussions and exploration

of the ideas or views. In the example below it is energetic and enthusiastic support for **Good Living** that helped to establish it as the main element of the final solution replacing the previous idea **Living geography**:

‘Good Living’ is I really like ‘Good Living’ I would much sooner work with that than ‘Living Geography’. Good Living has lots of dimensions to it that we can play with A pleasant environment to live in, good place to stay, health, recreation, interesting, comfort, creative. It’s aspirational which ‘Living geography’ is not

[Team 3/Solution/Good Living Section 12]

2. Anger - was rare in all teams and when it was expressed it usually related to the way the team was operating and never in relation to direct discussion of the **solution**. In Team Two there was a period of very angry debate when one team member decided to be less co-operative:

I might back out of presenting.

You can’t do that because you are used to doing it.

Yes I can because you are doing a good job and I think you should do it.

We defined our roles, you can’t back out of what you agreed to do.

I can.

You were the one who said we were all going to do roles ‘Bang, bang, bang, bang we’ll all do this’ and

then five minutes later it's 'Oh fuck it. I don't want to do that anymore....'

[Team 2/Team Dynamics/Roles Section 344-354]

This team came back to this issue a number of times during their work. The issue was not laid to rest right until the final session. In some ways this the emotional component in this issue caused the group to return to it on a number of occasions and occupied time that could have been devoted to other aspects of knowledge development directly relevant to the needs of their client. On the other hand this incident did enable group members to talk about their perceptions of the team and the way it was working which provided new information and therefore potential knowledge about team functioning.

3. Frustration - again relating less to the **Solutions** *topic* and more to the **Methodology** and **Team Dynamics** topics where frustration over circular arguments and poor decision-making was expressed verbally by team members, particularly in Teams Two and Three:

Can we move on we've We've discussed this round and round We're getting nowhere

[Team 3/Team Dynamics/Decision-making section 445]

As with the expressions of anger this surfacing of feelings did often unblock the team's process and enable it to proceed.

4. Tiredness - expressed both verbally and non-verbally was evident particularly in Teams One and Two towards the end of their projects and affected the work rate of both teams on those occasions.

This will take about five minutes; we're all knackered now on Friday night. I don't know what our perspective will be on Sunday morning.

[Team 2/Team Dynamics/Feelings Section 183]

All the responsive behaviour described above provided an important catalyst for knowledge development encouraging the further exploration of an initial idea or curtailing its development by discouraging further discussion. Strong challenges or limited and 'non-responses' from other team members tended to curtail the development of an idea.

5.4.6 Mechanisms of unit development

A number of processes and mechanisms could be identified at work in knowledge development as represented in the *units*. In this section there are descriptions of seven mechanisms that enabled knowledge development and three that blocked it.

1. Development with additions - here progress was through the addition to the original contribution that initiated the *unit*. The idea remained the same in essence but developed through the accretion of ideas and thinking. This happened through both consecutive contributions (i.e. a single set of interchanges

occurring over a short period of time) and through contributions that represented a return to a previous *unit* separated in time by discussion of other *units* and other *topics*. In the latter cases where development continued across *topics* there was often some reference back to previous discussions either making use of the team members' own memory or the team's record. The additions were, at times, the work of the same individual and in other instances from another team member. Very occasionally they come out of the interactions between team members where a momentum develops and people stimulated each other to continue adding to the original idea.

In Team Two the *unit* on **Activity Attractions** was initiated by a personal observation and question from one team member which was then developed by the rest of the team adding to a list of activities based on the data collected by those members in the field. The *unit* continued with an evaluation of the usefulness of each activity as an attraction to visitors (ref. Team Two/Solution/Activity Attractions).

In Team Three one team member made an observation about the pace of the team's work being too slow (developed from an earlier discussion on **Being Productive**) and developed this with examples from what had happened. This was confirmed with one other team member contributing their own supporting views and examples (ref. Team Three/ Team Dynamics/Pace too Slow).

2. Development through change and transformation - here the original idea that initiated the *unit* was fundamentally changed or transformed through subsequent contributions. Again sometimes these occurred in a single series of uninterrupted interchanges and at other times were separated in time by other *units*. The change could involve the change of a term or word or a change of emphasis, the development of a new set of ideas or concept or through changing the perspective from which the original idea was explored.

In Team One this was illustrated by a debate on the merits of replacing the word 'permanent' with that of 'perpetual', the latter conveying, according to the speaker, more of a sense of dynamism as well as repeated actions and providing a more 'intriguing dimension'. This moved the *unit* on **Centre-Film** into a new area of exploration around how the centre could retain dynamism over a period of time. (ref. Team One/Solution/Centre-Film).

In Team Two the idea of developing a new product to be associated with the town they are developing for the local tourist board in the *unit* on **Activity Attractions** was transformed when another team member provided a different perspective:

I don't know if you've seen ads for Aniston Bay, the South African wine 'I discovered the cool thing dah da a da da da it's really clean, it's really fresh' Aniston is a

fishing village believe it or not and there's pretty much nothing there.

[Team 2/Solution/Activity Attraction, Section176]

As a result the team refocused their thinking on the physical characteristics and away from activities.

In the three teams represented here transformation of ideas was rarely a confrontational process but tended to occur without strong emotional influences - a rational progression in the discussion from one idea to another.

3. Development through concretisation - where abstract ideas are made more concrete through the use of examples, outside instances of the same occurrence, metaphors and symbols. In this way an idea gained more substance and could be more easily grasped by others and by the client. This process often occurred when **Methodology** was being discussed and consideration was given to how the client could be helped to grasp the idea.

In Team One comparisons were made at various stages of the discussion between the new centre and the MGM Film Studios (an example of themed entertainment), the Getty Museum (an outside example of experiencing objects in their context), American Express (a symbol of access to exclusive places), Richard Rodgers (an example of architecture associated with a famous name), Virgin and Richard Branson (illustrating the

difference between brand and the personality behind it), Juventus Football Team (an example of the link between people and brand), and Plymouth Gin (illustrating the use of story in developing brand).

Team Three illustrated this process in **Reframing Task** when, after some general discussion about the need to find an overall framework or means of holding the disparate ideas together, one team member suggested working with a metaphor by thinking in terms of a picture frame and inviting people to identify the picture or painting they were looking at - bustling street, tranquil landscape, or something else.

Concretisation was a clearly observable process in all teams and was represented in a number of *units*. The need to regularly supplement abstract thought with concrete examples appeared to be important to overall knowledge development.

4. Development through contrast or describing an idea in terms of what it is not. This had the same effect as concretisation in that it helped to make an abstract concept more available for others to grasp:

.....it's more engaging than Nike Town It's more real than Disneyland, it's more informed than Vinopolis more exciting than the Empire State Building and more part of the City of London than

Madame Tussauds.

[Team 1/Solution/Brand Code, Section 34]

They are not like a dot com company ... they know their competition ... well locally anyway.

[Team 2/Client/Their Brief, Section 34]

5. Development through reiteration. Knowledge development was clearly an iterative process with many *units* being initiated, dropped and then returned to a number of times. This involved a number of processes including:

- repetition where the idea was repeated
- ideas being repeated and reworked going back over the rationale behind the idea again with possible additions being made during the repetition
- summarising past discussions before moving on to something new
- refocusing where a broad based discussion was 'brought under control' by finding a point of focus within the plethora of views

All these processes seemed to have the effect of strengthening the original idea or consolidating progress made in its development. At times a *unit* was dropped from the conversation and then returned to at a later date in the life of the team and picked up with the minimum of repetition, just enough reference

to the words used or the speaker who was associated with the idea.

The content of some *units* was concerned with a focussing or summarising process and was closely related to the reiteration process. These *units* include: **The Point** (Team One/Solution), **Being Clearer** (Team One/Team Dynamics), **Reinterpret the Challenge** (Team Two/Methodology), **Summary/Need to Focus** (Team Three/Methodology) and **What are we doing now?** (Team Three/Team Dynamics).

6. Using theoretical frameworks to aid development. The most important and dominant framework adopted by all three teams was that of branding. Branding provided both a language and a methodology for identifying, developing and ordering ideas. It was a point of reference for teams to return to and a catalyst to initiate new thinking and discussion. It was not simply the use of a generic framework available to those in this profession it was an understanding that team members identified as being unique to the Company for whom they worked. Reference was made by all teams to the **Fox King Way** or the **FK approach**:

What you have to say is like we're going to build Bond as a brand and there's going to be eventually any number of ways of delivering that brand, a holiday to a place to a service like a bank

[Team 1/Methodology/Branding, Section 55]

We've written down four words that we think are the personality. We've written a lot of elaboration on that but we've not got a clear positioning statement or anything like that, so if we look at the presentation it's almost like a brand book format. It would be the introduction to the brand book.

[Team 2/Methodology/Branding, Section 57]

Branding also fulfilled another function - that of helping to legitimise or justify the ideas that were being developed:

If it's true then it's valid. Doug's rule for a FK brand:
"big, simple, and true"

[Team 1/Solution/Centre-Film, Section 29]

7. Inter-topic development. Finally there was the development of a *unit* within one *topic* through a *unit* in a different *topic*. This has already been referred to when identifying how discussions about methods involved reference back to a **Solutions** *topic* and the subsequent reworking of ideas in the **Solutions** *topic*. The link between the thinking in the **Methodological** *topic* and **Solution** *topic* was strong with many examples of this cross referencing activity but the cross pollination of ideas also occurred between other *topics*.

In Team Three work on the **Presentation** led the group back to considering the value of **Art and Craft** which had already been discussed and was an important **Solution** *unit* (ref. Team

Three/Solution/Art & Craft and Team Three/Methodology/the Presentation):

We haven't The stuff on arts and craft doesn't feature here. Is that because we don't feel it's important?

We need some reference to the importance of art and craft but I'm not sure what we want to say

[Team 3/Methodology/The Presentation, Section 435]

In addition to identifying processes and mechanisms that promoted development it was also possible to identify some that appeared to inhibit or stop development. The *units* affected by these processes did not contribute to the final solution:

8. Disconnected *Units*. These are *units* broken up with other discussions and with related ideas but no apparent connections between them. These *units* were usually small, involved no reference back to earlier *contributions* within the *unit*, and at times covered the same ground but with no sense of consolidation or progress.

In the small *unit* on **Age Groups** (ref. Team Two/Solution) the issue of the age of people attracted to the locality under discussion was raised seven times, each time in a slightly different context. There is no reference back to past references to the subject and the *unit* makes no progress beyond separate statements that were not pursued or developed.

9. Weak *Units* - usually represented by poorly expressed ideas with little justification or development. Sometimes these were *units* represented by a high percentage of interrupted and/or incomplete contributions

This is exemplified in Team One in the *unit* **Tourist Demand** (ref. Team One/Solution/Tourist Demand) where a question was raised about the importance of research into tourist needs. After a short interchange between two of the team members the subject was dropped with no further development of this line of exploration.

In Team Two there was a suggestion of keeping a video diary as a way of recording all that the group explores. After one or two exchanges developing the idea and sharing opinions the topic was dropped and does not re-occur (ref. Team two/Methodology/Video Diary).

10. Repetition and failure to progress. Although in many instances repetition led to the development of ideas, there are also instances where repetition did not help to advance a *unit* and the lack of advance brought the *unit* to a close.

In Team One there was discussion about how the team should be introduced or portrayed to the client. One person produced a list of role descriptions to fit each team member. After light hearted

responses the list was repeated by the originator. This process took place four times with a similar response each time. At no time did the rest of the team engage seriously either with the original question of how the team should be introduced or with the specific suggestion. Eventually this line of discussion was dropped (ref. Team One/ Methodology/The Team).

In Team Three the **Sense of Community** *unit* raises the issue of the importance of community and the sense of belonging on five separate occasions each time covering the same ground but with no progression of the original issues.

5.4.7 Unit endings

Studying the end product or the finishing place for each *unit* also provided a number of recurring themes. The following types of *unit* ending were identified in all three teams:

1. Dissolving into new *units* and sometimes into *units* in a new *topic*. Examples of this are: Team One - **Centre Film, Our Methods, and Team Involvement in Next Meeting**; Team Two - **Branding and Rick Stein**; Team Three - **Art and Craft, People and Defining the Idea**.
2. Dead end - where a *unit* comes to an end and is not part of the final solution. At times it may have involved a lengthy interchange of thinking and discussion and have led to the development of knowledge, but ultimately it disappears from the discussions. There were times when an idea occurred and

someone was asked to follow it through but it was never referred to again in the discussion. Examples of this are: Team 1 - **Tourist Demand and Results of Small Efforts**; Team 2 - **Age Groups and Changes in Tourist Patterns**; Team 3 - **Sense of Community and Together vs. Sub Groups**.

3. Integrated into the solution - often developed in a variety of ways but perhaps retaining key words or concepts from the original *unit*. Examples of this are: Team One - **The Real World, The Presentation and Thorough Thinking**; Team Two - **Brand Values and The Presentation**; Team Three - **Good Living, Amenities & Facilities and The Presentation**.
4. Dropped - sometimes as a result of a challenge or rejection but at other times with no clear reason grounded in the verbal interchange. This phenomenon has already been discussed above in the sections looking at **Challenge and Rejection** (see sections 5.1.4, 5.4.3, 5.4.5, 5.4.6). Examples of this are: Team One - **The Machine and Client Schizophrenia**; Team Two - **Video diary and Coach Parties**; Team Three - **University in Future and No Time to Bond**.

5.4.8 Recording discussion

All three teams had a means of recording discussion as it was taking place. This record was often referred back to in succeeding discussion. As well as compiling and utilising these records they were also discussed and are represented by *units* within each Team. Team

One kept its record on Power Point slides projected onto a screen in the meeting room and discussions about the keeping of this record were coded as a distinct *unit* coded **Our methods**. One person took responsibility for keeping the PowerPoint up to date and it was available for the group to refer to at each subsequent meeting. It was used in a number of ways during the life of the team.

Teams Two and Three used a flipchart to keep their records - see the **Corporate Record** *unit* in Team Two and the **Flipchart Use** *unit* in Team Three. In Team Two the question of who should keep the record was debated on a number of occasions by the team. In this team looking after the flipchart record was equated with facilitating or leading the discussion.

Six different uses of these discussion records were identified. They were not all of the same importance to each of the three teams but all had a part to play in facilitating the learning and knowledge development activities of the team.

1. A way of recording the main elements of discussion. There are numerous examples of this in the transcriptions of team discussions. The example below are taken from Team Two which made use of a flipchart to record key points in the discussion:

(discussing the issue of diversity)I'm just asking the question, should they go on the easel or not?

[Team 2/Team Dynamics/How do we do this? Section 178-179]

2. A repository for ideas that needed following up at a later date:
I don't know enough about that for this purpose
Put it on the slide so we can talk about it when D arrives.
[Team 1 Speaker N, Section 195]

3. A way of structuring the material collected during discussion in order to provide a good basis for communicating the solution:
Can we add another slide in here where we talk about the actual people so that the sequence goes from idea to people
[Team 1/Team Dynamic/Individual Functions, Section 475]

4. A way of editing the knowledge that was to be communicated to the clients - deciding what to add and what to omit:
If you re-order that the priorities list on that flip chart, makes it more compelling and take out any mention of 'University'. I think we've ditched that idea.
[Team 3/Methodology/Flipchart Use Section 459]

5. A departure point for the further development of ideas. Records of past discussion were referred to later in the life of the group and further developed:

So there's a credentials bit and then there's a role bit
(referring back to a previous slide) don't we need
to do some more thinking about that though?

[Team 1/Methodology/The Presentation Section 3-8]

6. A means of remembering and summarising what had gone on
before in order to regain focus:

You've got distracted. She made a point which is fine
and it's written up there.

[Team 2/Team Dynamics/Learning Tips Section 364]

The discussion record was present at all team meetings and was
always in a prominent position in the room. It acted as both a work
board for thinking out loud, where ideas were visually articulated
and arguments visually manipulated, and a team memory where
ideas were stored for future use.

5.5 Learning

The majority of this chapter has focussed on the analysis of data and
the identification of themes relevant to the development of
knowledge. Very little has been identified as relating to learning.

In looking for data on learning processes the key to identification
rests with evidence for change in the way individuals or teams
behaved.

Although the contribution types identified at the beginning of this
chapter (See Section 5.1 above) were built around knowledge

development some can also be associated with learning within the three teams. It is particularly the **Indirect Contributions** that can be identified with changes in the way the team members behaved.

Commenting on How Knowledge was Gained involved discussions about the way the teams organised themselves, the methods and processes used to gain data and issues to do with timing and pace of the way the teams worked. There is evidence that these discussions led to action. In Team Three there were a number of contributions that led to the team dividing up to cover the data collection in a different way. These contributions were associated particularly with Speakers **E** and **H** who have already been identified as having the same role, that of account manager. In the first quote provided below Speaker **E** suggests the use of a source of data untapped by the group and in the second Speaker **H** points out some weakness in one source of knowledge:

No-one has looked made any attempt to trawl those brochures (pointing to brochures on a table) We could divide them up and get through quite quickly Put anything useful on the on the wall.

[Team 3 Speaker **E** Section 344]

Only one woman mentioned the art show but we never asked others the right question. I'd like time to go out and this afternoon to go out and just survey ... you know, the cultural side.

[Team3 Speaker **H** Section 1209]

Commenting on How Knowledge was Used included working on the presentation of the solution to the client. Similarly there were times when the presentations were changed and developed in the light of discussions. In Team One two consultants Speakers **N** and **F** make important contributions to the discussion of how the knowledge should be used:

I think we need to use the bit comparing this to a theme park because we are clear and I think they are clear that they don't want it to be like Disney. Use contrasting photos to show the difference We can Photoshop that.

[Team 1 Speaker **N** Section 2315]

Moving the Group On has already been described as facilitative behaviour with contributors offering information - opinions, observations, suggestions to encourage the group to change the focus of its discussion and in particular its actual behaviour as a group. Speaker **L** in Team 2 and speakers **B**, **E** and **H** in Team Three were most associated with this type of contribution and all three were account managers:

It's half past six if we're going to get this done and have time to complete task two we have move on now

[Team 2 Speaker **L** Section 445]

We could spend hours on this list of values and the expression ' "Is it 'most' or 'best' or 'unique' ". At this stage I don't think we have to have to decide on the exact word.

That's for stage two. Let's Leave them all on the flipchart.

[Team 3 Speaker B Section 334]

Although people in all three company roles - consultants, designers and account managers - contributed to team learning it was those in account manager roles that contributed most in this area.

In turning to the evidence for learning in the analysis of the content there are two *topics* that reveal evidence of change in all teams - namely **Methodology** and **Team Dynamics**. Within these *topics* there is a focus on the behaviour and functioning of the teams. There were no signs of direct change in either individuals or groups associated with the **Solution** or **Client** *topics* or *topic units* in any of the three teams.

In exploring **Methodology** the teams raised issues about how they collected data to solve the clients' problems and how they should put this data together to ensure effective communication of the solutions to their clients. Both had implications for the way the teams themselves behaved during the team meetings. The construction of the presentation for the client was carried on in parallel with the development of the solution and involved agreeing and changing the nature of this presentation as the teams progressed. This is illustrated in Team Three where a discussion connecting units took place over a short period during one team session, although the flow was interrupted by other issues for short periods:

..... I think we could make this presentation better if we included material on Hull the Hull material illustrates the use of the wider region in branding a town.

