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**Knowledge sharing
processes in academic
communities in new
university business schools**

PhD thesis

**To satisfy the requirements of Nottingham
Trent University**

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Executive summary

The aim of this study was to investigate knowledge sharing processes in academic communities in new university business schools. There is a paucity of empirical studies on how and why knowledge is shared. Most of the literature on this topic tends to focus on specific types of organisation such as knowledge intensive firms and professional service firms operating in the private sector. The university as a work organisation is under-researched. Consequently, this study is intended to make an original contribution to the nature of knowledge sharing within the higher education sector.

A case study strategy was adopted. This involved carrying out a series of semi-structured interviews across three cases involving a total of 27 participants. Cases 1 and 3 focused on academic communities and case 2 on an academic management community. The author used a reflexive approach throughout the period of the study. Data was analysed through a combination of computer software-assisted and manual systems.

The principal finding and therefore the thesis of this study is that informal and formal processes are intertwined in a form of symbiotic relationship. This relationship has been termed *informalisation* by the author and it is pivotal to understanding how and why knowledge is shared in academic communities. It also assists with the explanation of the relationship between individual, group and organisation in the

social construction of knowledge. This has implications for both the management and development of academic staff in particular.

Contents

Chapter 1: Introduction	Page 12
1.1 The aim of the research	12
1.2 The rationale for the study	14
1.3 The contribution to knowledge and understanding	16
1.4 Distinctiveness of the research	19
1.5 The structure of the thesis	20
Chapter 2: Literature Review	23
2.1. Introduction to the literature review	23
2.2 Literature parameters	33
2.3 The Higher Education context	38
2.4 The concept of organisation	63
2.5 Knowledge management	71
2.6 Organisational knowledge	79
2.7 The relationship between knowledge and learning	87
2.8 Knowledge formation processes	104
2.9 The Learning-Knowledge exchange	126
Chapter 3: Methodology	146
3.1 Research strategy and methods	146
3.2 The research paradigm	151
3.3 The researcher's paradigm	152
3.4 Precedents for the author's paradigm	162
3.5 Strengths of the author's methodology and methods	164
3.6 Limitations of the author's methodology and methods	169
3.7 Summary	177
Chapter 4: Discussion and analysis of findings: Introduction and Participant interpretations of knowledge	179
4.1 Introduction	179
4.2 Research question and associated proposition(s)	189
4.3 Quantitative analysis of the data	193
4.4 Summary	205
4.5 Summary of discussion and analysis chapters	208
Chapter 5: Discussion and analysis of findings: Participants' accounts of how knowledge is shared or exchanged	210
5.1 Research question and associated propositions	210
5.2 Quantitative analysis of the data	212
5.3 A comparison of knowledge sharing and knowledge or information exchange	224

Chapter 6: Discussion and analysis of findings:	
Participants' accounts of how knowledge is shared or exchanged (contd)	235
6.1 The intertwining of formal and informal structures, processes and practices	235
6.2 The third wave	263
6.3 The role of technology	265
6.4 Summary	266
Chapter 7: Discussion and analysis of findings:	
Personal knowledge and shared knowledge	269
7.1 Research question and associated propositions	269
7.2 The principal learning processes	270
7.3 The relationship between personal knowledge and shared knowledge	281
Chapter 8: Discussion and analysis of findings: Barriers and facilitators	296
8.1 Research question and associated propositions	296
8.2 The barriers and facilitators	298
8.3 Identity	319
Chapter 9: Discussion and analysis of findings:	
Choosing to share knowledge	345
9.1 Research question and associated propositions	345
9.2 Tacit reciprocity	345
Chapter 10: Conclusions	358
10.1 Introduction to conclusions	358
10.2 What do individuals claim constitutes knowledge?	359
10.3 What account do individuals give of how knowledge is shared or exchanged within organisations?	362
10.4 What do individuals claim are the similarities and differences between personal and shared-knowledge?	365
10.5 What barriers and facilitators do individuals claim exist in the sharing or exchange of knowledge in organisations?	367
10.6 What accounts do individuals give of choosing to share knowledge or not?	371
10.7 Integrating the conclusions	372
Chapter 11: Proposals	379
11.1 Rationale for the proposals	379
Bibliography	
Appendices	

List of tables

Table 2.1: Perspectives on organisational knowledge	25
Table 2.2: The duality of knowledge	28
Table 2.3: Comparison between first and second waves of knowledge management	36
Table 2.4: The linkage between the Original research questions and the literature review propositions	43
Table 2.5: Comparison between 1 st and 2 nd waves of KM	71
Table 2.6: Popular terms for describing informal groups	82
Table 2.7: Frequency of references to knowledge formation processes	105
Table 2.8: A comparison of terms used in each wave	106
Table 3.1: Cases and participants' roles	147
Table 3.2: The study's five research questions	149
Table 3.3: Paradigm descriptors	151
Table 3.4: A comparison between constructivism and social constructionism	159
Table 4a: Cultural analysis of cases	183
Table 4b: Participant profiles	186
Table 4c: Principal examples of formal and informal groups and processes	189
Table 4.1 Original research question and associated proposition(s)	189
Table 4.2: Participant definitions of knowledge	191
Table 4.3: Types of knowledge (T)	194
Table 4.4 Data on all contexts in each case	201
Table 4.5 Data by informal structures and processes	202
Table 4.6 Data by formal structures and processes	202
Table 4.7 Data by subject group level	204
Table 4.8 Data by networks	204
Table 4.9 Data by department	205
Table 4.10 Data by business school or faculty	205
Table 4.11 Data by teaching	205
Table 5.1: Original research question and associated propositions	210
Table 5.2: a taxonomy of knowledge formation processes	211
Table 5.3 Knowledge formation processes across all groups and networks	213
Table 5.4 Principal relationships between K codes and R codes	214
Table 5.5 Comparing different modes of storage	215
Table 5.6 Knowledge formation processes in subject groups (cases 1 and 3) and in informal SMT activities (case 2)	217
Table 5.7 Illustrative data examples of knowledge sharing in informal and formal contexts	217
Table 5.8 Knowledge formation processes for formal groups	219
Table 5.9 Knowledge formation processes in internal and external networks	219
Table 5.10 The level of knowledge transfer (K7) occurring within internal and external networks	222
Table 5.11 Comparison of the levels of informal and formal knowledge sharing	224
Table 5.12 Comparison of informal and formal knowledge sharing of	

principal groups in each case	225
Table 5.13 Levels of informal collaboration (K6) in formal and informal structures	226
Table 5.14 The overall levels of formal knowledge sharing (K3, K4)	227
Table 5.15 Comparison between knowledge sharing and information exchange	228
Table 5.16 Comparison of knowledge sharing with exchange in the principal groups in each case	228
Table 6.1: The advantages and disadvantages of formal and informal structures and processes	235
Table 6.2: Routines that encourage or discourage knowledge sharing	257
Table 7.1 Original research question and associated proposition(s)	269
Table 7.2: A taxonomy of Learning processes	270
Table 7.3 Overall incidences of learning processes	271
Table 7.4 Levels of situated learning in formal and informal structures	272
Table 7.5 Levels of giving or receiving information in formal and informal structures	272
Table 7.6 Situated learning sub-codes	273
Table 7.7 Comparison of individual and community memory	282
Table 7.8: The relationship between L and K codes	283
Table 7.9 Illustrative examples of learning triggers	284
Table 8.1 Original research question and associated proposition(s)	296
Table 8.2: Frequency analysis of principal barriers	298
Table 8.3: Frequency analysis of principal facilitators	300
Table 8.4: Perspectives on academic identity	333
Table 9.1: Original research question and associated proposition(s)	345
Table 9.2 Analysis of references to trust	346
Table 9.3 Analysis of references to mutuality	348
Table 9.4: Evidence for the house as a community of practice	350

List of figures

Figure 2.1: Conceptual framework Stage 1	70
Figure 2.2: Conceptual framework Stage 2	78
Figure 2.3: Conceptual framework Stage 3	86
Figure 2.4: Conceptual framework Stage 4	103
Figure 2.5: Conceptual framework Stage 5	125
Figure 2.6: The Learning-Knowledge Exchange	129
Figure 3.1: Diagram illustrating the principal components of the author's methodology	157
Figure 3.2: Definitions of constructivism	178
Figure 4.1: Diagrammatic summary of the findings in chapter 4	207
Figure 4.2: Diagrammatic summary applied to the literature review conceptual framework	208
Figure 5.1: The principal relationships between R and K codes	214
Figure 5.2: Diagrammatic summary of sections 5.2 and 5.3	232
Figure 5.3: Diagrammatic summary applied to the literature review conceptual framework	234
Figure 6.1: How informal structures and processes address the formal vacuum	240
Figure 6.2: How informal structures and processes mirror the formal organisation.	244
Figure 6.3: The relationship between formal and informal structures and processes	252
Figure 6.4: The relationship between formal and informal structures and processes	255
Figure 6.5: Diagrammatic representation of informalisation	262
Figure 6.6: Diagrammatic summary	268
Figure 7.1: Learning and knowledge formation processes in case 1	274
Figure 7.2: Learning and knowledge formation processes in case 3	276
Figure 7.3: Learning and knowledge formation processes in case 2	278
Figure 7.4: The learning process based on qualitative data	286
Figure 7.5: The learning process based on qualitative data: illustrative example taken from Kate (3D)	288
Figure 8.1: Interconnecting factors influencing knowledge sharing in the house	305
Figure 8.2: Barriers and facilitators of knowledge sharing	310
Figure 8.3: Barriers and facilitators of knowledge sharing (part 2)	317
Figure 8.4: Relationship map for Joanne (1A) showing formal groups only	320
Figure 8.5: Relationship map for Joanne (1A) showing formal and informal groups	321
Figure 8.6: Relationship map for Richard showing	

formal and informal groups	322
Figure 8.7: Relationship map for Zoe (1A) showing formal and informal groups	324
Figure 8.8: Relationship map for Bruce (1HOD) showing formal and informal groups	325
Figure 8.9: Relationship map for Bobby (1A) showing formal and informal groups	326
Figure 8.10: Relationship map for Art (2SMT)	327
Figure 8.11: Relationship map for Mack (2SMT)	327
Figure 8.12: Relationship map for Tom (2SMT)	328
Figure 8.13: Relationship map for Peter (2SMT)	328
Figure 8.14: Relationship map for Sophie (3D)	329
Figure 8.15: Relationship map for Liz (3D)	330
Figure 8.16: Relationship map for John (3F)	330
Figure 8.17: Relationship map for Kate (3D)	331
Figure 8.18 : Learning and knowledge formation processes (taken from case 1) showing role and biography as inter-related processes	338
Figure 8.19: The learning process showing the role of identity and biography	339
Figure 9.1: the layers of context	353
Figure 9.2: Diagrammatic summary of findings	357
Figure 10.1: a conceptual framework for informalisation	375
Figure 11.1: HRD strategy and policy choices	381

Appendices

1. Case and participant profiles (including relationship maps)
2. Codes
 - 2.1 Type of knowledge (T codes)
 - 2.2 Knowledge formation processes (K codes)
 - 2.3 Learning processes (L codes)
3. Case study data tables
 - 3.1 case 1
 - 3.2 case 2
 - 3.3 case 3
4. Facilitators and barriers of knowledge sharing
5. Analysis of trust and mutuality
6. Summary of key findings for each research question

Chapter 1: Introduction

1.1 The aim of the research

The principal aim of the research is to investigate knowledge sharing processes in academic communities in the business schools of British 'new' universities (i.e. former polytechnics/post-1992 universities). Any research study involving knowledge as its focus is likely to prove both complex and contentious as knowledge is a multi-faceted concept (Blackler et al, 1998) which defies a universal definition. Researchers and practitioners often struggle to articulate clearly what they mean by the term (Alvesson & Kärreman, 2001). For this reason there is a detailed discussion of the concept in the literature review chapter and this provides an epistemological foundation for the rest of the thesis. The term 'knowledge sharing' is equally ambiguous and lacking in a universal definition although it can be described as a knowledge formation process. Knowledge formation processes have been described using a range of terms including: knowledge-creation, -construction, -production, -acquisition, -transfer, -sharing, -exchange and -conversion. There is considerable variation in how these terms are defined or explained and the implications of this are discussed in the literature review chapters as well as referred to in the analysis chapters.

Drawing on evidence from semi-structured interviews across three case studies the data obtained was used to answer the following research questions:

- i. What do individuals claim constitutes knowledge?

- ii. What account do individuals give of how knowledge is shared or exchanged within organisations?
- iii. What do individuals claim are the similarities and differences between personal knowledge and shared-knowledge?
- iv. What barriers and facilitators do individuals claim exist in the sharing or exchange of knowledge in organisations?
- v. What accounts do individuals give of choosing to share knowledge or not?

These questions were intended to reflect an explanatory approach although case 1 was intended to be more exploratory. As the study progressed in case 1 and the author refined his paradigmatic position, it was possible to discern some of the reasons for participant behaviour (such as why they share or do not share knowledge). In this way the study developed into an explanatory one. Three case studies were chosen in order to compare and contrast knowledge sharing processes within different types of academic community. The first case is an academic department within the business school of a leading 'new' university. The second case is the senior management team within the business school of a leading 'new' university. The third case is a school of management, comprising four departments, within the business school of a 'new' university that tends to be located in the lower rankings of national 'league tables'.

Informed by a neorealist ontology and a social constructivist epistemology the individual participant was viewed as the unit of analysis within the case studies. This is demonstrated by the five research questions which focus on understanding *individual* accounts. As shall be discussed in the methodology chapter, although a social constructivist epistemology is predicated on the belief that knowledge is the

product of social practices (Young, 2004), the emphasis is on the construction of this knowledge in the minds of individuals (Clarke, 1999). Social constructivism is derived from a constructivist understanding of knowledge which can be traced back to the work of, amongst others, Kelly (1955) and his concept of constructs. In most studies of organisational knowledge and learning, groups and organisations rather than individuals have tended to be the unit of analysis (Fang & Tsai, 2005). Consequently, it was anticipated that the findings from this study would make an important contribution to our understanding of how and why *individuals* share knowledge within a range of social contexts.

The author's research paradigm is controversial. In adopting a realist ontology and a non-realist epistemology he appears to be attempting to accommodate irreconcilable and/or competing paradigms. However, the author's methodological position has been informed by other authors who have adopted a similar stance. The realist ontology acknowledges the existence of an external reality comprising the natural and the social. These domains can only ever be understood imperfectly.

1.2 The rationale for the study

Since embarking on an academic career in 1998 the author has taught Human Resource Management (HRM), Human Resource Development (HRD) and Organisational Behaviour (OB) at three post-1992 universities (usually referred to as *new* universities). Prior to this he had worked predominantly in the manufacturing sector in a variety of roles including Total Quality Manager (1990-93) and Personnel Development Manager (1993-98). It was these last two roles that stimulated his

interest in better understanding the various theoretical perspectives underpinning the practices of continuous improvement (CI), organisational development (OD), career development (CD) and learning and development (L&D). This led to the successful completion of two postgraduate qualifications and a change in career path; as well as membership of the Institute of Training and Development (ITD) and, subsequently, what is now the Chartered Institute of Personnel and Development (CIPD). Having been appointed in 1998 as a senior lecturer in HRD it was a logical progression to choose this field of study and practice for his PhD topic. He was particularly interested in the relationship between individual learning and organisational learning and was intrigued by the apparent lack of consensus in the literature on the exact nature of this relationship. In the twelve months leading up to registration he read extensively and produced a detailed mind map setting out the relationships between different concepts. This process added breadth and depth to his understanding of the chosen topic and resulted in a change of emphasis to: the relationship between individual and organisational learning *and* knowledge processes. This process was carried out in tandem with extensive reading on different methodological approaches to research which introduced him to a range of philosophical discussions on the nature of knowledge that paralleled many of those in the literature on the emerging field of organisational knowledge and learning (OKL). Upon further critical reflection the focus of the study was amended to: the relationship between individual, group and organisation in the social construction of knowledge. During this period the author became increasingly fascinated by universities as work organisations; and, noted the lack of empirical studies in this area (Tight, 2004). He was struck by the fact that the university sector appears to be well suited to providing an appropriate context for investigating knowledge sharing and other knowledge formation

processes. “Inquisitiveness, learning from one another and keeping abreast of new developments are the driving force behind knowledge-sharing” (Huysman & de Wit, 2002: 174) and this fits very closely with the traditional characteristics of a university. Research questions were formulated and a methodology mapped out. The methodological approach adopted by the author incorporated reflexivity (Silverman, 2001; Bryman & Bell, 2003); and, as data collection and analysis progressed, the focus and working title of the thesis were refined further to: knowledge sharing in academic communities. It was felt that this more accurately conveyed the gap in the literature that the study was intended to address. The difficulties, dilemmas and frustrations that were part and parcel of this approach are discussed in the methodology chapter using extracts from the author’s research diary.

1.3 The contribution to knowledge and understanding

It has been theorised that knowledge sharing occurs both formally and informally within organisations but there have been few empirical studies over the last fifteen years to support these theoretical claims. Empirical studies have failed to match the proliferation of organisational knowledge theories (Patriotta, 2003) within the field of organisational knowledge and learning. There has been a paucity of research into knowledge sharing processes (Hansen et al, 2005), particularly in terms of *how* individuals share knowledge with each other (Ipe, 2003) and *why* they choose to share (Hislop, 2003). An understanding of how knowledge emerges and develops in actual work practices is still relatively limited (Peltonen & Lämsä, 2004; Tsoukas & Mylonopoulos, 2004). There is a need for research into the characteristics of

knowledge formation processes of communities that support knowledge sharing (Von Krogh, 2005).

The study makes two further contributions to knowledge and understanding. Firstly, the literature on theory and empirical studies is predominantly focused on business organisations. The effective 'management' of knowledge is generally associated with organisations that are driven by the need to attain and/or sustain competitive advantage. Higher education is still an emerging field and remains a relatively under-researched area (Tight, 2004) particularly in relation to knowledge sharing processes within academic work groups or communities. The majority of the literature on British universities has tended to concentrate on policy and management issues or on pedagogical and research themes. There has been little consideration of universities as work organisations from a knowledge-based perspective; with universities knowing very little about themselves as work organisations (Barnett, 2000a). To date there has been some interest in the development IT-based knowledge management systems within a university context (for instance, Kleist et al, 2004) as well as in the development of virtual or on-line communities within a higher education context: for instance, Di Petta (1998) focuses on academic virtual communities while Putz and Arnold (2001) focus on communities of learners. In America there has been some interest in applying the lessons about communities drawn from a school context to a university context (Lee, 1999), as well as to a corporate context (Petrides & Nodine, 2003). There have been some other attempts to apply the concept of communities to the university context, for instance: viewing universities as communities of learners (Wood, 1998) or communities of higher education (Lee, 1999) or communities of academics (Kogan, 2000). Waddock & Walsh (1999) and Schlager and Fusco (2003)

discuss communities of practice within American university contexts. Tight (2004) discusses the role of communities of practice within universities as an alternative lens through which to better understand the contemporary higher education context in the UK. Additionally, the role of university leadership in developing knowledge strategies has been discussed (for instance, for an American perspective see Stevenson, 2001a, 2001b).

Secondly, the study contributes to an understanding of the relationship between individual, group and organisation in terms of *how* knowledge is shared. The relationship between individual, group and organisational knowledge is regarded as a central focus for knowledge management (Quintas, 2002). This reflects the view that knowledge exists not only at the individual or personal level but is also, in some way, social or collective. As with the related concepts of organisational learning and the learning organisation, there has been limited investigation into the nature of the relationship between the individual, group and organisation. There is a lack of empirical understanding of these relationships. This is despite the fact that such differentiations have been made at a theoretical level, for instance: Nonaka (1991) in relation to knowledge creation; Quintas (2002) in relation to knowledge management. Some of the literature is characterised by vagueness or metaphor as a substitute for empirical study (for instance, see Oliver & Roos, 2000) or there can be a lack of clarity about the specific processes which support the flow of knowledge between the individual, group and organisation (for example, see Sommerville & Mroz, 1997).

The thesis is that informal and formal processes are intertwined in a form of symbiotic relationship. This relationship has been termed *informalisation* by the

author and it is pivotal to understanding how and why knowledge is shared and the relationship between individual, group and organisation in the social construction of knowledge.

1.4 Distinctiveness of the research

This research study is distinctive for several reasons. Firstly, the design and development of relationship maps for each participant. These maps provide a visual representation of how an individual perceives their work context in terms of their social interactions with colleagues in formal and informal groups, and internal and external networks. The findings reveal that the pattern of relationships are unique to each participant and can be described as a form of 'fingerprint'. The relationship maps provide a snap-shot of "the social structure of relationships among employees [that] provides the infrastructure through which information and knowledge flow" (Gant et al, 2002: 297). This unique blend of formal and informal relationships helps to reveal an individual's social identity. They illustrate how social identity is multi-layered and cannot be described purely in terms of the employing university. Secondly, analysis of the data has resulted in a typology of knowledge comprising four types of knowledge, each with two dimensions (a tacit or practical dimension and an explicit or propositional dimension). Thirdly, analysis of the data has resulted in a taxonomy of knowledge formation processes, within which knowledge sharing is a pivotal process. Fourthly, analysis of the data has resulted in a taxonomy of learning processes that are inextricably linked with knowledge formation processes.

1.5 The structure of the thesis

This thesis is divided into a further eleven chapters. Chapter two comprises a review of relevant literature. The literature has been reviewed by comparing and contrasting the lenses of two of the principal epistemologies within the field of organisational knowledge and learning: the cognitivist (post-positivist or realist) and the social constructivist perspectives. The evolution of knowledge management (KM) is used as the foundation for this critique. Knowledge management is a concept that has captured the imaginations of practitioners as contemporary society has become increasingly dependent on knowledge (Delanty, 2001). Building on preceding theories such as organisational learning and the learning organisation KM has provided a focus for the strategic and operational development of organisations in a global era. However, academics have tended to focus on the concept of organisational knowledge (Vera & Crossan, 2005). For the purposes of this research it is important to consider both of these overlapping concepts. Included in the chapter is a discussion of the aetiology of the concept of knowledge. While focusing heavily on the evolution of knowledge over the last fifty years, the period during which organisational knowledge has become something of a 'hot' topic, the meaning of the concept is traced back to its earliest known origins in ancient Greece. The recent debates on organisational knowledge have been characterised by an emphasis on the duality of the concept, an either-or dichotomy that suggests different types of knowledge rather than different dimensions. Exploring the implications of this distinction between *type* and *dimension* is crucial to our present day understanding of the concept. In terms of

the topics covered: First, there is a discussion of the higher education context within which this research study has taken place. This includes a discussion of the concept of the academic. Second, there is an analysis of the concept of organisation. Third, there is a summary of the three waves of knowledge management highlighting key implications for the university context. This is followed by a discussion of organisational knowledge which pulls together some of the key themes introduced in the first three sections. Fourth, there is an analysis of the relationship between learning and knowledge at the individual, group and organisational levels. Fifth, there is an analysis of the different perspectives on knowledge formation processes. Sixth, there is a discussion of the principal factors that characterise knowledge formation processes. These include the psychological contract, trust, power and identity. The literature review chapter has been structured around a series of propositional statements that are linked together by two inter-related conceptual frameworks. These propositional statements can be linked back to the research questions as shown in table 1 in the introduction to the literature review.

Chapter three explains and justifies the methodological approach adopted by the author. The philosophical or paradigmatic implications of the author's approach have already been touched upon above. These points are discussed in much more detail in this chapter. A wide range of literature on methodology has been read and reviewed as part of this process. The chapter contains a detailed discussion on realism and constructivism. The discussion of the latter concept highlights, in particular, two important considerations. Firstly, there are different constructivist positions (Light & Cox, 2001). For instance, Delanty (2005) identifies three kinds of constructivism: social constructionism, scientific constructivism, and radical constructivism. Such

differences have been labelled as 'sects' (Phillips, 1995). Secondly, some writers have not distinguished between these terms and have used them interchangeably, particularly constructivism and constructionism (Delanty, 2005). The author concludes that social constructivism, as a variant of constructivism best fits the study's epistemological perspective. Throughout the study the author has adopted a reflexive approach which is captured in many of his research diary entries. Extracts from the research diary are used in this dissertation to illustrate how reflexivity (Silverman, 2001; Bryman & Bell, 2003) has been an integral aspect of the author's methodological approach. Throughout the study he has reflected on how his methods, values, biases and decisions have affected the study (Bryman & Bell, 2003). Keeping a research diary is a recognised strategy for facilitating reflexivity (King, 2004). The diary entries reflect the methodological 'journey' undertaken by the author who started the research as a novice researcher. This journey is characterised by a series of twists and turns, cul-de-sacs, and moments of epiphany. This qualitative element adds a layer of richness to the dissertation's contents. Looking back some aspects of this journey appear to be 'blindingly obvious' but at the time felt 'bewilderingly obtuse'. The chapter contains an appropriate discussion of issues such as axiology, validation, reliability and generalisability.

The analysis chapters integrate quantitative analyses of the findings with qualitative examples taken from the three cases. A cross-case comparison underpins these chapters. Chapter ten contains the conclusions and chapter eleven sets out proposals in the light of the implications of the findings. These are tentative only given the constraints on generalisability of a case study approach to research.

Chapter 2: Literature Review

2.1. Introduction to the literature review

2.1.1 A historical perspective on knowledge

An interest in knowledge from a philosophical perspective can be traced back to the well known early Greek philosophers such as Plato and Aristotle; and earlier still, with the first known examples of philosophy and scientific thought emerging in the 6th century BC in the Milesian, or Eastern Greek, civilisation (Lane Fox, 2005). Plato was the first (known) philosopher to differentiate between knowledge based on a rationalist search for truth through a contemplation of nature or the cosmos, referred to as *logos*, and other kinds of knowledge such as opinion, described as *doxa* (Delanty, 2005). A philosophical preoccupation with knowledge has haunted Western civilisation ever since (Gardner, 1993).

The Enlightenment promoted the idea of universal, scientific knowledge which embodied truth, reason and rationality (Burr, 2003). Mankind was believed to be located in a deterministic universe that existed independently of the knowing subject (Morçöl, 2005) and to be rational was to be able to recognise truths and the connections between them (Ryle, 1990 [1949]). What were termed ‘philosophy’ and ‘science’ were regarded as two distinct forms of knowledge (Wallerstein, 2004) and this remained the dominant thinking of Western culture for 300 years (Cook & Brown, 1999). But now relativist thinking has emerged as the principal challenge to this established perspective (McAdam & McCreedy, 2000; Furedi, 2005). Traditional

epistemology which focuses on 'truthfulness' as the essential attribute of knowledge (Nonaka, 1994) is no longer the sole or privileged perspective. It is now argued that knowledge is subjective, contextual and embodied (Baumard, 1999) rather than objective, universal and a product of the mind (separate from the body). Increasingly, knowledge is seen as being grounded in all our bodily functions and direct experiences of the world (Morçöl, 2005). It is through this grounded approach that individuals keep in touch with the reality they live in (Hummel, 1994). As part of this shift narrative or storytelling knowledge emerges as a legitimate form of knowledge (Jameson, 1984). This equates to the common-sense knowledge which an individual shares with others as part of his/her engagement in the normal, self-evident routines of everyday life (Berger & Luckmann, 1991 [1966]). This has implications for how knowledge is perceived to be shared in organisations and, in particular, brings into sharp focus the role of informal contexts.

2.1.2 The paradigmatic 'wars'

It has been argued that all knowledge including universal scientific knowledge is contextual because scientists are situated within the world they observe (Prigogine and Stengers, 1984 cited in Morçöl, 2005). In a universal sense all knowledge is transitory because it is inextricably linked to the social context out of which it was learned and constructed (Wallerstein, 2004). As Lyotard (1984) observes:

Scientific knowledge cannot know and make known that it is the true knowledge without resorting to the other, narrative, kind of knowledge, which from its point of view is no knowledge at all (page 29).

From this constructivist perspective the reality of the world is always changing and knowledge is transitory (Wallerstein, 2004). Knowledge does not remain unchanged but is the subject of continuous, ongoing debates and exchanges (Seiler, 2004) and can refer to the mundane aspects of everyday practices or the complexities of abstract thinking (Kalling & Styhre, 2003). People interpret the concept differently in order to fit with their own particular situation, perspective and circumstances (Nonaka, 1991).

In contrast, from a cognitivist perspective there is a more stable reality or world which is potentially knowable through empirical study (Patriotta, 2003). The concept of cognitivism has been extended to embrace organisations in order to explain organisational knowledge and learning processes (although as shall be discussed later in relation to learning, including organisational learning, there has often been a lack of clarity to some of these arguments). These different perspectives on knowledge make any discussion of the concept both problematical and contestable. The dichotomy created by these two distinct perspectives on knowledge explains why recent literature focusing on organisational settings encompasses sharply contrasting and often contradictory views of knowledge (for instance, see table 2.1).

Table 2.1: Perspectives on organisational knowledge		
Knowledge has a relationship to information (and data)	Knowledge is different to information (and data)	Knowledge is complex
Burton-Jones (1999); Gamble and Blackwell (2001); Leonard and Sensiper (1998)	a) knowledge contains judgement (Huseman & Goodman, 1999; Davenport & Prusak, 2000; Hager, 2000) b) knowledge is about beliefs and commitment (Nonaka & Takeuchi, 1995) c) knowledge has a far	a) knowledge is a multi-faceted concept (Nonaka, 1994; Blackler et al, 1998; Bertels & Savage, 1998; Ahmed <i>et al</i> , 2002; Patriotta, 2003) b) knowledge is difficult to define (Davenport et al, 1998; Alvesson & Kärreman, 2001;

	broader range of applicability (Delanty, 2001) c) knowledge resides in people and is personal (Marchand, 1998).	Alvesson, 2004) c) knowledge is characterised by ambiguity (Newell et al, 2002), transience (Blackler et al, 1998) and fluidity (Ruggles, 1997; Davenport & Prusak, 2000).
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2.1.3 A contemporary understanding of knowledge

A contemporary understanding of knowledge can be traced back to the seminal work of Polanyi (1962, 1967) and Ryle (1949). Both argued that there is a practice component in all knowledge which Polanyi described as ‘tacit knowledge’ and Ryle as ‘knowing how’. This practical dimension accrues or develops through experience. Ryle uses the example of a boy playing chess to illustrate how knowing how is linked to action; Polanyi uses the example of learning how to ride a bicycle to make the same point about tacit knowledge. This action orientation of knowledge went largely unappreciated in the first KM wave but was an integral aspect of the second KM wave.

Polanyi’s (1967) distinction between tacit and explicit knowledge parallels Ryle’s (1990 [1949]) distinction between knowing how and knowing that. The explicit dimension is characterised by knowledge that is formalised, readily transferable and consciously accessible. However, while it is possible to distinguish conceptually between explicit (knowing that) and tacit (knowing how) knowledge, they are not separate and discrete in practice (Lam, 2000). Neither Polanyi nor Ryle subscribed to a reductionist view of knowledge. In both cases the distinction represents different interrelated *dimensions* of knowledge rather than different *types* of knowledge. They

are mutually constituted (Tsoukas, 1996) in what can be described as a symbiotic relationship (Alvesson, 2004).

Similar distinctions have been made since by other theorists but using different terminology. The intention is to bring clarity to the knowledge debate but the result is a potentially confusing array of terms that remain predominantly predicated on the distinction between tacit and explicit knowledge. For instance, the objectivist versus practice-based perspective of Hislop (2005) is essentially the same as the structuralist versus processual perspective of Newell *at al* (2002). Table 2.2 summarises some of the principal theorists and terms.

Table 2.2: The duality of knowledge				
Principal theorists				
Epistemology of practice (knowing) (Cook & Brown, 1999)	Epistemology of possession (knowledge) (Cook & Brown, 1999)			
cognitivist (Von Krogh, 1998; Alvesson, 2004)	constructionist (Von Krogh, 1998; Alvesson, 2004)			
Automatic and collective knowledge (Spender, 1996)	Conscious and objectified/scientific knowledge (Spender, 1996)			
Encultured Knowledge	Embodied Knowledge	Encoded Knowledge	Embedded Knowledge	Embrained Knowledge
Types of knowledge (Blackler, 1995)				
Action knowledge & Personal knowledge (Eraut, 1994)	Public knowledge (Eraut, 1994)			
Embodied Knowledge	Embrained Knowledge	Encultured Knowledge	Symbol Type Knowledge	
Types of knowledge (Collins, 1993)				
declarative knowledge (knowledge expressed as propositions) (Anderson, 1983)	procedural knowledge (methodological knowledge or know how) (Anderson, 1983)			
Theories of practice (Argyris & Schön, 1978)	Theories of action (Argyris & Schön, 1978)			
Tacit knowledge (Polanyi, 1967)	Explicit knowledge (Polanyi, 1967)			
Technical knowledge (Oakeshott, 1962)	Practical knowledge Oakeshott (1962)			
Knowing how (Ryle, 1949)	Knowing that (Ryle, 1949)			

Metaphors have also been used to convey the meaning of knowledge and, in particular, of the relationship between the tacit and explicit dimensions, most notably: playing chess (Ryle, 1949); riding a bicycle (Polanyi, 1962); using a cookery recipe (Kogut & Zander, 1992); playing tennis (Collins, 1993).

2.1.4 Typologies of knowledge

There are two seminal typologies which attempt to explain what knowledge looks like: Collins (1993) and Blackler (1995). The latter acknowledges the existence of individual and collective knowledge and is also an attempt to illustrate that different types of knowledge dominate in different types of organisation (Newell et al, 2002). These typologies are useful as they attempt to bring some clarity to the knowledge debate; although Blackler's has been criticised as a re-labelling exercise that adds little if any additional insight into the concept of knowledge (Alvesson & Kärreman, 2001).

There is certainly a tendency to refer to *types* of knowledge in the literature (for instance, see: Collins, 1993; Nonaka, 1994; Nonaka & Takeuchi, 1995; Blackler, 1995; Spender, 1996; Lam, 1997; Pan & Scarborough, 1999; Eraut, 2000). Contrary to Nonaka's (1994; Nonaka & Takeuchi, 1995) populist concept of knowledge conversion, which treats tacit and explicit knowledge as two different but complementary types of knowledge, tacit knowledge cannot be turned into explicit, nor can explicit knowledge be turned into tacit (Cook & Brown, 2002). The tacit and explicit dimensions of knowledge are also the properties of both individuals and collectives/groups (Kogut & Zander, 1992; Spender, 1996; Cook & Brown, 1999; Gourlay, 2004) and, as shall be discussed, this has important implications for understanding the relationship between individual, group and organisation in the social construction of knowledge.

2.1.5 The tacit-explicit knowledge debate

At the level of the individual explicit knowledge is formal, abstract or theoretical knowledge which relies on an individual's conceptual skills and cognitive abilities. It includes scientific knowledge which, as discussed above, still enjoys a privileged status within Western culture (Lam, 2000). This kind of knowledge is seen as objective (Sobol & Lei, 1994) because it comprises facts (Kogut & Zander, 1992) and concepts (Cook & Brown, 1999). Spender (1996) refers to this as conscious knowledge because we have an awareness of its existence and are able to articulate it. Because of this latter attribute explicit knowledge has also been described also as *articulated* knowledge (Hedlund, 1994) and *articulable* knowledge (Winter, 1987).

At the collective level explicit knowledge tends to be stored centrally in repositories which can be accessed by individual organisational members. However, this codification approach is "inevitably simplified and selective, for it fails to capture and preserve the tacit skills and judgement of individuals" (Lam, 2000: 493). It is also stored in stories (Cook & Brown, 1999) and can take the form of who knows what (Kogut & Zander, 1992). At the collective level it has also been described as *structured* knowledge (an organisation's rules, processes, tools and routines) (Noe, 2002) or *factual* knowledge (basic information about people and things) (Ellis & Dick, 2003).

Polanyi (1962, 1967) regarded tacit knowledge as personal knowledge residing with the individual. This tacit dimension of individual knowledge is action oriented and context specific (Nonaka, 1994; Lam, 2000; Ambrosini & Bowman, 2001). Tacit knowledge comprises two elements: cognitive (mental models) and technical (context-specific know-how) (Nonaka, 1994; Baumard, 1999). These two elements manifest in the form of skills (Kogut & Zander, 1992; Cook & Brown, 1999) and expertise (Baumard, 1999); and can be transferred from one person to another through a long process of apprenticeship (Polanyi, 1967). This can be described as a process of osmosis. Spender (1996) describes this as *automatic* knowledge in acknowledgement of Polanyi's (1967: 4) point that "we can know more than we can tell". It is difficult to articulate because it is so deeply embedded within an individual's experience, judgement and intuition (Ahmed *et al*, 2002). In a study of pizza parlours (Epple *et al*, 1996) employees struggled to explain (verbally) how to hand-toss a pizza thus demonstrating the tacit nature of the process. It has been difficult and challenging to find ways to operationalise tacit knowledge (Ambrosini & Bowman, 2001).

The tacit dimension of collective knowledge "is relation-specific, contextual and dispersed. It is organic and dynamic: an emergent form of knowledge capable of supporting complex patterns of interaction in the absence of written rules" (Lam, 2000: 493). It is embedded in routines (Nelson & Winter, 1982), which are ways of doing things that have consolidated over time (Patriotta, 2003), as well as processes, practices and norms (Davenport & Prusak, 2000; Thompson *et al*, 2000; Larsen, 2001). Terms such as genres (Cook & Brown, 1999) and recipes of organising (Kogut

& Zander, 1992) have been used to explain this type of collective knowledge which Spender (1996) has described as collective knowledge.

Collective tacit knowledge is a particular characteristic of informal groups such as communities of practice (Brown & Duguid, 1991; Lave & Wenger, 1991) and social networks which function outside formal structures and tend to be invisible to organisational management. Informal relationships tend to be mistrusted by management as fragile and susceptible to loss as people leave (Stacey, 2001). However, this type of socially embedded knowledge 'sticks' because it is deeply rooted in practice (Brown & Duguid, 1998). Whilst explicit knowledge can be codified and expressed in formal language tacit knowledge is intuitive and is not easily articulated; and, therefore not easily shared (Von Krogh, 1998; Hinds & Pfeffer, 2003) or transferred beyond the immediate (social) context (Lave & Wenger, 1991; Brown & Duguid, 1998; Hansen, 1999).

The use of the terms knowing how or know-how reflects the practical nature of tacit knowledge. Know-how is about the ability to put know-what into practice (Brown & Duguid, 1998). The interaction between these two modes of knowing is action-oriented (Brown & Duguid, 1998) and this is vital for the creation of new knowledge (Nonaka, 1994; Lam, 2000). Know-how and know-what:

work together, they circulate separately. Know-what circulates with relative ease. Consequently, of course, it is often hard to protect...Know-how, by contrast, embedded in work practice (usually *collective* work practice) is *sui generis* and thus relatively easy to protect. Conversely, however, it can be hard to spread, co-ordinate, benchmark or change (Brown & Duguid, 2002: 20).

This has implications for knowledge management processes in terms of the control versus nurture debate.

2.2 Literature parameters

2.2.1 The two contrasting perspectives

Literature has been critically reviewed by comparing and contrasting the lenses of two of the principal epistemologies within the field of organisational knowledge and learning: the cognitivist and the social constructivist perspectives. The literature review chapters have been structured around a series of propositional statements that are linked together by two inter-related conceptual frameworks. A conceptual framework within a case study approach covers the principal features of a research design and their presumed relationships (Robson, 1993) thus revealing the researcher's ideological biases (Janesick, 1994).

This approach has been adopted for two reasons. First, as perspectives on learning are rooted in epistemic beliefs it is necessary to explore the nature of knowledge in order to better understand learning processes (Yang, 2003). Second, to provide a more balanced analysis of the literature and to avoid the dangers of drifting into polemic claims (for instance, Sayer's (2000: 53) assertion that "all knowledge is social, situated and contextual"). As Bierema & Eraut, (2004: 63) observe, knowledge and learning can be examined from two perspectives: the individual and the social:

an individual perspective on knowledge and learning enables us to explore both differences in what and how people learn and differences in how they interpret what they learn. A social perspective draws attention to the social construction of knowledge and of contexts for learning and to the wide range of cultural practices and products that provide knowledge resources for learning...much uncodified cultural knowledge is acquired

informally through participation in social activities, and much is often taken for granted that people are unaware of its influence on their behaviour.

The two perspectives on knowledge enable us to discern phases or 'waves' in the evolution of knowledge management (Scarborough & Carter, 2000; Huysman & de Wit, 2002; Abrams *et al*, 2003). These can be described as a first wave cognitivist perspective and a second wave social constructivist perspective (Mankin, 2007). These are compared and contrasted below.

2.2.2 Structure of the literature review chapter

Each of the literature review sections involves the construction of two inter-related conceptual frameworks which are underpinned by propositions (which are tested in the data collection and analysis phases). The propositions can be linked back to the original research questions as set out in table 1 below.

Table 2.3: The linkage between the Original research questions and the literature review propositions

Research question	Proposition
1. What do individuals claim constitutes knowledge?	1.1 Universities are characterised by particular types of knowledge: Mode 1 (propositional) and Mode 2 (practical) knowledge (Delanty, 2001), personal knowledge (Eraut, 2001) and uncodified cultural knowledge (Bierema & Eraut, 2004).
2. What account do individuals give of how knowledge is shared or exchanged within organisations?	<p>2.1 Knowledge sharing tends to be a characteristic of informal groups (such as communities-of-practice or social networks) and knowledge exchange tends to be a characteristic of formal groups (such as departments, committees or project teams).</p> <p>2.2 An organisation's formal and informal structures, processes and practices are <i>intertwined</i> with the formal providing a structural framework or context for the informal.</p> <p>2.3 The activities of informal groups (such as communities-of-practice) and formal groups are inter-linked by the outcomes of particular activities, shared practice, or experience gained by individuals (referred to in this thesis as outputs).</p> <p>2.4 Analysis of the literature on knowledge management reveals that the concept has evolved in the form of 'waves' and it is proposed that a third wave is now underway in which knowledge <i>management</i> (i.e. control) and knowledge <i>development</i> (i.e. cultivation) are complementary rather than either-or processes.</p> <p>2.5 The third wave of knowledge management embraces the application of technology to communities of practice. Virtual, or on-line communities, reflect the development of a new kind of technologically mediated social environment (Di Petta, 1998).</p>
3. What do individuals claim are the similarities and differences between personal knowledge and shared-knowledge?	3.1 Psychological and sociological perspectives on learning and knowledge are complementary (reflecting a third wave approach to knowledge management). An individual learns through the combination of individual and social learning theories. He/she learns from the shared practice within a community of practice

	<p>(situated learning) and through the acquisition of skills and knowledge within and without the community (cognitive learning).</p> <p>3.2 Shared knowledge is socially constructed. Personal knowledge is the individual's interpretation of this shared knowledge in the form of practical and propositional knowledge and involves knowing who to ask if that personal knowledge is perceived to be incomplete or inadequate.</p>
<p>4. What barriers and facilitators do individuals claim exist in the sharing or exchange of knowledge in organisations?</p>	<p>4.1 Analysis of the literature suggests that there <i>is</i> a relationship between individual, group and organisation (although the relationship between the individual and the organisation is essentially an abstract one which is symbolised by the psychological contract and is influenced by a range of factors including the quality of relationships with immediate colleagues as well as the actions and behaviour of an organisation's senior management team).</p> <p>4.2 The relationship between individual, group and organisation is mediated through the shared practice that occurs within informal groups such as communities of practice and social networks.</p> <p>4.3 Individuals identify most closely with their subject or discipline colleagues.</p> <p>4.4 Biography and identity are inter-related concepts which impact on the nature of knowledge sharing processes.</p>
<p>5. What accounts do individuals give of choosing to share knowledge or not?</p>	<p>5.1 Knowledge sharing is characterised by tacit reciprocity which is a feature of intra-group relationships which are characterised by high levels of trust, shared values and a shared interest or practice.</p> <p>5.2 Knowledge exchange is characterised by power relationships.</p>

2.3 The Higher Education context

2.3.1 The external context

In recent decades the shift from an industrial-based to a knowledge-based economy has become a pivotal characteristic of globalisation (Stehr, 1994; Rifkin, 1995; Jarvis & Tosey, 2001). It is argued that knowledge has become the main source of competitive advantage for organisations (Drucker, 1988; Nonaka, 1991; Ruggles, 1997; Boud & Garrick, 1999; Burton-Jones, 1999; Huseman & Goodman, 1999). This trend has spawned terms such as intellectual capital (Bontis, 1998; Edvinsson & Malone, 1998), knowledge management, the knowledge worker and knowledge organisation; as well as knowledge assets (Boisot, 1998; Teece, 1998), knowledge capitalism (Burton-Jones, 1999) and knowledge landscapes (Oliver & Roos, 2000). An early (and still ongoing) emphasis on information and communication technologies (ICT) reflected a broader trend in which assumptions about how, where and what work is done, where expertise lies and how it should be managed, were challenged. This trend has seen an increasing convergence between professional knowledge and lay knowledge (Delanty, 2001).

The higher education sector has not been immune from these changes. As Duke (2002) notes:

Change is a fact of life for the modern university...Universities absorb, internalise and replicate the characteristics of contemporary societies with which they have become more closely identified (page 32).

Arguably, this is normally achieved through a process of osmosis over a period of time. Universities tend to be characterised by traditions of natural inertia (Laurillard, 1993) and innate conservatism (Simon, 1960) manifesting as resistance to change (Duke, 2005). Academics tend to be cautious, critical, sceptical and even cynical people (Furnham, 1997) who are characterised by conformism (Furedi, 2005). This conservatism and conformance can be seen in the reaction of academics to major changes, such as the accreditation of teaching, which have met with resistance (Jarvis, 2001a). The introduction of HRM practices, such as performance management, are seen as management control technologies (Deem et al, 2008) that are designed to destroy traditional custom and practice including freedom of speech. Yet, as Delanty (2001) observes the traditional role of the university was not to criticise or transform society but “to pass on relatively intact a received tradition to future generations...[which was] an inherently conservative function” (page 60).

Globalisation and the consequent marketisation of knowledge (Delanty, 2001) is challenging this traditional role of the university as a producer and custodian of universal knowledge (Bowden & Marton, 2004). This is impacting on the privileging of the university over other types of institution in the creation and dissemination of knowledge. With the increasing fragmentation of knowledge the traditional role of the university is now in crisis (Delanty, 2001) if not at an end (Barnett, 2000b; Peters & Olssen, 2005). The steady decline in the funded unit of resource has required universities to become more entrepreneurial (Pilbeam, 2006). They now need to operate as income-generating units in both local and global contexts (Deem, 2004) often in partnership with both government and companies (Garvey & Williamson,

2002). This has resulted in universities becoming more like business organisations (Jarvis, 2001a; Jarvis & Preece, 2001) as income generating activities challenge the traditional domains of research and teaching (Barnett, 2005). However, the role of the university as a meaning maker (Duke, 2002) suggests that much of the knowledge circulating in society (increasingly within virtual environments) may need to be described as information rather than knowledge.

The 'forces' of new managerialism, massification and marketing that are threatening traditional values and ideals (Tapper and Palfreyman, 2000) and, in turn, academics' sense of professional identity, are a reflection of the economic rationalism of globalisation (Duke, 2002). As Marginson (2000) warns generally in relation to the impact of globalisation on universities:

Academics must lead in educational matters. At the same time, they must be prepared to leave administrative matters to others. Clearly the old idea of collegial governance, whereby academic staff govern the university, administer it and provide some of its auxiliary services, is obsolete. The cause of academic professionalism will not be advanced by clinging to vestiges of this notion (page 34).

Post-1992 universities are characterised by a stakeholder model of university governance which marginalises the role of academic staff in the governance of their institution. However, the position of academic staff in traditional universities has been weakened considerably in recent years as a consequence of the loss of academic tenure and a shift from a 'collegium model' (McNay, 1995) or collegial culture (Berquist, 1992) to more bureaucratic and managerialist cultures (Macfarlane, 2005).

At the same time universities are becoming more complex organisations employing staff with more varied experience and expertise (Locke, 2007).

2.3.2 The university sector

The university in Britain can be traced back to the 12th and early 13th centuries, with the emergence of Oxford and Cambridge respectively as institutions founded by the Church (Strong, 2004). The Enlightenment witnessed an ideological shift from Christianity to rational thought and experimental science (Jarvis, 2001b) although the monastic origins are still evident today in many of the cultural practices of universities (Delanty, 2001). It was at this time that ‘disciplines’ emerged (Wallerstein, 2004). However, the majority of universities are very much a modern institution: two-thirds of British universities were created after 1960 (Delanty, 2001). It is also ideals created in the 19th century rather than earlier centuries that still tend to dominate thinking within universities today (Merricks, 2001). These ideals focus on the education of a small elite of middle-class students aged between 18 and 22 (Merricks, 2001).

The university sector that exists today is a hybrid of the former traditional and redbrick universities, colleges of higher education and public sector polytechnics. Although it is possible to talk of a ‘culture’ of academia in terms of the different ways of thinking and acting that are institutionally dominant (Read et al, 2003: 269), since 1992 the university sector has become increasingly differentiated in terms of status (Read et al, 2003) with various sub-groupings emerging, such as the Russell group of elite universities (Filippakou & Tapper, 2008). The contractual status of academic

staff in the new university sector is increasingly fragmented with many experiencing insecurity, uncertainty and anxiety (Brown & Gold, 2007). The changes brought about by the Thatcher and Major governments resulted in “a significant reduction in autonomy for the traditional universities and a significant gain in independence for the polytechnics and colleges” (Watson & Taylor, 1998: 10). Universities started to become more accountable and, therefore, more managerial in the 1980s (Duke, 1992) with academic identities predicated on the principles of autonomy, shared governance and temporary, rotating management roles becoming increasingly untenable (Deem et al, 2008).

Although the term ‘new university’ emerged to describe post-1992 polytechnics (Prince & Beaver, 2003) a homogeneous university sector has not been achieved, reflecting the extent to which traditional universities have been reluctant to recognise the former polytechnics as equal partners (Shattock, 1996). This situation also reflects the extent to which “the expansion of the polytechnics was shaped by ideas that were in contrast to the traditions of the established universities” (Brown & Scase, 1994: 36). The emphasis was very much on ‘liberal vocationalism’ (Silver & Brennan, 1988) rather than ‘liberal education’. Trow (1987), amongst others, forewarned that the abolition of the binary division would create a system of mass higher education that would become increasingly differentiated in character and function as well as in cost and standard.

2.3.3 The changing role of the university

The traditional role of the university has been about teaching the truths that one generation considered important enough to be passed onto the next (Jarvis, 2001b). Learning has focused on the acquisition of this knowledge (Laurillard, 1993), with the learner placed in a predominantly passive role. With the increasing fragmentation of knowledge, referred to above, the traditional role of a Western university is becoming destabilised (Barnett, 2000a; Delanty, 2001). This current period has been described as the 'storm of excellence' by Light and Cox (2001) to reflect the changing relationship between the university and the knowledge society. Universities are no longer the sole producers of 'scientific' knowledge as relativist thinking has emerged as the dominant paradigm within the knowledge society (Furedi, 2005). Increasingly, workplaces are being seen as the primary sites of learning and the generation of new knowledge (Watson & Taylor, 1998; Boud & Garrick, 1999; Tosey & McNair, 2001) and new paradigms for knowing (Davies, 1998). The knowledge society is characterised by an ever increasing number of organisations which are both producing and applying knowledge. As a consequence the relationship between the university and corporate sectors is being redefined (Burton-Jones, 1999). This process is also witnessing the increasing privatisation of knowledge as organisations increasingly seek to protect rather than share new knowledge and good practice (McNair, 2001).