If we incorporated the Hull stuff after the stuff on the region specifics like you said it would

I've added the Hull case study as E suggested earlier [Team 3/Methodology/Presentation Sections 89, 97, 126]

This is an illustration of how discussion in one area brought change to thinking in another.

The **Team Dynamics** *topic* was concerned with the functioning of the teams and this is where they discussed a range of issues around their own behaviour including:

- the way they were reacting to each other
- the contributions or lack of contributions from individuals
- the emotional climate of the group
- problems with decision-making

In Team Two the following discussion illustrates change brought about by discussions about the functioning of the team:

When we talked about poor facilitation last session I decided to do something about it which is why I'm facilitating now even if it isn't very good

[Team 2/ Team Dynamics/Leadership/Facilitation,
Section 35]

These discussions led to attempts to improve the speed of making decisions or to change the approach to discussions or to change patterns of relating to each other and in this way became a way of self regulating behaviour. In these instances desired changes in behaviour were discussed and then pursued and were observable.

5.6 Summary

Having deconstructed the knowledge development phenomena in the three project teams it is now important to stand back to look at the general patterns in the overall process of learning and knowledge development.

It is clear that knowledge development and learning as represented within the discussions of the three teams is not a simple linear process with a linear progression along single lines of reasoning to a final end product. Discussion moves from *topic* to *topic* and from *topic unit* to *topic unit* in a variety of ways; occasionally there may be linear development of an idea but this is rarely maintained for any length of time before a new line of thinking is initiated or there is a return to and reiteration or development of an old idea. This constant shifting produces a weave of ideas with individual strands of ideas appearing, mutating and disappearing at various times in the life all three teams. This pattern of relationships between different strands of discussion (i.e. the relationship between *topics* and *topic units*) is presented diagrammatically in Diagrams 5.26

below (page 260). Here we see two *topics* (**Solution** and **Methodology**) represented by the large coloured cylinders and within each is an illustrative selection of *units*. The diagram shows discussions develop through *units* which in turn act as catalysts for the development of new *units* (new ideas/new content) of discussion. Some *units* come to a dead end when discussion ceases, other *units* continue even though the continuity of discussion is broken. There is also an example of development across *topics* (across categories of content).

Although topics are spread throughout the life of each team there are some patterns of concentration. The **Solution** *topic* tends to dominate the early part of team discussion with resurgence towards the end of the teams' life. **Methodology** on the other hand takes up more time in the mid - life of each team, continuing through to the end. The **Team Dynamics** *topic* rarely featured in the early part of the team's life and was initiated when an issue arose in the group trying to tackle either the **Solutions** or the **Methodology** *topics* and gradually took up more group time towards the end of the life of the teams.

There were clearly *units* with ideas that were strong and those that were weak. In all teams between one and three *units* dominated within each *topic* and formed the basis for the final solution. These were referred to as 'core *units*' earlier in this chapter. Other *units* contributed by adding detail, 'colour' or 'texture' to the main solution. Although the *units* within **Methodology**, **Team Dynamics**

and **Client** *topics* did not directly contribute knowledge components to the final solutions, they did aid either thinking about the content of the final solution or provided knowledge to aid the teams in functioning effectively to achieve their solutions. The prominence of developing knowledge and learning about how to communicate the solution as represented by the strength of the **Methodology** *topic* in all teams is an interesting phenomenon that will be discussed further in the next chapter.

Chapter 6

Research Implications: Discussion of the Research and its Relationship to the Literature

6.1 Introduction

The purpose of this chapter is threefold. First to look at the implications of the themes and patterns described in the last chapter. Second to identify the extent to which they throw light on the questions posed in the introductory chapter of this thesis about the nature of knowledge development in the workplace and its relation to learning. Thirdly to look at the relationship between the findings of the empirical study and the literature surveyed in Chapter 4; identifying where the findings support the literature, where they pose questions in relation to the literature and where the research uncovers phenomena not explored in the literature.

The chapter is divided into three parts. The first part (6.2) looks at the nature of knowledge development. In the second section (6.3) we look at the nature of knowledge itself and in the third (6.4) the relationship between knowledge development and learning.

6.2 The Nature of Knowledge Development

How does knowledge develop in these particular work groups? This section looks at some of the key features of the development of knowledge as demonstrated by the teams in this particular organisation. We examine the development from initiation of ideas,

through their development to their utilisation or abandonment. As well as exploring the process we shall also consider ways of representing the findings in simple models that might have applications elsewhere.

6.2.1 Initiation of ideas

In the research the initiation of ideas or the origins of strands of knowledge development was examined through analysing *topic units* which represented team discussion of an idea or a cluster of closely related ideas and to a lesser extent through the analysis of *contribution* patterns. The research addresses the questions, 'Who initiates the knowledge development and what are the sources of the ideas that have the potential to be developed into knowledge?'

Any one member of the three teams was able to initiate areas of discussion and therefore act as catalysts for the development of new thinking or of related thinking, building on the work of others' contributions. In effect all members of the three teams were involved in initiation irrespective of role or years of experience.

This supports the notion explored in the literature that knowledge resides in individuals and that any individual in an organisation possesses some level of knowledge whether they are new to the organisation or not (see Chapter 4 Section 4.8.1). The freedom felt by all members of a team to initiate thinking irrespective of their time in the organisation or their general age and experience may be in part the product of the culture of the organisation. In Fox King the informal, unstructured nature of the meetings emanating from

an informal and avowedly non-hierarchical organisational culture may well be important factors in enabling these phenomena of openness and involvement of all. It is also reasonable to predict that there exist organisations where the culture would not encourage these same levels of involvement and initiative.

Although this equal engagement of individuals in discussion exists there is also evidence that professional roles and experience (identified in this instance as resulting from age and seniority - Chapter 5 pp 184-196, 232, 253-4) do play some part in the initiation process. It is clear that the groups' most original ideas were linked to consultants and designers who were regarded as senior. In theory there seems no reason why anyone should not introduce radically new thinking to a group because even those new to the company have experiences that are unique to them and may also have had different and more recent formal training to those whose training was over many years ago.

There are at least two factors that may account for this pattern. The first is that consultancy and design are professions that train their adherents to create and identify ideas as the basis for problem solving; In other words it is a feature of their professional background and training. This is also supported by the fact that those members of the teams that were account and project managers often initiated the more practical *units* either in terms of getting the teams organised to collect the data they needed or in terms of thinking about how knowledge was to be communicated to

the clients: in other words knowledge that had some practical implications to the teams themselves. The second is more of a psychological factor relating to the potential risk of offering new ideas to a group. The literature would suggest that more junior and less experienced members of groups are less likely to take the risk or to put themselves into vulnerable positions than those that are more experienced or more senior (see Johnson & Johnson op cit p 148).

A conceptual framework for interpreting these behaviours in terms of power dynamics is identified in the literature (see Chapter 4 Section 4.8.2). The sociological model of power identifies personal attributes and capabilities as factors contributing to power behaviour and in this instance could be interpreted as expert knowledge possessed by those with particular roles and length of experience. Equally the more experienced consultants and designers might also be identified as managing the effects of team uncertainty, particularly in the light of lack of leadership and a very fluid way of working in line with strategic contingencies theory.

Despite the apparent absence of strong management hierarchies an interesting further line of inquiry into the team activities at Fox King would be to explore the nature of power dynamics and its influence on knowledge development in more depth. Hidden blocks to knowledge development as well as gender issues might be explored in addition to those of role and experience uncovered here.

Another interesting line of further research would be to look in depth at the way people from different professional backgrounds, with different training and diverse roles contribute to knowledge development both in terms of the types of knowledge they work with and the way they work with this knowledge.

Not all the initiated ideas (i.e. the *units and contributions*) were the same in nature. A small number were original. By this is meant they developed new lines of thinking and discussion in the group as distinct from the great majority of *units* that represented derivative thinking based on some preceding contribution (see Chapter 5 Sections 5.1.1 and 5.2). This was such a common pattern for all teams and in all areas of knowledge development that it leads to the question: 'Why is there such a small base of original ideas?' In the scope of this research only some tentative reasons can be offered. One possibility is that idea generation is linked to people's capabilities and requires different cognitive processes or thinking skills which fewer people possess. There might be a link between personality types and idea generation and to people who are more able to take social and intellectual risks. It may on the other hand be linked to experience whereby new ideas require the ability to see the data in a variety of different ways which comes with greater and more varied experience. Another explanation for the relatively small number of original ideas may be linked to the capacity of the group, in the same way the brain is limited in what it is able to process at a conscious level at any one time.

Units and *contributions* that initiated strands of discussion could also be said to differ in value. In this sense value is judged by the extent to which an initiated idea was taken up and explored further in the teams' discussion. Some led to extensive discussion and others did not. I will pursue these observations further under section on 'The Nature of Knowledge', later in this chapter.

In addition to describing patterns of origination in terms of 'who' it is also possible to identify idea initiation in terms of 'what'. In the section in the last chapter on **Sources** a classification of the types of sources of discussion has already been provided (see Chapter 5, Section 5.4.4). Again it is clear that most sources are derivative of ideas already introduced into the teams' discussions. The other way of interpreting the types of sources is in terms of 'inside' and 'outside': *Units* either originate from knowledge that exists inside the groups' current activities or outside the groups' current activities. Some *units* have their origins outside the group - in team members' past experience, in the tacit knowledge of the organisation's own accepted practices and in the wider experience of individuals. The other collection (and greater proportion) of *units* have their source in the preceding discussions within the group. The pattern of sourcing is represented diagrammatically in Diagram 6.1 below, in which the arrows represent the origin of *units* and their thickness provides a schematic indicator of the proportion of ideas from each source.

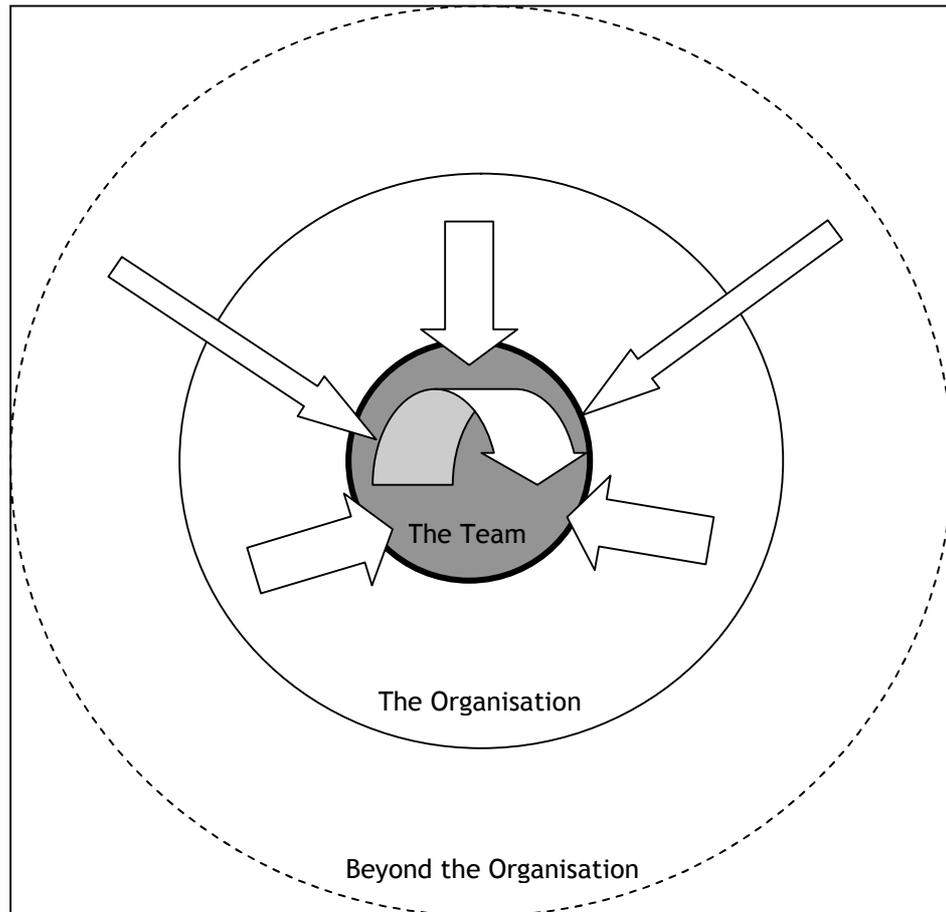


Diagram 6.1 The Sources of new ideas within the Teams
(full explanation in the text above)

The diagram does not provide an accurate quantitative indication of origins because data was not collected to provide that level of analysis. It is also important to note that the data that was collected does not take account of ‘contamination’ of one source from another. In other words ideas that appeared to come from other sources *within* the group may well have been influenced, in the mind and thinking of the individual concerned, with organisational knowledge outside the teams’ immediate discussion or even with the wider experience of that individual beyond the organisation. So this evidence for the prevalence of one source against another is based on observational and ‘surface’ analysis of the content of verbal

contributions. With this caveat there exists an interesting pattern, prevalent in all three teams, suggesting that they originated most of their thinking internally, most of which was stimulated by preceding discussion. This is represented by the thick curved arrow within the team circle. The wider organisation provided the second source of knowledge - represented by the three arrows leading from the organisation into the team circle. The wider world takes third place - represented by the two thinnest arrows.

One implication of this pattern of dominance is the potentially limiting nature of internally generated knowledge with the huge potential for ideas outside the groups' immediate activity not being exploited. Leonard (op cit page 133) identifies insularity as an organisational weakness and suggests that where there is difficulty in accessing and absorbing knowledge from outside (outside the organisation or outside the team) knowledge development is less effective. On the other hand we already know that the teams work with a small number of original ideas and this dominance pattern may again reflect the capacity of a problem-solving group to handle information and knowledge. In other words for a group to manage the potential range of knowledge open to it requires focus on a few key ideas that are then developed through cognitive interaction.

If this latter is true a further area of interest is how the few original ideas are identified and chosen. In the case of the teams studied here there was no formalised method, like brainstorming, for generating new ideas. Instead they were generated by some sort of

informal and subconscious natural selection in the course of group discussion.

In summary we can say that studying knowledge initiation in these teams revealed three things - the role played by individuals in this process, the volume and value of initiated knowledge, and the relationship between the internal and external sources of this knowledge.

6.2.2 The nature of the content being developed

The subject matter or content of group discussions is identified in previous chapters at two levels, represented by *topics* and *topic units*. In comparing the three teams we see both difference and commonality of content (see Chapter 5 Sections 5.3.1, 5.3.2, 5.4.1, 5.4.2, 5.4.3). Difference exists at the *topic* level where the three projects originated from different clients with different problems to solve. Difference also exists at the second, *unit*, level. Again this is apparent where the content was specific to the problem set by the client (i.e. different content represented by the *units* across the **Solutions topics** of the three teams). But difference in content at this level also exists when comparing the **Methodology** and **Team Dynamics topic units**. In these instances difference can be related to both different clients - where different communication issues have to be addressed - as well as differences in the membership of three teams - particularly where team functioning is explored.

There are also striking similarities in the content of the three teams' discussions. We have already noted in the last chapter how this is

demonstrated at *topic* level with the common engagement in discussions of Methodology and Team Dynamics, and to a much lesser degree the Client (see Chapter 5 Section 5.4.3). The presence of the first and third of these areas is less surprising to this researcher than discussion of Team Dynamics. The importance of communicating new solutions to clients is a preoccupation of this particular company. What is interesting is whether other organisations in the business of selling solutions devote as much time to similar explorations.

Discussions about the client included an amount of speculative information based on inference or even guesswork rather than on observed facts. Only Team One seemed to collect and discuss data based on direct observations of clients obtained in their first meeting with them. One interesting issue is that, given the amount of time occupied by discussing methodology demonstrating their concern to communicate knowledge as well as develop it, why didn't they spend longer developing knowledge about the nature and behaviour of the client? This might suggest a more inward looking, almost introverted approach to communication that takes the other party in the process more or less for granted.

The engagement in self exploration represented by the **Team Dynamics Topics** is perhaps more unusual. This analysis is partly based on my own experience as a consultant working with a variety of organisations engaged in a variety of work. To some extent this team reflexivity seems more alien to the general work culture of business organisations in this country because it seems to be in part

motivated by emotions - people talking about decision-making or poor leadership because of their frustration. It is also likely to engender more emotions in a group because people may feel psychologically 'under attack' and in need of defending themselves or fighting back. It is the perceived inability of organisations and individuals in organisations to handle the emotional dimension of work interactions that have spurred the interest in concepts (and literature) relating to 'emotional intelligence' (cf. Goleman 2005). Much has also been written about the dynamics in teams (see references Chapter 4 Sections 4.8.1 & 4.8.2) and about behaviour in general in organisations, but the organisational literature does not usually identify this as a form of knowledge, developed alongside other knowledge nor does it explore the way this knowledge is used in overt self reflexive practices within organisations and teams. Perhaps the closest we come to this in the literature is Mezirow's work on transformational learning referred to in Chapter 4 (op cit pp 62, 78, 154).

Similarities also exist at the *unit* level in all three *topics* and in the last chapter I have already shown how discussion of 'branding' (see pp 208 and 212) and the construction of 'presentations' (see p 211) are common across all teams and represents part of the agreed practices based on shared knowledge within the organisation. All this content is internally generated and is less dependent on the type of client or the nature of the problem being solved. The common issues of team functioning are also internally generated but this is less to do with the knowledge held by the organisation; it is generated more

by the teams themselves as they function and it could be argued is based on some form of common and more fundamental knowledge about human functioning that all team members possessed. For example, knowledge about 'how decisions are made', 'what leadership involves', 'how groups develop solutions to problems'. These areas of knowledge might be gained by individuals through their experience of being part of this organisation but may equally have been gained in other areas of life and across their lifespan in other jobs and in other organisations.

The Unconnected *topic units* have received least attention in this research in part because of the small amount of time devoted to them by the teams but also because of their lack of obvious connection to the main issues being explored and the lack of evidence that they revealed much about knowledge development or learning see Chapter 5 Section 5.1.3 and 5.3.2). In fact it could be argued that because in many instances they involved comments, jokes and asides from only one contributor, most of the content in these *topic units* was information rather than knowledge (the issue of the distinction between the two will be taken up later in this chapter). If they fulfilled any purpose it might be argued that it was social; a means by which the teams met some of their needs to re-engage with each other or a reliever of tension or to establish rapport between particular members. This interpretation could however only be speculative and would require more data and more focused analysis to verify.

In summary we could say that content is determined by external, internal, experiential and social needs and factors. The knowledge content could be also be summarised in typological terms as:

- Knowledge about the problem
- Knowledge about methods and approaches
- Knowledge about themselves
- Knowledge about the client

or in more functional terms as:

- Knowledge to solve problems
- Knowledge to communicate and convince
- Knowledge to aid team functioning

In relating these findings to the literature we find a number of connections and similarities but find it difficult to adopt any one of these theoretical frameworks to explain the patterns identified in this research. If we take one of the most straightforward suggestions for classifying knowledge types described by Sanchez & Heene (Sanchez & Heene op cit p 69), namely, 'know -how', 'know-why' and 'know-what' then it would be easy to link types of knowledge exhibited with this research with 'the first two types described by these authors but it is less clear where 'know-what' fits in.