Many academics feel that the values and ideals they see as being enshrined in the traditional definition and role of a university are being threatened by pressures from a

'new managerialism' (Duke, 2002; Deem et al, 2008) and the emergence of an audit society (Power, 1997). Universities are now subject to much greater external regulation (Shattock, 1999) as a result of constraints imposed by central government policies (Shattock, 2008). Funding systems have changed and universities have been encouraged to generate new sources of income. As a consequence universities are having to adopt commercial strategies (Jarvis, 2001a; Jarvis & Preece, 2001). However, whilst several leading universities, such as Oxford and Cambridge, have been successful at establishing companies which specialise in the production and application of specialist knowledge (e.g. bio-sciences) many universities lack an effective combination of research expertise and funding to compete successfully in the marketplace. The reduced funding from central government creates budgetary constraints that inhibit the ability of many universities to reinvent themselves as truly effective entrepreneurial organisations. 'New' universities in particular have tended to focus on changes to educational programmes such as a greater emphasis on action learning, problem solving projects and more varied modes of delivery (including e-learning). Recently, links with China and India have become popular due to these countries' economic growth. Competition for income is intensifying as many private sector organisations set up corporate universities. The traditional emphasis on transfer of learning from the classroom to the workplace is now being complemented (rather than necessarily replaced) by a recognition that the workplace is the primary source of organisational knowledge and learning. However, educators still need to find more ways of integrating learning into the workplace (McNair, 2001); while the investment needed to meet the direct and indirect costs of curriculum (re)design initiatives can be substantial.

The polytechnic tradition of access has enabled the new university sector to accommodate a much higher proportion of the expansion in student numbers that took place in the 1990s (Parry, 2006). The move to mass higher education reflects a move from the dissemination of knowledge to the marketisation of knowledge (Delanty, 2001) with university *branding* becoming more important (Prince & Stewart, 2000). Since 1992 the new universities have demonstrated more flexibility in meeting these challenges than the older universities (Merriks, 2001). However, for new university business schools opportunities for additional income streams tend to be local and regional in nature rather than global (Prince, 2007).

Fuller (2002) is highly critical of these trends:

Universities have begun to take the “dumb organisation” label to heart by modelling themselves on McDonalds’ performance measures and the conclusions drawn from them (page 33).

This criticism reflects a wider concern about the impact of new managerialism on the public sector generally although universities still “enjoy a relatively high degree of strategic and operational autonomy” (Deem et al, 2008: 1). The managerialist agenda may be promoted in terms of innovation, creativity and empowerment but the reality is an uneasy blend of these ideals with neo-Taylorist forms of management (Exworthy & Halford, 1999). Increasingly, academic success is shifting from “being measured according to academic principles to being measured according to narrow financial criteria” (Naidoo, 2005: 29). This is still more pronounced in the new university sector where new business-facing subjects have been embraced but traditional universities are not immune from this trend (Mankin, 2007). The economic

rationalism of government policies is forcing the closure of departments covering subjects such as the natural sciences and humanities in favour of high-demand subjects (Duke, 2002). Research shows that those who embrace the new management role wholeheartedly tend to work in new universities (Deem et al, 2008).

2.3.4 Academic identity: academics as professionals

There is a lack of consensus in the literature on what an academic is or should be. Is an academic identity stable or unstable? Can or should an academic be defined as a professional? Certainly academics have been described as professionals (Light & Cox, 2001; Wallerstein, 2004; Naidoo, 2005) and/or as belonging to a profession. (Duke, 2002: 2) observes that academics are the “profession at the heart of the university, doing its core business...[but w]hether [they] are to be seen and treated as professionals by university managers is altogether a more problematic matter”.

The achievement of a stable academic identity is being undermined by the forces of performativity (Archer, L., 2008). Increasingly academics are working in and are subordinated to large bureaucracies (Reed, 1996) with a consequent loss of autonomy (Deem et al, 2008). This brings a danger that the social identity of academic staff is being altered from that of academics as ‘professionals’ to academics as ‘proletarians’ (Ramsden, 1998). Increasingly, they are expected to work for longer hours with fewer resources (Jarvis, 2001a; Light & Cox, 2001). This trend has been termed the “deprofessionalisation of academic life” (Becher and Trowler, 2001: 13) and as “the routinisation of intellectual life” (Furedi, 2005: 2). However, the term ‘professional’

is rather generic. Hence Schwartzmann (1994) identifies three types of academic professionalism with the 'liberal professional' used to describe traditional academic identity (characterised by expertise and autonomy). The other two types of professional can be associated with the changes that have been taking place: the 'unionised skilled worker' and the 'academic civil servant'.

The new managerialist focus is on the provision of services (Jarvis, 2001a) and the replication of business models rather than the promotion of ideas (Furedi, 2005). The student has become a 'consumer' (Lomas, 2007). This has significant implications for the management of academics who tend to draw their sense of identity from a non-bureaucratic ideal of an organisational type underpinned by an ethos of academic freedom. For many academics the modern university should be a 'meaning maker' acting as a centre "for discussion and discourse about values and alternatives, about the large issues that confront human societies and their ecosystems" (Duke, 2002: 63-64). Being a professional is something you do for a living (Said, 1994). As Furedi (2005: 40) observes:

Once intellectual work becomes professionalized, it ceases to possess its independence and potential for asking difficult questions of society. Instead it acquires a managerial or technocratic function.

This suggests that the attribution of professionalism to an academic's role is actually a pejorative use of the term. This perspective is reinforced by the trend for academics to be viewed as "agents for delivering the aspirations and wishes of citizens and customers" (Deem et al, 2008: 11) rather than as experts who operate autonomously.

Arguably, academics are becoming 'managed professionals' (Becher & Trowler, 2001).

2.3.5 Academic identity: academics as knowledge workers

In turn, can or should an academic be termed also a knowledge worker? Scarborough and Carter (2000) summarise how a distinction between knowledge worker and professional is often drawn:

Where professionals work *from* knowledge, drawing on a distinctive occupationally defined body of expertise, knowledge workers work *with* knowledge. This includes not only their own expertise but also that of other knowledge workers (page 50)

Drucker (1993) describes knowledge workers as individuals who are highly educated, possess specialist skills and who are able to apply these skills to problem solving. Academics do not necessarily fit neatly into the way professionals and knowledge workers are characterised and the lack of empirical studies on this topic within the higher education context is unhelpful here. Whatever descriptor we use we do need to clarify the principal roles of an academic. Traditionally, academic practice tends to be defined in terms of teaching and research (Taylor, 2007) rather than teaching, research and consultancy. The inclusion of the latter reflects the increasing commercialisation of universities and the need to increase income streams. At the same time a new researcher role is emerging, that of the 'researcher entrepreneur' who *creates* demand for his/her 'products' (Kurek et al, 2007).

The role of researcher has been particularly dominant in the older, more traditional universities with new universities struggling to compete against the elite of the Russell group in particular. Although at present there is a lack of evidence to support the superiority of the lecturer who is research-active over the lecturer who is not (Hughes, 2005) there are studies that show “that for many academics the integration of teaching and research creates an intellectual identity that represents to them what is distinctive and most valuable about higher education” (Naidoo, 2005: 34). It is this perception that underpins the tendency for some academics in new universities to reject the teaching and vocational orientation of the pre-1992 polytechnic sector in favour of the role, values and aspirations associated with traditional universities. An irony of this trend is that the values of academic freedom, occupational security and independence associated with the traditional university, and which have set academics apart from other types of knowledge worker, have been eroded already by the emergence of market forces in the higher education sector (Naidoo, 2005).

There is little doubt that the teaching-research debate has led to tensions within the new university sector as academics compete for limited resources to support their research aspirations. This is happening at the same time the higher education policy of the UK government is challenging the conventional wisdom that teaching and research are inextricably linked and instead is promoting a differentiated higher education sector (Scott, 2005). Arguably, consultancy and commercial-oriented activities, vocational and business-facing education, rather than research and liberal education, reflect not only what can be termed ‘traditional’ academic practice in post-1992 universities, but also the role perceived for these institutions by the government.

2.3.6 Differences between traditional and new universities

New universities differ from the older universities in many ways; for instance, in terms of higher student-staff ratios, much lower research funding per member of staff (Stiles, 2000; Flegg & Alleni, 2007), appraisal practices (Shelley, 1999) and criteria used for promotion (Parker, 2008). New and traditional universities have very different origins and, consequently, different cultural roots that influence ways of working. There is a strong vocational heritage in the new university sector. Differences manifest as cultural symbols such as different job titles and grading structures (although many of the former have been replicated by new universities since 1992), different curricula and different approaches to teaching. The tradition of institutional autonomy that many academics and managers across the university sector lay claim to is in fact a long-standing tradition of traditional universities. New universities are predominantly former polytechnics (as well as various colleges and institutions of higher education) that were public sector institutions run by local authorities until the late 1980s. They were funded differently and did not have degree awarding powers (CNAAs were awarded). Studies show that there are differences in student population between the traditional and new university sectors (which UK government policy is now attempting to address). For instance, in a survey of prospective HE students Ball et al (2002) note that less than 2% of private school students named a 'new' university as their first choice destination. Other studies have shown differences in impact upon academic departments of certain initiatives. For instance, Hanbury et al (2008) note a more limited impact in traditional universities of UK accredited teaching development programmes.

In the traditional university the role of head of department (HOD) involved a minimum of prescribed duties, such as facilitating research, and left considerable scope for individuals to interpret the role as they saw fit (Startup, 1976) particularly in relation to the provision of academic leadership. This contrasts with the more prescriptive and managerial role in new universities that was inherited from the polytechnics (and which was a consequence of their public-sector context). As (Deem, 2006: 208) observes:

In the pre-1992 universities, fixed-term, rotating, internal appointments to management posts remain widespread. In the post-1992 former polytechnics, which are more teaching-oriented and where fewer careers are based on academic prestige, permanent management posts are more common but some are still fixed-term, albeit more likely to be recruited by external advertisement rather than through an internal selection process.

Traditionally the characteristics of department heads associated with research excellence are different to the leadership characteristics associated with teaching excellence (Gibbs et al, 2008). However, a recent study shows that the academic leadership and discretionary elements of the HOD role in traditional universities are now being displaced by financial management tasks thus resulting in a convergence with the equivalent role in new universities (Deem et al, 2008):

what they [now] do is likely to be fairly similar across both sectors, although there are differences in the extent to which research is emphasised (ibid: 53-54).

Consequently, across the university sector generally the leadership role of departmental heads is being increasingly undertaken on a permanent rather than 'rotational' basis by academics who have chosen 'management' as a career route or by professional managers from non-academic backgrounds in business and public service industries (Macfarlane, 2005).

As indicated above, research, and the implications of this for academic practice, has long been a principal differentiator between traditional and new universities. New universities receive far less research funding (Pilbeam, 2006). As Duke (2002) notes, research is "the key discriminator in making a place a 'real' university rather than just a teaching college" (page 88) adding as an anecdote:

Few leaders have the courage displayed by Peter Knight who initially declined to enter the University of Central England in the RAE on the grounds that it was a displacement of mission for a former polytechnic" (ibid: 89).

New universities may have examples of RAE excellence but the scale of research activity is much lower. Stiles (2000) shows that new universities have not been able to improve their research competitiveness while pre-1992 universities have actually consolidated their research position and at the same time improved funding for their teaching commitments. The RAE process places new universities at a disadvantage with data showing that pre-1992 universities are more favourably assessed than their post-1992 counterparts (Sharp & Coleman, 2005). However, the autonomy over research that was a key characteristic of traditional universities has been replaced with external auditing and monitoring processes (Deem et al, 2008).

Traditional universities offer broader curricula than other types of higher education institution, making it possible to follow courses or undertake research in most areas of knowledge (Jarvis, 2001a). A study by Harrington and Booth (2003, cited in Healey, 2005) reveals conflicting views on the need for business studies undergraduates at new universities to study research methods. This tension is partly a consequence of new universities being characterised by a higher proportion of non-traditional students in terms of their class, ethnicity and maturity (Read et al, 2003) in conjunction with the vocational emphasis of many of the programmes on offer.

Structural differences impact on how academics conduct themselves. Although the modern university structure comprises academics organised within sub-units, usually referred to as departments, and united around disciplines (Wallerstein, 2004) there are significant differences between disciplines particularly in terms of their perceived economic usefulness (Pilbeam, 2006). In a broad sense universities comprise communities of educationalists and communities of support staff. While Tight (2004) describes universities as 'multiple communities of practice', Di Petta argues that academics are members of many organisational and social groups rather than communities (Di Petta, 1998). Duke (2002) refers to "communities for place and dialogue" (page 64) while Deem et al (2008) refer to 'communities of scholars' (page 2). Despite these distinctions much of the literature on universities views culture as monolithic.

Rather, academic communities have their own, distinctive cultures (Becher & Trowler, 2001) and academics enjoy a form of 'tribal citizenship' within their disciplines (Duke, 2002). These communities or tribes are seen as being as "the

cultural powerhouse of university life” (Trowler & Knight, 2004: 158). They tend to be characterised by collaborative working and this is consistent with an understanding of how communities of practice function in other organisational contexts. They have shared languages and dogmas “and perceive the world from discipline-specific perspectives” (Stuewe-Portnoff & Stuewe-Portnoff, 1994: 7). They have their own values but within a framework of bureaucratic principles and hierarchical management structures (Barnett, 2000a).

Disciplines remain a significant influence on academic practice (Blackmore, 2007) although there is an increasing dissolution of the disciplinary structure of departments (Delanty, 2001) as a result of the growth in multidisciplinary programmes and the ongoing emergence of sub-specialisms. Although this area of study has been usefully informed by the work of Becher and Trowler (2001) it should be noted that the UK institutions visited as part of their study are overwhelmingly traditional universities. Increasingly the primary allegiance of academics is to their subject group (sub-specialism) or department (discipline) rather than the institution, which is secondary (Becher & Trowler, 2001; Healey, 2005). Central to this identification is the role of both research and teaching (Henkel, 2000). However, this primary allegiance is being weakened and eroded not only by the expansion of multi-disciplinary curricula but also by the increasing scrutiny and controls imposed on academic departments by the university central management (Becher & Trowler, 2001). Indeed, it is now feared that cultural re-engineering will see collaboration replaced by competition (Deem et al, 2008).

Knowledge-based boundaries within universities which reflect the disciplinary nature of subject groups, disciplines and sub-specialisms can isolate highly productive communities from one another:

Different precepts and attitudes, shaped by practice, make interchange between quite similar subjects remarkably difficult, and thus invisibly pressure disciplines to work among themselves rather than to engage in cross-disciplinary research. Over time, disciplines increasingly divide rather than combine (Brown & Duguid, 2002: 30).

This deeply engrained 'silo' mentality tends to inhibit collaboration across institutions. At the same time the demands of RAE and the struggle for resources engenders a competitive attitude not only within but also between communities. As Wenger (1998) notes more generally communities of practice are often characterised by tensions and disagreements between community members. Unfortunately, there has been very little investigation of communities within a university context. Brown and Duguid (2001: 205) refer to loose epistemic groups found in academia (based on scientific communities) and businesses as extended epistemic networks or as networks of practice:

with the term *network*, we also want to suggest that relations among network members are significantly looser than those within a community of practice (page 205).

Brown and Duguid (2001: 205) also cite the work of Strauss and how his "sociology of academic practice indicates that practice does not only bind small, tight communities...[but] allows extensive academic disciplines, most of whose members will never know one another, to form and communicate". Whilst it is argued that such

communities “play a critical role in linking individual knowledge with that of the organisation as a whole” (Oliver & Roos, 2000: 49) more empirical studies are needed to better understand the validity of these claims and address issues such as the extent to which university management is seeking to control the way in which these communities function. This type of micro-level control is likely to have profound implications for academics and how they perceive their role and identity. Tensions will also arise as a result of conflicting beliefs about how academics can best be developed (Mankin, 2007). An analysis of the literature shows that academic development can be used to illustrate further differences between traditional and new universities (although this situation is now changing as the possession of a doctorate and evidence of research activity become more commonplace as essential requirements for academic positions in the new university sector). This point is discussed in more detail below.

Differences between new and traditional universities are highlighted, in part, by the debate over Mode 1 and Mode 2 knowledge (Gibbons et al, 1994). Mode 1 knowledge is that which has been generated by subject specialists working within agreed frameworks of academic expertise (Garvey & Williamson, 2002). Alternative and commonly used terms for this type of knowledge include scientific knowledge, discipline-based knowledge, and propositional or codified academic knowledge that is embedded in texts and databases (Bierema & Eraut, 2004). It is this theoretical knowledge that has been traditionally most closely associated with traditional universities (Jarvis, 2001a; Stiles, 2004).

The emergence of the knowledge economy and associated promulgation of practical knowledge, the ideology of 'useful knowledge' according to Peters and Olssen (2005), has impacted on universities in the form of Mode 2 knowledge (Barnett, 2000a). Mode 2 knowledge reflects practical knowledge that is interdisciplinary, often applied, and associated with commercial organisations (Jarvis, 2001a; Garvey & Williamson, 2002). The emphasis is on developing competence (Gabrielsen & Saugstad, 2007). The last two decades has witnessed a huge increase in the number of subject areas and a shift from predominantly discipline-based knowledge to trans-disciplinary-based knowledge. Increasingly, university programmes are emphasising this type of practical knowledge or know-how (Jarvis, 2001b).

Arguably, this trend sits more comfortably with the pre-1992 roots of the new university sector than it does with traditional universities. Mode 2 knowledge is seen as "more socially accountable and reflexive" (Gibbons et al, 1994: 3). This reflects a shift towards recognising the impact of external influences (especially social/market) upon universities in terms of curriculum design. It also suggests a weakening or dilution of disciplinary boundaries, with Barnett (2000a) arguing that disciplines are becoming increasingly irrelevant to the future of universities. Increasingly, new programmes are required which adopt a multi-disciplinary approach to design and delivery in order to satisfy the needs of the 'market'; although the emergence of multi-disciplinary approaches can be traced back to the 1960s (Jarvis, 2001b).

The differentiation between Modes 1 and 2 is not the only perspective on knowledge within universities. The day-to-day working knowledge of academics is dependent also on uncodified cultural knowledge (Bierema & Eraut, 2004) and personal

knowledge (Eraut, 2001). Uncodified cultural knowledge refers to “the cultural practices of teaching, studentship, scholarship, and research” (Bierema & Eraut, 2004: 63). Personal knowledge is:

what an individual brings to situations that enables them to think, interact and perform. Such knowledge is not only acquired through learning to use public codified knowledge through skills training and through social acculturation, but it is also constructed from personal experience, reflection and social interaction. Thus, it includes everyday knowledge of people and situations, know-how in the form of skills and practices, memories of episodes and events, personal knowledge, attitudes and emotions, and more widely recognised aspects of knowledge (Bierema & Eraut, 2004: 64).

2.3.7 Academic development in universities

The terms ‘academic development’ (Land, 2001; Eggins & Macdonald, 2003) or ‘staff development’ (Duke, 1992; Watson & Taylor, 1998; Barnett, 2000a) are used to describe learning and development processes within universities. These are preferred to the term ‘human resource development’ (HRD) which can be found in more general usage outside the literature on higher education (Mankin, 2007) and is usually associated with industry (Duke, 2002). Staff development covers academic and non-academic staff whilst academic development refers specifically to academic staff (Fraser, 2001). Academic development is a problematic concept (Macdonald, 2003) with definitions ranging from a focus on professional competence (Candy, 1996) to scholarship and research (Healy & Jenkins, 2003). In many new universities the emphasis has been on teaching and learning rather than research although this situation is now changing (Macdonald, 2003).

In traditional universities there is now a need for a new, coherent approach to continuing professional development for research-active staff in the light of changes to traditional career paths due to various pressures, such as an increasing number of fixed term contracts for staff working on specific projects (Gordon, 2005). The lack of security that is a consequence of short term contracts necessitates new approaches to the management of careers in universities (Duberley & Cohen, 2007). Young academics in traditional universities are expected to produce bids for research funds on a regular basis despite the adverse effect on their morale that this pressure is creating (Archer, L. 2008). A further concern is the lack of formal development opportunities for academic staff employed on non-standard contracts (Anderson, 2007).

In terms of the needs of academic managers, universities need to invest much more in the training and development of this stakeholder group (Barrett & Barrett, 2007). Good management practice underpins successful practice in teaching and research and, conversely, poor management undermines these activities and can trigger institutional decline (Shattock, 2003). One of the current problems is the lack of research into which forms of leadership are associated with departmental effectiveness (Bryman, 2007). Drawing upon two different studies Duckett and Mankin (2003) show that follower perceptions of leadership in new universities are not taken into account by those in leadership roles. This mirrors the top-down approach adopted by senior managers in relation to other processes, for instance policy formulation (Greenbank, 2007). These issues have implications for the efficacy of any leadership and management development programmes.

The work of academic developers tends to be characterised by formal interventions such as short courses and educational programmes. The two most prominent initiatives in this area focus on the novice academic: the PhD and the teaching qualification. Traditionally the principal focus of the development of new academics has been the undertaking of a PhD although this has been a key characteristic of pre-1992 universities rather than new universities. This is starting to change with the possession of a PhD (or registration as a PhD student) becoming a requirement for many academic posts in new universities. However, there remains a tendency for lecturers at new universities to regard themselves as teachers rather than academics (Sikes, 2006).

The emergence of formal academic development in the shape of professional teaching qualifications has provoked much debate. Unfortunately, “where such courses and/or qualifications have been made increasingly compulsory for new academic appointments, bitter descriptions of courses as being a waste of time have alternated with testaments as to their value” (Åkerlind, 2007: 34). As Åkerlind goes on to observe, academics who believe the best way to improve their teaching is through scholarly activity and teaching practice will always “see no purpose to such courses” (ibid). The problem, as Rowland (2003) observes is that teaching is viewed as a practical rather than theoretical activity that is at odds with the intellectual traditions of academic work (i.e. research and scholarly activity) in traditional universities. This is illustrative of how much of professional knowledge in teaching can be referred to as *craft* knowledge (Thomas, 2004). The association of ‘teaching tips literature’ with academic development (Trigwell, 2003) has probably not helped

to redress this perspective. A further problem is the lack of evaluation of the 70 plus training courses for teachers that currently exist (Gibbs, 2003); although Fanghanel (2004) puts the figure at over a hundred.

Although a strategic role for academic development is emerging in universities (Brew, 2003) it is the operational role that tends to remain dominant. The principal focus has been on the individual rather than the group or community (Warhurst, 2008). The role of informal learning and/or situated learning remains largely ignored by university policy makers; although this is important for the ongoing development of academics in all universities (Knight et al, 2006). In the past most of the emphasis has been placed on the role of reflective practice (Brockbank & McGill, 1998) which can be triggered by everyday activities as well as by formal peer-review or peer observation processes. Arguably, the principal challenge for academic developers is finding ways to facilitate informal and/or situated learning. However, the shift to multi-disciplinary and modular structures is in danger of disrupting the nature of academic practice traditionally associated with disciplinary groups (Naidoo, 2005). This may have negative consequences on research, teaching and learning and undermine development interventions.

2.3.8 Section summary and first proposition

The university is a particular type of organisation that has a long history. Recently, traditional values have been increasingly challenged by the pressures of managerialism, massification and marketisation. There is an expectation that

universities should function in a similar way to business organisations. This has implications for the professional identity of academics in new universities. At the same time the emphasis on knowledge creation as a source of wealth within a knowledge society is challenging the university's traditional role as a custodian of knowledge. A distinction can be made between traditional and new universities on the basis of a wide number of differences between these two sectors although, as argued above, there is evidence of convergence on many of these.

Proposition: academic communities are characterised by particular types of knowledge: Mode 1 (propositional) and Mode 2 (practical) knowledge (Delanty, 2001), personal knowledge (Eraut, 2001) and uncodified cultural knowledge (Bierema & Eraut, 2004).

2.4 The concept of organisation

2.4.1 The concept of organisation from a cognitivist perspective

Organisation is a problematic and contested concept (Scott, 1987; Duke, 2002). From a cognitivist perspective organisations have been described as: *decision making mechanisms* (March & Simon, 1958), *cognitive artefacts* (Argyris & Schön, 1978); *cognitive systems* (Hedberg, 1981), and *interpretation systems* (Daft & Weick, 1984). The focus is very much on the individual and the human brain is used as a metaphor for how an organisation thinks and works (Morgan, 1997). This information-processing perspective tends to be associated with a traditional hierarchical structure (Nonaka, 1994) and with a unitary ideology in which an organisation is seen as a monolithic entity. From this perspective expertise is seen to be an individual attribute involving individual rather than situated cognition. Consequently, agency theory is a popular approach to illustrating the relationship between individual, group and organisation levels in this perspective. The implications of this are discussed in detail below.

2.4.2 The concept of organisation from a constructivist perspective

From a constructivist perspective an organisation can be viewed as a *social institution* (Kogut & Zander, 1992; Drucker, 1997; Rollinson et al, 1998; Sun, 2003) or as a *knowledge system* (Tsoukas, 2002) that is comprised of groups and networks (Jenkins, 1996). The organisation is characterised by “frequent and intense social interaction” (Lines, 2005: 17). It is within these groups and networks that social

interaction tends to be concentrated. Groups are social systems that are perceived to be entities by both their members and non-members (Guzzo & Shea, 1992). Groups, such as communities of practice and social networks are 'invisible' to most non-members, rarely appearing on any organisational chart, and for this reason can be described as informal. These informal groups and networks are embedded within an organisation's formal, often hierarchical structure. However, it is informal groups and networks that, in particular, provide concrete settings within which individual action takes place (Tsoukas, 2002) and organisational realities are created (Ball, 1991). It is in these settings that much of an organisation's work gets done (Davenport & Prusak, 2000) and that the concept of an organisation becomes tangible to individuals.

This more pluralist type of organisation is characterised by fragmentation and a distributed knowledge base (Tsoukas, 1996; Dixon, 1999; Larsen, 2001) in which knowledge is embedded in the practice contained within particular types of informal groups and social networks: communities of practice (Lave & Wenger, 1991; Brown & Duguid, 1991; Wenger, 1998). Practice implies *doing* "real work" (Cook & Brown, 1999: 386) and can be defined as "undertaking or engaging fully in task, job or profession" (Brown & Duguid, 2001: 203). Practice is something that we do as individuals and groups (Cook & Brown, 1999). Organisations act as a context for emergent practice (Smeds & Alvesalo, 2003) and, consequently, the knowledge of the organisation is emergent and never complete (Tsoukas, 1996). In this sense knowledge is both an individual and collective asset for the organisation. The emergence of a knowledge perspective in which organisations have been described as *repositories of knowledge* (Kalling & Styhre, 2003), *repositories of capabilities* (Kogut & Zander, 1992), and as *bundles of knowledge assets* (Tsoukas &

Mylonopoulos, 2004) builds on the resource based view of the organisation that is a characteristic of the cognitive perspective; including the strongly unitary ideology (Prichard et al, 2000).