The explicit-tacit and self transcending knowledge of a number of authors (see Scharmer op cit page 70) also provides a framework of understanding that could be used here although there is a sense in which this better describes the process of knowledge development within the teams rather than offering a helpful typology.

The typology propounded by Nonaka and Takeuchi (Nonaka & Takeuchi op cit p 123), of sympathized, conceptual, systemic and operational knowledge, is quite complex to understand but there are some potential ways of relating the research to this classification. Sympathized knowledge held implicitly by the participants as a mental model which becomes externalised in the discussion is represented by *units* on brands; conceptual knowledge is represented by discussion of methods of branding and approaches to communicating the solution through a presentation; and the various discussions of team functioning could be described as examples of the use of operational knowledge. What is less clear is where systematic knowledge appears as the groups are developing custom made products for clients and not new products or services for their own organisation to replicate and sell.

It may be that the simple typologies offered above, which may overlap with definitions and typologies developed by others, offer the best way of categorising the content discovered in this research and may form the basis for classifying knowledge types in organisations involved in similar activities to Fox King.

There remain two other issues over the nature of the content both of which will be taken up in more detail later in this chapter.

First is the fact that the content was not developed and changed in any linear fashion but that the different types of content were

spread throughout each team's activities and at *topic* level could be depicted as an interwoven mesh of different knowledge strands. This will be explored more fully later in this section of this chapter.

The second relates to the link between knowledge content and learning activities in the teams, which again is developed later in this chapter in the section that explores the relationship between knowledge development and learning.

It has already be suggested that the knowledge content in the activities of organisations is context specific (see p 123) and to some extent that is supported by this research, but just as there exists some common content between the three teams it might be argued that common content could exist across organisations both within the same or similar businesses and across different business sectors. The commonality may not exist at the micro level e.g. the discussion of how a particular slide will help communication, but can exist at a 'higher' level as for instance in the best way to communicate to a client, or the way of preventing poor leadership. In this way knowledge content can be seen in hierarchical terms from specific and local to general and universal and possibly with other levels in between. In knowledge use it is unlikely that the different levels are discrete but instead inter-relate. In other words an organisation can use universal knowledge content to inform and develop local solutions. Equally local knowledge from one organisation may be applied by another to a different local context very much in the way that team members in this research used specific examples from

outside the immediate problem they were working on to help solve theirs. Access to higher levels of knowledge content is probably easier than it is at the lower local levels; the latter being unavailable outside the organisation that originated them.

6.2.3 Mechanisms

The teams' activities provide an insight into the means, mechanisms, or processes by which group based knowledge development occurred. The mechanisms identified were not evident in all teams but some were common or were evident in the development of more than one of the *topic* areas. This was considered sufficient triangulation to warrant consideration in this chapter on the implications of the data analysis. There is no evidence that these were required processes, essential in the activity of knowledge development or that they can be expected in all group knowledge development activities. Instead they provide a description of some of the observable mechanisms at work in the teams studied and as such may have applicability to other teams in other organisations. They can be divided into three types or domains of activity, namely individual, group and organisational.

a. Individual domain

The first section of the last chapter was devoted to the identification, analysis and classification of individual contributions to the knowledge development activity (Chapter 5 Section 5.1). This analysis provides a detailed framework for understanding individually initiated mechanisms for knowledge development.

The frequency of occurrence of the different contribution types has already been shown to reveal a relatively small amount of origination of ideas, where new lines of exploration are originated, and a large amount of development. The development of those ideas occurs through additional contributions that extend the original contribution or by questioning, evaluating, testing, supporting or rejecting the idea. Alongside these mechanisms are the facilitative contributions that enable the group to continue its task by raising issues of how further knowledge should be gained or existing knowledge used or more simply by getting the group to move on.

The dominance of certain types of contribution over other types has already been described (Section 5.2). All the categories of direct contribution identified in the classification in Chapter 5 (Section 5.1.1) are mechanisms for initiation or creation of small number of new ideas - which may or may not be developed both directly and indirectly. Direct development of ideas and the use of questioning are both dominant mechanisms used by contributors in all three teams. On the other hand the alignment of different ideas (which involves bringing different pieces of contributed knowledge together, through some form of synthesis) and the testing of ideas to check their validity were minority activities of contributors across all the teams. Why some types of contribution dominated over others is not clear from the data. However it could be argued that, in the same way that types of initiating activity described in Section 6.2.1 above involve different cognitive capabilities, so the processes of synthesising material and testing ideas against some frame of

reference require more involved reasoning processes, in other words are cognitively more complex. They may require higher levels of cognitive ability.

It could also be argued that these two minority mechanisms require contributors to be more 'removed' from the content of the discussion in order to look at the discussion from a different perspective - from a distance: a process that may be harder to achieve without some conscious effort and requiring some form of trained facilitation that enabled this distancing to happen. Both these processes would seem to have potential value in group discussion. In the first case, aligning enables the group to work more creatively with existing ideas generated within the group - making connections to create something different. This process of enabling connectivity is taken up in some of the literature on creativity and knowledge creation (Boden 2004, Stacey 1996). The value of testing the validity of knowledge parallels the process described by Krogh and Grand and in the philosophy literature for providing 'justification' of knowledge and ensuring its veracity. In philosophy this is deemed an important test of knowledge (Krogh and Grand op cit p106-7 and Audi op cit pp 67-8). A more rigorous and intentional approach to this activity in groups might help to ensure the value of the developed knowledge to the clients. In this context the testing is related to the *relevance* or *usability* of the knowledge to the client because this is where real value lies for the client.

The origin of these individual behaviours is, I would suggest, in part explained by the professional background and experience of the team members and there is some evidence of this offered in the analysis (see pages 184 - 196). In other words participants utilise these means of developing knowledge both as a result of their professional education and training and through their experience of engaging in this and similar work projects. There may well be other factors that enable them to engage with these behaviours that do not emerge from this analysis of the data or which might become apparent through a different approach to collecting data or from studying different types of work-based teams.

It is unclear, from this analysis, the extent to which this behaviour was conscious and deliberate and to what extent it was intuitive and 'automatic'. The nature of these un-led, informal teams indicates that it was not part of any group consciousness in the sense of being part of a pre-determined, planned approach to developing knowledge. It might be better to describe it as instinctive group behaviour learned or developed over repeated experiences of engaging with similar activities. If this hypothesis is correct it would be interesting to see if such teams could perform more effectively by utilising these behaviours more consciously or to explore the possibility of training teams to be more proficient in utilising a combination of such knowledge developing behaviours.

Typologies of individual contributions in groups already exist especially from the field of small group dynamics. Bales (op cit p

148) for instance describes types of task-focused behaviour in groups. But these are in very general or generic terms, developed to apply to any group. To my knowledge no one has developed a contribution typology such as the one offered in Chapter 5 that focuses on the activity of knowledge development in groups.

b. Group domain

There were some mechanisms that either could not easily be attributed to an individual or seemed to emanate from team interaction and as such are better attributed to team mechanisms. There are times when this domain overlaps with the individual domain described above as the boundary between the two is not always clear. These mechanisms have been described to some extent in the last chapter(see chapter 5 Section 5.4.6): the gradual building of knowledge based around a few existing core ideas through various means of adding, changing, confirming, questioning; concretisation or making ideas more concrete by pointing to examples and parallels in the real world; engaging in an iterative process of going back over ideas and discussion again and again, sometimes leaving a *topic* and returning to it at a later date; cross-fertilisation where discussion about a different *topic* throws up new thinking about a *topic* already discussed; and the use of the corporate memory device to keep track of the development.

All of the above represent more tangible group-based mechanisms. There are, however, other mechanisms that are less tangible. For instance emotionally charged behaviour was sometimes a spur to

exploration, as was introspection (see Chapter 5 Section 5.4.5). As such both contributed to the development of knowledge and might be included in the mechanisms.

In terms of the tangible mechanisms these again seem to have been engaged implicitly rather than through some planned and agreed process for carrying out the task. The last of those mentioned - the use of the corporate memory through recording discussion seemed to be the one that was carried out with the greatest level of group consciousness. Again, making these mechanisms more intentional and conscious in a team's activities might improve its ability to carry out its work.

The presence of the less tangible mechanisms may not be evident, or may be less valued, in other teams. It is possible that they are only prevalent where the team or the organisation cultures allow or embrace the value of types of behaviour that involve open emotional exchanges and/or the discussion of team behaviour as it occurs. Such mechanisms as well as contributing to knowledge development when the team's response is positive to them, could equally become obstacles to knowledge development where groups respond negatively to them. The link between the emotional life of a group and its formal task is well explored in the literature on group dynamics (see Bion and Bennis & Shepard op cit p 148).

c. Organisational domain

This might also be termed the cultural domain and refers to those mechanisms that form part of clear organisationally driven

understandings and practices. As such they could be described as being part of the internal culture of the organisation. They revolve around frameworks and values.

In the teams studied here we see the use of a conceptual framework, common practice or organisational methodology that provides a mechanism for knowledge development. In this instance it is the organisation's approach to *branding* which provides both a shared understanding and a shared methodology (see Chapter 5 pp 212, 244-5). It is this framework that provides the nearest thing to an intentional, articulated methodology, although it is never fully described or discussed by any of the teams. To the observer this methodology is evidenced through the language and specialist terminology that is used and at no point in the teams' life is it clearly described or discussed as a planned approach to aid knowledge development.

In addition to branding, communicating the solution to the client also seems to represent an important value to the organisation. It is important because all teams devoted more time and energy discussing this than they did to identifying the solution to the clients' problems (see Chapter 5 p 207).

The literature (Chapter 4 Sections 4.2.1, 4.2.3, & 4.5.1) does provide some useful frameworks, concepts and language for understanding knowledge development demonstrated in this research. The distinction between tacit and explicit knowledge is

helpful here. The process by which knowledge held by individuals and held within the organisation - tacit knowledge - is translated into explicit knowledge that is understood and available to the group (Nonaka & Konno 1999, Wilson 1996), is one way of describing the process within the teams in this research. Terms like articulation, sharing, transferring, capturing, codifying, storing and embedding (Polyani 1974, Nonaka & Konno 1999, Leonard 1995, Siluva et al 1997, Davenport & Prusak 1998, Sanchez & Heene 1997, Sparrow 1998) which are common to the literature could all be used to describe what has been witnessed in the research teams. However these concepts better describe processes than they describe mechanisms. They beg many questions as to what people need to do to see that the processes take place. They offer less help in identifying the types of behaviour team members need to engage in or skills they need to possess.

Understanding mechanisms that enable groups to develop knowledge in order to produce solutions to client-defined problems is important if groups are going to function effectively and efficiently. This study provides a limited understanding of observed mechanisms that appeared in limited settings. In the survey of the literature in this area I concluded that there was a confusing array of mechanisms described by writers with little in the way of a unifying classification or an overarching model. This research does not offer any advancement in these areas but does provide a three-dimensional approach to classifying mechanisms in terms of individual, group and organisation domains.

6.2.4 Environmental influences

The idea that there are environmental effects on learning and knowledge development is a strong theme in the literature although it is usually restricted to lists of positive and negative environmental or contextual factors covering physical, social, cultural, psychological and organisational elements (Chapter 4 Section 4.7).

In the research it is the influence of the first of these elements, the physical environment, which has least data available. The physical environment in which the three teams conducted their meetings was not the subject of any detailed study or analysis. All met in rooms in hotels or offices but little could be deduced about the effect of these physical environments on the work carried out by the groups. One feature of all three teams was that their data collection was not restricted to 'desk research' i.e. based solely on documentary or internet research. All involved spending time out with different groups in their respective contexts, collecting data through observation and interviews. This may well have influenced the data that was collected or the way the teams analysed this data to develop knowledge and produce their ideas. Team discussions all included reference to data collected in a variety of different environments - a fishing port, a high street, a café, information centres, a library, etc. - which were used to initiate or support ideas (Rf Chapter 3 pp 31). At this stage this can only be identified as a useful area for further study.

The social and psychological environments affecting the learning and knowledge activities of these groups could be represented by relational phenomena within the groups and the styles and nature of communication between individuals within them. These could reasonably be expected to show a degree of diversity across the three teams because of their link to individual personality and team composition. In effect the teams seem to exhibit more commonality than diversity. There were particular phenomena like the anger provoked by the team member in Team Two who decided to opt out of presenting to the client and the frustration in Team Three over the inability to make decisions (Chapter 5 Section 5.4.5) which could be described as contributing to a social/psychological 'micro-climate'. The general socio-psychological climate, however, across all teams was one of being positive, task-focused, having open communication and a willingness for all members to engage and contribute to solving the clients' problems. Conflict behaviour in the teams was rare and in fact more ideas and lines of discussion were discarded because they were ignored or because people failed to respond to others' contributions than through direct challenge and argument. Whether this had any link with the ability of all teams to engage in self reflection is hard to say but team reflexivity may have contributed to a generally positive atmosphere where underlying feelings were less likely to build up over time.

The literature identifies the *team* as the key organisational structure for effective knowledge development offering the optimum social and psychological conditions for individuals to openly contribute

their own store of knowledge and to engage in experimenting with, and generating, new ideas and thinking (Senge 1993, Lines & Ricketts 1994, Wilson 1996). It could be that these three Teams demonstrate this principle. The research, however, does not address the quality of the knowledge developed, either in terms of its rigour or its usefulness to the clients for whom it was intended. Therefore, although it may be possible to identify that the Teams seemed to work well in terms of relationships and inter-personal communication, it is not possible to evaluate the usefulness of the solutions they produced. The issue of teams in knowledge development is taken up again later in this chapter.

Turning to the organisation and cultural environments in which these teams operate there are a number of factors that have already been identified and discussed (Chapter 3 Section 3.3):

- Informality and weak structures
- The implicit role hierarchy
- Common conceptual frameworks and practices

Relationships between these factors and the knowledge developing and learning activities of the group can only really be discussed as emerging issues rather than tested hypotheses.

Informality and weak structures are evident in the unstructured nature of the team meetings and the lack of any official team meeting leader. They may also be a contributory cause to the way

discussion involves moving freely and unpredictably from *topic* to *topic*. There are indicators in the literature that some writers would see this as having a positive effect on the activities in the group usually because they identify 'heavy command and control' practices as having negative influence on creativity in groups where freedom to think, experiment and explore are important for the development of knowledge (Pearn et al 1995, Wilson 1996). There is, however, also a view that lack of structure can lead to poor knowledge development and learning because of the reduced ability to store and access knowledge held in the organisation (Mayo & Lank 1994).

The knowledge explored and developed and described under the **Team Dynamics** *topic* may also suggest some negative consequences of lack of formality and structure, especially the discussions over poor decision making and associated frustrations over leadership within some teams (Chapter 5 pp 217).

The professional roles seem to exist with some ambiguity within the organisation represented here. On the one hand there is a sense, communicated overtly by the organisation, that there is no hierarchy and that all roles have something to offer the formulation of solutions for clients. Indeed there was a sense in which everyone did contribute and there was no observable reticence on the part of any team members. On the other hand there were clear examples of the 'dominance' of the more senior consultants and designers. This came through the stylistic patterns described in Chapter 5 Section 5.1.4, in the analysis of contributions against roles (pp 184) and in the work

on the sources and development of the content (Chapter 5 Section 5.4.4).

The research does not provide any data that enables a discussion as to whether more structure and greater formality over roles and leadership and power relations within teams would have produced a better result for the client either in terms of getting the job done at a faster speed or by producing a more useful solution for the client.

It is the third area listed above, that of 'common concepts and frameworks' that is clearly evident in the data collected (see Chapter 5 pp 244). Krogh & Grand (2000) would identify this as 'dominant logic - a corpus of knowledge held in the organisation'. It may be in the absence of other strong organising forces it is this that provides the teams with a sense of structure. Not in the sense of ensuring some sort of linear process that groups adhere to in their planning and discussions but more as a frame of reference that they can keep going back to.

In these teams there was a sense that the dominant logic provided an important and positive part of the organisational environment - a shared language, a shared understanding, and shared practices that would have made the task much slower if they had been absent.

It is conceivable that organisational frameworks can be a hindrance to getting the task done or a hindrance to the development of knowledge. The key may be in the words 'framework' and 'process'.

The former suggests common understandings that are adhered to more lightly or less slavishly and the latter a more proscribed approach to handling tasks.

In general terms environmental factors will influence the tasks within the organisation whether that is knowledge development or some other product. It is possible for these influences to be positive or negative or both. An interesting question is the extent to which organisations are aware of these factors and their influences.

6.2.5 The individual and the group in knowledge development

One issue raised by the literature (Chapter 4 Section 4.8) is the extent to which knowledge development and learning are solely the product of cognitive processes within individuals and the extent to which they are the result of group activity and organisational forces. The question is sometimes expressed as: Are these processes when conducted in organisational settings simply the sum of the work of the individuals involved or does the corporate dimension involve something different or something more?

In the literature survey on knowledge development I have already shown that although this question is raised it is rarely addressed in any depth either hypothetically or through empirical exploration. The literature often implicitly, rather than explicitly, seems to take three stances, already outlined in Chapter 4 (page 142).

The first is that knowledge development is primarily an individual activity taking place in a social/corporate setting. Understanding of the processes involves understanding brain functioning (Quintas 2005, Stadler & Frensch 1998, Marsick & Watkins 1990).

The second is that the organisation or group has a major impact on the knowledge people possess, use and develop and the interaction of the two is very important in knowledge development. It is important to understand the movement of knowledge between individuals and the organisation and how it changes through this process (Grant 1999, Cook & Brown 2002, Sparrow 1998).

The third position is that organisational and group knowledge is different from that possessed by individuals and this is sometimes referred to as 'collective knowledge' (Weick & Roberts 1993, Spender 1999, Davenport & Prusak 1998).

In this research the individual role is a strong focus of study (Chapter 5 Section 5.1). This is represented in the analysis of data based on individual contributions to group discussion and in the identification and description of individual contribution patterns. It could be argued therefore that the methodology chosen here is predisposed to identify the individual dimension to the knowledge and learning process. However it is the interaction of these individuals in team settings that helps to illuminate patterns of knowledge development behaviour and learning processes. Without the group setting many of these processes might have remained hidden within the individuals'

cognitive processing. It is this group activity that can be identified as the corporate dimension to the processes under study.

There are five elements of knowledge development, demonstrated in this research, where the individual and group dimensions might be described as mirroring each other:

- Internal - external activity
- Conscious - unconscious activity
- Importance of memory
- Accessing a wide range of knowledge
- Overlapping processing

Internal - external activity refers to knowledge development occurring in two dimensions - one involves the internal dimension working within the individual and within the group, and the other involves an external dimension to the group and to the individual. This is represented in Diagram 6.2 below. These 'dimensions' as they have been termed can be further divided into two types - *processes* and *sources*. Looking first at the individual domain we see that the individual team member engages in internalised knowledge development processes and utilises internal sources for 'feeding' their knowledge development activities. The internal processes are the cognitive processes that form brain functioning which enables human beings to attend to, make sense of, and then utilise data collected by the senses. There is no direct empirical evidence for these processes occurring in the individuals represented here but it can be inferred by observing the interactions within the team

discussions where individuals develop a contribution made by another person and develop it further (Chapter 5 Section 5.4.6). It is the literature rather than the research that offers a comprehensive description of these cognitive activities (see Eysenck & Keane 2005,

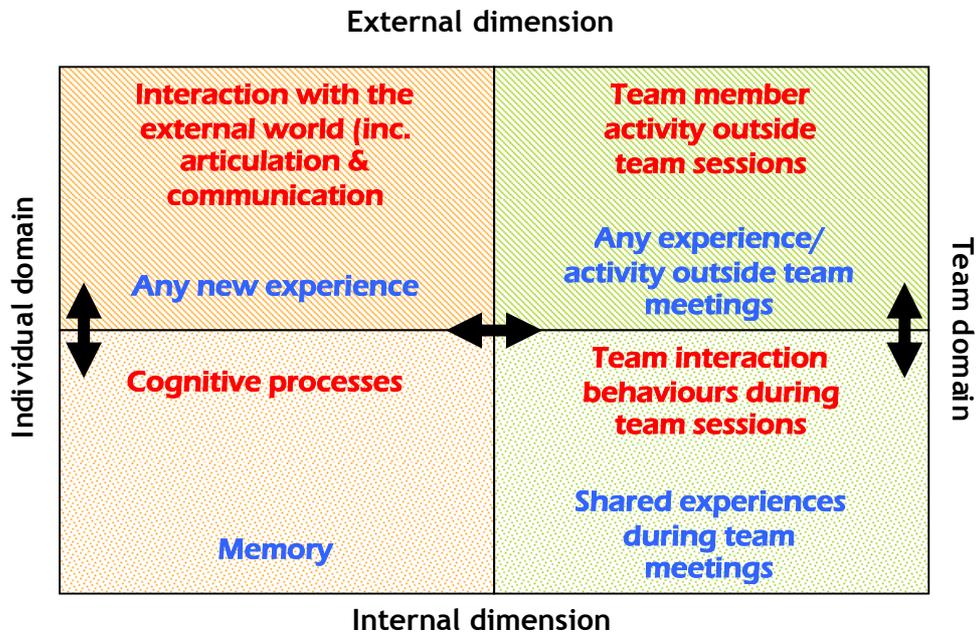


Diagram 6.2 Internal- External Dimensions of Individual and Team Knowledge Development Activities
 Key blue type = sources, red type = processes

Smith et al 1994). Internal sources reside in the memory of the individual and represent their store of past experiences, including all their past professional experience of doing similar activities to the one in which they are currently engaged. In the data presented in the last chapter of this research there is ample evidence of the value and role of individual memories in the concrete examples and illustrations that team members offered to support their ideas or to help develop the ideas introduced by others (Chapter 5 pp 209, 228, 242). The individual's external dimension to their knowledge development activities is again two-fold. First there are the external

stimuli that the individual experiences and which provide fresh *sources* of the data. Any experience has the potential of providing the individual with new data which might be useful in knowledge development and this could occur within the context of the current team or outside the team's activities. It might be inferred that the greater the variety of experiences the greater the potential for acquiring new useful information that could be utilised in the group. The second part of the individual external dimension is the process that enables the individual to externalise the result of the internal processes. In this research this involves the presence of the team and the activity of team discussion which enables individuals to articulate or communicate the result of their own cognitive activities. This act of communication moves the knowledge development activity of the individual from the internal to the external and from the individual to the team domain.

Turning now to the team domain we find a similar pattern within the internal and external dimensions where both sources and processes make up the activity of knowledge development at a team or corporate level. The internal dimension refers to the times when the team is together - team meetings. Processes here include all those activities described fully in the last chapter, including the generation of an idea that is then 'worked on' by other team members through testing, confirming, transforming, questioning etc. (Chapter 5 Sections 5.1, 5.4.6). The internal team sources are the result of discussion where one idea is a source of another idea. In this way the internal discussion feeds knowledge development by

itself being a new source (Chapter 5 Section 5.4.4 and 5.6). The external dimension is represented by two features of team activity. The first is the use of information sourced from outside the team meetings through the 'on-location' research carried out through interviews and observations that sub-groups (often team members working in twos and threes) then brought into the team meetings. Similarly shared information acquired by the team on other projects or through the experience of being part of the organisation Fox King was also brought into the team meetings and offered in the form of supporting examples of how things could be done. One example of this is the use of the 'branding framework' that formed part of the shared methodology that the team as a whole understood and could utilise (Chapter 5 p 244). The process element of the external dimension in the team domain again is represented by various forms of interaction between team members as a whole group or in sub-groups outside group time either through direct contact or through emails and telephone calls. It also includes interaction between the team and other teams, groups and individuals. The existence of such meetings is known because they were referred to by team members and although there was no study of these interactions in this research their very existence reveals an external dimension to the functioning of the team. What cannot be verified is the impact of this on the knowledge development work carried on by the team. As all teams revealed that they engaged in extra-group discussion it is not unreasonable to conclude that they felt the need for such external work in order to accomplish their task of knowledge development.

It could be argued that an essential feature of knowledge development is this interaction or interplay between internal and external processes and sources and the movement of information between the individual and the team. This is represented by the arrows in Diagram 6.2 above. This dynamic relationship between the individual and the team and the internal and external dimensions has already been discussed by other writers and is referred to within the literature chapter of this research. In particular there is the subject-object debate of philosophers (Chapter 4 Section 4.4.1), the interest in the conversion of tacit knowledge to explicit knowledge (Chapter 4 Section 4.5.1), and the notion that knowledge creation involves some 'movement' or 'flow' from the individual to the organisation (Chapter 4 Section 4.8.1). It is the work of writers like Patriotta who perhaps come closest to the dynamic model described above in their understanding of 'knowledge in the making' as a complex process of interaction between the person and team and the social context in which they operate (Patriotta op cit p 71).

The conscious - unconscious activity is represented in Diagram 6.3 below. At an individual level this again involves the cognitive processes that are beyond the consciousness of the individual.

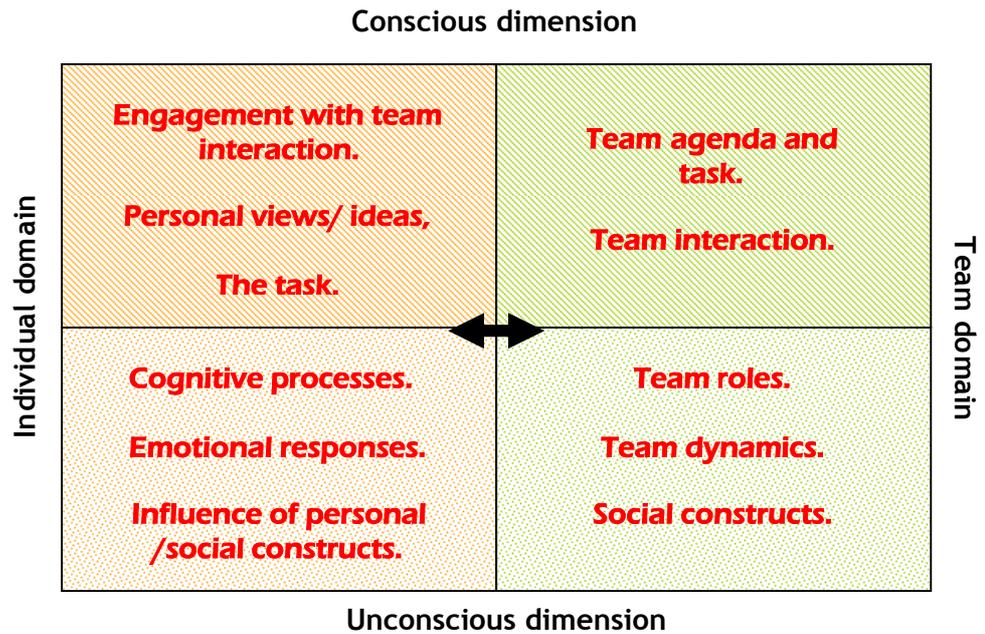


Diagram 6.3 Conscious - Unconscious Dimensions of Individual and Team Knowledge Development Activities

Emotional responses and reactions may also influence knowledge development at an individual level (see Chapter 5 Section 5.4.5) as will assumptions and predetermined ways of interpreting any data or of processing information which are the result of personal or social constructions of reality and will have developed in individuals over the years.

Again the existence of the individual unconscious dimension is well documented in the literature (see the literature on cognitive processes - Eysenck 2005, Smith et al 1994 and Boden 2004; personal and social construct theory - Burr 1995, Fransella 2005; and the emotions Greenberg et al 1997, Stewart & D'Angelo 1997) but is less evident in the research data which means that its nature is inferred more than it is observed. However observational evidence does exist

(see Chapter 5 Section 5.4.5) including the act of ignoring other team member's contributions and the strong enthusiastic support for ideas contributed by others.

The individual conscious dimension includes the involvement of the individual in the task of the group, their participation in discussion in which their own views and opinions were expressed and in which they engaged with others' views and opinions.

In the teams the discussions of the group dynamics reveal another potential area of unconscious behaviour. In this instance it includes leadership, decision-making and structuring the task. These issues remain under the surface until they are raised to the conscious level through the reflexive activity of the group (see Chapter 5 Section 5.3 and 5.4). The roles the team members play and the style people use to engage in the debates may never be discussed. The emotional dimension of team activity often exists below the surface of the teams' consciousness but nevertheless influences the teams' knowledge development activities (see Chapter 5 Section 5.4.5).

Team consciousness again involves the intentional activities of engaging in the task and the team interactions and encompasses the action of developing knowledge.

The conscious - unconscious dimension of individual and group behaviour can both help and hinder knowledge development. One way of handling the negative effect is by raising awareness of the

unconscious so that it can be faced. By moving the unconscious into the conscious dimension knowledge development and learning may progress more productively. This process is used in therapeutic groups and in other types of group work and is well documented in the literature (see Chapter 4 p148 and Cole 2005). In these groups this awareness raising or 'sensitising' process usually requires the presence of a facilitator who has the skills to work with this process. The teams in this study, through their reflexive activities, already described in the last chapter (Chapter 5 Sections 5.1.2, 5.3, 5.4.3), engaged to a certain extent in this process without a facilitator. This does not mean that someone fulfilling that role could not have made the teams even more effective in achieving their goals.

The third paralleled process that works at the level of both the individual and the group in knowledge development activities is that of **the memory**. In individuals this is clearly a function of the brain. In the teams in this research all created, and made use of, a *corporate memory* in the form of flipchart and PowerPoint records of discussion. In the last chapter I indicated the part played by these devices in helping the group to remember, to order and to sort its discussion (Chapter 5 Section 5.8.4). In this sense it acted as the group brain and provided a point of reference for changing and transforming knowledge very much as is thought to occur in the neural pathways of the individual's brain. The question arises regarding the extent to which task groups in all organisations see the value of such visible memories that provide a clear record of knowledge development within the group thus making the

development of this knowledge easier because it is common to the whole group. This moves the group away from relying on the variety of memories stored within individual members' brains.

Accessing a wide range of available knowledge from different sources and making connections between these different pieces of knowledge is the fourth mirrored process. Again it is the literature on cognition and neurophysiology that establishes this as a function of knowledge development in the brain. In the team setting sources include individual team members with their different professional backgrounds and styles, team interaction, other projects that individual team members have worked on, other experience and knowledge held by individual team members, and field work and research to collect data carried by the team members for this project. This is all recorded in the last chapter (Chapter 5 Sections 5.4.4).

The literature that deals with sources (Chapter 4 Section 4.4.1) often deals with this topic in the traditional pedagogic sense whereby the teacher, manager or trainer is the key source of knowledge or the facilitator the source of the processes that enable knowledge development. This research offers a much broader, and more democratic, view of sources. The range and quality of sources available to any business, both internal (inside the organisation) and external (outside the organisation), probably bears some relationship to the quality of range of potential solutions the business can create

for any client and therefore forms a key raw material for the business.

The final mirrored process is the continuous process of knowledge development that occurs both within the individual and within knowledge developing groups. Again it is the literature that provides the clearest guide to this occurring in the individual describing the cognitive activity that transforms the existing knowledge store by processing new information. This knowledge does not exist in a static state because it is regularly being adapted and developed (Gazzaniga 2000). Studies in autobiographical memory support this idea and have shown that knowledge about an individual's own activities stored in the memory changes over time and in different contexts (Barsalou 1988, Rubin 1999). In this study the teams engaged in **transformational activity** by adding new pieces of knowledge to that which already existed, by re-examining and rejecting information and by changing the knowledge for particular contexts in which it was to be used. (Evidence for all these activities is provided throughout Chapter 5 Sections 5.4 and particularly 5.4.6).

Mirroring may thus offer an alternative way of describing the relationship between the individual and the group or organisation in knowledge development and learning.

In addition to these mirrored processes there are aspects of knowledge development that are unique to the corporate or group setting. In this research the following are readily identified:

- Team diversity
- Team interaction
- Organisational knowledge store

Although access to a wide range of knowledge sources has been described above as an aspect of mirrored knowledge development activity, the team setting also illustrates a special feature of the social component of knowledge development which is the availability of a range of experiences, professional backgrounds, styles, skills, values, perspectives and personalities within a closely contained unit. And although there is value to gathering data from further a field, the team provides instant diversity, something to which the individual cannot even aspire. This illustrated in the last chapter in the sections surveying the origins of *units* (Chapter 5 Section 5.4.4) and the mechanisms of *unit* development (Chapter 5 Section 5.4.6).

The team setting also involves a special setting for interaction, providing more ordered and concentrated shared activity than informal and random interactions between individuals in the same organisation. The survey of individual contribution types (Chapter 5 Section 5.1) provides a guide to the range of interactions contributing to knowledge development. Interaction provides both a stimulus for knowledge development - the opportunity for ideas to

be developed - but also a rigorous way of testing and evaluating ideas ready for passing on to a client. An isolated individual is less likely to engage in the same level of rigorous processing through their own cognitive activities. The literature on team work and team functioning supports the idea that teams are more than the sum of their parts and form special interactive contexts for problem-solving (see Furnham 2005, Levi 2001, Atkinson 2001).

Thirdly the corporate setting provides a store of 'organisational knowledge' available to all teams - organisational knowledge in the form of practices, theoretical frameworks, specialist terminology, skills, policies, etc. This knowledge is a tried and tested pool that individuals and teams can feel confident is accessing and utilising. In this study the language, theories and practices of **branding** (Chapter 5 Sections 5.4.3) provided knowledge that was not questioned by the group. It provided common, justified knowledge that teams could utilise. The great majority of the organisational literature on knowledge management and knowledge creation surveyed in Chapter 4 supports the existence of tacit knowledge or knowledge embedded in the policies and practices of organisations (Chapter 4 Sections 4.2.2 & 4.4.1)

The final area of team functioning that potentially sets it apart from individual activity concerns that of leadership. These teams were not led in any formal sense although the 'undeclared' hierarchy which has been alluded to on a number of occasions did at times appear to play a part in influencing team behaviour (see Chapter 5

pp 217, pp 256). In the literature there is reference to the place and value of agents to aid and support learning and knowledge development activities in organisations (Chapter 4 Section 4.9). Agents might be specialists with an understanding of groups and of learning and knowledge development processes or they might be managers whose task involves ensuring that teams, such as those represented in this research, deliver the solutions required by their clients. In this respect Carlisle (2002) talks about agents who have the ability to integrate knowledge from different sources and Marsick and Watkins (1990) of people who can work with the emotional dimension of project groups.

In one respect the teams did not require formal leadership and facilitation. They performed without them. They seemed to resolve the issues they faced, helped in part by the common ability amongst teams to look at themselves and to discuss their own functioning - a skill that is often associated with the role of the facilitator.

But this still begs the question: Would the teams have been more effective with someone 'officially' responsible for the team functioning - a trained manager or a facilitator with no positional power? Would such a person have ensured that the teams:

- did more work on integrating different ideas?
- maintained boundaries in discussions and as a result worked more systematically through issues without jumping from one *topic* to another?
- experienced less frustration because they 'felt led'?

- were clearer in their decision-making?
- were less affected by negative emotions?
- listened more effectively to each member, reducing the volume of unfinished and interrupted contributions?
- ensured a more effective mix of types of contribution?

A trained facilitator could have helped the teams with some or all of these issues but the teams may have lost some of the spontaneity that may have contributed to their knowledge developing activities. The recent literature on complex adaptive systems suggests that such groups are ultimately self organising and as such find their own level of useful functioning. This may be true for the teams in this research (Stacey 1996 & 2001).

Conclusion

This research does not resolve the issue over team versus individual processes in knowledge development. The evidence, however, does suggest an interesting mirrored relationship between the two processes. Team activities make an important contribution to these processes simply through the opportunity for a variety of people to interact in bringing a diversity of potentially useful information together and to test, connect and integrate this into knowledge that provides solutions to other people's problems. As such they are different in nature from individuals engaged in problem solving.

6.2.6 Why knowledge is not developed

Not only does the research throw light on knowledge development but it also indicates some of the obstacles to that development. In

particular some of the processes at work that hinder ideas from being developed and incorporated into the final knowledge solution being prepared for the client.

This has been analysed to some extent in the last chapter under the sections on 'Responses, Reactions and Emotions' (Chapter 5 Section 5.4.5) and 'Unit Endings' (Section 5.4.7). In summary it is possible to suggest some of the reasons for the non-development or non-inclusion of ideas:

1. Intellectual. The idea is tested within the group and through the process of reason and argument is rejected because it does not make sense to the rest of the team or does not seem, in the eyes of the team, to fit the situation i.e. is the wrong idea for the client or for their problem.
2. Social/Organisational. A power dynamic is created where the ideas of the less experienced or those from an 'inferior' professional background (e.g. account managers) are offered against those of the more experienced or those who are perceived to come from a 'superior' professional background (e.g. consultant) .
3. Personal style/Personality. There are two possible sides to this cause. The first is when ideas are poorly or incompletely expressed so that that they cannot be fully comprehended, or fail to stimulate, the rest of the group and are therefore not taken any further. The

second personality or style based cause is when ideas are strongly rejected by another group member for no evident reason.

This brings us back to the issue of team leadership and whether more formal or trained leadership could have ensured the efficient exploration of ideas ensuring that rejection occurred because of the first set of causes identified above rather than the second and third.

We have already seen how the literature has quite a lot to say about the obstacles to knowledge development and learning in organisations (Chapter 4 Section 4.7.2), most focus on limitations created by the organisation and the way it works. As the research was not designed to test the statements and hypotheses it is not possible to draw any conclusions on the veracity of these writers.

6.2.7 Knowledge dynamics and knowledge morphology

Having examined the main features of knowledge development in the three research teams I would now like to look at the overall form and process of knowledge development that emerges. As I move to formal theory development in the form of functional models it is again important to note that these are not offered as universal theories but emerging hypotheses available for verification. Their validity is in their ability to reflect the discovered patterns described in Chapter 4 and in the earlier part of this chapter and in their applicability i.e. the ability to use the models to explore patterns in other work-based teams.