This gives rise to variants on how an organisation is defined: for instance, as a constellation of interconnected practices (Wenger, 1998); as a community-of-communities (Brown & Duguid, 1991); or, as a community of overlapping and interrelated communities (Brown & Duguid, 1998); or as systems of purposive activity (Spender, 1996). Underpinning these definitions is the basic premise that groups necessarily exist in relation to other groups (Jenkins, 1996). Shared understandings are achieved through a densely connected network of communication (Tsoukas, 2000, 2002). For increased knowledge sharing across the organisation to take place individuals and communities need to increase the number of connections (Tsoukas, 1996). This fragmentation perspective “acknowledges ambiguity, recognising that within organisations individuals might experience a lack of clarity or simultaneously hold multiple meanings and beliefs (Newell *at al*, 2002: 35). These informal groups and networks bring an underlying stability to an organisation (Wenger et al, 2002).

Universities have tended to be described as *institutions* of higher education rather than *organisations* of higher education. This reflects the fact that they have become established over a long period of time (Jenkins, 1996) and can be described as *societal* organisations for learning (Bowden & Marton, 2004). They are different from the classic model of industrial organisation (Duke, 2002); and, have a very

different purpose to that of business organisations. Selznick (1957: 5) differentiated between the two concepts as follows:

the term “organisation” thus suggests a certain bareness, a lean, no-nonsense system of consciously co-ordinated activities. It refers to an expendable tool, a rational instrument engineered to do a job. An “institution”, on the other hand, is more nearly a natural product of social needs and pressures – a responsive, adaptive organism.

From a constructivist perspective an institution is an integral part of the social construction of reality because an institution’s established ways of doing things brings order and predictability to social life (Jenkins, 1996). In contrast, organisations are more transient. But both provide a context within which human activity such as doing, saying, feeling and thinking, can take place.

Although the university has been described as a knowledge organisation in which learning occurs (Bowden & Marton, 2004) leading writers in the field of knowledge management have tended to focus on private sector organisations described as knowledge-based or knowledge intensive firms (for instance, see Alvesson, 2000; 2004). Examples include accounting firms, consultancy businesses and advertising agencies (McInerney & LeFevre, 2000). Universities satisfy some of the criteria for this type of organisation; for instance, knowledge intensive organisations are those “where most of the work is said to be of an intellectual nature and where well-educated, qualified employees form the major part of the workforce” (Swart et al, 2003: 5). However, in other respects they do not. Many universities would fail to qualify as a knowledge or learning organisation (Stevenson, 2001a) because whilst they may have been effective at creating or acquiring knowledge they had been much

less successful at applying that knowledge to their own activities (Garvin, 1993). Duke (1992) describes them as knowledge-intensive organisations but notes the complications created by their bureaucratic procedures. Given the educational focus of universities this may appear somewhat surprising. In principle universities should be at the forefront of knowledge-based organisations (Duke, 2002) but the reality is somewhat different. In moving forward universities need to tackle silo-mentality and stimulate cross-disciplinary communication between disciplines in order to survive as a viable concept (Delanty, 2001).

2.4.3 Informalisation

Informalisation is a term that can be applied to any informal structure, practice or process that occurs within an organisational context (Mankin, 2003a, 2007). As Duke (2002: 40) observes: “people behave in their own different and often purposeful ways ‘informally’ within the formal planned structure of the organisation”. The research into informal group processes can be traced back to the 1930s (Scott, 1987) but has not received as much coverage in the academic literature as that of formal processes. Certainly distinctions had already been made between formal and informal groups before the emergence of knowledge-based perspectives in the late 1980s and early 1990s (see at that time: Schein, 1980; Blackler & Shimmin, 1984; Huczynski & Buchanan, 1991). For instance: informal groups *emerge* spontaneously out of shared interests; they lie *outside* the formal structure of the organisation; and, informal social learning accounts for much of the learning that takes place within these groups. In order to identify informal groups “one does not look at the work flow or the

organisation chart, but needs to note who interacts with whom, and what friendship relations exist between individuals” (Huczynski & Buchanan, 1991: 171).

It has been postulated theoretically that informal groups, such as communities of practice and social networks, play an important role within organisations (for instance, see Brown & Duguid, 1991; Lave & Wenger, 1991; Wenger, 1998; Wenger et al, 2002). The relationship between communities of practice and innovation has been a particular feature of recent literature (for instance, Lesser & Everest, 2001; Hislop, 2003; Smeds & Alvesalo, 2003). However, there is limited good quality empirical evidence to support these and other claims about the links between informal groups and organisational performance. A series of ethnographic studies in the early 1990s highlighted the role of informal working practices (Rogers & Ellis, 1994) and the work of Orr (1990, 1996) is often cited as a seminal example. In a study of two organisations (pharmaceutical; and, injection moulding) Hislop *et al* (2000) identify that informal networks play an equally important role in shaping an organisation’s change processes as the formal hierarchical structure. Lesser and Storck (2001) studied seven organisations and concluded that there is a positive link between behaviour in communities of practice and organisational performance. However, these findings need to be treated with caution as they were measuring perceived positive outcomes rather than proving a direct link between behaviour and organisational outcomes.

Informal practices will continue regardless of the ideological context (Deem et al, 2008). In this sense informalisation can be described as a natural or organic feature of organisations that is in a symbiotic relationship with the formal aspects of an

organisation. Informal groups and social networks often emerge at grass-roots levels in response to the destruction of similar informal entities due to downsizing, re-engineering and restructuring (O'Dell & Grayson, 1998). In many organisations, informal networks are the principal means through which individuals find information, solve complex and challenging problems and learn how to do their jobs more effectively (Abrams *et al*, 2003). More studies are needed to ascertain if this is also true of university contexts (Mankin, 2007).

2.4.4 Section summary and second proposition

Arriving at a consensus definition of the concept of organisation is highly problematic given the existence of different paradigms. The university tends to be described as an institution. The section discussed the key aspects of the cognitivist and constructivist interpretations of organisations. The latter has resulted in an interest in practice-based communities and their role in how knowledge is shared within organisations. In order to better understand this it is necessary to acknowledge the complementary roles of formal and informal structures and processes.

Proposition: an organisation's formal and informal structures, processes and practices are, in effect, *intertwined* (Mankin, 2003a). The formal provides a structural framework or context for the informal.

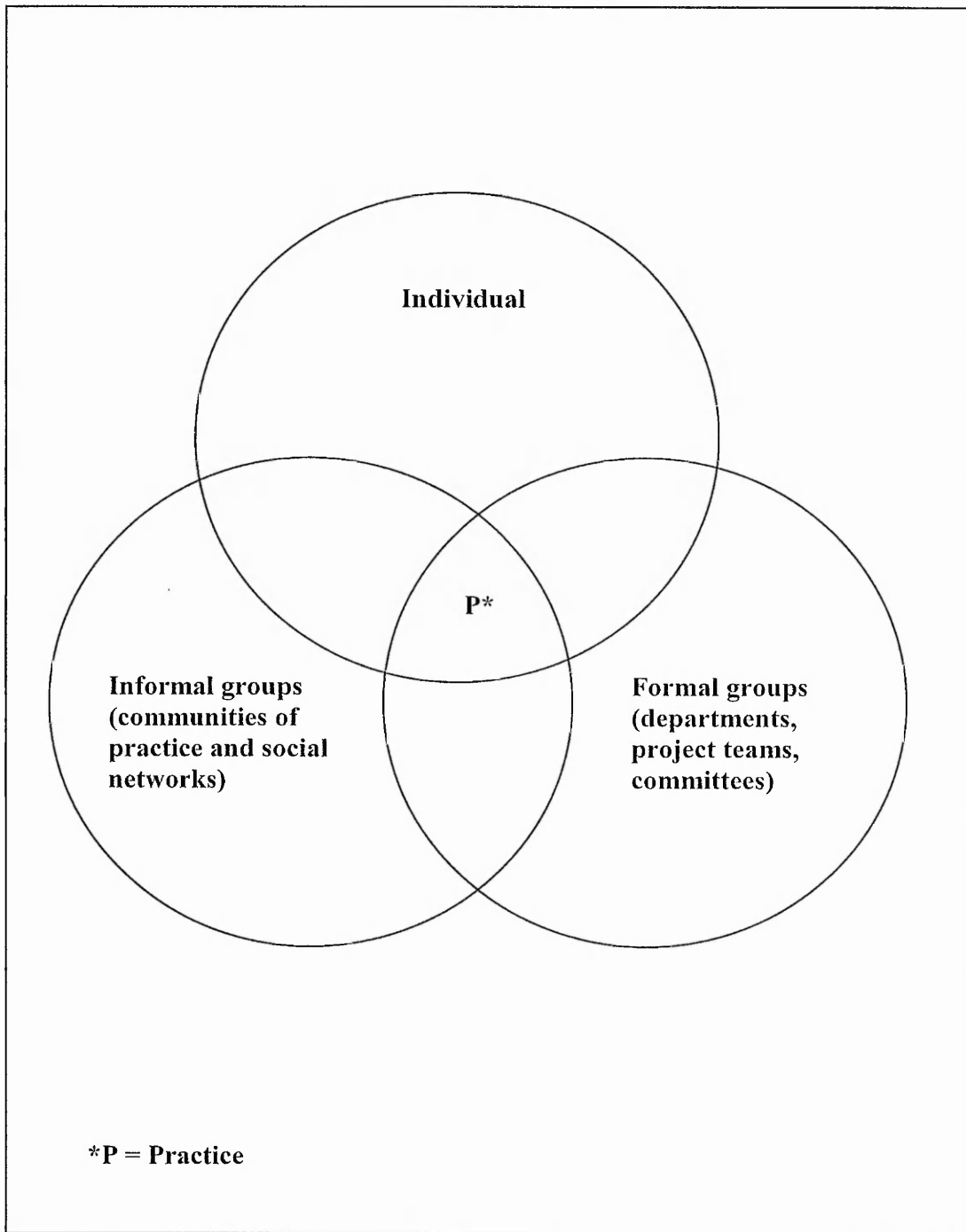


Figure 2.1: Conceptual framework Stage 1

2.5 Knowledge management

2.5.1 The evolution of knowledge management

As briefly discussed above the evolution of knowledge management can be explained in terms of waves. The first wave was a cognitivist perspective; the second wave was a social constructivist perspective (Mankin, 2007). The essential characteristics of these two waves have been summarised in table 2.5.

Table 2.5: Comparison between first and second waves of knowledge management

	1st Wave	2nd Wave
Over-arching descriptor	Knowledge Management	Organising Knowledge (Brown & Duguid, 1998, 2002)
Knowledge definitions	Individual knowledge as two different types – tacit and explicit	Knowledge is both individual and social/collective knowledge – tacit and explicit are two inter-related dimensions of knowledge
Principal emphasis	Reification Codification Commodification Control	Organising or cultivating/nurturing; Focusing on the context or environment: enabling knowledge creation (Von Krogh, 1998)
Underpinning theories	Human capital – economic perspective	Social capital
Learning perspective	Psychological Cognitive Behavioural	Sociological Distributed cognition Situated learning Learning by and through practice
Meaning	Empirically determined Objective	Socially constructed Subjective
Locus of knowledge	Individual De-contextualised Central repository	Socially embedded (Lin, 2002) Practice-based and context specific Social-Practice (Brown & Duguid, 2001) Community-of-practice (Lave & Wenger, 1991; Brown & Duguid, 1991)
Structural implications	Formal Organisations as open systems	Informal Organisations as closed systems
Strategic perspective	RBV	RBV
Epistemology	Positivist Cognitivist	Interpretative

Ontology	Positivist (neorealist) – a reality exists out there	Constructivist – reality is socially constructed
Axiology	Value-free	Value-laden
Key terms	Knowledge creation; knowledge conversion; knowledge transfer	Knowledge sharing; Knowledge exchange
Knowledge sharing factors	Individual motivation – benefits to individual	Group/collective motivation – benefits to the group
Memory	Individual	Communal Distributed

Additional sources: Schultz, 1961; Becker, 1964, 1975; Nonaka, 1991, 1994; Kogut & Zander, 1992; Harré & Gillert, 1994; Blackler, 1995; Chater & Oaksford, 1996; Grant, 1996; Simon, 1996; Spender, 1996; Tsoukas, 1996; Dreyfus & Dreyfus, 1997; Bertels & Savage 1998; Brown & Duguid, 1998; Cross, 1998; Ichijo et al, 1998; Nahapiet & Ghoshal, 1998; Wenger, 1998; Boud & Garrick, 1999; Clarke, 1999; Scarborough et al, 1999; Walton, 1999; Davenport & Prusak, 2000; Engeström, 2000; Hendry, 2000; Oliver & Roos, 2000; Scarborough & Carter, 2000; Von Krogh et al, 2000; Yakhlef & Salzer-Mörling, 2000; Cross et al, 2001; Gamble & Blackwell, 2001; Tsoukas & Vladimirou, 2001; Anderson & Jack, 2002; Bate & Robert, 2002; Huysman & de Wit, 2002; Newell *at al*, 2002; Noe, 2002; Ellis & Dick, 2003; Geroy & Venneberg, 2003; Patriotta, 2003; Waddill & Marquardt, 2003; Tsoukas & Mylonopoulos, 2004; Young, 2004; Chae et al, 2005; Desouza & Awazu, 2005; Roos, 2005; Vera & Crossan, 2005; Wasko & Faraj, 2005.

2.5.2 The first and second waves

Since the emergence of the concept of knowledge management there has been considerable debate on the concept of ‘knowledge’ but much less on the concept of ‘management’ which has tended to be treated as something that is either self-evident and/or unproblematic (Alvesson & Kärreman, 2001; Fuller, 2002). The assumption underpinning the first wave conforms to the prevailing universalistic conception of management (Reed, 1984) and is consistent with managerialist approaches (Swan & Scarborough, 2001; Garvey & Williamson, 2002) which are a particular characteristic of the university sector (Mankin, 2007; Deem et al, 2008). However, knowledge is difficult to manage (Ruggles, 1998) and alternative approaches to knowledge management have emerged in the literature such as ‘organising knowledge’ (Brown & Duguid, 1998, 2002) and ‘knowledge development’ (Ichijo et al, 1998). These characterise the second wave approach and challenge managers to find ways to “implicitly manage the implicit” (Huysman & de Wit, 2003: 53).

The first wave perspective oversimplifies the concept of knowledge and fails to recognise it as a complex social phenomenon (Lave, 1988; Nahapiet and Ghoshal, 1998; Chumer et al, 2000; Tsoukas & Vladimirou, 2001). The model of knowledge creation (Nonaka, 1994; Nonaka & Takeuchi, 1995) most commonly associated with the first wave restricts social processes to a limited contextual role. Knowledge management strategies in the first wave isolate learning and knowledge from practice (Lave & Wenger, 1991) and ignore the role of informal structures and processes in knowledge sharing (Oliver & Roos, 2000; Brown & Duguid, 2002). Rather knowledge sharing and learning are treated as additions to formal work processes in organisations (Huysman & de Wit, 2002).

As the concept of informalisation illustrates, informal groups and networks inhabit the “shadow-side” of an organisation (Egan, 1993: 33). This has implications for understanding how knowledge is shared within academic communities (Mankin, 2003a, 2007). Social capital, in the form of communities of practice and social networks, provides the resources for their members to learn (Brown & Duguid, 2000) with the central issue in learning being focused on *becoming* a practitioner rather than learning *about* practice (Brown & Duguid, 1991). This is one of the principal reasons why communities of practice are different to other types of group, such as project teams and workgroups, which are formally brought together by the organisation to work on specific projects or problems (Wenger & Snyder, 2000). The second wave action-oriented interpretation of knowledge (Collins, 1993; Spender, 1996; Cook & Brown, 1999; Davenport & Prusak, 2000; Oliver & Roos, 2000; Tsoukas, 2000, 2001; Von Krogh et al, 2000) emphasises *knowing* as something people do rather than

knowledge as something people possess (Blackler, 1995; Blackler et al, 1998). Knowing as doing emphasises the contextualised or situated characteristic of knowledge (Miller, 1997; Sayer, 2000; Antonacopoulou & Tsoukas, 2002; Delanty, 2005). It involves the whole body and not just cognitive processes (Gherardi, 2000); and has been described as embodied expertise (Wenger et al, 2002; Morçöl, 2005).

Despite the growth in second wave literature there is still a tendency to view knowledge management systems as reliant on information and communications technology (for instance: DiMattia & Oder, 1997; McInerney & LeFevre, 2000; Kleist et al, 2004). A study by Ruggles (1998) revealed that while senior managers do understand that knowledge is highly people-based they find it difficult to shed a technology-oriented mindset. Although there have been a limited number of empirical studies some have shown that in certain contexts, in particular professional service firms, technology's role in managing knowledge is minor in comparison to social networks (Robertson & Hammersley, 2000). These networks along with communities-of-practice (Brown & Duguid, 1991) are characterised by the implicit, subjective and socially constructed nature of knowledge (Alvesson & Kärreman, 2001). Although technology has also enabled online communities of practice to emerge (Erickson & Kellogg, 2003) these have been shown to be less effective than face-to-face encounters (Mankin, 2007).

There are three particular issues with the second wave perspective. First, it is not always clear how knowledge is connected to action (Tsoukas, 2002). This process can be highly intuitive or instinctive. For instance, knowledge often comes to mind when a question needs to be answered or a problem solved (McDermott, 1999). This

reflects the 'stickiness' of situated knowledge (Brown and Duguid, 2001) as illustrated by problems of interpretation when knowledge flows between specific contexts (Tsoukas, 2002) or is impeded by the silo effect (Brown & Duguid, 2002). These have implications for systems designed to manage and/or facilitate knowledge sharing and knowledge transfer processes (Mankin, 2004). Second, social relations may constitute a resource (Leana & Van Buren, 1999) but the quality of relationships can be highly variable (Portes, 1998). The efficacy of social relationships is dependent on trust and reciprocity and this has important implications for organisations. For instance, it is very difficult to create informal networks or communities of practice through managerial initiatives as they depend on bottom-up involvement and commitment (Alvesson, 2004). However there needs to be more research on this topic, particularly in relation to social networks (Anderson & Jack, 2002). Third, although social capital is usually expressed in positive terms, there can be negative consequences such as the exclusion of outsiders, excessive claims on group members, and restrictions on individual freedoms (Portes, 1998; Wenger, 1998; Bauman, 2000; Brown & Duguid, 2001; Peltonen & Lämsä, 2004). Communities of practice are still a relatively poorly developed concept and there needs to be much more exploration of knowledge sharing processes between communities as well as the negative aspects of communities (Hislop, 2003).

2.5.3 The possibility of a third wave perspective

Arguably, there is a need to adopt a more balanced (Swart et al, 2003) or holistic view (Nielsen, 2005) which acknowledges the interplay between social and technical factors (Pan & Scarborough, 1999). This suggests the emergence of a third wave

(Mankin, 2004, 2007) although there is a lack of empirical evidence to support this proposition. The third wave approach to knowledge management is described by the author as:

a holistic approach to nurturing an organisational context within which direct and indirect, formal and informal interventions are combined in such a way that they collectively facilitate the growth of learning and knowledge formation processes through the positive interaction of human and social capital

These three perspectives on knowledge and knowledge management have implications for the management and development of academics (Mankin, 2007) that require particular human resource development strategies: learning as socialisation, devolved informal learning, empowered informal learning, and manipulation of learning (Mankin, 2004; in press). Learning as socialisation focuses on the delivery of formal learning and development interventions for the development of human capital; devolved informal learning on developing reflective practice; empowered informal learning on cultivating or nurturing the organisational context to stimulate the growth of social capital; manipulation of learning on engineering social capital. These are not intended to be either-or choices but choices that can be combined (Mankin, 2004; 2007; in press).

To date universities have tended to focus on management *information* systems to support management decision making. Whilst technology is used to support various administrative and academic processes the core activities of universities remain “face-to-face teaching and individual and small-team research” (Duke, 2002: 43). Consequently, it could be argued that the default position of universities is a second

wave perspective on knowledge management. Given that teaching and research are both examples of knowledge production (and transfer) the management processes which are used to control these activities could be described as being part of an implicit rather than overt KM strategy. Teaching is more easily managed than research but is valued less highly in many universities (Deem et al, 2008).

2.5.4 Section summary and the third proposition

Knowledge management can be understood in terms of waves. The way in which knowledge is 'managed' differs between these two waves. The following proposition reflects the possibility for a third wave perspective which builds partly on the principles of the codification-personalisation strategies of Hansen *et al* (1999) but with a caveat: the personalisation strategy has to be expanded from its human capital focus on individual experts to include a social capital perspective.

Proposition: Knowledge *management* (i.e. control) and knowledge *development* (i.e. cultivation) are complementary processes.

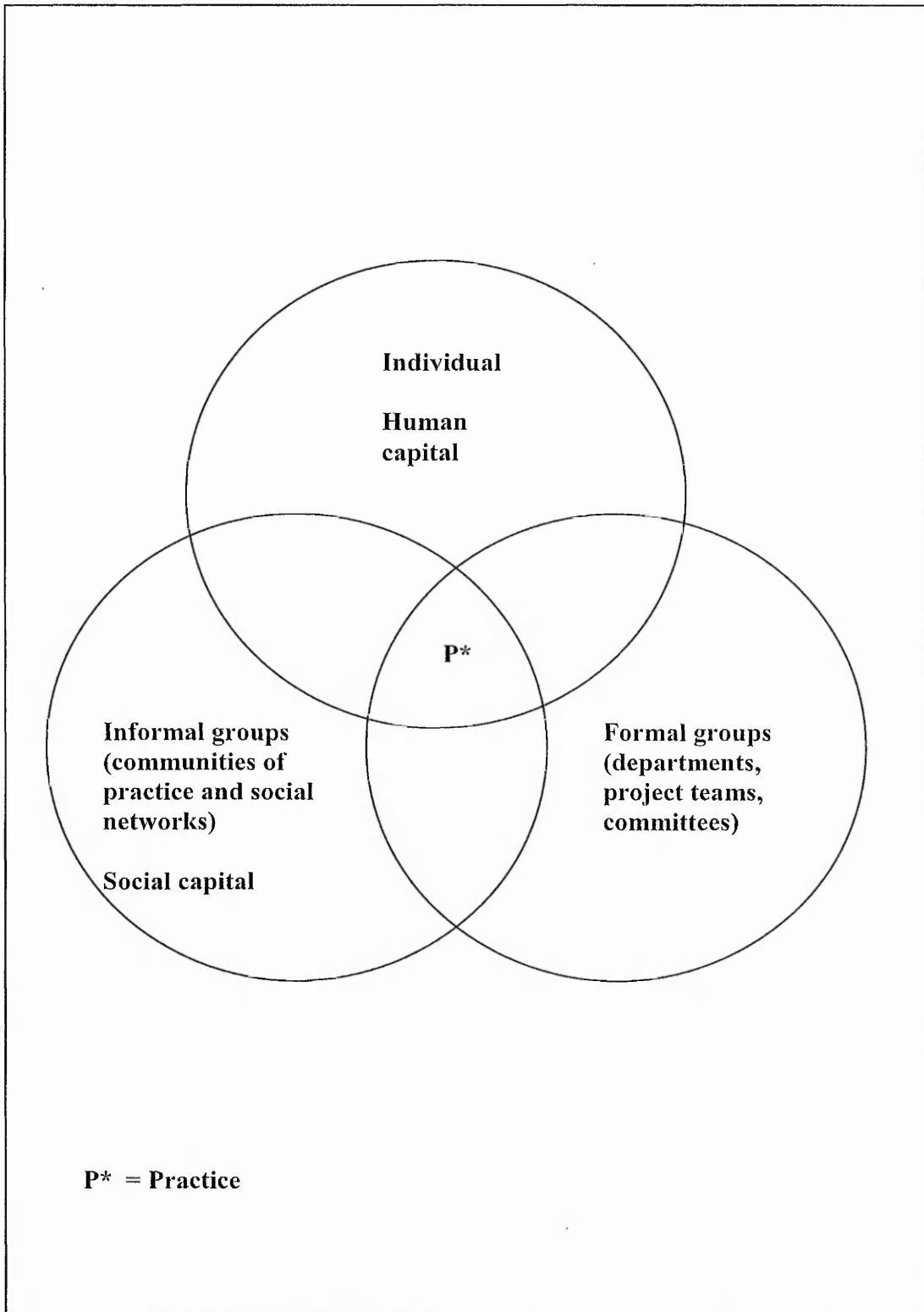


Figure 2.2: Conceptual framework Stage 2

2.6 Organisational knowledge (and the relationship between individual, group and organisation)

2.6.1 The cognitivist perspective

How do the cognitivist and social constructivist perspectives help us to better understand the relationship between individual, group and organisation? Rather than present an either-or hypothesis it is proposed that the blended nature of the third wave encapsulates the key propositions of the first and second waves. From the first wave cognitivist perspective organisational knowledge can be defined as all knowledge held individually and stored centrally, for collective use within an organisation. The term 'use' highlights the role of organisational knowledge in organisational decision-making processes (Pan & Scarborough, 1999). Underpinning this perspective is agency theory and a belief that individuals within an organisation share mental models that enable them to interpret organisational knowledge in the same way (Boland, 1994; DeFillippi & Ornstein, 2005). Dixon's (1999) 'distributed model' is based on the view that knowledge is widely distributed across organisational members rather than residing in a small number of experts. Knowledge is abundant rather than scarce. The challenge is to devise knowledge management systems that can leverage this knowledge.

Although distinctions are made between the individual and the organisation there remains a lack of clarity and understanding about the micro-level process that are involved in developing organisational knowledge (Ichijo et al, 1998; Tsoukas &

Mylonopoulos, 2004). For instance, Nonaka (1994) refers to ‘amplification’ while Matthews and Candy (1999) refer to ‘scaling up’. Whilst teams may provide a “shared context” (Nonaka, 1991: 44) the emphasis is still on individual agency. This is consistent with much of the literature on organisational learning (Cook & Brown, 2002). For instance, Argyris and Schön (1996) and Argyris (1999) argue that the concept of inquiry acts as the link between the individual and organisational levels but that “inquiry does not become organisational unless undertaken by individuals who function as *agents* of an organisation according to its prevailing roles and rules” (Argyris, 1999: 11 – emphasis added).