First it is important to identify that there are features of the teams studied in this organisation that may make them distinct from teams in other organisations, because:

- they represent a sector of industry which produces distinct knowledge products and in which every client requires a tailor-made solution to an issue or problem they are facing. Other teams, involved in product development, in management or organisational development solutions, and management teams involved in solving internal problems within organisations, may handle knowledge in different ways. This may be the result of different approaches adopted in different sectors or because of the nature of the knowledge product itself, or simply because of different types of clients
- the distinctive culture of Fox King, including its approach to team work, problem-solving, and leadership as well as its own values, beliefs and resulting methodologies around creating brands to solve client problems and issues
- The unstructured, leaderless nature of group work. This might also be a cultural phenomenon. Whatever its source it may have a profound effect on the knowledge dynamics in the group leading to a more organic development of knowledge than in more structured and facilitated team approaches

- The reflexive nature of all the teams which may again be a reflection of the organisational culture to but also had an effect on the types of knowledge used, the complex interplay of problems being tackled, and the way the teams functioned
- The strong focus on *how knowledge was to be used* as well as what knowledge was to be developed. Other organisations may not devote the same proportion of their knowledge development work to discussing ‘how’. The mechanics of gaining knowledge and the best way of communicating the results may feature less in the processes used in other organisations

Such perceived characteristics may indicate the types of teams and organisations that could be used to verify the patterns discovered here or provide a basis for looking at knowledge development patterns in contrasting situations.

I have adopted two terms in this focus on the bigger picture, namely *knowledge dynamics* and *knowledge morphology*, as I believe these help to describe, and to some extent define, what has been discovered.

One way of describing the *knowledge dynamics* (or the process by which knowledge changed and developed, displayed by these teams) is by identifying types of team activity. The following are types or stages that can be identified here:

- **Initiation** - a new idea is brought into the team. This can happen at any time in the life of the team.
- **Building / Consolidating** - which includes a wide range of activities including developing the idea which might involve deepening or broadening the idea, supporting and connecting ideas.
- **Testing / Applying** - trying out the idea in different contexts, testing its logic or evaluating its usefulness to the client.
- **Discarding** - rejecting, ignoring or abandoning an idea
- **Reigniting** - returning to a previous idea and developing it further
- **Incorporating/Adopting** - committing the idea to the corporate memory and inclusion of the idea into the solution offered to the client.

These activities do not occur sequentially as in a linear process with one phase or stage following on from another. However there is some sequencing in that an idea is not **built** or **consolidated** until it has been **initiated**. **Testing** and **discarding** may happen at any stage in the life of an idea. **Reigniting** is peculiar to the iterative process that means that ideas dropped from the conversation may be picked up at a later time and developed further or brought back into their original form as a sort of reminder of their existence and importance. **Incorporating** seems to rely on the extent to which an

idea is resilient enough to withstand the test of time and the critical aspects of knowledge development in the teams.

These activities are not just operating in one stream of discussion but in multiple streams - in these teams represented by discussion of the **solution**, the **methodology**, the **team dynamics** and the **client**. These streams are not sequential either. In other words the teams do not complete their discussion of the solution before starting the discussion of methodology, and so on. Instead they move in and out of these streams and the streams actually 'feed' each other. They could be described as overlapping (see Diagram 5.26).

This development of knowledge through overlapping processes is similar to the project development described by Nonaka & Takeuchi (1995 op cit p 112) in relation to the Japanese approach to car manufacturing. They recount how concept, design, production, and marketing work as parallel, overlapping processes feeding off each other as the project progresses. This is in contrast to the classic western industrial model of a strictly linear, serial approach working from concept to design to prototype to manufacture. The success of the Japanese car industry has been attributed in part to their approach to knowledge development which is much quicker, more adaptable, more enriching and creative. The feeding of knowledge across parallel processes was certainly evident in this research where the Methodology and Team Dynamic strands of knowledge development influenced each other. It is this overlapping, parallel development of strands of knowledge that could be described as the

knowledge morphology of the project and of the teams and is best illustrated by Diagram 5.26 above.

In unstructured teams, as those studied in this research, these phases may be described as occurring naturally. Their value and applicability to other types of group would need to be tested but if they are all important components of the knowledge dynamics of teams then they could form a useful operational framework for team leaders and facilitators.

A second way of describing the knowledge dynamics in these teams is in terms of interaction styles. In Chapter 5 (Section 5.1.4) where this is described more fully two different interaction styles were observed in the three teams. One team exhibited longer discourses consisting of more complex communication of ideas. Interactions in this team were subsequently fewer. In the other two teams contributions were generally much shorter and contained simple expression of ideas and as a result there were many more interactions.

The influence of these interaction styles is hard to ascertain with any confidence and more focused and in-depth study of the phenomenon is required. The cause might be attributed to personality, to experience, to the status profiles of the teams, to the group dynamics that developed or may have been more external e.g. related to the nature of the problem. It is possible to hypothesise that the greater the level of interaction and the less the

discussion is dominated by certain individuals the greater the potential for knowledge development or at least for more creative solutions.

The third approach to describing the dynamics and morphology of knowledge is through the construction of a functional model that provides a simplified, diagrammatic view of how all the components identified in the last chapter and the early sections of this chapter work together. This is a simple visual representation that can be used to describe what happened here. It shows the origins of knowledge and its pathway through the teams' interactive processes to a solution available for the client (see Diagram 6.4).

The terms *knowledge dynamic* and *knowledge morphology* adopted here provide ways of identifying patterns of team functioning in knowledge development activities and the overall form or shape of that activity. Other teams in other industries may exhibit different patterns. It may be possible to use these concepts as ways of identifying similarities and differences between teams across different organisations.

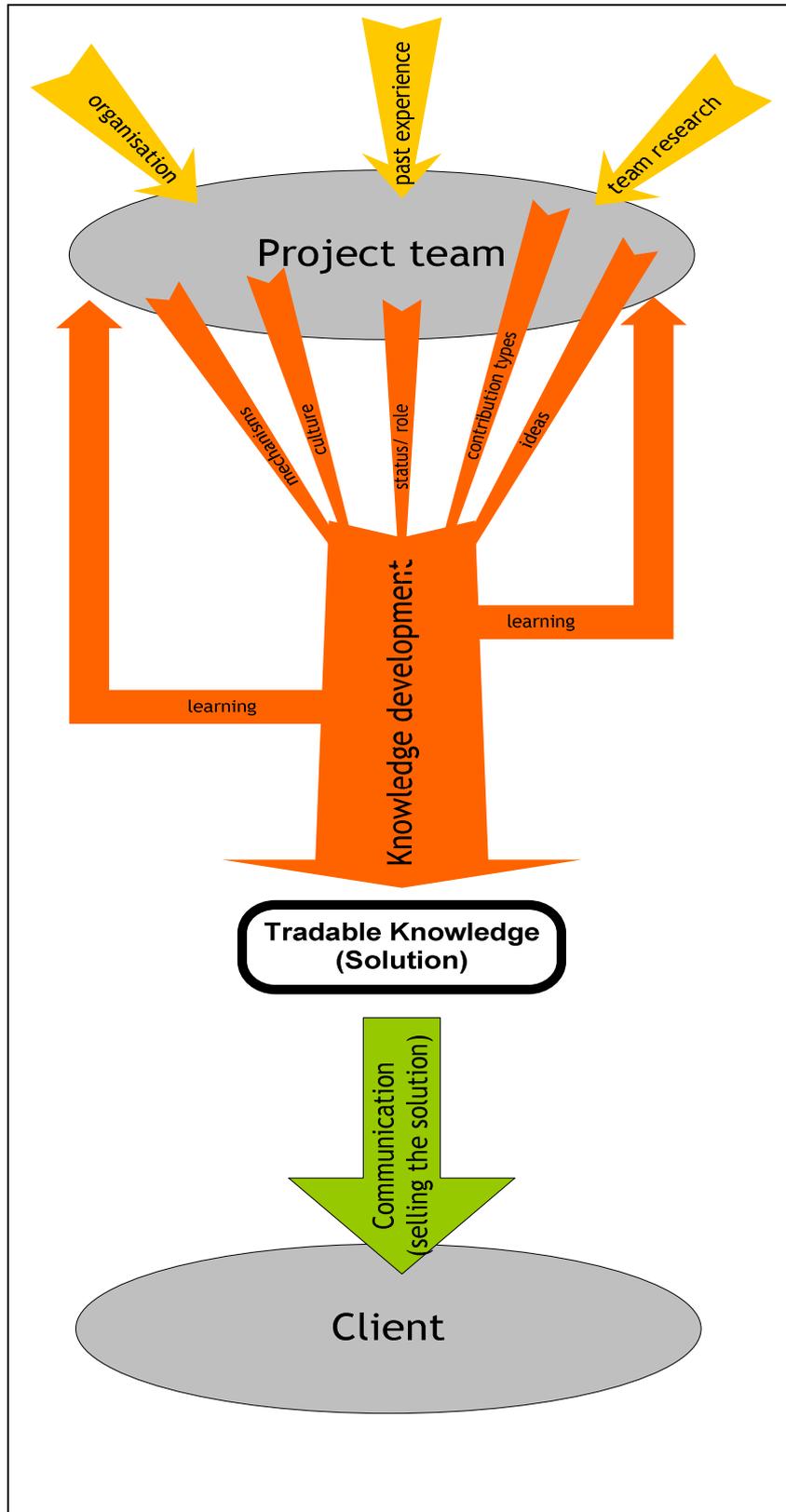


Diagram 6.4 Functional Model of Knowledge Development

6.3 The Nature of Knowledge

The lack of clarity in the definition and use of key terms, such as knowledge, knowledge development and organisational learning, has already been highlighted in the survey of business and organisational literature in Chapter 4 (Section 4.2.1). In particular, the terms knowledge and information were routinely used inter-changeably and there was often no clear defined relationship or differentiation between the concept of knowledge development and learning. Although these terms are defined there is no consistency between authors and at times individual authors are inconsistent in their use of particular terms.

This problem of clarity was also experienced in the research, particularly during analysis and interpretation of the data that was collected through observing and recording team activities. In describing the phenomena under investigation it was difficult to know whether to use the word 'knowledge' or 'information' or 'knowledge development' or 'learning'. Two words were frequently used, namely 'knowledge' and 'idea'. The latter of these two terms is in common usage in Fox King where it represents a popular way of referring to the main elements of a solution prepared for clients. In addition the word 'information' has also, occasionally been used in this research, especially when referring to 'material' collected through field research by the teams and before it had been introduced into team discussion. However the selection and use of these terms was relatively inexact, almost arbitrary. It was not possible to identify any clear rules or definitional guidelines that

could be applied to the actual phenomena emerging in the team activities. The choice of terms would have been eased if there existed a generic term that covered the class of phenomena that includes data, information and knowledge. But again no suitable word could be found. The formulation of a terminology to describe phenomena encountered in this research is described in Chapter 3 Section 3.4.4. The need to devise this defined terminology is symptomatic of these definitional problems.

As already indicated in Chapter 4 a variety of definitions or specific terms exist and of these one of the most helpful for this research is that which distinguishes data, information and knowledge and is surveyed in the Table 4.1 and reproduced from Stenmark's writing (2002 op cit pp 64-65).

According to these definitions data is defined as sets of discrete, objective facts about events, lists, statistics, and tables of quantities. They are neutral with no inherent value or no interpretation of what they might mean or how they could be interpreted. Data gives no indication of its relevance or importance to the issue under investigation. Data is that which is collected in the field work and is derived from observations, interviews, written records, etc. In the knowledge development activities of the teams studied here much of the data was collected outside the team meetings through the field work and research carried out by the teams. There were however two key areas of discussion that did not utilise field research - those of **Methodology** and **Team Dynamics**.

The data for these were actually generated in team time and in the case of the latter only existed because of the team meetings. But in these two instances it is much harder to identify what was data because most of the discussion seemed to incorporate the meaning and values associated with information. It may be that the data existed in the minds of individual team members and was represented by their unexpressed observations and their feelings, some of which they did express. The transformation process therefore occurred in the discussion.

Information is defined as data that has been given some meaning, which has been interpreted. Information is data with value added and is communicated in order to have an impact on the receiver. The process of transforming data into information began again outside the team meetings as individuals and sub-groups engaged in field research clearly started to interpret the data they were gathering before arriving at the team meeting. The process of evaluating and interpreting the data as it was being collected enabled team members to select what they wanted to present to the full team and to begin the transforming process that the team was to engage more fully in as it developed its solution for the client.

It is when we get to the textbook definitions that distinguish knowledge from information that it becomes less easy to apply the definitions to the actual phenomena in the team discussions. The definition of knowledge is information that has been transformed through cognitive processes into patterns and linkages imbued with

more complex meanings and judgements which reside in the minds of individuals and is embedded in documents, systems and practices. Do team discussions simply involve the development of knowledge - ideas 'imbued with complex meanings' or do we witness in team discussion the transformation of information into knowledge? If the former is true does all the information undergo the necessary transformation into knowledge inside individuals who only present, through their verbal contributions, knowledge into the group? If the latter is true how is it possible to distinguish, looking at the transcript of contributions, what is information and what is knowledge?

The concepts of 'explicit', 'codified' and 'tacit' offer a different framework for defining knowledge. This framework, which was very popular in the 1980s and 90s (Chapter 4 Section 4.2.1), is much easier to relate to the research. In the team discussions 'branding' represents one form of *codified* knowledge (see Chapter 5 Section 5.4.3) because it is the organisation's methodology. *Tacit* knowledge includes the past experiences held by individuals as well as the hidden reasons for feelings and reactions (see Chapter 5 Sections 5.4.5 & 5.4.6) and explicit knowledge is represented by everything that is articulated in discussion. This still begs the question as to whether everything contained in the transcripts of team discussions was knowledge or whether it included information as well. The boundary between information and knowledge is certainly no clearer.

Finally in the search for clearer definitions that help to identify the nature of knowledge in the research study we turn to a definition that regularly appears in the philosophy literature, that of knowledge as ‘justified belief’ (Chapter 4 p 67-8). This definition is taken up by a few of the organisation knowledge writers. Knowledge defined as justified is knowledge that has been tested using the rules of logic. In the team meetings two informal explicit processes coded as *evaluation* and *testing* were identified, whereby questions were asked or statements made to test the usefulness or identify the value of an idea (Chapter 5 Sections 5.1.1 & 5.2). These, however, were relatively minor types of contribution and many ideas were not tested in this way. It could be argued that more implicit justification occurred when an idea was taken up by more than one team member and eventually became accepted by the group in that it became part of the final solution offered to the client. But this seems to be at odds with the more conscious and structured process behind the original definition of the term ‘justified belief’. What also is not clear is what exists before knowledge is justified - is it ‘unjustified knowledge’ or ‘information’?

The preceding discussion highlights the problems over definitions. The need to develop a clearer understanding of the nature of knowledge should be important to the commercial world where knowledge is both a valued raw material and the saleable product. The following section attempts to address that problem for this research.

6.3.1 Knowledge and value - links in literature and the research

In the search for a suitable distinction, particularly between information and knowledge I would like to return to a key theme in the literature, that of 'value' as a major test of saleable knowledge in commercial contexts (Chapter 4 Section 4.3.1). I have already indicated that the organisational literature has a lot to say about 'value' and knowledge. It is the recognition of the selling value of both of these products that established them as focal points for business development over the past two decades. The interesting question is the extent to which evidence of value can be found in the empirical data in this study as this may hold the key to understanding the nature of knowledge.

In much of the literature value is judged by the gains to the purchaser of the knowledge. In this research the value to the clients of the three teams is impossible to judge as no data was collected directly from the clients. Sanchez and Heene, however, take the value issue back further by arguing that as only explicit knowledge can be sold it is the ability of a business to convert tacit to explicit knowledge that determines value (op cit pp 81-3). In this sense value is linked to *usability*, as explicit knowledge is potentially more available for anyone to use than tacit knowledge.

Although value to the client cannot be examined in this study value to the teams can.

In philosophical terms knowledge is valued for its veracity, when it has passed the tests of logic and the sceptics and is deemed to be true. I have already shown how the teams engaged in a limited amount of testing.

In sociological and educational terms the value of knowledge is linked to context. What it is valuable to know in one social setting and at one period of history is less valuable in another. In similar vein to the concept of 'really useful knowledge' (Johnson 1993 op cit p 62) valuable knowledge in the observed teams was that which was relevant to the expressed needs of the group at the time. That is knowledge that moved them closer to a solution. Its value was in its *usefulness* and was therefore context specific. The converse of this is that the knowledge that was not taken up by the teams and used to help formulate the solution was not valuable on this occasion. The stress is on 'on this occasion' because we are not talking about intrinsic value by extrinsic value, which can vary with context.

But groups were not just concerned with the value of knowledge for themselves, in helping them to solve a problem; they were also concerned about its value to the client. This is reflected in the amount of group time taken up in thinking about how to communicate the solution and in the concern for how the client would receive the knowledge (Chapter 5 Sections 5.1.2, 5.2, & 5.4.3). The importance of the usefulness of the knowledge to the client was therefore a preoccupation of all the teams.

6.3.2 Knowledge as information-in-use

If knowledge is that which has value and is useful in a given situation then we might distinguish it from information by defining it as having potential value and usability in a given situation. In this way the conversion of information to knowledge occurs when it is used - usefulness implying that it has value in a particular situation. In this sense the relationship between data, information and knowledge could be simply described as follows: *knowledge* is a construction of data that has been imbued with meaning *and is being used* and information is data that is imbued with meaning but is not being used. Another way of expressing this is that **knowledge is 'information-in-use'**.

Using this definition the distinction between knowledge and information in the team discussions is easier to see. Knowledge is introduced and developed at two levels. Level one is the level of the individual who brings information into the group by selecting things from memory from field research, or through the cognitive processing of what they have heard in the team discussion. Once they bring it into the team domain it is *knowledge* because they are making use of it; they see it as useful and of value to the discussion and to the solution.

If this is taken up and utilised by others in the team knowledge then exists at the second level. The team makes choices about which contributions to accept and develop and which to reject or ignore. Anything that the group examines or works with is *knowledge*

because it is in use and therefore deemed useful by the team. Some of this knowledge is rejected by the group or it is discarded because it is deemed of no further use to the group. It may remain on the corporate memory flipchart or even in the mind of the individual who contributed it but as far as the group is concerned it has no current value and therefore returns to the state of being *information*. There is always the chance that at a later stage the group may take it up again and it will again be in use. If the group does reignite discussion around an old idea it may be in the form of simple repetition of what has been discussed in the past or it may involve developing or transforming the original knowledge. This is illustrated in the development of *topic units* - from origination to incorporation or demise (See Chapter 5 Section 5.4).

Knowledge in teams and in organisations may have a variety of uses: as a solution for a client; a physical product sold to a client; know-how for tackling a task facing the organisation; raising awareness or increasing effectiveness of the functioning of teams or the organisation as a whole; or be used in other ways not evident in the workings of the teams examined in this research. In any of these contexts the people involved will take some responsibility for deciding what information has value and will realise that value by putting the information to use.

Another way of describing the use of knowledge in these teams would be to describe it in terms of effects or outcomes. Three clear outcomes of using knowledge in the observed teams can be

identified: knowledge that guided, influenced or determined behaviour (practical utilisation); knowledge that influenced and changed thinking (mental or cognitive utilisation); and knowledge that promoted an emotional response (affective utilisation).

Employing this way of distinguishing between knowledge and information can, I believe, further our understanding of the nature of knowledge and of the knowledge development process:

- There is a constant movement of information being converted to knowledge through use and of knowledge reverting back to information when it is no longer in use which is reflected in the cognitive processes within individuals. That which is stored in the memory and is not therefore in use is information, when this is utilised in thinking, feeling or acting it becomes knowledge. As soon as it ceases to be used it may 'return' to the memory as information again. Although the very act of using it and translating it into knowledge might change it so that the information now stored is slightly different to that which was originally accessed. There is also the possibility that when knowledge ceases to be used it is lost to the individual.
- In teams there is a similar constant movement between these two states. Information becomes knowledge through usage when it becomes a focus for team discussion and is developed or transformed. Knowledge may revert back to information when it is no longer in use. This reversion may be permanent when it is discarded by the team although it may remain as part of the corporate memory. But it is also possible that the reversion is

temporary with the information being brought back into use again at a later stage.

- Knowledge is a very transitory or short lived phenomenon because it is constantly in and out of usage. It may also be considered an 'unstable commodity' as its value only lasts as long as its usefulness. A change in any of the components that contribute to organisational functioning may reduce the value of existing knowledge - changes in technology, people, market needs, plant, structures, strategy, product, the political or economic climate.
- Anything that is stored either in the human memory, in a printed document or a computer is by this understanding *information*. Terms like knowledge storage become redundant and should more properly be renamed information storage because storage suggests that it is no longer in immediate use.
- Because of its fragility and its context-specific nature there is no guarantee that the knowledge deemed useful by the originating organisation will be utilised by the client. In other words the knowledge developed and sold may not turn out to be knowledge for the client. In the very process of transferring the knowledge it reverts to information until the client begins to utilise it when they then engage in translating it back into knowledge. This provides a good reason for knowledge-producing organisations spending some time in deciding how to transfer or communicate their solution to the client.

One further question is worth consideration: What leads individuals and groups to decide that information has value in a particular situation? This research points to a number of factors that can influence this behaviour and these are summed up in Table 6.5 below. What is clear is that choices may not always be logical or even rational.

Factors that influence acceptance	Factors that influence rejection
can perceive usefulness	cannot perceive usefulness
emotionally predisposed towards contributor	emotionally predisposed against contributor
emotionally predisposed towards contribution	emotionally predisposed against contribution
have ability to use information	lack ability to use information
understanding/comprehension	lacking understanding/comprehension
stands test of logic/ evaluation	fails test of logic/ evaluation
is remembered	Is forgotten

Table 6.5 Factors that Influence Choosing Information in Groups

This section has attempted to clarify the nature of knowledge as it is observed in the teams in this research. The explanations offered have broader implications beyond the research and beyond the world of organisational knowledge development. The key elements of this understanding can be summed up as “Knowledge is the fragile product of processing information whereby value is realised through usage - it is information-in-use.” It is for others to test this hypothesis beyond the confines of this project.

6.4 Relationship between Knowledge Development and Learning

The evidence for learning in this study is outweighed by the data on knowledge development that has now been analysed and discussed in this chapter and in Chapter 5. This may be due to the research design that relied heavily on collecting data from observed team activities and which ignored the temporal context of teams working together. It may in part be a result of studying teams whose primary purpose was to develop solutions for third parties. It may also be due to the nature of learning itself which, as reported in Chapter 2 of this thesis, can prove difficult to observe.

Attempting to identify learning activities and processes in this research required identifying some distinguishing characteristic or at least a working definition. Amongst the plethora of terms and characteristics offered by the literature ‘behaviour change’ was chosen as the key identifier of learning. Change represents a regular theme in the literature, even if a debateable theme at times (Jarvis et al 2003, Probst & Buchel 1997 op cit in Section 4.2.3). The problem with change is that it may not always be observable and may not occur within the time-frame of observed team activities. Despite these complications it was felt that this was the most satisfactory distinguishing feature.

This section looks at one of the original questions behind this research, namely the relationship between learning and knowledge development. It begins by examining the evidence for learning in the research teams, then relates the literature of Chapter 4 to analysed

data, and concludes by comparing the teams' learning and knowledge development activities.

6.4.1 Learning and change in the teams

In the analysis of learning provided in Chapter 5 Section 5.5 two types of change emerge. The first is change in the nature of the knowledge that teams possess and work with to find solutions to problems posed by their clients. This may not involve observable behavioural change as such but it does involve changes in the discussion and in the development of knowledge and ultimately changes to the solution offered to the client. This change was associated with the content categories covered by the **Solution** and **Methodology** topics.

The second involves changes in the way the teams behave, or operate as they pursue their objectives. This included changes in their methods of collecting or analysing data as well as changes in the way individuals behaved or the team functioned. This type of change was, again, associated with particular types of content categorised as the **Methodology** and **Team Dynamics** topics.

One distinction between the two types of change is that one - changes in knowledge - is theoretical; existing in the realm of unrealised ideas, whilst the other is real and involves observable actions or behaviour. The former has the potential for leading to behavioural change, but in the actions of other people (the clients) rather than in the lives of those that generated the knowledge.

In the analysis in the last chapter it was also evident that team members in certain professional roles were more liable to prompt or promote one type of change activity or another (Chapter 5 Sections 5.1.2 and 5.2). Account directors were more dominant in discussion about team dynamics and team methodologies than consultants and designers more dominant in discussions that changed the way knowledge developed. This suggests that at certain times the focus of attention might have been different for different members within the same team - designers and consultants focussing on finding the solution, which could be described as an outward facing focus and account managers with an inward facing focus on the functioning of the team. In this respect the mix of professions in the teams brought complementary skills in enabling change. This may be particularly important where teams do not have an appointed leader or trained facilitator.

6.4.2 Relating research to the literature survey

In comparing this research with the literature on organisational learning we can find both similarities and differences - there are times when the literature helps to provide some way of interpreting the observed phenomena and sometimes when it doesn't.

Mezirow's learning typology of three domains of workplace learning can be used to make some sense of the empirical data (op cit p 78). To some extent all the topics discussed by the teams are concerned with the task of solving problems and as such can be categorised as 'instrumental learning'. The **Solution topic** in each team is concerned with solving a problem for a client company. In this sense

it is someone else's problem and as the solution will not directly influence the behaviour or work practices of the team solving the problem it may be inaccurate to identify this with learning. The topics covering **methodology** and **team dynamics** are also attempts to solve problems. But in these instances the solutions do have the potential to influence the teams' behaviours. It is therefore this latter problem solving activity that fits Mezirow's description of *instrumental learning*.

Similarly Mezirow's *dialogic learning* could also be used to identify a type of team learning. Dialogic learning is concerned with the development of consensual norms (op cit p 78) which could describe the process the teams engaged in to reach common understandings and meanings in terms of the solution, the methodologies to use and in the way that the team should function. The consensus was therefore about knowledge to be given to the client and about team behaviour.

Finally, Mezirow's *self reflected learning* seems to again describe the discussions about team dynamics in which the teams looked in on their own behaviour.

Although Mezirow's three learning domains can be identified in the way the three teams operated there is also a good deal of overlap. Team discussions about team dynamics could be identified with *instrumental learning* and with *self reflected learning*. Similarly do the discussions that attempt to develop knowledge for the solution

to the client's problem represent *dialogic* or *instrumental learning*? This confusion reduces the value of these definitions in this research.

Another strong theoretical framework offered in the literature is the distinction made between *formal*, *informal* and *incidental* learning (Chapter 4 Section 4.2.3). These teams do not engage in formal learning, in the sense that they have been brought together to learn. Their activities are not centred on developing a skill or discovering new work practices for themselves or even to solve problems they themselves were facing. Their primary reason for being together is to produce solutions. The learning engaged in by these teams seems more appropriately described as *informal* or even *incidental*. The term *informal* learning may best be applied to the changes associated with the methods used to collect and analyse data where problems experienced by teams was faced and solutions found and acted on. Marsick and Watkins (op cit p 77) identify *incidental* learning as that which is hidden in the context of another task. This may also apply to learning associated with methodology and team dynamics. Here team members may have been learning about appropriate methods, about their own behaviour and about other team members without realising they were learning. Changes may have occurred that were not easily observed and may therefore also be defined as *unconscious* learning (Swieringa & Wierdsma op cit p 118).

There are numerous other definitions offered by a range of writers that could also be applied to the activities of these teams:

- Learning enables team members to handle new situations, as they occur in the team (Chapter 4 p 73)
- Learning enables the team to reach its goal(Chapter 4 p 73)
- Learning improves the capacity for individual and team action (Chapter 4 p 73)
- Learning enables the acquiring of knowledge and skills required to engage in social and economic activity (Chapter 4 p 76)

Turning to the literature focusing on mechanisms and processes in learning described in Chapter 4 Section 4.5.2, it is clear that a number are closely allied with formal learning. This is true of dialogue, action learning, and self directed learning as well as the many methodologies employed by trainers in organisational settings. As formal learning does not feature in the research teams we would not expect them to be evident in team activities. Informal learning involves less conscious and structured processes such as reflection (Chapter 4 pp 114), which could be described as a learning process that enabled the group to look back on what it had done and how it had done it. Likewise the single and double loop learning of Argyris and Schon (op cit p 116) could also be an informal learning process in which teams were observed to engage. In this instance most of the learning seems to be at the level of 'how things (methods and team functioning) can be changed and improved', which equates with single loop learning.

Moving away from the more individualistic approaches to learning in organisations we are reminded of the impact of organisational context described by writers like Senge (op cit p 135) who focuses on positive contextual forces and Lines & Ricketts (op cit p 137) who highlight negative forces. There may also be some useful insights from the energy flow model developed by Pedlar et al (op cit Chapter 4 p 121). In this instance the learning activities of the group providing energy, or helping to fuel the knowledge development activities. It was certainly true that when behaviour in the group threatened the task of finding a solution identifying that behaviour and taking action helped to remove obstacles. In order to make detailed links between these aspects of the literature and the research teams would have required more data collection both from the teams and from the organisation as a whole but this latter was consciously not a focus for this investigation. A number of more speculative points about the impact of context on learning in this research, based on the researcher's wider knowledge of the organisation can be made:

- The culture of the organisation with its lack of a hierarchy and open nature of discussions meant that it was easy to talk about individual behaviours and probably made the reflexive activities of teams possible
- The organisation's concern for the quality of presentations and the care taken in communicating with clients probably made the changes to methodologies possible

- The practices (routines) of the organisation also may have contributed to the way the teams dealt with methodological issues

This research does not really inform the debate on organisational learning or the relationship between individual, team and corporate learning. To further this debate may need larger scale (whole organisation) studies to be carried out over an extended time frame as described by Patriotta (op cit p 71).

Finally the issue of value in learning is not as prominent in the organisational literature as it is in relation to knowledge development but Mayo & Lank (1994) describe organisational learning as an asset because it enables people to function more effectively by enabling them to adapt to changing circumstances. An interesting debate in relation to learning in the research teams is whether the discussion about team dynamics added value to their work. Such discussions certainly had the potential for increasing the efficiency and effectiveness of the teams but this would be both hard to measure or to prove.

In summary it is clear that the literature can be used to throw light on learning activities in the team but the research does not really increase the validity of the claims of the authors discussed above and in the Literature Chapter and as such does not really add to the understanding of organisational learning.

6.4.3 The relationship between knowledge development and learning in the research

The links between learning and knowledge development in the writing referred to in Chapter 4 describe learning as ‘the act of gaining and utilising knowledge’ (Probst & Buchel and Marsick & Watkins op cit p 63). In effect both could be said to occur in the three teams with knowledge gained through the experiences of individual cognitive activity and team interaction and utilised in group action on team functioning and methodological approaches. In the sense knowledge is both a *raw material for* learning and a *product of* learning very much in the way described by Leonard (op cit p 82).

The nature of the processes of knowledge development and learning described in the literature suggest that they can exhibit some similarities.

In the first instance they possess both an individual and a social or group dimension. Both are cognitive processes that occur within the brain and are therefore embedded in the activity of individuals. And both have are enhanced or extended through social activity whereby the product of cognitive processing is shared with others which progresses the knowledge development activity or gives particular expression to the learning process (see Section 6.2.5). The existence to these two dimensions seems well supported by the evidence from this research.

Secondly there is an internal and external dimension to both these processes which has already been described in some detail for knowledge development (see Sections 6.2.1 & 6.2.5 and Diagram 6.2). Kolb's learning model indicates similar activities within the learning process with experience and action occurring outside the individual learner and reflection and conceptualisation being internal cognitive processes. It is much more difficult to find support for this notion in the data collected for this research.

A third similarity is the idea that the process is neither simple nor linear but instead involves the complex interplay of cultural context, social setting, and purpose. They are dynamic and continuing processes both within the individual and within organisations. This is certainly reflected in the pattern of knowledge development that emerges in the research but is less clear from the evidence for learning in the teams (Patriotta op cit 71, Lave & Wenger op cit 157, and Section 5.6).

6.4.4 An integrated model

In the section of this chapter on the nature of knowledge I offered a definition of knowledge as 'information in use'. In the light of what has been discussed here we might define learning in a similar vane as 'new knowledge in use'. The term 'new knowledge' is used because the utilisation of new knowledge is more likely to involve change whereas utilising knowledge that has already been used or that is regularly in use, such as driving a car, may involve action but is less likely to involve change. In this instance 'new' is a relative term and refers to knowledge that is distinct from the current

knowledge being utilised by the group. It does not refer to knowledge that no one in the group has come across before. So when a team examines the fact that decisions are not being made because discussions are going round and round in circles and no one feels they has the authority to break the group out of the cycle, this is not knowledge no one has come across before but it is 'new' to that group at that time. With this definition of learning the chain is complete:

Information is 'data in use'

Knowledge is 'information in use'

Learning is 'new knowledge in use'

Another way of representing the relationship between learning and knowledge development is to add a knowledge development component to Kolb's cycle where knowledge development links in with the elements of his model.

In diagram 6.6 below the red cycle represents Kolb's model and the blue that of the cycle of knowledge development in which initiation of a new line of thought - a new idea - is tested before it receives acceptance by the team and then is made available for development and integration.

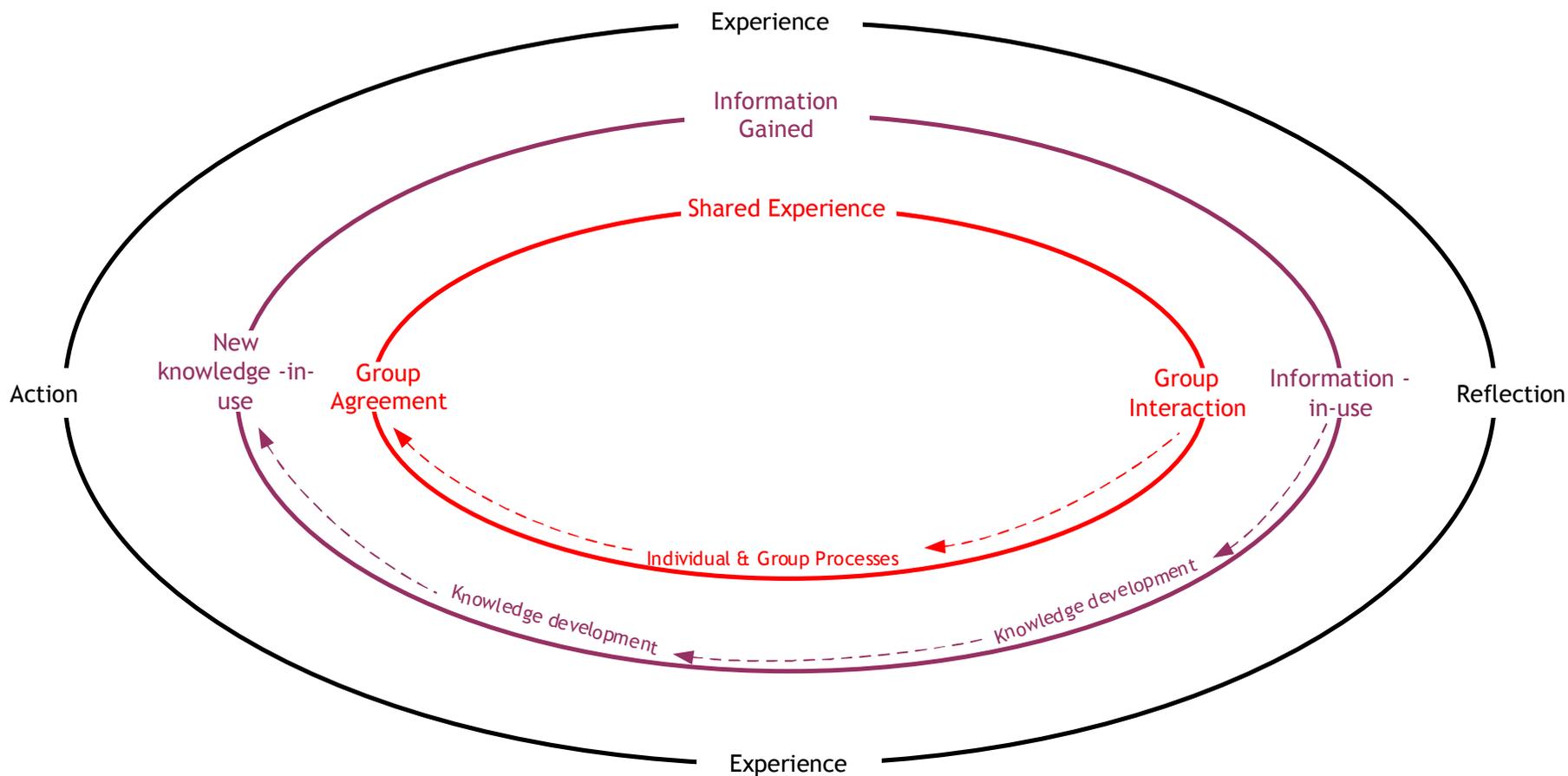
6.4.5 The shift from learning to knowledge in organisations

As a final note I would like to return to the description, given in the Introduction, of the shift in interest from organisational learning to organisational knowledge development that occurred in the 1980s

and 1990s. This research has demonstrated the relative ease with which knowledge development as a phenomenon can be studied in comparison to the study of learning in work teams. Knowledge is concrete and clearly represented in the verbal contributions of the individual team members whereas learning is a process that has both a strong internal cognitive dimension and action implications that are not easily tied to the observed life of the team. This may provide one clue as to why the business world moved its attention away from learning to knowledge. It is knowledge that is clearly a product for sale; more easily defined, managed, and evaluated. Learning is a process, part of the production line that ensures that knowledge is delivered but not of itself sellable to the client.

The danger is that the business world turns its back on all the insights of the eighties in favour of those of the nineties and the importance of learning is ignored in favour of the latest management and organisational 'fad' - the management of knowledge.