2.6.2 The social constructivist perspective

From a social constructivist perspective there is an elusive quality to the relationship between individual and organisational knowledge (Tsoukas, 2001). Organisational knowledge is more than the sum total of all individual knowledge but it is simply not possible to capture all the ways in which people share their knowledge. As much of this knowledge is tacit and embedded in an organisation’s theory-in-use (Argyris & Schön, 1978) it is through work (action) that much organisational knowledge becomes mobilised. Organisational knowledge is largely dependent on improvisational and informal processes (Tsoukas, 2001) and is heavily social in character (Brown & Duguid, 1998). From this perspective teams or groups do more than simply provide a context for knowledge to be enabled and shared. Collectives comprise social processes that bring forth socially constructed knowledge that is context-specific and action oriented (Prusak, 2001).

Organisational knowledge is embedded in the relationships between individuals in the community or network. Shared knowledge can be identified in the form of routines and of experiences (Tsoukas, 2002). Routines (Nelson & Winter, 1982; Starbuck, 1983) are usually formalised and thus appear bureaucratic which “highly educated experts” tend to dislike (Starbuck, 1992: 727). The social constructivist perspective emphasises informal routines that emerge from and through collaborative activity. Here language is the medium through which knowledge is shared in face-to-face discussions (although some communities may be virtual). This ‘language game’ (Bolisano & Scarso, 2000) is heavily reliant on story-telling (Orr, 1990).

The second wave highlights the importance of cultivating or nurturing the organisational context in order to stimulate the growth of informal interactions (Mankin, 2004). This reflects a shift in emphasis from the management of knowledge to the development of constructive and helpful relationships that lead to the creation of knowledge (von Krogh, 1998; Stacey, 2001). The downside to this approach is the extent to which knowledge becomes ‘sticky’ (Brown & Duguid, 1998, 2001, 2002; Wenger et al, 2002): it is only used by those who appreciate it (Tsoukas, 2002) and is not easily transferable to those outside the community (Quintas, 2002).

Individual members of a community of practice have a shared, partial understanding of the knowledge embedded within that community (Brown & Duguid, 1998). Collective knowledge is distributed across a community and exists between rather than within individuals (Dixon, 1999; Lam, 2000). This has been demonstrated in some studies (for instance, Hislop, 2003) and this contrasts with a cognitivist perspective in which all or almost all of a collective’s knowledge can exist within an

individual member's mind if he/she has been "completely socialised" into the group (Leonard & Sensiper, 1998: 121). However, this perspective on knowledge is not a recent development. In 1979 Duncan and Weiss were already arguing that the process by which individual knowledge becomes organisational knowledge "is a social process, one that is extra individual. It is composed of the *interaction* of individuals and not their isolated behaviour" (page 89).

Table 2.6: Popular terms for describing informal groups

Communities of practice	Brown & Duguid, 1991; Lave & Wenger, 1991; Cook & Brown, 1999; Brown & Duguid, 1998; Huseman & Goodman, 1999; Matthews & Candy, 1999; Davenport & Prusak, 2000; Oliver & Roos, 2000; Wenger et al, 2002
Communities	Kogut & Zander, 1992
Professional communities	Nohria & Eccles, 1992
Communities of interaction	Nonaka, 1994
Communities of interest	Davenport & Prusak, 2000
Micro-communities	Von Krogh et al, 2000
Communities of creation	Sawhney & Prandelli, 2000
Learning communities	Ardichvill, 2003
Communities of purpose	Schlager & Fusco, 2003
Knowledge communities	Gongla & Rizzuto, 2001
Knowledge networks	Davenport & Prusak, 2000; Gongla & Rizzuto, 2001; Inkpen & Tsang, 2005

Managing, organising or enabling organisational knowledge becomes the capacity to create connections (Baumard, 1999) between individuals and between informal groups; as well as, between individuals and formal groups. Many organisations have encouraged the formation of social groups to stimulate knowledge formation processes (Davenport & Prusak, 2000); but tensions can be created when the underlying *organic* processes of knowledge formation (Lam, 1997) are combined with an interventionist or engineering approach by management. Although examples of organisations combining engineering and cultivation strategies have featured in the

literature (for instance, the study of IBM Global Services by Gongla & Rizzuto, 2001) it is easier to find examples primarily predicated on an engineering perspective (for instance, McDermott, 2000; Fontaine, 2001; and, Spencer et al, 2003). Although it is argued that a community of practice may be intentionally designed as well as emergent (Mackenzie & Winkelen, 2004) engineered communities may be more accurately described as self-managed teams (Mankin, 2007). Whilst communities are becoming more formally recognised and supported by organisations (Wenger & Snyder, 2003) there is some concern about the appropriateness of private sector organisations as settings suited to community formation (Alvesson & Kärreman, 2001).

2.6.3 Communities of practice and social networks

Second wave literature has tended to focus on communities of practice more than social networks. They share similar characteristics: they are both informal, self-organising and focus on common or shared work practices or interests (Davenport & Prusak, 2000); and, participation in these groups requires “social competence” (Bertels & Savage, 1998: 22). This social competence is critical in the establishment of social networks. Social networks can be defined as “subsets of established informal relations that exist within teams and across subunits in an organisation” (Hansen et al, 2005: 776). There are three different types of network: social networks, external networks and internal networks (Van Wijk et al, 2005).

Communities can emerge from formal groups, although it is not always clear where such communities begin and end as they can take a while to come into existence and

can linger long after the formal group has been disbanded (Wenger, 1998). In a university setting this may be a subject interest or an interest in a process (e.g. research, teaching, consultancy). In higher education they:

are particularly important in nurturing and harvesting tacit knowledge and in building up a sense of common purpose, although they can be equally valuable in creating explicit knowledge. They can work as well with contracts, regulations and codified procedures as with rules of thumb, intuition, hunches and underlying assumptions (Sallis & Jones, 2002: 25).

Usually communities form along friendship lines or within local geographical or organisational contexts (Wenger et al, 2002) and are characterised by face-to-face interactions (Von Krogh et al, 2000). That said, e-communities have been identified and discussed (e.g. Marshall et al, 1995) and it is being argued, rather than necessarily demonstrated, that developments in information and communications technologies are reducing the need for community members to be co-located (Lesser & Storck, 2001).

It has been shown that individuals who identify more with a sub-unit or sub-group than with the organisation as a whole are less likely to share information outside of these sub-units/groups (Fisher et al, 1997). This insularity is the product of *associability* (Leana & Van Buren, 1999) where individuals are both willing and able to subordinate individual goals and associated actions to collectively defined and collectively enacted goals. In this sense communities have a collective (Von Krogh et al, 2000) or community memory (Orr, 1990) that is different to an organisational memory that is based on the storage or codification of information. This has specific

implications for universities given the perceived silo mentality of academic communities; particularly in the new university sector where there are fewer research networks and attendance at conferences is more sporadic (Mankin, 2007).

2.6.4 Section summary and the fourth proposition

The first wave focused on the individual and agency theory underpinned by human capital theory. From this perspective intellectual capital was represented by codified, collective knowledge. In the second wave, social capital theory underpinned definitions of intellectual capital which were extended to embrace both human and social capital; and, it is this combination that underpins the third wave 'blended' perspective. The third wave perspective is predicated on the **proposition:** that the relationship between individual, group and organisation is mediated through the shared practice that occurs within informal groups such as communities of practice and social networks. In the third wave perspective organisational knowledge acquires the multi-layered quality that Tsoukas (2000) describes as being simultaneously personal knowledge, propositional knowledge and collective (cultural) knowledge. The latter comprises the shared understandings that evolve over time between members of the same community. Cultural knowledge is about knowing how things actually get done in an organisation (Ellis & Dick, 2003). In both the first and second wave perspectives individual tacit knowledge can be described as dormant until used; although the first wave requires a conscious process of articulation or externalisation for tacit knowledge to be made explicit and the second wave requires doing for the tacit dimension of knowledge to be utilised (emphasising the intuitive or instinctive characteristics of tacit knowledge). "Individuals have private knowledge that can be a

basis for organisational knowledge...Knowledge of the organisation is shared knowledge among organisational members” (von Krogh *et al*, 1994: 59).

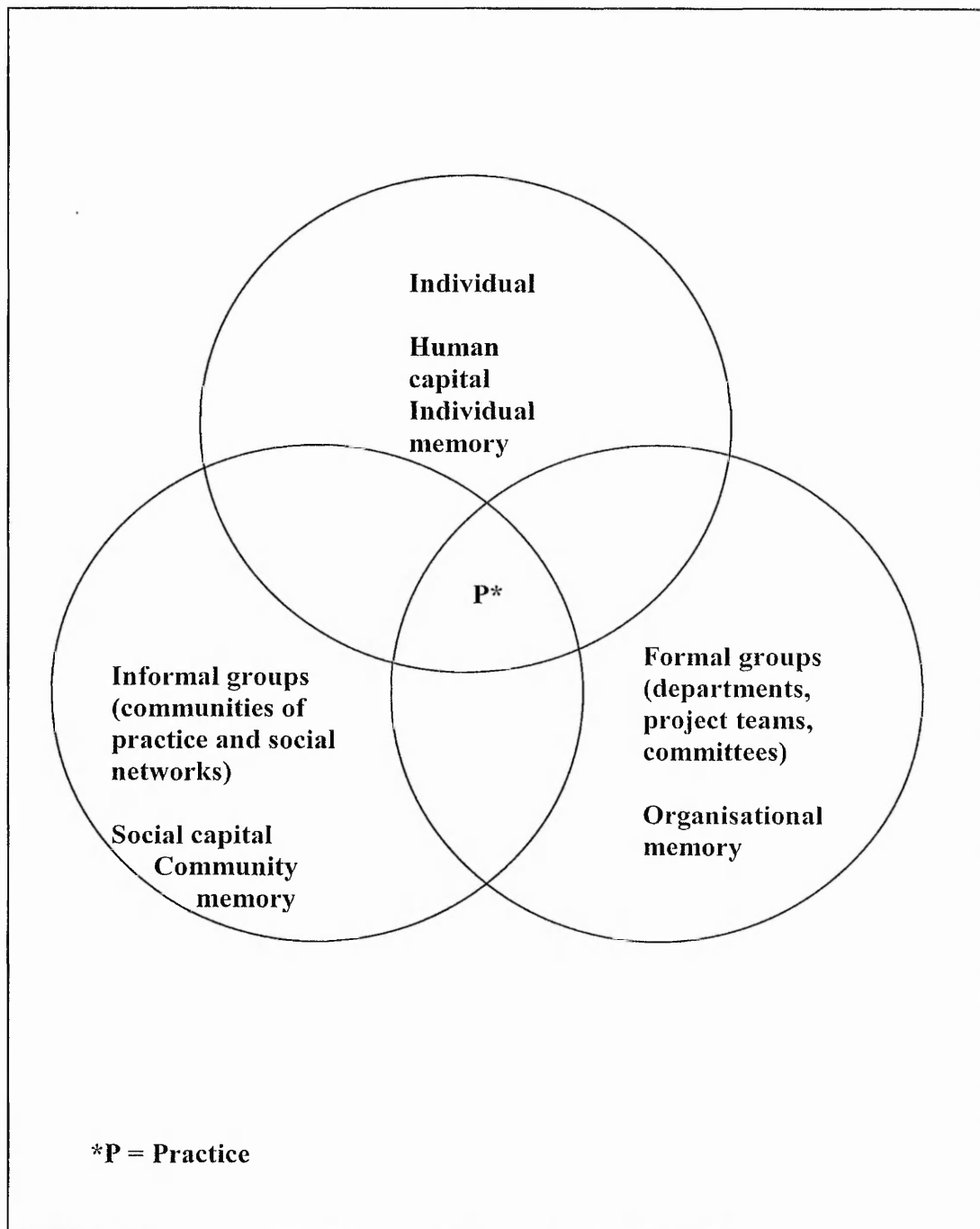


Figure 2.3: Conceptual framework Stage 3

2.7 The relationship between knowledge and learning

2.7.1 Defining the concept of learning

Learning is an ambiguous term with a plethora of meanings (Gold *et al*, 2002). Any analysis of learning theories is likely to be contested. Historically the bulk of literature on learning had been devoted to the psychology of learning at an individual level. More recently social constructive perspectives on learning have drawn attention to the role of social learning and, in particular, the concept of situated learning. Work and learning have come to be viewed as “interlocking components” (Wick, 1993: 4). Although this suggests a performance-improvement orientation to learning it is not clear how much workplace learning activity is actually occurring within organisations as it is difficult to measure (Stern & Sommerlad, 1999). Much of this learning is informal as well as incidental (Matthews & Candy, 1999) rather than purposeful (Jarvis, 2006). It is now recognised that there are a number of ways in which highly qualified individuals learn about their jobs outside structured, or formal, learning (Eraut *et al*, 1998). Practical knowledge, in particular, is acquired (and developed) through learning by doing (Zuboff, 1988). Consequently, the ability of individuals to learn is increasingly being seen as an important competency (Matthews & Candy, 1999).

The emergence of an ‘open systems’ view of organisations has resulted in a view that organisations (and their sub-units) can, and do learn, as they interact with, and adapt to, their external environment (Kolb, 1996; Magalhães, 1998). Building on the cognitivist perspective of Simon (1977, 1981) and of Cyert and March (1963) the

notion of organisations as 'learning systems' emerged (Kolb, 1996; Argyris, 1999) resulting in a swathe of literature on organisational learning and the learning organisation. This has led to the view that *all* organisations learn (Argyris & Schön, 1996) or learn to some extent (Garvey & Williamson, 2002); although distinctions have been drawn between learning-*by* an organisation and learning-*within* an organisation (Huysman & de Wit, 2003).

2.7.2 Individual learning

Attempts to explain individual learning have been produced primarily within the discipline of psychology. The first wave cognitivist perspective focused on learning as a private process, as something that occurs inside individual minds (Simon, 1991; Jarvis, 2001c). The second wave stressed the importance of the social context with explanations of cognition evolving to match this perspective; for instance, situated cognition, and distributed cognition (Palincsar, 1998). It was the second wave emphasis on tacit knowing or know-how that directed attention to the social and interactive nature of learning (Lam, 2000). It was already being recognised in the early 1990s that the development of practical skills or know-how requires frequent interaction within small groups (Kogut & Zander, 1992). In the first wave, social learning processes had been recognised as an important aspect of the knowledge creation process (Nonaka, 1991, 1994; Nonaka & Takeuchi, 1995; Sawhney & Prandelli, 2000). However, the second wave promoted the criticality of social learning processes to knowledge formation processes.

In both waves learning and knowledge are inextricably linked. Learning is a process for sharing knowledge (Quintas, 2002), acquiring knowledge (Brown & Duguid, 2001; Quintas, 2002) and creating new knowledge (Kogut & Zander, 1992). In the first wave, Nonaka (1994) described the process of *internalisation* (the conversion of explicit knowledge into tacit knowledge) as bearing some similarity to the traditional notion of learning. In the second wave knowledge is intrinsically linked to the social and learning processes within an organisation (McAdam & Reid, 2001). Social learning is inextricably linked with a distributed knowledge system (Tsoukas, 1996) in which knowledge is not the property of an individual but is distributed across a social system (Patriotta, 2003). In this context cognition is about:

viewing person and environment in terms of their contributions to an activity rather than as separately described things (Patriotta, 2003: 36).

Individuals learn from other individuals during social processes such as knowledge sharing (Huysman & de Wit, 2003). Consequently, the social context is inextricably linked to an individual's ability to learn.

Bowden & Marton (2004) have identified three phases in the development of theories about learning: behaviourism; cognitive; and, situated. The first two phases reflect a psychological emphasis and the third a sociological one.

2.7.3 Psychological perspectives on learning

The behaviourists argue that learning is directly linked to behavioural outcomes (stimulus-response theory). However, an emphasis on behaviourism and behavioural change (Bass & Vaughn, 1967; Myers, 1995) has limitations: it does not refer to any changed ways of perceiving, thinking and knowing in relation to an individual's understanding of the 'real world'. Inquiry is restricted to what is directly observable (i.e. what people do; how they behave) (Bowden & Marton, 2004). Learning is portrayed as "a mechanistic and involuntary process over which learners can exert little control" (Starbuck & Hedberg, 2001: 330). A particular strength of behaviourist theories of learning is that exponents are able to claim empirical evidence of learning having taken place (Jarvis, 2001c).

The cognitivists point to the need to examine potential behaviour and to be able to transfer learning from one situation to another. The cognitive perspective involves "a qualitative change in a person's way of seeing, experiencing, understanding, conceptualising something in the real world" (Marton and Ramsden, 1988: 271). Learning is about the development of representations or mental models of the world with a high degree of general applicability (Von Krogh, 1998; Patriotta, 2003; Bowden & Marton, 2004). This perspective is characteristic of learning within an educational context (Ramsden, 1992; Jarvis, 2001a). Unfortunately, learning is something that cannot be observed or measured empirically (Jarvis, 2001c). In the cognitivist perspective learning takes place inside individual human heads or minds (Simon, 1991; Elkjaer, 2005). Knowledge is viewed as being "explicit, capable of

being encoded and stored, and easy to transmit” (Von Krogh, 1998: 134). The emphasis is on information processing and the storage of knowledge as schemata (Anderson, 1990). Studies of cognition have tended to ignore the context or settings in which learning takes place (Fuhrer, 1996) and have provided a very partial view only of the relationship between context and cognition (Daniels, 2001).

From this perspective learning has been defined in terms of knowledge formation (Bowden & Martin, 2004) in which an individual constructs mental models (Baumard, 1999) or schema (Eraut, 2004). [An individual is actively engaged in the learning process.] Cognitive learning facilitates Nonaka and Takeuchi’s (1995) concept of ‘internalisation’ (i.e. explicit to tacit). Eraut (2004) identifies four modes of cognition associated with professional work. These offer a refinement to Schön’s (1991) differentiation between reflection-on-action and reflection-in-action. Of particular interest is Eraut’s observation that routinisation “leads to knowledge becoming less explicit and less easily shared with others, i.e. more tacit” (page 261). Organisational knowledge is embedded in routines that are very often taken for granted/unconsciously carried out. Prior experience enables individuals to intuitively decide what needs to be done. This process is ‘schema-drive’ (Eraut, 2004).

Within the cognitive ‘school’ learning has been defined as a cyclical process which is grounded in experience (Kolb *et al*, 1984). This experiential learning process has become a major focus of learning theory (Jarvis, 2001a); but does not explain adequately all aspects of learning within a work context. Interest in work-based learning is still a relatively recent phenomenon; and, is still under-researched (Eraut, 2004). Although it has been criticised as having a dreary history (Beckett, 1999) it has

started to attract almost unprecedented interest (Hager, 1999). It is now seen as being of considerable importance to the success and development of organisations. Much of the learning that occurs in the workplace is informal. Characteristics of informal learning “include implicit, unintended, opportunistic and unstructured learning and the absence of a teacher” (Eraut, 2004: 250).

These first two phases both focus on the individual.

2.7.4 Sociological perspectives on learning

From this perspective learning is deeply influenced by the social context within which it occurs (Fuhrer, 1996; Brown & Duguid, 2001; Reynolds *et al*, 2002). Knowledge is the product of social learning processes (Boisot, 1998) and is inherently social in nature (Collins, 1990). This links learning to the acquisition of identity as well as to the acquisition of knowledge (Brown & Duguid, 2001; Elkjaer, 2005). Related theories within this perspective include activity theory, distributed cognition and situated learning. The latter is the main focus of this section. Activity theory sees practice as “a system of activities in which knowing is not separate from doing” (Gherardi & Nicolini, 2001: 49). An organisation is an activity system characterised by distinctive tasks and an idiosyncratic set of practices (Patriotta, 2003). Socially distributed cognition (Hutchins, 1994, 1996) views social units as cognitive systems in which cognitive processes are distributed across a network of people. It is an alternative theory to activity theory and attempts to explain cognitive activities as embodied and situated in the work settings in which they occur (Rogers & Ellis, 1994). As Salomon (1993:3) argues:

a clearer understanding of human cognition would be achieved if studies were based on the concept that cognition is distributed among individuals, that knowledge is socially constructed through collaborative efforts to achieve shared objectives in cultural surroundings and that information is processed between individuals and tools and artefacts provided by the culture.

A potential problem with distributed cognition is that people have to handle the limitations of the communications between people (Hutchins, 1996). Although Nonaka (1991; 1994; Nonaka & Takeuchi, 1995) stresses the role of social interaction he does so from a cognitivist perspective and places individuals within a traditional team context:

teams play a central role in the knowledge-creating company because they provide a shared context where individuals can interact with each other and engage in the constant dialogue on which effective reflection depends. Team members create new points of view through dialogue and discussion. They pool their information and examine it from various angles. Eventually, they integrate their diverse individual perspectives into a new collective purpose (991: 44).

This hints at the role of social context that is developed by the constructivist authors:

increasingly [the] distributed nature of practice and expertise leads to the need for theories that would describe and explain how individuals learn or work in interactions... [such as] situated action and learning theory and distributed cognition theory (Ardichvill, 2003)

In order to understand the influence of social context and the emergence of *situated learning* (Brown et al, 1989; Lave & Wenger, 1991) or *learning through social*

participation (Wenger, 1998), it is necessary to go beyond Bandura's (1969; 1977) concept of (cognitive-) social learning (involving observation-driven imitation and modelling). In his work on activity theory Engeström (1996) argues:

[t]he standard cognitivist view identifies the given problems and knowledge domains – or the given individual's mental models and cognitive structures – as the context of problem solving, thinking, and learning. This view excludes the societal and cultural aspects from its notion of context (page 66).

To understand the impact on learning of the societal and cultural context, it is necessary to look to the earlier work of educational psychologists such as Piaget and Vygotsky both of whom adopted a constructivist perspective on learning. Piaget rejected the Cartesian tradition of reductionism (Bidell, 1992) and was interested in biological and cognitive mechanisms while Vygotsky was interested in social factors (Light & Cox, 2001). Vygotsky (1978) was interested in the relationship of individual human beings with both their physical and social environments. He felt that the development process was “deeply rooted in the links between individual and social history” (page 30) and that learning was a profoundly social process. He proposed the concept of the *zone of proximal development* to explain the influence of the social context on an individual's learning and development. Although he focused on children his ideas have influenced the constructivist perspective including activity theorists. Activity theory is an attempt to develop a unified account of knowing and doing (Blackler, 1995) through the study of human behaviour as it manifests in interpersonal exchanges (Ardichvill, 2003).

Within the social constructivist perspective:

Learning does not involve understanding the 'true' nature of things, but is a personal construction of meaning out of experience. The departure from cognitive theories is clear: knowledge is a personal, subjective issue, not an external commodity waiting to be internalised through the absorption of content (Reynolds *et al*, 2002: 22).

Knowledge is socially constructed (Lave, 1996a; Alvesson, 2004) and tacit knowledge is acquired through practical experience in the relevant context, in effect a form of 'learning by doing' (Lam, 2000). Individuals use explicit knowledge and their interaction with others to construct their own understanding of the world (Reynolds *et al*, 2002). This is a form of embodied knowing in which individuals actively create meaning in the course of their lives through their interactions with the environment (Lee, 1999). Consequently, language is important (Vygotsky, 1978; Tsoukas, 2001).

2.7.5 Organisational learning

As with individual learning, there are multiple perspectives on organisational learning (DeFillippi & Ornstein, 2005). The literature on organisational learning falls into two main categories: the cognitive perspective and the social perspective (Chiva-Gómez, 2004). The first perspective on organisational learning can be traced back to Cyert and March (1963) who were the first to posit that organisations can learn to adapt to their environments and that this adaptive learning can occur independently from individuals within the organisation (Easterby-Smith & Lyles, 2005). This rationalist approach has provided the foundation for the cognitivist perspective of organisations but is rejected by advocates of the social constructivist perspective because it ignores the role of social processes. It is problematic because of the lack of clarity

surrounding the individual-organisation relationship (Elkjaer, 2005). This problem has not been resolved satisfactorily within the literature. There is an over-reliance on the view that individuals act on behalf of the organisation (Elkjaer, 2005). Often the literature is characterised by metaphor and vagueness. A social constructivist perspective views organisational learning as an institutionalising process (Huysman, 2004) through which individual knowledge becomes organisational knowledge as a result of a practice becoming sufficiently regular and continuous to be described as institutional (Huysman & de Wit, 2003). Consensus and agreement are critical components in this process (Lyles & Schwenk, 1992). In universities this process is characterised by the daily occurrence of “conversation and collaboration” (Duke, 2002: 96).

What is certain is that organisations provide a context for learning (Kogut & Zander, 1992) which can be both formal and informal. Informal learning can be defined as experiential and non-institutional learning, including networking and coaching, whereas incidental learning is a by product of some other activity (Marsick & Watkins, 1990a). Much of this learning is tacit or implicit where there is no intention to learn and no awareness necessarily that learning has occurred (Eraut, 2000). Tacit knowledge in particular tends to be learned informally on the job (Wagner & Sternberg, 1987) often in the context of a community or network. It is through this process that individuals acquire experience which is drawn upon and updated on as a continuous learning process. In this sense learning is integrated into an individual’s biography (Jarvis, 2006). This social constructivist perspective on learning is underpinned by an epistemological stance in which socially constructed individual meaning is paramount (Petraglia, 1998). Consequently, stories or organisational

narratives are the principal medium through which much organisational learning circulates (Czarniaska, 1998). Stories enrich, enhance and infuse information and facts with meaning (Gabriel, 2000). Although informal learning has its roots in human capital theory it is now viewed as an integral aspect of social capital (Mankin, 2004) and can be deliberately encouraged by an organisation (Marsick & Watkins, 1990b). Informal and incidental learning offer viable, if often unpredictable alternatives to formal learning opportunities (Mankin, in press).