Diagram 6.6 Learning, Knowledge & Groups: An Integrated Model



Key — Kolb's Learning Cycle — Knowledge Development Cycle — Group Activity

Chapter 7 Conclusion

This project began in the real world of organisational consultancy and the search for greater understanding and a rationale for my work in knowledge development. The desired outcomes included improvement in my own practice and the opportunity to offer insights to aid other practitioners with an interest in the knowledge economy. The literature provided a backcloth and partial framework for interpreting the data collected from Fox King.

A number of valuable insights have been gained that contribute answers to the original question - 'What is the nature of knowledge development in organisational settings?' In addition it has provided an approach to the study of the dynamic processes involved and developed an initial exploration of the relationship between knowledge development and learning in teams.

This chapter outlines the main implications and, therefore, the value of the research to the knowledge economy. It also provides a critique of the research methodology and suggestions for subsequent research that could take these findings still further.

The use of a grounded approach has enabled me to use three case study teams to explore knowledge development and learning phenomena in some depth. As a result a detailed description, of

what I have termed the *morphology and dynamics of knowledge development*, has been possible. This has consisted of:

- the creation of a classification or typology of team member knowledge development contributions which identifies the types and functions of contributions individuals commonly make in helping to develop knowledge in team settings
- the identification and description of some of the mechanisms of knowledge development
- the identification of some key influences on knowledge development and learning processes in teams, namely the professional backgrounds of team members and the organisational context and culture
- relationships between individual and team processes

Deeper issues have also emerged:

- the importance of the concept of *knowledge value* which emerged in the analysis of the phenomena and was supported in the existing literature has resulted in a tightening of the definition of knowledge and has led me to believe that knowledge is a far more fragile 'commodity' that is often assumed with its value resting in its use. The term *information-in-use* has been adopted as a way of both defining the nature of knowledge and of demonstrating its close relationship to information and data. Information is constantly being transformed into knowledge through its

usage and back into information as it moves out of usage again

- A clear distinction between knowledge development and learning where action remains a key differentiator between the two. This resulted in the term *new knowledge-in-use* as a way of defining learning, which described the relationship between the key phenomena in this study

A number of functional and conceptual models have been devised providing a visual way of representing some of these findings and providing a means of integrating different elements of the analysis. There is no claim that these models represent universal 'truths' about knowledge or learning in the sense that they are true in all organisational settings. They do represent ways of understanding and expressing in simple terms what happens in the teams in the specific organisation under study. They are accessible for use in other research as a basis for analysing phenomena elsewhere and in order to test their universality.

In the early stage of the literature survey an issue was raised over the attitude of the academic world to the popular literature authored by organisational and management developers. The nature of these writings helped to stimulate the original questions and books from these sources were cited in that survey. In fact the rapid shift in focus of these books is reflected in the shifts of interests within business organisations as one idea is grasped and tried out and then discarded in favour of the next. Perhaps the academic

world has something to learn from the stream of changing literature where fresh thinking and ideas are conceived, widely disseminated and tried out in real, as distinct from 'laboratory', situations. Some of these ideas warrant deeper examination and may have the potential for taking the academic world into new and important phenomenological and epistemological discoveries. The link between *knowledge* and *value* is one case in point where the business literature has far more to say than the academic journals.

On the other hand weaknesses are clear in this culture where ideas are adopted and discarded with impunity. The importance of being a learning organisation may not be as prominent in the current literature or in the practices of human resource departments of businesses and knowledge creation may be the new flavour of the month but the importance of learning and the insights derived in the 1980s are still very relevant to organisational functioning today. Holding onto insights from the past and integrating the new insights is something that businesses need to learn and the academic world may be better at guarding the provenance of ideas and making the important links between what is current and the thinking of the past.

The research has some important lessons for those concerned with knowledge development in organisations. In my own work I have already taken note of the insights into the link between knowledge and value and the mechanisms of team functioning. This is now

integrated into my own consultancy practice both as a seller of knowledge myself and as an adviser to others selling knowledge.

For managers working in the professional service sector that sell solutions to other businesses - in other words who trade in their ability to develop knowledge in the form of solutions to client problems - there are important insights into the how value is created in the knowledge products they develop. The research suggests that this is both a feature of the development mechanism itself as well as the careful process of communicating that solution to the client; communicating in a way that maximises the chance that the solution will be utilised and therefore will truly be knowledge to the client. Managers also have something to gain from a critical appraisal of the teams they use to develop knowledge both in their ability to work with different knowledge strands in parallel and in the training provided (and culture encouraged) to enable reflexive practices to take place.

For those who facilitate or lead teams and who train those who carry out this role there are important insights into the dynamics of team functioning in order to carry out the knowledge development task, both in terms of good practice and of things to avoid.

The product of grounded research as I have already discussed is the creation rather than the testing of hypotheses. This research provides a number of hypotheses about knowledge development and its relation to learning that are now available for testing in other

contexts. But the approach adopted in this research is not without its limitations. In the first instance a single organisation was chosen. This raises a number of questions:

- Do other organisations in the same sector exhibit similar phenomena or are the patterns discovered here specific to the culture of this organisation?
- Would the research carried out in organisations from different sectors produce the same results? Are there similar phenomena in organisations in the manufacturing sector or in financial services?
- Are these British or Western phenomena? What would studies of similar organisations in Australia and the USA reveal? How do Indian or Chinese organisations develop knowledge?

The study was limited to three case study teams and although these revealed a lot of common phenomena there was no way of knowing whether very different practices existed in other teams in the same organisation.

Teams were chosen as the unit of study and although team working is very common in organisations it raises issues about knowledge development in organisations that do not use teams. What mechanisms help knowledge development that is not team based?

All of these are interesting questions and answers from further empirical research would provide useful comparisons and help develop a more detailed picture.

Finally a researcher can use hindsight to identify what he or she would have done differently to improve the research process. I have identified five areas where I might do things differently if I carried out this research again.

In the first place I am very aware that the research relies heavily on a single perspective; one observer and one interpreter of the data. I do not believe this invalidates the findings. Multiple perspectives would, however, have provided a richer set of data. This could have been achieved by using the perceptions of the 'actors' or team members themselves; interviewing them individually about what they remembered of team meetings both in terms of individual member activity and the work and progress of the team as a whole. Consideration, and subsequent rejection, of an interview technique has been discussed (see Chapter 3 Section 3.4.4) but it remains an untapped and potentially valuable source of data. Semi-structured interviews would have been relatively easy to construct using themes that were beginning to emerge. Such an approach would have produced much more data and, with the three teams under study, would have provided a total of nineteen perspectives, nineteen sets of data. As stated earlier to analyse this quantity of data to the same depth as has been carried out in this research may have been unmanageable requiring the reduction of teams chosen

for study. An alternative approach would be to use a sample of team member perspectives as a way of triangulating the findings.

Secondly, team member accounts would also have provided rich narratives enabling new sources of understanding about team functioning and solution generation which would never be available to the observer. As carriers of organisational knowledge they might have provided insights into knowledge development activities and processes that occurred outside the confines of the teams (Weick 1995).

Thirdly, it is also true that the research provides limited consideration of the influence of the wider organisational context in which the groups operated. In the light of the work of people like Patriotta (2003) and Lave & Wenger (1991) a more holistic organisational approach could have been taken with a less in-depth examination of team interactions. Increasingly the importance of context in learning and knowledge development has prompted more whole system studies. Nothing but a cursory examination is made of the organisational culture, routines, practices, strategies and politics which in combination provided context to this study. In addition, and again as a result of more recent studies mentioned above, the impact of *time* on learning and knowledge development is missing from this research. Patriotta's study of the FIAT factories spans many decades and enables him to draw conclusions about the progression from knowledge generation to knowledge institutionalisation not as a pure linear process but as part of a

cycle. The six month span of this project and the focus on micro dynamics did not enable the development of macro or systemic models of knowledge development

A fourth area involves issues of power and the value of a deeper exploration of the power dynamics of knowledge development. The power issues that were identified were only explored to a limited extent and did not provide any comprehensive examination of the wide range of potential power issues. Although the analysis did not appear to uncover any major gender issues the excerpt from the researcher's reflective Diary quoted in Appendix B identifies a female junior consultant whose contributions were ignored by older male colleagues. This was attributed to issues of experience but it could equally be interpreted as related to gender power differentials in the team. The depth of exploration did not enable this issue to be explored and tested further. As well as a consequence of the research design this may also have been the result of the researcher being male and carrying his own gender bias to the interpretation of observed phenomena.

Finally in association with these issues of organisational context it is reasonable to argue that more could have been done to provide a more detailed thick description. Although reference is made to the culture and ethos of Fox King (see Sections 3.3, 5.2, 6.2, 6.2.3, 6.2.4) this may not be as clear a picture of the organisational setting as suggested by writers like Geertz. There may be a number of reasons for this.

In the first instance, my role as an ‘inside researcher’ may have caused me to take some of the details of cultural norms, practices and approaches as a given and as a result fail to make these explicit. It may also have led to a failure in the early part of the research to formulate appropriate questions in order to gain this clearer contextual overview. Questions such as: *‘What are the explicit and tacit values in this organisation?’* *How is power manifest in teams and in this organisation in general?’* and *‘How would an insider and an outsider describe the culture of this organisation?’* are presently unanswerable; they are clearly avenues for further investigation.

The second contributory factor involves the very nature of the micro analysis involved which moved away from the bigger picture into fine detail. NVivo as a piece of software both facilitates and reinforces this approach. Less reliance on the software and/or greater supplementation of data collection and analysis that focussed more on contextual descriptions would have provided a thicker description.

To date, no research into the micro-dynamics of knowledge development in the workplace appears to have been carried out. Hence this research is unique and its findings provide a level of detailed analysis that contributes something new to the field of organisational knowledge production. In taking the discussion from the level of substantive to formal theory it begins to connect more

with the wider literature and extends, confirms and, at times, questions what has been written by others.

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Appendices

Appendix A Observation Sheet sample

Appendix B Reflective Diary sample

Appendix C NVivo Transcribed and Coded Data

Appendix D Team Member Roles and Experience

Appendix E Team Member Contribution Codes

Appendix F Analysis of Types of Individual Contributions
by Team & Speaker

Appendix G Topic Unit Quantitative Analysis

Appendix A Observation Sheet sample

Supplementary observations were recorded manually by the researcher at each team session providing details of the meeting context and observations of non-verbal and para-verbal behaviour which provided added data that might aid the understanding of the verbal record. A sample sheet from part of a Project Team One team meeting. This has been transcribed from the original hand written notes.

<u>Team</u>	Team One
<u>Present</u>	N, M, D, F - three men, one woman
<u>Session</u>	Two
<u>Place</u>	Meeting Room at Fox King - sitting round table
<u>Other Comments</u>	Whole team present, D. arrived ten minutes after start of meeting. Everyone has copy of a PowerPoint presentation in front of them.
When	Observation
Beginning of session people still arriving	Small talk and jokes, no initial reference to the project. Formally begins when N. the senior consultant arrives.
Started formally by M. the account manager	No discussion as to where to start, launch right in with questions directed at N. D. is not present and no-one acknowledges this

N.'s response	Slightly defensive and launches into long justification.
D. arrives	He looks at material presented in handouts and gets a question fired at him straight away. He thinks ponderously
Interaction D. & N	The other two sit back and listen while this is happening they seem happy to let the other to explore issue of focus for the solution
D. lengthy contribution on brand code	D. is animated an energetic and presents new idea with some passion. Others very attentive
N. supports D.	Very warm and enthusiastic
F. talks about surprising the client	F. makes a number of contributions which N. seems to ignore carrying on with his own agenda. He faces away from F with back partially to her
N. talks about ignorance	Everyone laughs agreement
N. begins discussion about character of Bond	N. stands up and paces room during this part of the discussion both while listening to others and making his won contribution. Sits down again after doodling on board when discussions mentions Virgin
F. general contributions	Iris accent makes her difficult for others to understand at times ... she repeats herself
D. lengthy silence half way through session	Doodles, its unclear how much attention he is paying to the discussion
M. about two-thirds of way through	Tries on three or four occasions to move the group on but has no impact. Looks like he is trying to act as chairperson for the meeting but this doesn't appear to be acknowledged or accepted by others.
N. directing people back to slides	Seems to have a lot invested in slides and brings group back to them for their agreement/ comments on three occasions. The rest comply on each occasion except D. who carries on doodling giving an occasional glance in direction of slides.
D. doodling while others are looking at slides	This behaviour doesn't look like he is switching off but a, means of staying focused and concentrating. No one else appears to be bothered by this behaviour.

Appendix B

Reflective Diary sample

Notes reflecting on the meeting and the researchers own reactions and feelings during the meeting were written down manually after the session. Below is a transcribed sample:

Reflections

Team 2

Session 1

The first meeting of the team. Had to find a good location in the room to have a clear view.

- Meeting started very late because they were held up, so I was frustrated at have to wait so long.
- New that **Sh.** and **A.** had reputations in FK for being awkward/straight talking.
- They seem to spend the first third of the meeting skating round issues, going round in circles wanted to get in their and bring some order, direction but didn't.
- **St.** seems to have lots of interesting things to say but not taken up perhaps because she is more junior.
- Missed some observations in the middle when they were talking about the next days priorities because I was trying to sort out video camera.
- **Sh.** talks about how you perceive yourself interested in that wanted them to develop that further but they didn't.
- Feeling pretty tired towards end and hard to concentrate on what was happening

Appendix C

NVivo Transcribed and Coded Data

The two samples below illustrate the use of NVivo in transcribing, coding and sorting data. Sample one is a portion of coded transcript from a meeting of Team One showing the coding strip down the right hand side. The code names are devised by the researcher and allocated to the appropriate portions of transcript. This program makes recoding and sorting data by code very easy. The second sample represents a Report in which all the contributions of one team member are collected together for closer analysis, further coding and the identification of patterns - the example here is of contributions may be one specific team member of Team Two called L. for the purpose of reporting in this research.

SAMPLE ONE

Project : Team One Meeting 6
 Place : FK
 Present : F, M, D, N

<p>F Well we are now at an epic and we want to get down to themes so its sort of a there but there has to be less of it. So it's</p>	<p>Sorting presentation, How we work</p>
<p>D Um If we go back to right what they asked us to do which was to show them something about</p>	<p>Expectations of FK, Client</p>
<p>N We might tell them little bit about ourselves and then basically tell them what we think the role is for us</p>	<p>Sorting presentation, How we work</p>
<p>D So there's a credentials bit and then there's a role bit</p>	<p>Sorting presentation, How we work</p>

<p>N There's a bit about how we work and a bit about why we do things and what we do, a bit about what we think their issues are Um a bit about what we think we can do with them. Should I run through this et me have you changed this?</p>	<p>Team, Doing presentation</p> <p>Sorting presentation, How we work</p>
<p>F I've added some bits and pieces where I didn't</p>	<p>Team, Doing presentation</p>
<p>N I see where you've stuck that on Oh OK I' . If I run through this and tell you the story that's behind it then we can see whether it fits or not. To start with it's based on much . its based where we originally started off. We've got a separate case studies because they've, because they're still quite lengthy so we need to think about how we deal with those. But a little bit about ourselves Started in 1965 it's the same time as when Thunderball came out. And at the time that's what we looked like ish. Nowadays if you look at and you can go to the modern world which is, you know the world is not enough which just puts it into the time context. We're now in a position of having 200 people consultants, communicators, a that stuff creatives based in London but also based in New York and the reason for being based in New York is that we work with a lot of global clients and we found that it just impossible not to have an office on the US side. But we're still the largest independent consultancy because we own ourselves we are not part of a big chain And is it WPP has just bought Young & Rubicon or are in the process of buying Young and Rubicon</p>	<p>How we work, Sorting presentation, FK process</p> <p>Other, Takeover</p>
<p>D They walked out of it</p>	<p>Other, Takeover</p>
<p>N Have they so they're not buying it. OK fine, so but the story behind that is that we are still independent and we are still British even if we have a global perspective and we have a European feel in terms of our mix people</p>	<p>Other, Takeover</p> <p>How we work, Sorting presentation, FK process</p>
<p>M Sorry I'm late</p>	<p>Being Late, Team</p>
<p>N It's Ok</p>	<p>Being Late, Team</p>

SAMPLE TWO

Contributor L Team 2, 30 passages, 3526 characters.

Section 2.1.1.1.1.1.10, Paragraphs 38-40, 89 characters.

I think we can have an educated guess can't we though from what we know about

Section 2.1.1.1.1.1.18, Paragraphs 76-78, 119 characters.

But surely everything other than the Rick Stein is the same as any other village in the basically isn't it

Section 2.1.1.1.1.1.20, Paragraphs 83-85, 109 characters.

The differentiator for this area is surely is the fact Rick Stein lives here and owns half the place

Section 2.1.1.1.1.1.22, Paragraphs 91-94, 165 characters.

Yes but if you're going to sell it as a place to come for a break because it's got really nice scenery Well so have every other Cornish village or whatever.

Section 2.1.1.1.1.1.24, Paragraphs 102-103, 56 characters.

Yes but why here and not any other down the road

Section 2.1.1.1.1.1.26, Paragraphs 110-111, 71 characters.

Yes exactly that would be the thing that you played heavily on

Section 2.1.1.1.1.1.28, Paragraphs 117-119, 117 characters.

No, no, no. That's what I mean you You ,you ... that's ... you said it's got all these wonderful things and

Section 2.1.1.1.1.1.30, Paragraphs 127-128, 21 characters.

Yes, yes true

Section 2.1.1.1.1.1.34, Paragraphs 144-145, 52 characters.

Let's think about which activities tomorrow

Section 2.1.1.1.1.1.44, Paragraphs 189-190, 84 characters.

I think there's like one night club ... I mean I don't know but you see
.....

Section 2.1.1.1.1.1.53, Paragraphs 228-229, 62 characters.

I thought it was just the little settlement of Padstow

Section 2.1.1.1.1.1.65, Paragraphs 266-268, 142 characters.

I feel we need to find out what there is first, So we can't say we
want to go up market if there isn't really anything to attract

Section 2.1.1.1.1.1.67, Paragraphs 273-274, 52 characters.

Because we are speculating about everything

Section 2.1.1.1.1.1.71, Paragraphs 288-294, 430 characters.

Maybe we should have some people doing a quick reccy I mean you
don't need to know Go into a huge amount of ... a quick look at
what there is a couple of people looking and maybe some talking
to people who are here just to see what Because at the end of
the day OK so they might really want the Wills and the Harry's or
whatever but they might not and if they're not going to welcome it
it's not going to work

Section 2.1.1.1.1.1.77, Paragraphs 317-319, 104 characters.

and maybe if we are going to do If we are going to split into
little groups to do each task

Section 2.1.1.1.1.1.79, Paragraphs 325-326, 29 characters.

The other thing is

Section 2.1.1.1.1.1.81, Paragraphs 331-333, 150 characters.

Yeh but ... and if we are going to split into little groups to do each
task then that might make it difficult to observe how everybody's
working

Section 2.1.1.1.1.1.88, Paragraphs 374-375, 19 characters.

That's fine

Section 2.1.1.1.1.1.100, Paragraphs 426-428, 132 characters.