The concept of apprenticeship is popular among writers for the acquisition of know-how (see for instance, Lave & Wenger, 1991; Collins, 1993; Nonaka & Takeuchi, 1995; Cook & Brown, 1999; and, Wenger et al, 2002). Apprenticeship is not used in the sense of a formally structured programme of study and practice often associated with trade skills but as a process through which a new, inexperienced member of a community of practice, or social network, develops into a skilled member of that community, or social network. Informal learning processes are a characteristic of second wave literature: situated learning (Lave & Wenger, 1991); storytelling and conversations (Wenger et al, 2002); problem solving (Davenport & Prusak, 2000; Leonard & Sensiper, 1998; Lam, 2000). More formal approaches have featured less prominently, and usually to provide a context for informal learning; for instance: job rotation which facilitates group learning and the collective sharing of knowledge (Lam, 1997); coaching which focuses on shared practice (Wenger et al, 2002).

2.7.6 The role of situated learning

Situated learning is action oriented (Bresnen et al, 2005). From a situated learning perspective knowledge is socially constructed. This type of learning is a characteristic of communities of practice (Baumard, 1999) and social networks. The situated learning perspective (Lave, 1988; Lave & Wenger, 1991; Star, 1992; Lave, 1996a) focuses on the organisation as a social and cultural context within which learning takes place. It is a sociological rather than psychological approach to understanding how and why learning occurs. Meaningful learning of concepts, ideas or principles has to be situated in real-life practices where these concepts, ideas and principles are applied as part of everyday practice (Bowden & Marton, 2004). Lave and Wenger (1991) develop the concept of situated learning as a variant of social learning theory in which learning is *situated* in a real-life or work-setting (Lave & Wenger, 1991; Fuhrer, 1996). It is a social activity involving participation in some form of cultural practice (Lave & Wenger, 1991; Garvey & Williamson, 2002) and should not be decontextualised (Lave, 1996a). It

allows people to hold learning conversations, where they solve problems, tell *stories* and share insights, from hunches and feelings to analysis and well-researched ideas (Sallis & Jones, 2002: 96).

Individuals learn through social interaction with others and cognition is not viewed as an act of representation but as an act of construction or creation (Von Krogh, 1998). This involves both observation and active engagement in relevant practices. Situated learning is a by-product of the learners' participation in social practices which do not necessarily have learning as their primary aim (Bowden & Marton, 2004). In this

sense learning can be viewed as an aspect of all activity (Lave & Wenger, 1991). However, there are criticisms of this approach:

Theories of situated learning tend to stress the consensual and participative nature of learning at work rather than the constraints (Rainbird et al, 2004: 38).

Lave and Wenger (1991) adopt a somewhat polemic stance. They are critical of learning theories that ignore the essential social character of learning. Yet, formal work-groups and teams are also an important source of learning (Rainbird et al, 2004) and play an important role in knowledge sharing (Anand et al, 2003; Michailova & Husted, 2003). Formal learning processes can also contribute to an individual's sense of empowerment (Rainbird et al, 2004). For instance see Lynn (1998).

The emergence of communities of practice as a primary source of organisational knowledge has highlighted the importance of the social context within which individual learning takes place; and, in particular, the role of heuristic (Collins, 1990) and non-canonical (Brown & Duguid, 1991) practices. Communities of practice provide an ideal learning environment (Brown & Duguid, 2000). Members of a community develop implicit ways of learning and working together (Leonard & Sensiper, 1998) and this reinforces the need to view learning and working as inter-related concepts. Integral to these learning processes is the role of reflective practice. Tsoukas & Vladimirou (2001) argue this is critical to the management of organisational knowledge. Reflective practice involves the questioning and challenging of prevailing beliefs and assumptions and is intimately linked to Argyris' (1999) concept of deuterio learning. There are still downsides to communities of practice. They can become isolated from each other even though they are individually

highly productive. This is a characteristic of universities (Brown & Duguid, 1998). Communities can develop a silo mentality in which core competencies are turned into core rigidities (Leonard-Barton, 1995).

Despite the popularity of organisational knowledge and learning there has been relatively little in-depth, rigorous empirical research which investigates how organisations have approached learning processes (Yeung et al, 1999). Various definitions of the knowledge organisation acknowledge the need to create an appropriate learning environment (Bertels & Savage, 1998) in which continual learning takes place (Huseman & Goodman, 1999). However, the arguments about whether or not learning is essentially individual or social remain largely rhetorical (Griffin, 2001) despite the proliferation of theories about learning being attributed to communities, organisations and society itself (Griffin & Brownhill, 2001).

Despite the emergence of a second wave perspective there is still a tendency for much of the literature to emphasise the role of individuals as organisational 'agents' of learning (Huysman, 1999) and this means that the role played by culture, along with other structural conditions (such as organisational histories, group structures, power structures) tends to be overlooked. What is particularly significant about the social constructivist, practice-based perspective is that it helps us to better understand the relationship between individual, group and organisation by exposing these levels as artificial constructs (Gherardi & Nicolini, 2001). The levels dissolve because a particular practice can cross all levels and link relevant knowledge and knowing together (Gherardi & Nicolini, 2001). One of the criticisms of this constructivist perspective is that the link between communities of practice and organisational

learning “is almost always taken for granted” (Huysman, 2004: 82). Another is that shared knowledge still implies some form of transmission (Peters & Olssen, 2005).

2.7.7 Section summary and the fifth, sixth and seventh propositions

Learning is a multi-faceted concept. There are broadly psychological and sociological perspectives with the former underpinning the first wave and the latter the second. The workplace has become an increasingly important site for learning with various theories on the nature of the relationship between individual, group and organisational learning.

Propositions:

1. The third wave perspective attempts to blend the principal theories of the first and second waves: Psychological and sociological perspectives on learning and knowledge are complementary (reflecting a third wave approach to knowledge management). An individual learns through the combination of individual and social learning theories. He/she learns from the shared practice within a community of practice (situated learning) and through the acquisition of skills and knowledge located outside the community (cognitive learning). Jarvis (2006) in trying to arrive at a comprehensive theory of learning regards learning as:

the combination of processes whereby the whole person – body (genetic, physical and biological) and mind (knowledge, skills, attitudes, values, emotions, beliefs and senses) – experiences a social situation, the perceived content of which is then transformed cognitively, emotively or practically (or through any combination) and integrated into the

person's individual biography resulting in a changed (or more experienced) person (page 13).

2. Shared knowledge is socially constructed. Personal knowledge is the individual's interpretation of this shared knowledge in the form of practical and propositional knowledge and involves knowing who to ask if that personal knowledge is perceived to be incomplete or inadequate.

3. The third wave also embraces the application of technology to communities of practice. Virtual, or on-line communities, reflect the development of a new kind of technologically mediated social environment (Di Petta, 1998).

Within the higher education sector there is a strong knowledge base on pedagogy. Most studies have tended to focus on teaching, and the student-tutor relationship, with other aspects of academic-work being neglected. In terms of viewing a university as a work organisation much of the literature tends to discuss *staff development* only (Duke, 1992; Watson & Taylor, 1998); although some attempt has been made to relate staff development issues to organisational learning (Duke, 1992). This is, perhaps, somewhat surprising given the emphasis on reflective practice and the acceptance that learning is inextricably linked to change (Garvey & Williamson, 2002) and innovation (Kogut & Zander, 1992).

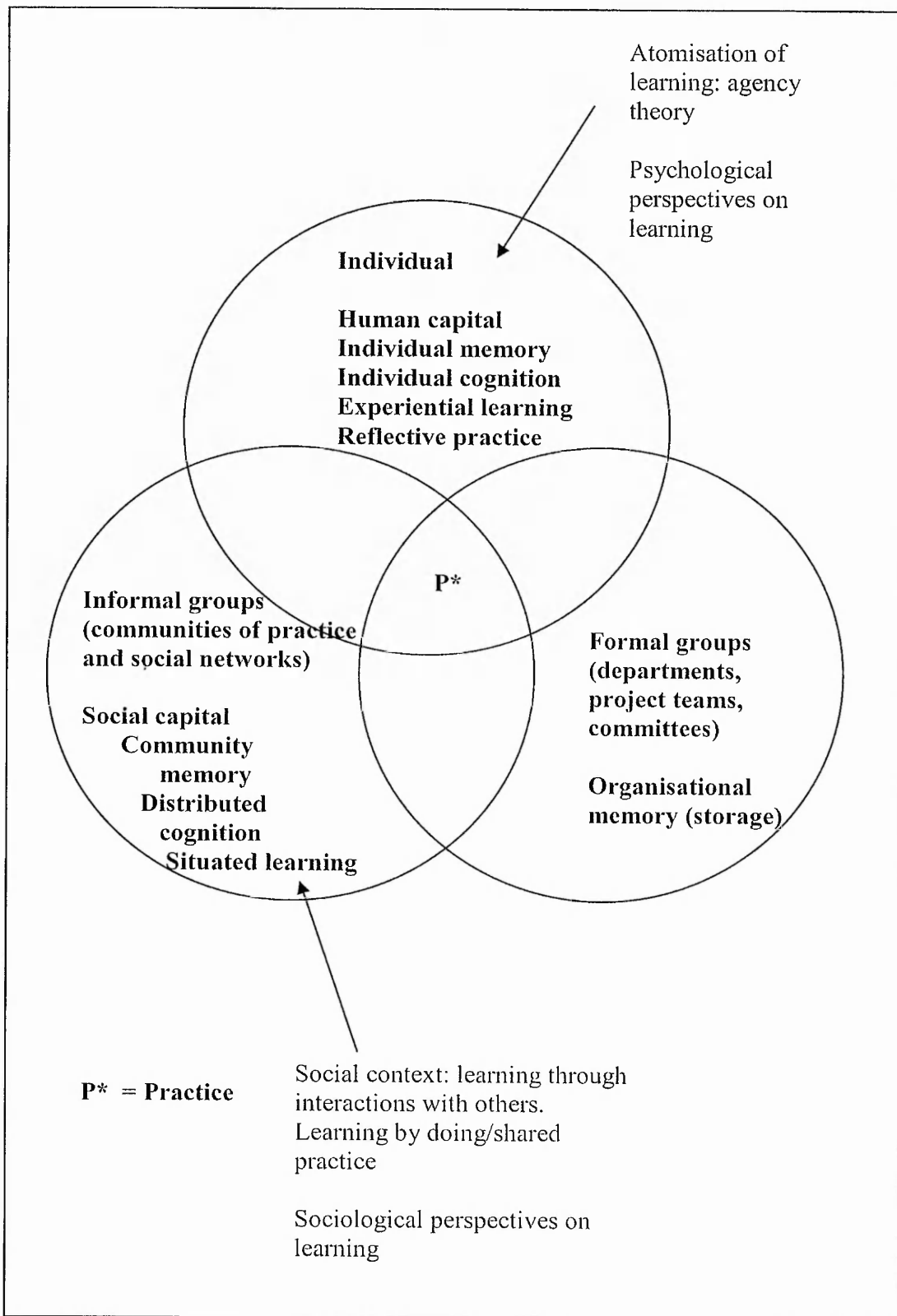


Figure 2.4: Conceptual framework Stage 4

2.8 Knowledge formation processes

2.8.1 Categorising knowledge formation processes

Knowledge Management has been characterised by a variety of knowledge formation processes. For instance, Scarborough *et al* (1999) describe knowledge management as:

any process or practice of *creating, acquiring, capturing, sharing* and *using* knowledge, wherever it resides, to enhance learning and performance in organisations (page 1 – emphases added).

Ruggles (1998: 81) identifies “eight major categories of knowledge-focused activities” which have been adapted to arrive at the knowledge formation processes shown in the tables below. In the first table the literature sources used in this thesis have has been used to identify popular terminology for describing knowledge formation processes (with no differentiation at this stage between first and second wave literature).

Table 2.7: Frequency of references to knowledge formation processes

Knowledge formation process	Number of sources using the term	Terms used and number of sources
Creation	28	creation x 16 creating x 3 generation x 3 productivity x 4 production x 1 building x 1
Acquisition	6	acquisition x 5 acquiring x 1
Transfer	21	transfer x 21
Conversion	7	conversion x 3 convert x 1 translate x 1 using x 1 use x 1
Sharing	38	sharing x 36 collaborative knowledge construction x 2
Exchange	10	exchange x 10
Storage	47	capturing x 1 codification/codified x 4 encoded x 2 representation x 1 embedding/embedded x 9 residing in individuals x 4 stories/storytelling/narratives/conversations x 10 collective memory/memorising x 14 cognitive map x 2

There is considerable variation in how these terms are actually defined or explained by authors (as illustrated in the second table below). A variation in the usage of these terms in the literature also reflects the inter-relatedness of knowledge formation processes (for example, von Krogh *et al* (2000) describe knowledge sharing as a precursor of the knowledge creation process).

Table 2.8: A comparison of terms used in each wave

Knowledge formation process	1st Wave	2nd wave	University processes
Knowledge creation	<ol style="list-style-type: none"> 1 the development of 'new' knowledge and capability involving knowledge conversion (between tacit and explicit knowledge) (Nonaka, 1994) 2. an outcome of collaborative work (Ruggles, 1998) 3. Invention and innovation (Burton-Jones, 1999) 4. Knowledge-making (Collins, 1993) 	<ol style="list-style-type: none"> 1. Knowledge is socially constructed and created (emergent perspective) (Kogut & Zander, 1992; Tsoukas, 1996, 2000, 2001; Lam, 2000; Alvesson & Kärreman, 2001; Brown & Duguid, 2002; Tsoukas & Mylonopoulos, 2004) 2. an outcome of collaborative work (Ruggles, 1998) 3. an embodied social practice (Peltonen & Lämsä, 2004) 4. Communities of practice provide the locus for knowledge creation (Peltonen & Lämsä, 2004) 5. incorporates knowledge sharing (Von Krogh, 1998) 	<ol style="list-style-type: none"> 1. research and scholarship (Barnett, 2000a; Garvey & Williamson, 2002; Deem et al, 2008) 2. research as 'knowledge making' (Duke, 2002) 3. Universities as meaning makers (Duke, 2002) 4. an outcome of research (Askling et al, 2001). 5. Research as a process of knowledge creation (Naidoo, 2005) 6. Universities as producers and transformers of knowledge (Delanty, 2001)
Knowledge acquisition	<ol style="list-style-type: none"> 1. Accessing valuable knowledge from outside sources (Ruggles, 1998) 2. Learning (Burton-Jones, 1999) 3. logical deduction and formal study (Lam, 2000) 	<ol style="list-style-type: none"> 1. Associated with implicit learning (Reber, 1993) 2. a process of internalisation through LPP (Huysman, 2004) 3. practical experience in a relevant context (Lam, 2000) 	<ol style="list-style-type: none"> 1. teaching (Barnett, 2000a) 2. learning (Laurillard, 1993)
Knowledge transfer	<ol style="list-style-type: none"> 1. Transferring existing knowledge into other parts of the organisation (Ruggles, 1998) 2. the transmission of knowledge from the individual to where it is needed and applied (Alavi & Tiwana, 2005). 3. cross-border collaborative work (Lam, 1997) 4. Knowledge transfer is a process of creating knowledge anew (Venzin et al, 1998) i.e. through knowledge 	<ol style="list-style-type: none"> 1. sharing local knowledge across an organisation (Von Krogh et al, 2000) 2. sharing knowledge across communities of practice (Hislop, 2003a) 3. Transferring tacit knowledge requires close social interaction and the build up of shared understanding and trust (Lam, 2000) 	<ol style="list-style-type: none"> 1. teaching as knowledge dissemination (Duke, 2002)

	conversion (Nonaka, 1994) or knowledge generation (Huseman & Goodman, 1999) 5. the use of technology (Hansen <i>et al</i> , 1999) and codification facilitates ease of transfer (Lam, 2000)		
Knowledge conversion	1. The transformation of one <i>type</i> of knowledge into another (e.g. tacit into explicit, Nonaka, 1994; declarative into procedural, Anderson, 1983)	1. the exchange from one knowledge <i>facet</i> to another (Yang, 2003)	
Knowledge sharing	1. the exchange of information 2. the transfer of knowledge (e.g. Huseman & Goodman, 1999)	1. An internal focus reflecting the socially embedded nature of knowledge (Lam, 1997) 2. collaborative knowledge construction (Harrison & Kessels, 2004; Tillema, 2005) 3. creating connections (Tsoukas, 1996, 2000, 2001) 4. Is a characteristic of teams/groups (Von Krogh, 1998) and communities of practice (Brown & Duguid, 2001) where social interaction happens (Von Krogh et al, 2000) 5. Is a precursor of the knowledge creation process (Von Krogh et al, 2000) 6. re-used or new combinations of individual knowledge (Huysman, 2004) 4.6.6 is characterised by 'tacit reciprocity' in communities of practice (Mankin, 2003a, 2004)	
Knowledge exchange	1. Conscious decision-making process involving the exchange of information in return for something 2. A "social behaviour" through which tangible and intangibles (e.g. information) "are transmitted" (Ferrary, 2003: 120) 3. Social networks are "excellent mediums"	1. a process of externalisation: knowledge re-use and knowledge creation through knowledge sharing between individuals (Huysman, 2004) 2. exchangeable ideas and experiences (Interactive knowledge) (Noordegraaf, 2003) 3. informal sharing (Cohen & Prusak, 2001)	

	for knowledge exchange (Ruggles, 1998: 86). 4. information exchange (Pfeffer & Sutton, 2000)		
Knowledge storage	1. Computer storage: representing knowledge in documents, databases and software (Ruggles, 1998; Hansen <i>et al</i> , 1999) 2. the development of organisational memory (i.e. stocks of organisational knowledge) and the means for accessing its contents (Alavi & Tiwana, 2005). 3. Embedding knowledge in processes, products and/or services (Ruggles, 1998) 4. Does not require the participation of the knowing subject (Lam, 2000)	1. Knowledge is socially embedded (Lin, 2002) in connections (Tsoukas, 1996, 2000, 2002) 2. Community memory (Orr, 1990, 1996) 3. requires the close involvement and cooperation of the knowing subject (Lam, 2000)	1. Collective consciousness (Bowden & Marton, 2004) 2. Collective memory (Duke, 2002)

In addition, evaluating knowledge has been defined as measuring the value of knowledge assets and/or impact of knowledge management (Ruggles, 1998).

In terms of the university sector the core processes are “the production and reproduction of knowledge” (Duke, 2002: 65). As indicated in table 2.8 literature on higher education tends to emphasise knowledge creation, knowledge acquisition, knowledge transfer and knowledge storage rather than knowledge sharing. The ‘commodification’ of knowledge, that is associated with the first wave perspective on KM, has been paralleled within universities worldwide as a result of governments adopting funding policies based on market principles (Naidoo, 2005). This has been a particular feature of policies and frameworks of the new managerialist agenda within the UK (Deem, 2001; Deem *et al*, 2008) and has resulted in research as a process of

knowledge creation becoming more focused on financial returns (Naidoo, 2005) thus blurring the boundaries between research and commercial activities. This shift towards the realm of market principles contributes to Delanty's (2001) argument that there is an opportunity for universities to function as sites of interconnectivity within the knowledge economy and thus act as a mediator between producers and users of knowledge. However, as shall be discussed below, inhibitors to knowledge sharing and transfer need to be addressed.

2.8.2 The relationship between learning and knowledge

As highlighted in the previous section learning and knowledge are inextricably linked (Gamble & Blackwell, 2001) and this is the case with knowledge formation processes and organisational learning processes; in particular, social learning processes (Sawhney & Prandelli, 2000). Communities of practice are argued to provide "the true mechanism" through which people learn in an organisation (Ruggles, 1998: 85). The sharing of tacit knowledge, in particular, requires these informal processes (Wenger et al, 2002) as they are far more effective than formal systems for knowledge sharing (Scarborough & Carter, 2000). Learning processes involving group learning are important to knowledge management (Huseman & Goodman, 1999), particularly for the sharing of wisdom and knowledge (Hong & Kuo, 1999) and in the effective use of collaborative tools (Schrage, 1997).

2.8.3 Knowledge creation

Knowledge creation is about the development of new know-how and capability (Nonaka, 1994). From a first wave perspective it is often described as involving the exchange and (re)combination of information or existing knowledge. From a second wave perspective it is a process usually associated with collaborative work (Ruggles, 1998) in which new knowledge is socially constructed. Groups develop a shared understanding, often referred to as intersubjectivity (Plaskoff, 2005). Knowledge creation is also a characteristic of innovation (Burton-Jones, 1999) which involves new and different ways of thinking and acting (Noordegraaf, 2003). Shared problem solving is one of the most immediate ways in which organisations can generate knowledge (Huseman & Goodman, 1999). Learning and experimentation are an integral part of the knowledge creation process (Zack, 1999).

Although his work has been associated with first wave literature the role of social processes has been acknowledged by Nonaka (1991, 1994; Nonaka & Takeuchi, 1995). In the first wave literature the focus was very much on the role of individuals as the 'prime movers' in the knowledge creation process (Nonaka, 1994). Knowledge is created through the conversion process between tacit and explicit knowledge (Nonaka, 1994; Nonaka & Takeuchi, 1995) reflecting the first wave emphasis on the duality of knowledge.

The second wave literature places the social construction of knowledge at the heart of the knowledge creation process. Knowledge is created not through technology but "through the social process of collaboration, sharing knowledge and building on each

other's ideas" (Ahmed *et al*, 2002: 14). New knowledge is socially constructed (Kogut & Zander, 1992; Tsoukas & Mylonopoulos, 2004). In this sense all knowledge is emergent (Tsoukas, 1996, 2000, 2001; Lam, 2000; Brown & Duguid, 2002; Tsoukas & Mylonopoulos, 2004). In the second wave, communities of practice are believed to provide the most appropriate locus for knowledge creation (Peltonen & Lämsä, 2004) as the focus is on social practice (Hager, 2000). Knowledge creation incorporates "the initial sharing of knowledge, experience, and practices among team members" and "the effective creation of new service and product concepts based on this shared knowledge" (Von Krogh, 1998: 133). Von Krogh (1998) identifies four barriers to knowledge creation (the lack of a legitimate, common language; stories and habits; formal procedures; and, the most fundamental: company paradigms) which "make knowledge creation a fragile process" (ibid: 136). A characteristic of the literature of both waves is a popular view that knowledge creation can be facilitated through the use of incentives (Ruggles, 1998), usually financial.

The modern university has been described as "a producer and transformer of knowledge" (Delanty, 2001: vii) which creates new knowledge through research and scholarship (Barnett, 2000a; Garvey & Williamson, 2002); although Duke (2002) describes this process as 'knowledge making'. While this new knowledge is made available through publications and conferences (Wasko & Faraj, 2005) much of it remains 'sticky. Knowledge creation reflects the traditional role of a university as a meaning maker (Duke, 2002) although, as discussed earlier, this role is now being challenged. Given the higher levels of research output traditional universities are more active sites of knowledge creation than new universities.

2.8.4 Knowledge acquisition

Knowledge acquisition in the first wave literature is often about accessing valuable knowledge from outside sources (Ruggles, 1998). Huber (1991) argues that organisational learning takes place when organisational units acquire knowledge that is potentially useful to the organisation. An underpinning assumption of this belief is that organisations have both cognitive systems and memories (DeFillippi & Ornstein, 2005). In the second wave it was associated with implicit learning (Reber, 1993). In universities knowledge acquisition is a characteristic of teaching (Barnett, 2000a) and learning (Laurillard, 1993).

2.8.5 Knowledge transfer

Knowledge transfer is a term heavily associated with the first wave. It can be defined as “the transmission of knowledge from the initial location to where it is needed and is applied” (Alavi & Tiwana, 2005: 110). It was believed that tacit knowledge could be made explicit through codification and therefore relatively easy to transfer across an organisation (Ruggles, 1998) or between organisations (Lam, 1997); particularly when facilitated through information and communications technology. Huseman and Goodman (1999) refer to this process as knowledge generation. Nonaka’s conversion process (Nonaka, 1994; Nonaka & Takeuchi, 1995) is a transfer process because knowledge cannot be directly transferred, only created anew (Venzin et al, 1998). The principal emphasis was on the transfer of existing knowledge into other parts of the organisation (Ruggles, 1998) with technology playing a key role.

In the second wave literature transfer tends to be associated with sharing. "Unlike explicit knowledge which can be formulated, abstracted and transferred across time and space independently of the knowing subjects, the transfer of tacit knowledge requires close interaction and the build up of shared understanding and trust among them" (Lam, 2000: 490). In universities teaching acts as knowledge dissemination (Duke, 2002). This may reflect a tutor-student focus but often university teaching involves teams who sit in on lectures and discuss modules. The emphasis on communities or tribes within university contexts is indicative of a sharing perspective although the publication of journal articles and the presentation of research ideas at conferences is predicated on the notion that propositional knowledge can be transferred across the higher education landscape, both nationally and internationally. The role of collaboration is critical to the development of knowledge transfer across an institution. This has been recognised previously in relation to other types of organisation (for instance, see Mankin and Cohen, 2004). In universities, collaboration can be achieved through the creation of an innovative curriculum that brings staff together (psychologically as well as physically) and/or through the creation of formal fora that encourage disparately located staff to come together (Illes, 1999). This second wave approach to knowledge transfer is also a characteristic of the strategic alliances, networks and partnerships that universities need to cultivate in order to exploit new forms of knowledge (Duke, 2002). This reflects the increasing pressure on universities not only to teach, but also to practice, entrepreneurship. At the same time processes for knowledge transfer (and knowledge sharing) are needed if Delanty's (2001) prediction of the changing role of the university is to come to fruition. He argues:

Cross-disciplinary communication between disciplines and the sciences as a whole will become more important and will change the internal structure of universities (ibid: 8).

2.8.6 Knowledge conversion

The concept of knowledge conversion is associated with the first wave. It is pivotal to Nonaka's (1994) model of knowledge creation (see also, Nonaka & Takeuchi, 1995). It involves the transformation of one type of knowledge into another (Anderson, 1983; Nonaka, 1994) particularly for the purpose of decision-making (Ruggles, 1998). (It could be argued that traditional university methods and media, such as the lecture, are an attempt to communicate the tacit as well as the explicit dimensions of knowledge). The second wave emphasises the dimensions of knowledge and conversion is not an applicable concept.

2.8.7 Knowledge sharing and exchange

Sharing explicit knowledge is relatively straightforward and is underpinned by the concept of knowledge transfer in which explicit knowledge can be transmitted (electronically or manually) between two or more individuals in the form of text or diagrams. In this sense knowledge transfer can be defined as the process through which explicit knowledge is shared across, within and without an organisation. This process was a principal characteristic of the first wave. The sharing of tacit knowledge is much more problematic due to its stickiness (Brown & Duguid, 1998; Wenger et al, 2002) or embeddedness (Lam, 1997). In the first wave this was 'resolved' by the process of knowledge conversion discussed above. In the second

wave, knowledge sharing is a characteristic of teams/groups (Von Krogh, 1998) and, in particular of communities of practice: “it seems reasonable to argue that if people share a practice, then they will share know *how*, or tacit knowledge” (Brown & Duguid, 2001: 204). There have been few empirical studies into this. Brown and Duguid (2001) refer to three pieces of work: Barley, 1996; Hutchins, 1991; and Orr, 1996. This lack of good quality empirical studies is a significant gap in the literature.

Sharing practical knowledge involves two or more individuals:

actively inferring and constructing meaning...[but] to be effective the sharing of knowledge requires individuals to develop an appreciation of (some of) the tacit assumptions and values on which the knowledge of others is based (Hislop, 2005: 37).

This is much more straightforward when such sharing takes place within communities of practice where members share a common history, interest and set of values. However, it is much more problematic between networks. From a social constructivist perspective, knowledge sharing is about creating connections (Tsoukas, 1996, 2000, 2001). Developing connections is difficult and this helps to explain why communities of practice are often characterised by a silo mentality or syndrome. But as Duke (2002) warns: “An institution incapable of internal networking will not excel externally” (page 84).

The first wave literature tended to assume that individuals would be willing to share knowledge while the second wave highlighted the role of people-related factors in order to overcome problems such as knowledge-hoarding. Knowledge sharing has been shown to be related to factors such as shared physical location (Allen, 1977;

Kraut et al, 1990; Burton-Jones, 1999), strong ties (Wellman & Wortly, 1990; Krackhardt, 1992), status similarity (Cohen & Zhou, 1991), high levels of trust (Von Krogh, 1998), and a shared biography or history of prior relationships (Krackhardt, 1992). It has also been shown that regular contact contributes to cooperative behaviour (Marwell & Oliver, 1988). Knowledge sharing is intrinsically satisfying as long as it is voluntary and working relationships are characterised by a high level of trust (Käser & Miles, 2001). Communities of practice are well suited to knowledge sharing. This highlights the relationship between knowledge sharing and knowledge creation: communities of practice provide an enabling context for knowledge creation (Plaskoff, 2005).

2.8.8 Types of knowledge sharing

Huysman and de Wit (2003) identify three types of knowledge sharing: knowledge retrieval (sharing from the organisation to the individual); knowledge exchange (dyadic sharing - from individual to individual); and, knowledge creation (sharing among individuals). However, a particular problem with the literature is the inconsistent use of the terms transfer, sharing and exchange. Whilst a few writers make a clear distinction between these terms (for instance see Lam, 1997 in respect of transfer and sharing) many do not and simply treat the terms interchangeably. For instance, Lesser & Everest (2001), Michailova & Husted (2003), Inkpen & Tsang (2005), and Hansen *et al* (2005) all use transfer and sharing interchangeably. Huseman and Goodman (1999) define knowledge sharing as knowledge transfer. Burgess (2005) uses all three terms interchangeably and refers to sharing within a group as "member-to-member knowledge transfer" (page 325). Bate & Robert

(2002), and Abrams *et al* (2003) also use all three terms interchangeably. The following use exchange and sharing as interchangeable terms: Sawhney & Prandelli (2000), Gongla & Rizzuto (2001); and, Chowdhury (2005). Knowledge exchange has been described as a formal mechanism for exchanging information; and, exchange is often differentiated from sharing by referring to information rather than knowledge (for instance, Pfeffer & Sutton, 1999). Von Krogh *et al* (2000) refer to knowledge transfer as “*sharing* local knowledge across an organisation” (page 4 - emphasis added); and, Lesser & Everest refer to knowledge transfer as “to *share* knowledge *across* the organisation” (page 38 – emphasis added) as well as the sharing of perspectives *within* communities of practice. Hislop (2003a) also describes knowledge transfer as “*sharing* knowledge *across* different communities of practice” (page 165 – emphasis added). In some cases where a distinction *is* made it is because the knowledge sharing process is seen as a precursor to the knowledge transfer process (Kogut & Zander, 1992) or as an aspect of the knowledge transfer process (O’Dell & Grayson, 1998). But the differences between sharing and exchange are unclear in a number of sources.

Some knowledge sharing processes can be characterised by the exchange of information rather than knowledge. In these situations the exchange process can be equated with Portes and Sensenbrenner’s (1993) notion of the accumulation of ‘chits’ which individuals hope will be reciprocated. Reciprocity in this context is a conscious decision-making process that is motivated by a range of factors or considerations. It is a social behaviour (Ferrary, 2003) and reflects a conscious, perceived need or obligation to reciprocate. Frank and Yasumoto (1998), as a result of their study of subgroups within the French financial elite, conclude that “outside of subgroup

boundaries, where it is difficult to enforce trust, actors rely on reciprocity” (page 673). This type of reciprocity shall be referred to as *knowledge exchange* (Mankin, 2003a, 2004).

2.8.9 Tacit reciprocity

However, reciprocity can manifest in other forms – also as an implicit or unconscious decision-making process. In certain contexts people have a natural propensity to share their knowledge (O’Dell & Grayson, 1998). Informal groups, such as communities of practice and social networks provide such a context. The type of reciprocity that emerges in such informal contexts can be referred to as *tacit reciprocity* (Mankin, 2003a, 2004). Tacit reciprocity is a characteristic of social capital (Mankin, 2004). Anderson and Jack (2002) argue that there are two contrasting propositions about social capital – rational choice and embeddedness. Rational choice views social capital as a basic resource which individuals use for their own self-interested ends and can be equated with knowledge sharing as an exchange process. In contrast, embeddedness “implies some form of reciprocity or mutuality” (page 197) and can be equated with knowledge sharing as tacit reciprocity.

Von Krogh *et al* (2000) posit that members of micro-communities do form reciprocal arrangements. Reciprocity is inherent in shared practice and is a feature of legitimate peripheral participation (Brown & Duguid, 1998). Burgess (2005) proposes that “employees who are motivated by communal norms will share knowledge more frequently” (page 329). Commitment to a collective “conveys a sense of responsibility to help others within the collective” (Wasko & Faraj, 2005: 42):

when there is a strong norm of reciprocity in the collective, individuals trust that their contribution efforts will be reciprocated (ibid: 43).

Tacit reciprocity is a characteristic of what Käser and Miles (2001) term 'community relationships', in which individuals share a common identity, and relationships are non-hierarchical and voluntary.

Without some degree of mutuality and trust, the knowledge conversations will not get started; without some degree of shared understanding, they will not go very far (Cohen & Prusak, 2001: 304).

In Alvesson and Kärreman's (2001) typology of knowledge management approaches (page 1005) the sharing of ideas is made explicit in 'knowledge management as community'. "This position is often grounded in an interest in tacit knowledge. Management is then a matter of coping with diversity and of encouraging knowledge sharing through influencing workplace climate" (Alvesson & Kärreman, 2001: 1005). However, the language of this approach "is far from the conventional ideas of management as a bureaucratic phenomenon associated with hierarchy, formalisation, control and direction from above through 'rational' measures" (Alvesson & Kärreman, 2001: 1006). As has already been shown in the literature, a combination of formal and informal mechanisms can be used to share individual experiences ranging from formal meetings and Intranets to sharing stories in communities of practice (Tsoukas, 2002). The terms tacit reciprocity and knowledge exchange help us to differentiate between knowledge sharing processes occurring in informal and formal contexts.

2.8.10 The role of trust

The importance of trust in social relationships has been highlighted in the academic literature of the last twenty years (e.g. Eisenstadt & Roniger, 1984; Good, 1988; Seligman, 1997; Sztompka, 1999) and is believed to play a critical role in knowledge sharing processes (Von Krogh et al, 2000; Davenport & Prusak, 2000; Andrews & Delahaye, 2000). Huemer *et al* (1998) emphasise the relationship between knowledge and trust arguing that the two concepts are intertwined and both cannot exist without the other. Studies by Allen (1977) also identified that scientists and engineers share knowledge in direct proportion to their level of face-to-face contact and, consequently, the research aimed to study the importance to participants of physical location.

Communities of practice are characterised by face-to-face knowledge sharing in which trust between individuals is an essential factor. The first wave failed to recognise the role of communities or social networks in the knowledge creation and sharing process. The role of formal teams, such as project teams or task groups, was emphasised. Communities of practice and social networks remained invisible. In terms of these second wave concepts, a managerialist perspective tends to emphasise the engineering of communities of practice and the development of reward strategies as a way of stimulating knowledge sharing. The provision of physical space reflects a development perspective although management patience is a critical factor here.

The importance of trust in the knowledge sharing processes suggests that an individual's willingness to share knowledge will vary from context to context along a continuum. This continuum ranges from an unquestioning and automatic (natural) willingness to share (i.e. tacit reciprocity) which can be found in communities of practice and social networks in which a desired social reward such as approval, status and/or respect, is primary and the power relationship is secondary to the intra-group relationship; through a conscious and calculated decision to share (i.e. knowledge exchange or knowledge trading) which is a characteristic of formal groups or contexts in which power relationships are usually explicit and primary to the intra-group relationships; to an unwillingness to share. This perspective draws upon social exchange theory (Blau, 1964); and, Burt's (1992) analysis of power relationships where an economic actor who possesses a resource has power over another who desires the same resource. An exchange in this type of relationship is asymmetric and non-reciprocal (Ferrary, 2003). In informal structures, such as social networks, individuals are unable to draw upon formal sources of power (Ferrary, 2003). There has been some interest in identifying barriers to knowledge sharing and a range of factors have been identified. These include knowledge hoarding (Leonard & Sensiper, 1998; Michailova & Husted, 2003; Hansen et al, 2005); perceived inequality in status (Michailova & Husted, 2003; Hansen et al, 2005); and, fear (Orlikowski, 1993; Pfeffer & Sutton, 2000)

2.8.11 The role of the psychological contract

Pivotal to knowledge sharing is the role of the psychological contract and the level of commitment an individual demonstrates to the organisation. However, commitment

to the organisation is mediated through participation in informal groups such as a community-of-practice or social network. Commitment can accrue to a collective (Wasko & Faraj, 2005) and manifests itself as “a sense of responsibility to help others within the collective on the basis of shared membership” (page 42). This relationship is set out in the next section on the *Learning-Knowledge Exchange*. The concepts of trust, power and the psychological contract need to be explored to fully understand the relationship between the individual and informal and formal groups (that comprise the organisation). These themes are developed below along with a detailed explanation of the *Learning-Knowledge Exchange*.

2.8.12 The interaction between formal and informal fora

Given that knowledge sharing can take different forms in informal (i.e. tacit reciprocity) and formal contexts (i.e. exchange), it is important to understand how formal fora interact with informal fora. It is proposed that the activities of informal groups (such as communities-of practice) and formal groups (such as committees) are inter-linked by the outcomes of particular activities, shared practice, or experience gained by individuals (referred to in this thesis as *outputs*). This view is predicated on the belief that a great deal of informed discussion on decision-making, as well as decision-taking, occurs informally before and/or after the formal group has met. The question is whether the informal context is characterised by heuristics. Individuals use heuristics or rules of thumb for making decisions when confronted by a complex situation (Kleinmuntz, 1985; Maule & Hodgkinson, 2003) such as an overwhelming amount of information (Bruggen et al, 1998; Vishwanath, 2004). Heuristics is a short cut process of reasoning that searches for a satisfactory, rather than an optimal,

solution and is intended to reduce the amount of time spent in search of a solution to a problem (Hinkle et al, 1967 cited in Ballou, 1989). By devoting time to discussing issues before and after formal meetings it could be argued that the heuristic characteristics of decision-making are being minimised, although those engaged in the formal discussions only may view the situation differently.

2.8.13 Knowledge storage

The first wave literature sees storage of knowledge as a relatively straightforward matter of establishing a central repository, usually computerised, to codify explicit knowledge. Such stocks of organisational knowledge can be viewed as a form of organisational memory (Alavi & Tiwana, 2005). This stored information from an organisation's history can then be brought to bear on present decisions (Walsh & Ungson, 1991).

In the second wave the emphasis is on the socially embedded nature of organisational knowledge (Lam, 1997; Lin, 2002). Knowledge is stored in the connections between individuals (Tsoukas, 1996, 2000, 2002) and the stories which they share (Von Krogh et al, 2000). Community memory is "the open-ended set of collective and shared understandings developed and maintained by the group" (Marshall et al, 1995: 66).

2.8.14 Section summary and the eighth proposition

There are theorised to be a range of knowledge formation processes which are believed to function in different ways in the first and second waves. This theorising

reflects the underpinning paradigms of each wave. The second wave in particular emphasises the role of social interaction and social relationships. Consequently concepts such as strong ties and trust are believed to be critical to knowledge sharing.

Proposition: Knowledge sharing is a knowledge formation process that is characterised by tacit reciprocity in informal groups (such as communities-of-practice or social networks) and by knowledge exchange in formal groups (such as departments, committees or project teams). In addition, the activities of informal groups (such as communities-of practice) and formal groups are inter-linked by the outcomes of particular activities, shared practice, or experience gained by individuals (referred to in this thesis as outputs).

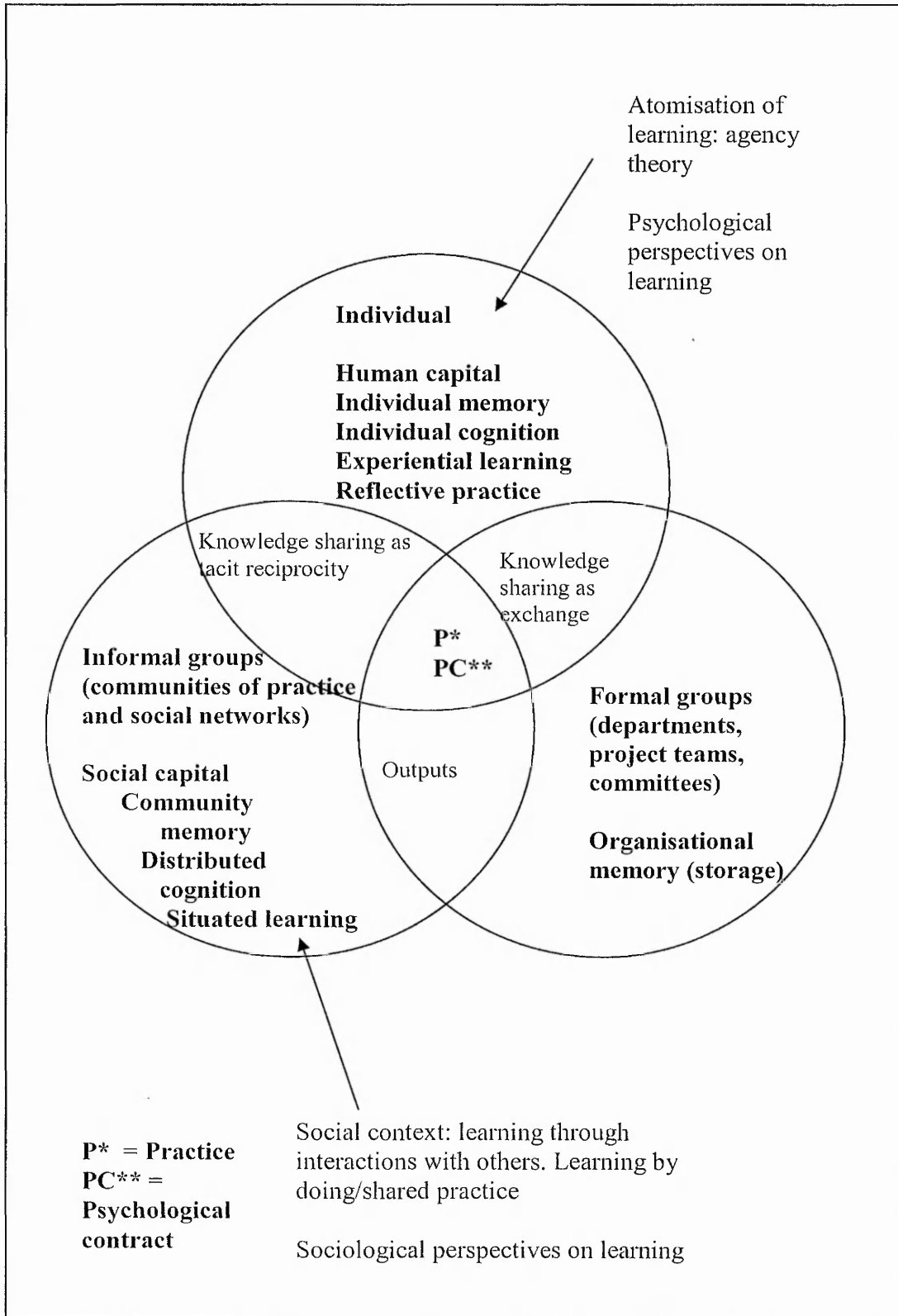


Figure 2.5: Conceptual framework Stage 5

2.9 The Learning-Knowledge exchange

2.9.1 The psychological contract

The psychological contract is critical to understanding organisational knowledge and learning processes (see for instance, Mankin, 2001 in relation to HRD). This is why the psychological contract has been placed alongside the concept of practice at the heart of the first conceptual framework. The concept of the psychological contract (Schein, 1970, 1978) is predicated on the argument that there is an implicit contractual exchange between an individual and the organisation (Watson, 1994). It is essentially subjective and in a constant state of change and revision (Makin *et al*, 1996). In the psychological contract an impersonal or indirect form of trust exists between an individual and the organisation (Putnam, 1993 cited in Leana & Van Buren, 1999). This form of trust “does not rest with knowledge of particular individuals but rather with norms and behaviours that are generalised to others in the social unit as a whole” (Leana & Van Buren, 1999: 543). This is in contrast to the direct and personal trust between colleagues found in informal groups, such as communities-of-practice, and social networks. It is this latter form of trust that determines the level of commitment demonstrated by individuals within an organisational context.

Definitions of commitment have tended to focus on the level of attachment to the organisation; for instance Mowday *et al*, 1982 or Bartlett and King, 2004. For most people the organisation remains an abstract concept, albeit one that is heavily influenced by the attitude and behaviour of organisational managers as well as by the

policies and procedures implemented by those same organisational managers. Although trust in abstract systems has developed in society (Giddens, 1991) and the organisation has come to be reified for the purpose of analysing organisational commitment (Guest & Conaway, 2002), many of the drivers of individual commitment are located in informal groups and social networks (Wenger, 1998; Leana & Van Buren, 1999; Brown & Duguid, 2001). To date there has been a lack of empirical studies into the relationship between knowledge-sharing attitudes and behaviours, and commitment (Hislop, 2005). Mankin's (2001) model for HRD, which incorporates the HRD 'lattice', is an attempt to explain the relationships between factors impacting on an organisation's learning and knowledge processes (including: trust; values; beliefs) and places the psychological contract at the heart of these relationships. The Learning-Knowledge Exchange framework complements the first conceptual framework by focusing on the relationship between individual and organisation; and highlighting the mediation role of informal groups which act as a source of trust, commitment and identity. It is this set of relationships that explains the relationship between individual, group and organisation in the social construction of knowledge. The organisation may be reified in this model but it is essentially a social constructivist perspective (one which combines facets of post-positivism or neorealism as well as social constructivism and, thus, is consistent with the author's methodological paradigm).

2.9.2 The Learning-Knowledge Exchange

The Learning-Knowledge Exchange borrows its basic structure from Watson's (1994) *strategic exchange* model. Adaptations have been made by drawing upon, in

particular: Mankin, 2001 (the role of the psychological contract at the heart of *HRD lattice* as part of a model for HRD); Davenport and Prusak, 2000 (their concepts of an internal knowledge market system and knowledge exchange); and Brown and Duguid, 2001 (their perspective on identity). The Learning-Knowledge Exchange is embedded within the central overlap in the first conceptual framework, entitled P (practice) and PC (psychological contract) in the diagram of the conceptual framework. The problematic relationship between individual and organisation is a central feature of the Learning-Knowledge Exchange. The framework posits that an individual's perception of the organisation he/she works for, and the level of commitment to that organisation, is mediated by the informal groups he/she is a member of.

Informal groups such as communities of practice and social networks provide a tangible micro-context that provides an individual with a social identity. The shared practice gives meaning to an individual's role in an organisation. This is in contrast to the more abstract concept of an organisation that is somehow greater than the sum of its parts. This mediating role has been identified in relation to communities of practice by Brown and Duguid (2001). Trowler and Knight (2004) argue that the academic department, or a sub-unit of it, is usually the main focus for academic staff or a community of practice which evolves from a shared interest in research, curriculum development or teaching. In order to understand knowledge sharing (and related knowledge formation) processes organisational managers need to understand why and how individuals behave in these informal contexts.

The Learning-Knowledge Exchange

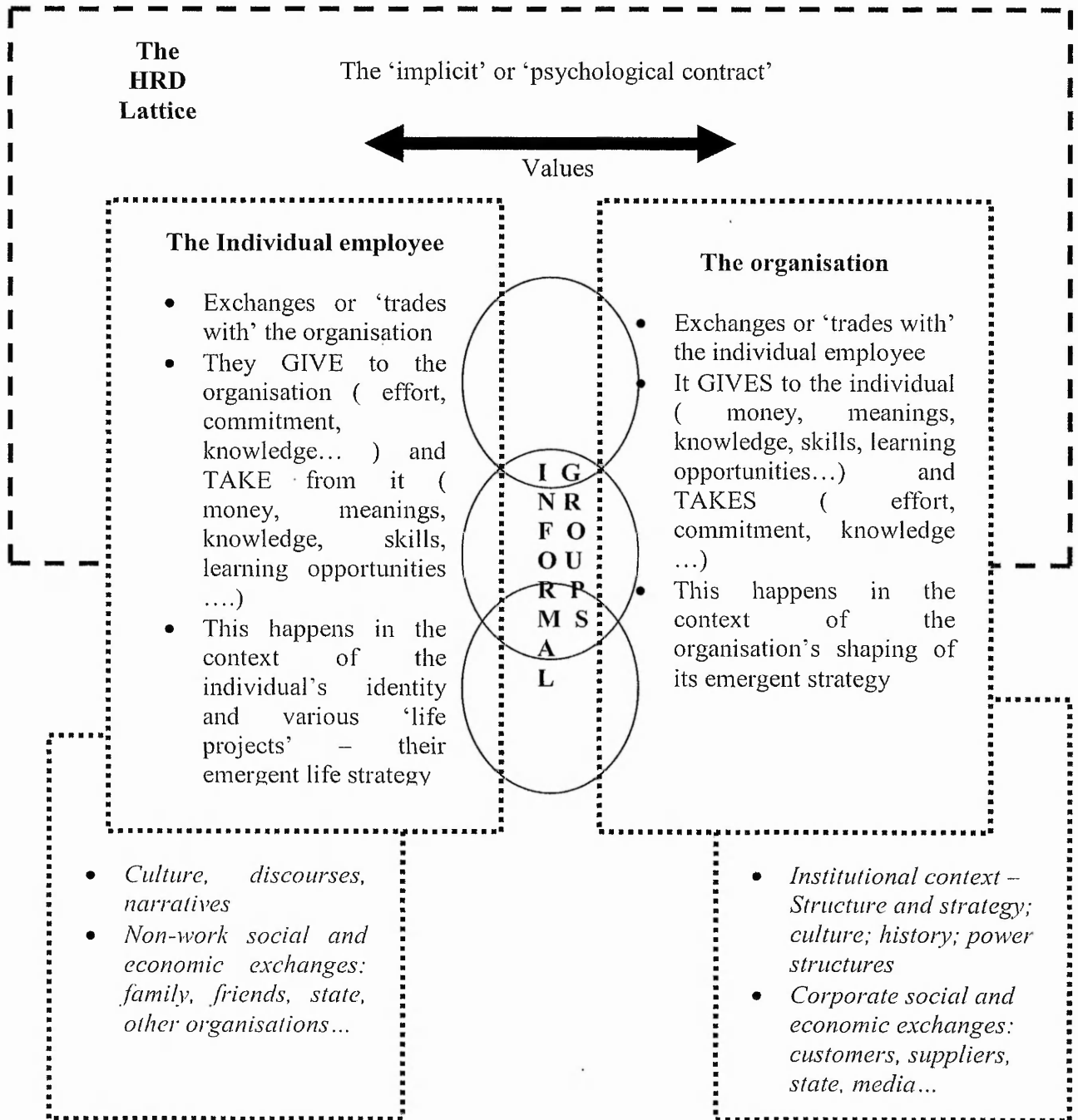


Figure 2.6: The Learning-Knowledge Exchange

Watson's strategic exchange attempts to explain the "essential two-sidedness of social life" (1994: 25). This reflects the structure-agency relationship in which individuals may shape their world but they are also shaped by influences external to themselves. Consequently, individuals are continuously involved in 'processes of exchange' and these exchanges embrace "the abstract as well as the material and the concrete" (1994: 26). Individuals engage in a form of 'trading' (material or symbolic) which may be with other individuals or between an individual and the organisation. This includes processes for knowledge sharing which have been described as analogous to market-trading (Davenport & Prusak, 2000). Whilst the author does not intend to develop Davenport's and Prusak's themes of *knowledge buyer, seller and broker*, he has incorporated the concept of a *market system*, and the associated *knowledge exchange*, within the Learning-Knowledge Exchange conceptual framework. Terms such as 'trading' and 'exchange' imply some form of reciprocal relationship (between individuals or groups, or between an individual and a group or an organisation) which, in turn, implies some form of power relationship. Power can be accrued informally as well as formally (Cross & Prusak, 2005) and, consequently, is a factor in all relationships within organisations. There is a resonance between this reciprocal exchange and earlier organisational theories. For instance, the concept of the 'fusion process' put forward by the behavioural theorist Bakke in 1953; whereby both the individual and the organisation hope to use each other to further their own goals. In the fusion process "the organisation to some degree remakes the individual and the individual to some degree remakes the organisation" (Bakke, 1953, quoted in Dale, 1978: 126). The exchange process is central to the psychological contract (Hammer, 1997).