Appendix D Team Member Roles and Experience

Details of all team members in each of the three teams with their professional role and level of experience/seniority

Team	Member Code (Speaker)	Role in Organisation	Experience/Seniority
One	Speaker D	Designer	Senior
	Speaker F	Consultant	Junior, little experience
	Speaker M	Account Manager	Moderate (3-5 yrs) experience
	Speaker N	Consultant	Senior
Two	Speaker A	Designer	Moderate experience
	Speaker Al	Account Director	Senior
	Speaker J	Designer	Senior
	Speaker L	Consultant	Senior
	Speaker Li	Account Manager	Junior, very little experience
	Speaker S	Consultant	Junior, little experience
	Speaker Sh	Account Manager	Moderate experience
Three	Speaker Ab	Designer	Senior
	Speaker B	Account Manager	Moderate experience
	Speaker E	Account Director	Senior
	Speaker H	Account Manager	Junior, little experience
	Speaker Jn	Consultant	Senior
	Speaker Mt	Consultant	Moderate experience
	Speaker P	Consultant	Junior, very little experience

Appendix E

Team Member Contribution Codes

The following tables record the full typology developed by coding and classifying the contributions of all individual team members. They represent the contributions made to knowledge development and are derived from analysis of data in all three teams under investigation. The method used to arrive at this classification is described in Chapter 3 and a full explanation of the types and their significance is provided in Chapters 5 and 6

Direct Contributions	A. Creating & Extending Knowledge	1. Creating New Knowledge	
		2. Aligning Meanings	<ul style="list-style-type: none"> i. Speaker to other contribution ii. Two or more other contributions iii. Synthesising a variety of bits of information iv. Extending a meaning by joining up v. Reinterpreting meanings by using a different form of words
		3. Developing Knowledge	<ul style="list-style-type: none"> i. Adding new distinctive features, facets ii. Increasing a list of possibilities iii. Offering new language or imagery to describe something iv. Offering a different perspective /angle /interpretation /alternative v. Qualifying something already discussed vi. Deepening/enriching existing knowledge - more detail, from own experience, adding colour, making it more concrete vii. Adding an emotional dimension viii. Making comparisons ix. Responding to questioning
	B. Examining Knowledge	4. Questioning	<ul style="list-style-type: none"> i. To check feasibility ii. To elicit more information from someone else's contribution iii. To move people on iv. For clarification v. To understand or gain information vi. To confirm vii. Rhetorical

Direct Contributions (continued)		5. Evaluating	<ul style="list-style-type: none"> i. Assessing value to/impact on client ii. Assessing value to work team/business iii. Adding to value iv. Assessing significance v. Assessing completeness vi. Assessing accuracy/effectiveness vii. Evaluating feasibility viii. Assessing appropriateness ix. Judging between different pieces of knowledge
		6. Testing	<ul style="list-style-type: none"> i. Challenging the validity/accuracy of a piece of knowledge ii. Testing connections/linkages iii. Testing rigor and logic
	C. Supporting & Rejecting Knowledge	7. Confirming	<ul style="list-style-type: none"> i. Simple confirmation ii. Confirmation and extension iii. Confirmation and caveat iv. Summary or reiteration of something already discussed v. Rhetorical statement vi. Confirmation to underline, emphasise
		8. Seeking Confirmation	
		9. Rejecting	<ul style="list-style-type: none"> i. Simple rejection or disagreement ii. Simple rejection and extension iii. Rejection of own argument

Indirect contribution		10. Commenting on how knowledge is gained	<ul style="list-style-type: none"> i. The way people are organised ii. The process for gaining knowledge iii. The speed and pace
		11. Commenting on how knowledge is used	<ul style="list-style-type: none"> i. With the client ii. Selecting knowledge what should be used and not used iii. Suggesting use iv. Seeking convergence or verification v. Commenting on the communication of knowledge to others
		12. Moving the group on	<ul style="list-style-type: none"> i. Encouraging group to seek relevant information ii. General encouragement in the task iii. Illuminating how the group is exploring/gaining knowledge iv. Requesting something that will provide more knowledge v. Moving the group to explore something different vi. Using questions to identify what knowledge is needed
Unconnected			<ul style="list-style-type: none"> i. Subject not related to general subject themes ii. Random connection made iii. An aside to something happening in the group or surroundings iv. Opening banter

Style		a. Extended contribution	<ul style="list-style-type: none"> i. Picking up and connecting a number of different points made ii. Pursuing a line of reasoning over 3 or more points iii. Sharing personal experience
		b. Tentative	<ul style="list-style-type: none"> i. Uncertain of veracity of information being given ii. Uncertain of how to express themselves iii. Sentence started a number of times but remains unfinished iv. Change of view expressed within one sentence
		c. Incomplete contribution	<ul style="list-style-type: none"> i. Unfinished sentence leaving meaning unclear ii. Interrupted sentence leaving meaning unclear

Appendix F

Analysis of Types of Individual Contributions by Team and Speaker

The three tables below provide a detailed breakdown of the contribution type by individual team members in the three teams under investigation. The figures are shown as a percentage of all contributions of that type made in that team (see Chapters 5 and 6).

TEAM 1	Speaker F % team	Speaker M % team	Speaker D % team	Speaker N % team	Contribution as % of all team contributions
Direct					
Creating/ Initiating	5	0	35	60	2
Aligning meanings	6	0	43	51	1
Developing existing	25	24	21	30	22
Confirming	31	59	6	4	16
Rejecting	18	21	32	29	5
Evaluating	35	13	22	30	6
Testing the logic	34	0	36	30	2
Questioning	20	32	28	20	16
Seeking confirmation	0	0	46	54	1
Indirect					
Commenting on how gained	35	16	29	20	3
Commenting on how used	41	8	22	29	15
Moving group on	31	0	69	0	10
Unrelated					
Unrelated knowledge	52	35	0	13	1
Style					
Extended contribution	22	0	0	78	
Tentative	41	29	30	0	
Incomplete	21	26	24	29	

TEAM 2	Speaker L	Speaker AI	Speaker Li	Speaker A	Speaker J	Speaker S	Speaker Sh	Contributions as % of all team contributions
	% team	% team	% team	%team	% team	% team	% team	
Direct								
Creating/ Initiating	50	10	10	6	14	10	0	1
Aligning meanings	35	6	20	0	39	0	0	1
Developing existing	8	11	15	12	18	11	25	30
Confirming	1	4	4	29	4	30	18	20
Rejecting	0	60	5	10	10	8	7	2
Evaluating	25	28	30	8	2	7	0	8
Testing the logic	8	1	0	3	40	48	0	7
Questioning	25	24	9	19	1	2	20	16
Seeking confirmation	7	9	30	20	34	0	0	1
Indirect								
Commenting on how gained	29	16	10	4	35	3	3	5
Commenting on how used	21	19	3	5	3	47	2	7
Moving group on	61	6	0	10	5	10	8	1
Unrelated								
Unrelated knowledge	15	2	17	4	20	0	42	1
Style								
Extended contribution	37	21	0	0	0	12	30	
Tentative	8	5	5	32	14	25	6	
Incomplete	4	9	10	9	19	25	24	

TEAM 3	Speaker Ab	Speaker Jn	Speaker H	Speaker P	Speaker Mt	Speaker B	Speaker E	Contribution as % of all team contributions
	% team	% team	% team	%team	% team	% team	% team	
Direct								
Creating/ Initiating	29	42	8	0	21	0	0	2
Aligning meanings	14	24	0	15	32	10	5	1
Developing existing	16	19	20	17	12	6	10	19
Confirming	26	10	14	20	13	12	5	17
Rejecting	9	3	12	15	20	14	27	6
Evaluating	19	29	25	1	4	2	20	11
Testing the logic	29	35	3	0	26	0	7	6
Questioning	12	15	24	2	8	24	15	14
Seeking confirmation	24	63	0	0	5	8	0	1
Indirect								
Commenting on how gained	20	15	20	10	2	2	31	6
Commenting on how used	14	2	23	20	6	25	10	12
Moving group on	0	4	21	15	0	35	25	4
Unrelated								
Unrelated knowledge	12	0	25	0	31	27	5	1
Style								
Extended contribution	43	31	0	0	16	0	10	
Tentative	1	6	4	40	0	35	10	
Incomplete	5	22	15	28	2	20	8	

Appendix G

Topic Unit Quantitative Analysis

This quantitative analysis of Topics by Topic Units gives a picture of the dominance of units and provides the basis for describing the discussion of knowledge morphology of the three groups. Each Unit is analysed by number of individual contributions, number of pages of transcript, and a guide to the range of contributions by size (1 liners = 1 line of transcript and so on). Minor units are in purple.

Project Team 1 Solution Topic

Topic unit	Contrib.- utions	pages	1 line	%	8 lines	%	20+ lines	%
Centre - Film	203	46	101	50	10	5	1	0.5
Real World	52	18	10	20	6	12	1	2
Product Range	44	21	14	32	12	27	2	5
Brand Structure	26	11	4	15	12	50	2	7
Personality	24	7	9	32	3	16		
Eon	18	13	3	16	4	22	3	16
Brand Code	20	6	10	50	1	5		
The point	19	5	2	11	2	11		
The Employees	10	7	1	10	2	20	2	20
Story	10	7	2	20	1	10	1	10
Physical Environment	10	5			10	10	0	
Ambition	12	4	5	50	2	16		
Tourist Demand	10	2	5	50				
The need for people to have the same image	6	5			5	83	1	16
Emotion	4	2						
Triangle of love	4	2	2	50				
Machine	1	1						

Project Team 1 Methodology/Approach Topic

Topic unit	Contrib.-utions	pages	1 line	%	8 lines	%	20+ lines	%
The presentation	473	87	316	67	11	2	2	0.4
Our role	216	48	100	46	12	6		
Giving client feedback	137	33	53	39	10	7		
Branding	108	33	31	29	13	12	3	3
Partnership	98	24	27	28	6	6		
Our methods	59	16	22	37	6	10		
FK process	50	16	13	26	6	12	2	4
Other projects	49	10	29	59	2	4		
Time and place	45	9	29	64	1	2		
The team	36	6	28	78				
Stakeholders	23	5	7	30				
The pitch	14	4	5	36	1	7		
Costs	9	2	8	89				
Positioning	6	2	2	33				
First thoughts	5	2	2	40	1	20		
How we need to be	3	1	2	66				
Books	3	1	2	66				

Project Team 1 Team Dynamics Topic

Topic unit	Contrib.-utions	pages	1 line	%	8 lines	%	20+ lines	%
Doing presentation	68	11	55	81				
Team involvement in next meeting	66	11	54	82				
Being prepared	60	11	44	73				
Individual functions/use of theory	24	5	15	63				
Buying books	9	2	5	56				
Results of small efforts	6	2	3	50				
FK attitude to 3D	6	2	3	50				
Cross purposes	6	2	4	66				
Challenge	5	2	2	40				
Wants the job	5	2	2	40				
Being subversive	5	1	5	100				
Being late	4	1	4	100				
Being clearer	3	1						
Fiona's first time	2	1	1	50				

Project Team 1 Client Topic

Topic unit	Contrib.- utions	pages	1 line	%	8 lines	%	20+ lines	%
Thorough thinking	23	6	9	40	1	5		
The 'Old Bloke'	14	3	13	93				
How to approach them	11	4	1	9	1	9		
Next meeting	11	3	8	55				
Expectations of FK	10	3	1	10				
Knowledge of Bond Character	6	2	4	66				
Spreading their understanding	6	2	1	17				
Ability to change	5	2	1	20				
Global extent	4	2			1	2 5		
Client schizophrenia	4	2	1	25				
They are relaxed	4	1	1	25				
Eon Family	3	1	1	33				
Egotistic	2	1	1	50				
Money	2	1	1	50				
Seeing FK	1	1						
Understanding Ian	2	1	2	10 0				
Professionalism	1	1						

Project Team 1 Other Subjects Topic

Topic unit	Contrib.- utions	pages	1 line	%	8 lines	%	20+ lines	%
Using stories	16	4	9	56				
Going to museums	8	2	6	75				
Book budget	7	2	6	86				
Gripe websites	6	2	3	50				
Swedish sayings	5	1	5	100				
Correcting typos	4	1	4	100				
Takeover	3	1	3	100				
Hyposurfaces	1	1						

Project Team 2 Solution Topic

Topic unit	Contrib. - utions	pages	1 line	%	8 lines	%	20+ lines	%
Brand values	197	39	143	73				
Activity attractions	165	35	101	61				
Who are the customers ?	139	28	76	55				
Distinctive to other villages	77	15	20	25				
Locals vs visitors	75	15	40	53				
Housing accommodation	57	11	27	47				
Lobsters	56	10	30	53				
Rick Stein	44	8	25	56				
Website	38	8	25	66				
Age groups	17	4	8	47				
What not to do	16	4	9	56				
Outside examples	14	4	3	21				
Cornish Tourist Board	14	4	3	21				
Changes in tourism patterns	14	4	7	50				
Cars	12	3	5	33				
Number of attractions	9	2	1	22				
Access	7	2						
Working hard	4	1	1	25				
Coach parties	3	1	1	33				
Humorous	1	1	1	100				

Project Team 2 Methodology/Approach Topic

Topic unit	Contrib. - utions	pages	1 line	%	8 lines	%	20+ lines	%
Tackling task 2	274	44	210	77				
Presentation	204	37	147	72				
Who does what	168	33	100	60	1	0.6		
Task 1 vs Task 2	121	25	76	63	3	2	1	1
Branding	126	22	96	76				
Timing	88	19	47	53	1	1		
Corporate Record	68	13	45	66			1	1
The FK Way	42	9	26	62	1	2		
How we reach a conclusion	32	7	25	78				
How to start	22	6	10	45				
Other projects	20	6	12	60	1	5		
Together or groups	20	5	9	45				
How they communicate	16	3	9	56				
Reinterpret and challenge	16	3	6	38				
Talking to people	14	2	12	86				

Video diary	12	2	10	83				
Big Idea	9	2	6	67				
Hypothesis	9	2	8	89				
Location	9	2	7	78				
What is the agenda	8	2	2	25				
Wording	7	2	7	100				
What's missing	3	1						
Feel of place	1	1				1	100	

Project Team 2 Team Dynamics Topic

Topic unit	Contrib. - utions	pages	1 line	%	8 lines	%	20+ lines	%
Learning Tips	195	46	87	44	3	2		
Defining Moments	130	31	89	68				
Roles	79	20	53	67	6	8	2	3
How do we do this?	74	23	30	41	2	3		
Teamwork	71	17	25	35	3	4		
Decision-making	72	16	44	61	2	3		
Speculation/expectation	34	11	25	74	2	6		
Time	31	10	20	65	2	6		
Reaction/Responses	29	10	16	55	1	3		
Leadership/facilitation	20	8	10	50			1	5
Relaxing/light hearted	18	8	16	89			1	6
Feelings	16	4	15	94	1	6		
Not listening/taking seriously	15	4	5	33	2	13		
Splitting hairs	2	1	2	100				

Project Team 2 Client Topic

Topic unit	Contrib. - utions	pages	1 line	%	8 lines	%	20+ lines	%
Their brief	10	2	2	20	1	10		
How to approach them	9	2	3	33	2	22		
Next meeting	6	1	3	50				
Money	5	1	3	60				
Knowledge of the wider industry	2	1	2	100				

Project Team 2 Other Subjects Topic

Topic unit	Contrib. - utions	pages	1 line	%	8 lines	%	20+ lines	%
Holidays	12	3	3	25	1	8		
The Weather	7	2	6	86				
Taking Breaks	8	2	6	75				
The Royal Family	3	1	3	100				
Sandwiches	2	1	2	100				

Project Team 3 Solution Topic

Topic unit	Contrib.- utions	pages	1 line	%	8 lines	%	20+ lines	%
Good Living	312	55	67	21	15	5	2	0.6
Amenities & Facilities	124	25	78	63	5	4		
Art & Craft	111	23	37	33	2	2	1	
People	78	18	62	79				
New residents vs. Tourists	55	15	34	62				
Relationship to surrounding country	48	14	16	33	1	2		
Living geography	44	12	12	27				
Sense of Community	43	12	1	2	2	5		
Transport Issues	38	10	27	71				
Where people live	34	9	19	56	1	3		
Other Places	25	6	15	60				
High Tech Economy	20	4	9	45				
How Town Feels	18	4	5	28				
Investment	15	3	9	60				
Attracting New Shops	11	2	8	73				
Modern Distinctives	9	2	5	56				
Wealth	3	1			1	33		
Thinking generically about retails	2	1	2	100				
Heart idea	1	1						
University in future	1	1						

Project Team 3 Methodology/Approach Topic

Topic unit	Contrib.- utions	pages	1 line	%	8 lines	%	20+ lines	%
The Presentation	457	79	199	44				
Deciding on data needed	308	57	208	68				
Defining the idea	189	40	66	35				
Timing	100	25	68	68				
Structuring work	77	17	45	58				
Deciding where to go	68	16	32	47				
Together vs sub groups	55	16	10	18	3	5		
Summary/ need for focus	47	14	32	68				
Video & Recording	31	13	27	87				
Deciding how to progress	25	12	13	52				
Reframing Task	22	10	5	23				
Flipchart use	17	9	11	65				
What questions to ask	14	6	11	79				
Identifying key	13	4	3	23				

words								
Transport Needs	6	1	6	100				
Recommendations	5	1	3	60				
Commenting on lists	5	1	4	80				
Need for brainstorming	4	1						

Project Team 3 Team Dynamics Topic

Topic unit	Contrib.-utions	pages	1 line	%	8 lines	%	20+ lines	%
Leadership	107	27	56	52	2	2		
Decision-making	89	20	39	44				
Lack of structure	67	15	23	34				
No time to bond	37	13	13	35	2	5	1	3
Value of splitting up	25	7	20	80				
Impatience/ Frustration	15	4	12	80				
Need to understand team roles	14	3	3	21	1			
Use of people's specialisms	10	3	1	10				
Being productive	10	3	1	10				
Too polite	10	2	1	10	1	10		
Pace too slow	8	3	1	13				
Team vs Task	8	3	6	75			1	13
Open communications	8	2						
Spontaneous	4	1	1	25				
Ground rules	4	1	1	25				
Listen More	4	1	2	50				
Team passion	4	1	4	100				
What are we doing now?	4	1	4	100				
Who will take notes	3	1						
Resistence	3	1	1	33				
Hour that work starts	3	1	3	100				
Punctuality	2	1						
Value of time spent exploring	2	1	2	100				
Going off track	1	1						
Team members neglected	1	1						
Honesty	1	1	1	100				

Project Team 3 Other Subjects Topic

Topic unit	Contrib.- utions	pages	1 line	%	8 lines	%	20+ lines	%
Wine	12	3	1	8				
Tea break	12	4	6	50				
Humour	10	3	4	40				
Creativity	8	2	5	63				
Being drunk	6	2	4	66				
Outside activities	5	1	1	20				
Umbrellas	4	1	2	50				
Hobby	3	1	2	66				
Living in London	2	1	1	50				
Ability to draw	2	1	1	50				
Back in the classroom	1	1	1	100				
Wedding	1	1	1	100				