Arguably, reciprocity is the basic principle underpinning all organisational transactions (Cohen & Bradford, 1995). As discussed previously, tacit reciprocity is an implicit willingness to share individual knowledge and knowing with others as part of everyday social interactions. It is an embedded characteristic of situated practice. It is a feature particularly of informal groups, such as communities of practice and social networks which are already known to “encourage productive resource exchange and combination and thereby promote product innovations” (Tsai & Ghoshal, 1998: 473). Tacit reciprocity is a manifestation of intra-group affiliations. This is particularly the case in groups characterised by ‘high-care relationships’ (Von Krogh, 1998). From a social-psychology perspective individuals are most strongly influenced by members of their primary groups (i.e. other individuals with whom they engage in frequent interactions) (Frank & Yasumoto, 1998). Tacit reciprocity is at a deeper level than the reciprocity to be found in processes of exchange. Reciprocity is an inevitable characteristic of relations within communities of practice but needs to be cultivated in relations between communities (Brown & Duguid, 1998). One of the obstacles to collaborative work during the first wave on knowledge management was knowledge hoarding (Hibbard & Carillo, 1998).

2.9.3 The role of trust in knowledge sharing

It has been argued that trust is an essential aspect of various knowledge formation processes (Huemer et al, 1998). Conditions of trust are essential for processes that lead to the development of collective knowledge (Ichijo et al, 1998). It is both an input and output of knowledge formation processes. The importance of trust in social

relationships has been highlighted in the academic literature of the last thirty years (Arrow, 1974; Eisenstadt & Roniger, 1984; Good, 1988; Seligman, 1997; Sztompka, 1999) although the study of the role of trust in knowledge formation processes is much more recent.

Trust transcends the individual and is an essential feature of social interaction (Good, 1988; Seligman, 1997; Tsai & Ghoshal, 1998; Sztompka, 1999) although the motivations of those we interact with can be inferred only and never known directly (Kollock, 1994). This emphasis on social interaction explains why trust is argued to be a key aspect of social capital (Wasko & Faraj, 2005). Trust and trustworthiness are the principal manifestation of the relational dimension of social capital and can be stimulated further through the cultivation of common values and a shared vision (Tsai & Ghoshal, 1998). Hence, Anderson and Jack (2002) describe trust as a “social lubricant” (page 198). However, there has been a tendency to generalise about the role of trust in informal groups and networks. Trust is often discussed at a theoretical level as a key factor in explaining the willingness of individuals to share their tacit knowledge, and there have been a number of studies where trust is identified as an important factor in knowledge sharing processes (for instance, Hansen *et al*, 1999; Lesser & Storck, 2001; Levin *et al*, 2002). Yet there remains a lack of adequate empirical evidence on this issue (Chowdhury, 2005).

A simple, general definition of trust is that it is a bet about the future contingent actions of others (Sztompka, 1999). However, it is more than just some contemplative consideration of future possibilities; trust involves “commitment through action” (Sztompka, 1999: 26). Consequently, trust is directly related to, or accompanied by

risk (Kollock, 1994; Sztompka, 1999). Huemer *et al* (1998) posit that trust and knowledge are intertwined concepts that cannot exist without each other. This view is proposed within the context of a theoretical argument which explores the implications of different epistemological perspectives within an organisational context and is not predicated on any empirical research. Studies have tended to focus on dyadic trust (e.g. Levin *et al*, 2002). Trust takes different forms: affect-based trust and cognitive-based trust (McAllister, 1995; Abrams *et al*, 2003; Michailova & Husted, 2003; Chowdhury, 2005). These two forms are actually two dimensions of interpersonal trust (Abrams *et al*, 2003).

Affect-based trust is socially oriented and is characterised by strong emotional ties between individuals who share the same deeply held values, perceptions and mental models (Chowdhury, 2005; Michailova & Husted, 2003). It is a form of trust that is characterised by benevolence (Abrams *et al*, 2003). In their study of a pharmaceutical company Levin *et al* (2002) concluded that “people usually get useful knowledge from strong ties because they trust them to be benevolent and competent” (page D5). There is a lack of concern for any sense of vulnerability in these contexts (Chowdhury, 2005). Ring and Van de Ven (1992) have described this as *resilient trust* and this type of trust is a characteristic of communities of practice. This is a form of trust which is not calculative but is based on experience of other individuals and a perception of their moral integrity. It evolves over time (Gainey & Klaas, 2005). Cognition-based trust is a calculative rather than intuitive (emotional) form of trust. It is “associated with deliberately choosing whom to trust, to what extent, and under what conditions” (Michailova & Husted, 2003: 66). With a focus on

competence (Abrams *et al*, 2003) it is a characteristic of professional relationships and collaborations (Chowdhury, 2005).

2.9.4 Two perspectives on trust

The role of trust has been tackled from two perspectives. Firstly, a focus on cultivating an organisational context or culture that engenders trust between organisational members. Trust is viewed as a fundamental requirement for developing an appropriate context for effective knowledge sharing (Rajan *et al*, 1998; Von Krogh, 1998; Robertson & Hammersley, 2000; Von Krogh *et al*, 2000; Newell *et al*, 2002). “For knowledge (especially tacit knowledge) to be shared for the self-transcending process of knowledge creation to occur, there should be strong love, caring and trust amongst organisation members” (Nonaka *et al*, 2002: 62). In their study of Buckman Laboratories, Pan and Scarborough (1999) quote Bob Buckman: “for knowledge sharing to become a reality, you have to create a climate of trust in your organisation” (page 370). Abrams *et al* (2003) develop this theme further by identifying specific managerial behaviours that can promote interpersonal trust (for instance, ensuring frequent communication; engaging in collaborative work).

Secondly, a focus on the role of interpersonal trust between two or more individuals. In social networks trust plays a key role in the willingness of individuals to share their knowledge (Inkpen & Tsang, 2005). For self-organising teams, such as communities of interaction, to be effective, trust needs to be developed between team members (Nonaka, 1994). The building of trust between individuals is facilitated through face-to-face contact and ongoing dialogue with others. This process enables individuals to

build concepts in cooperation with others (Nonaka, 1994). Shared practice in formal groups or communities of practice, within universities, is strengthened by physical proximity and shared space (Trowler & Knight, 2004). Within a group the trust that develops between two individuals does not necessarily improve knowledge sharing with other members of the group (Chowdhury, 2005).

In terms of the Learning-Knowledge Exchange the degree to which an individual's psychological contract is mediated by his/her membership of informal groups and/or social networks will be determined by the strength of his/her ties to those informal groups and/or social networks. An individual demonstrates commitment to those informal groups or social networks from which he/she draws his/her primary identity rather than to the organisation. An individual's perception of the organisation is influenced by his day-to-day workings with his/her immediate colleagues, underpinned by an abstract notion of the organisation. This abstract notion of the organisation is often influenced by the behaviour and attitude of senior management teams. However, the level of commitment demonstrated by the individual in terms of knowledge sharing is directly proportional to the degree of trust felt among and between him/herself and colleagues in the informal group(s).

2.9.5 The role of power and politics

The literature on knowledge management has failed to address sufficiently the relationship between knowledge and power (Gordon & Grant, 2004). Social relations and interactions do not take place in a vacuum but are embedded in an organisational context of differing interests and differential power positions (Easterby-Smith et al,

2000). From a social constructivist perspective, in which knowledge is socially constructed through these social relations and interactions, the issue of power becomes important (Scarborough et al, 1999). Social relationships inevitably incorporate power relationships (Tsoukas & Mylonopoulos, 2004). Interpreting organisational life through the lens of social capital draws attention to how non-monetary forms of capital can be important sources of power and influence (Portes, 1998). If knowledge and work are viewed as inextricably linked then the concept of power illustrates how and why knowledge, or knowing, is contested (Blackler, 1995). This political dimension is a natural feature of any social process (Coopey, 1995, 1998).

Reputation as a means to maintaining status within a group (Jones et al, 1997) is particularly pertinent to the university context; and, demonstrates that power will always play a role even when tacit reciprocity 'relegates' this to a secondary role. In their study of electronic networks Wasko and Faraj (2005: 50) identified that "a significant predictor of individual knowledge contribution is the perception that participation enhances one's professional reputation".

2.9.6 The role of identity and biography

Identity and biography are inter-related concepts although the literature on identity is far more extensive. The concept of identity has a complex history. Over 40 years ago it was being argued that an individual should be defined as part of 'collectives' within an organisation (e.g. Lazarsfeld & Menzel, 1961) as an individual, in effect, "surrenders" him or herself to the group (Simmel, 1955: 141). It has been argued that

we have “inherited a cultural predilection for privileging the individual over the group” (Cook & Brown, 2002: 75). Different national cultures have different perceptions about the role of the individual (individualist perspective) and the role of the group (collectivist perspective) such that “identity among collectivists is defined by relationships and group memberships. Individualists base identity on what they own and their experiences” (Triandis, 1995: 71). The first wave literature adopted an individualist perspective and the second wave a social or collectivist perspective and these perspectives have differing views on the concept of identity.

A useful definition of identity is that offered by Alvesson (2004: 188): “how a person constructs a particular version of him- or herself and can be seen as the response to the question ‘Who am I?’”. Although we conceive of identities as long term (Lave and Wenger, 1991) they are not fixed or stable (Knights & Willmott, 1999) but are multiple (Weick, 1995; Barnett, 2000a) and subject to continual renegotiation (Wenger, 1998). Identity is a process of ‘becoming’ (Jenkins, 1996; Wenger, 1998) and is an inextricable part of learning to become a member of a community or social network. This process of becoming is linked to perceived status within a social or cultural context (Knights & Wilmott, 1999) but this should not be confused with people’s ego (Davenport et al, 1998). Within the academic community status is derived from a combination of occupational title, publications and parent institution; all of which are subject to hierarchies of quality (but which are not necessarily always justified).

The literature on knowledge management, which has been dominated by an emphasis on the role of technology (be it solely or in conjunction with social interaction), has

tended to ignore the concept of identity although limited reference has been made to the concept of organisational identity. In the literature of other fields of study and disciplines issues of self and identity have usually been conceptualised at the level of the personal self and although the importance of social roles and social interaction have been emphasised, the primary focus remains the individual (Ellemers *et al*, 2002). In contrast, social identity theory (Tajfel, 1978; Tajfel and Turner, 1979, 1986) posits that individuals possess both a personal identity and several collective or social identities through multiple group memberships (van Knippenberg, 2000; Tyler & Blader, 2000) referred to by Ashforth & Mael (1989: 29) as 'an amalgam' of identities.

An individual becomes aware of him/herself through the relations or interactions that he/she has with others (Kozulin, 1998; Knights & Willmott, 1999; Haslam *et al*, 2000; Ellis & Dick, 2003; Alvesson, 2004). Identities are in a state of flux, or continual construction, as the relations, practices and discourses which surround an individual change (Halford & Leonard, 1999). Within an organisational context social identity tends to be viewed through the lenses of formal- (e.g. work teams) and/or cultural-constructs (e.g. gender; ethnicity). There has been far less investigation into the role of informal groups and networks in the process of social identification. Where informal groups or networks are mentioned it tends to be in relation to social loafing or other forms of negative connotation (for instance, see van Knippenberg, 2000) even though it has been acknowledged that informal processes play an important role in organisational life (for instance, Brass, 1985).

2.9.7 Professional identity

An individual's profession or occupation is often a very strong source of social identity (Alvesson, 2004) and for many people professional identity can be more pervasive and important than their other social identities (Hogg & Terry, 2000). Professional identity reflects the way in which individuals categorise themselves and others on the basis of group membership within a work context. Professional identity is both individual and social (Kogan, 2000). Within the university context academics draw their identity from discipline and subject groupings (Kogan, 2000). Within any defined group "further differentiations may be made on the basis of other shared identities" (Roccas & Brewster, 2002: 90) (for instance, research-active individuals within a subject group). There is a psychological and behavioural convergence of group members sharing the same social identity (Haslam *et al*, 2000)

A social constructivist perspective offers a way of determining professional identity through the analysis of knowledge sharing relationships, both formal and informal, that an individual has with his/her peers within and without the organisational context. The dual emphasis on formal and informal is an important one. An individual's informal relationships, often manifesting in communities of practice and networks, can be difficult to discern. By investigating an individual's knowledge sharing relationships the informal is brought out into the open or made visible, thus offering additional insights into professional identity. This is important as communities of practice provide a locus for professional identity (Wenger *et al*, 2002). The ambiguity of social interaction (Kuentzel, 2000) pervades professional identity and it needs to be viewed as a multi-layered concept. Mapping relationships

within a work context helps in the identification of those groups and/or networks through which an individual derives the strongest feelings of self-worth and status. Status, in terms of *pride* (an individual's evaluation of the status of a group) and *respect* (an individual's evaluation of his/her status within the group) is an important element in determining individuals' relationship to a group (Tyler & Blader, 2003). The degree of psychological engagement with a group determines the level of cooperation between the individual and other group members (Tyler & Blader, 2003). This is reflected in the degree of tacit reciprocity present within the group.

2.9.8 Social identity

Within a work context individuals are members of a range of different groups and the relationship maps can be used to illustrate visually a *social categorisation* (Tajfel, 1978; Tajfel & Turner, 1979; Ellemers *et al*, 2004) process. These may be formal groups (such as a department, committee or project team) or informal groups (such as communities-of-practice, communities-of-interest, or networks). The extent to which any particular group's characteristics and processes affect an individual's social (and, therefore professional) identity will differ amongst group members (Ellemers *et al*, 2002) although there has been limited research on the nature and implications of an individual's numerous social/group identities (Roccas & Brewer, 2002). Individuals tend to identify with groups that seem to contribute to a "positive sense of self" (Ellemers *et al*, 2004: 463). "Some group-based identities may be so central to the person that they become chronically salient" and "[s]ub groups often resist attempts to dissolve subgroup boundaries and merge them into one large group"(Hogg &

Terry, 2000: 131). This also demonstrates some degree of compartmentalisation (Roccas and Brewer, 2002)

In discussing and/or analysing identity it is important to identify the informal as well as the formal:

Informal relationships among employees are often far more reflective of the way work happens in an organisation than relationships established by position within the formal structure. However, these informal relationships are often invisible or at least only partially understood by managers (Cross *et al*, 2002: 26)

Participation in informal groups is likely to enhance self-esteem because individuals participate in these types of groups voluntarily. *Social identity* theory argues that individuals possess both a personal and a collective or social identity. The theory states “that we will be attracted to groups that can enhance our self-esteem and will be less attracted to groups we perceive to be potentially esteem-damaging” (Ellis & Dick, 2003: 37).

The formation of social identity is an integral part of learning and knowledge acquisition (Brown & Duguid, 2001) and is regarded as a powerful motivational force (Portes, 1998). In universities networks are an important source of academic identity (Barnett, 2000a). Personal identity construction is always a social process which is shaped and reshaped by the smaller units within the university rather than by the university itself (Trowler & Knight, 2004). Being a member of an academic discipline or tribe creates a sense of belonging and a sense of identity (Becher & Trowler, 2001). Individuals construct rather than adopt a personal and professional identity

(Becher & Trowler, 2001). In a study carried out by Brew (2004) it was identified that academics in some areas of study did not even conceptualise themselves in disciplinary terms.

As learning is a deeply emotional and personal process individuals within a group will not learn in exactly the same way when confronted by a common/shared problem (Elkjaer, 1999). Jarvis (2001) argues that any learning will affect what he terms the 'learners' biography' (i.e. the individual's knowledge, skills, attitudes, values, beliefs, emotions and senses) and this is explicit in his definition of learning (Jarvis, 2006: 13) quoted previously in chapter 4.5.

2.9.9 How identity and biography are linked

Identity is linked to the concept of biography. Biography can be defined as the narrative of self-identity that an individual *brings* to a group, particularly a community-of-practice, and which helps to shape that individual's contribution to, and participation in, the community's shared practice. Each individual has a distinct or unique history (Kogan, 2000) or psychobiography (Layder, 1997). The process of 'becoming' in a new context is partly anchored in previous contexts in the form of a biographical narrative that an individual brings to the new group or community. This gives an individual a feeling of biographical continuity or sense of control over his/her life and future (Giddens, 1991). Often biographies can be elicited from participants in field studies in the form of short life histories. A life history is "any retrospective account by the individual of his life in whole or in part, in written or

oral form, *that has been elicited or prompted by another person*" (Watson & Watson-Franke, 1985: 2 – emphasis in the original).

Biography involves memories that influence how an individual feels about something in the present; thus reflecting the embodied and contextual nature of knowledge (Morçöl, 2005). A "reflexive biography is made largely in and through action, through purposive engagement with the world" (Barnett, 2000a: 158).

2.9.9 Section summary and the ninth to fourteenth propositions

Several factors interact and impact on knowledge sharing processes. The individual is located within particular organisational sub-contexts within which knowledge sharing occurs. Institutional identification and the psychological contract are mediated by particular groups that the individual is involved with. These provide his/her social or professional identity. The process of identity formation is intertwined with biography and learning.

Propositions:

1. there *is* a relationship between individual, group and organisation (although the relationship between the individual and the organisation is essentially an abstract one which is symbolised by the psychological contract and is influenced by a range of factors including the quality of relationships with immediate colleagues as well as the actions and behaviour of an organisation's senior management team).

2. The relationship between individual, group and organisation is mediated through the shared practice that occurs within informal groups such as communities of practice and social networks.

3. Individuals identify most closely with their subject or discipline colleagues.

4. Biography and identity are inter-related concepts which impact on the nature of knowledge sharing processes.

5. Tacit reciprocity is a feature of intra-group relationships which are characterised by high levels of trust, shared values and a shared interest or practice.

6. Knowledge exchange is characterised by power relationships.

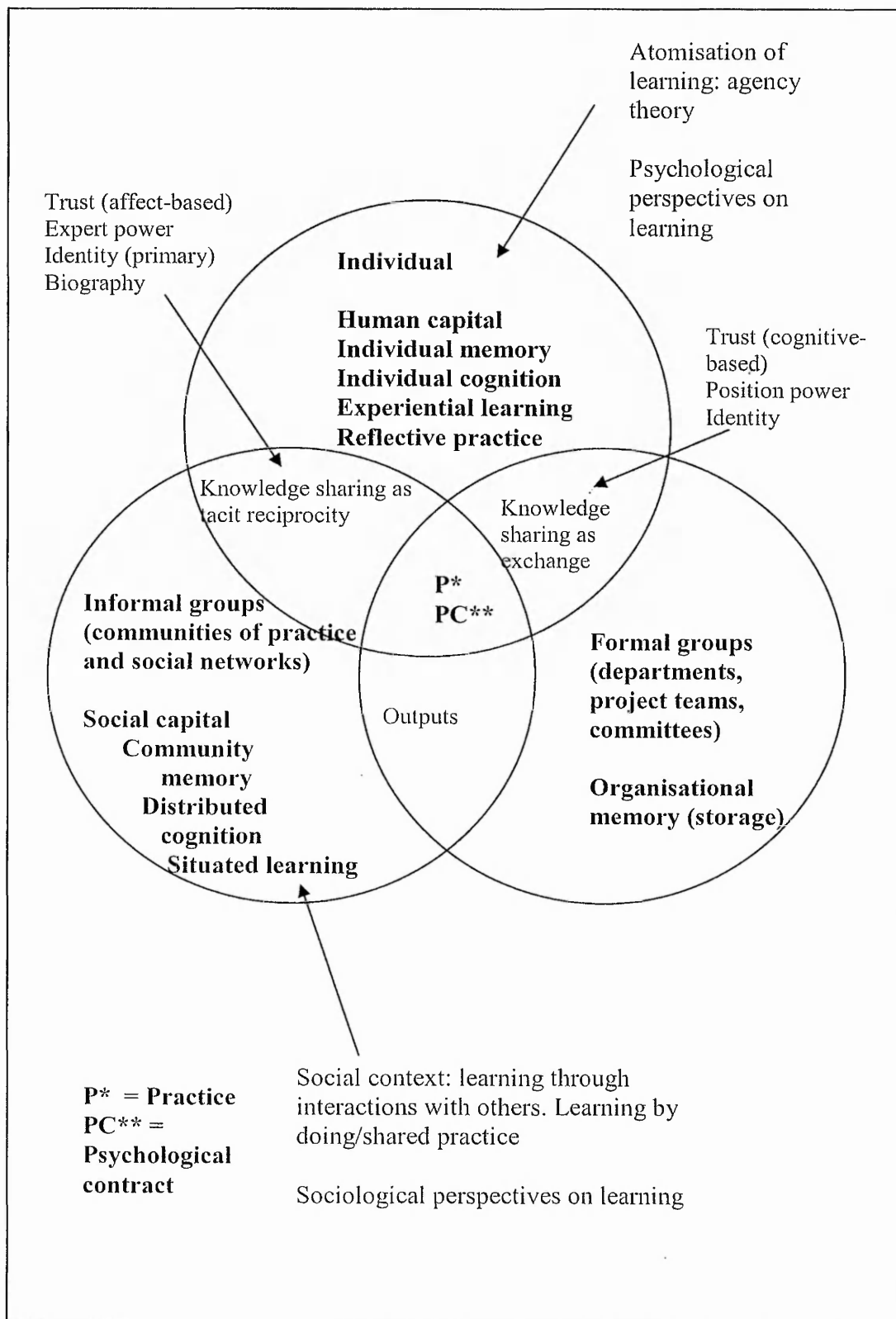


Figure 2.7: Conceptual framework Stage 6

Chapter 3: Methodology

3.1 Research strategy and methods

This study adopted an explanatory case study strategy (Yin, 1994) involving three cases (referred to as cases 1, 2 and 3). Each case involves a new university business school. Case 1 was intended to be exploratory in order to initiate a grounded theory approach to subsequent data collection and analysis in cases 2 and 3. An exploratory study aims to gain insights and familiarity with the subject area and to look for patterns, ideas or hypotheses; while an explanatory study aims to identify causal relationships (Hussey & Hussey, 1997). The decision to approach the study in this way reflected the author's relative inexperience as a researcher at the start of the project particularly in relation to purely inductive research. However, even when an inductive approach is adopted the researcher still brings some existing knowledge to the study (Strauss & Corbin, 1998; Silverman, 2000). As with any research study there are limitations that need to be acknowledged (Moser & Kalton, 1985) and these are discussed below.

Participants across the three cases were employed in permanent posts as lecturers, academic managers or administrators (see table 3.1). Sampling was through self-selection. This approach was necessitated when an agreement to use data from a different case study faculty was rescinded by a university pro-vice chancellor who was unhappy about the author's decision to accept an appointment at a university that was felt to be a competitor; suggesting brand sensitivity (Trowler, 2008). This was a major setback as nearly 12 months had been devoted to relationship building within

the case study faculty and agreement had been gained to use multiple data collection methods (e.g. observation, focus groups and semi-structured interviews). The author had no contingency plan in place which, on hindsight, was a mistake. Fortunately, within a few months an academic department within the business school of a leading new university offered to participate in the research although this was coupled with a restriction on the methods that could be used. Subsequent difficulties impacted on his ability to replicate the single department setting of case 1 in case 3 when it became evident that only a small number of staff from any single department were willing to participate.

Table 3.1 Cases and participants' roles

	Lecturers	Academic Managers	Administrative
Case 1 (single department)	10	1	1
Case 2 (single senior management team)		4	
Case 3 (multiple departments)	8	1	2

Participants were advised in writing before the commencement of data collection that confidentiality and anonymity would be adhered to. In order to preserve anonymity no reference is made in this dissertation to the real names of any of the case institutions, departments, subject groups, or participants. In addition some details have been amended slightly or not fully reported. This protection of identity is important for all case participants but is particularly pertinent for those in a line management role (for instance, in cases 1 and 3 a single line manager has been interviewed). In case 2 participants' roles are clearly discernible and to obscure these in some way would impact on the clarity of the analysis. Consequently, the maintenance of confidentiality about the institutional identity of this case is

particularly important. Participants have been given false names which preserve gender but ensure anonymity. All participants were satisfied with the assurances given prior to data collection and these were reinforced by a signed confidentiality agreement. No other party has had access to the raw data apart from participants themselves in relation to their own contributions. This approach is in accordance with accepted good practice (Saunders et al, 2003). The author has presented two conference papers which draw upon the research study and has received no adverse criticisms for the approach adopted (this includes a paper presented to an audience including several members of case 1).

Data was collected through a series of face-to-face semi-structured interviews which focused on the five research questions shown in table 3.2. This method offers flexibility (King, 1994) and is well suited to discovering participants' own experiences and interpretations of the phenomena under investigation (Jarvis, 2006). An important aspect of the interview process was encouraging participants to give examples, or stories, so that sufficient information was generated to enable the author to make inferences about the nature of the knowledge being discussed (Eraut, 2000). Open and probing questions were used. Participants in cases 1 and 2 were interviewed twice, the first interview lasting between 60 and 90 minutes, the second between 45 and 60 minutes. This was done for two reasons, first to avoid one very long interview (at participants' request); second, to allow for some initial analysis (to inform second interviews). The interview schedules for cases 1 and 2 covered the periods January to November 2003 and January to October 2004 respectively. Case 3 participants were interviewed once, typically for 90 minutes. This was due to pragmatic reasons (i.e. the distance involved in travelling to the case and staying there for week-long periods

at the author's own expense in July 2005 and April 2006). All interviews were audio-taped, with permission from participants, and transcribed verbatim by the author producing on average 20+ pages of detailed text. Although this was an extremely time-consuming process it ensured better familiarity with the data. Additionally, the author made notes during and after each interview which were included in a research diary. The transcripts from the interviews form the primary data for the study.

Table 3.2 The study's five research question

Research question	
1	What do individuals claim constitutes knowledge?
2	What account do individuals give of how knowledge is shared or exchanged within organisations?
3	What do individuals claim are the similarities and differences between personal knowledge and shared-knowledge?
4	What accounts do individuals give of choosing to share knowledge or not?
5	What barriers and facilitators do individuals claim exist in the sharing or exchange of knowledge in organisations?

Data were analysed qualitatively using interpretative phenomenological analysis (IPA) (Smith & Osborn, 2003). IPA studies are based on small samples and involve detailed analysis of individual transcripts in order to "say something in detail about the perceptions and understandings of [a] particular group" (ibid: 54). In terms of this research the groups included academic subject groups, academic departments and a senior management team. Semi-structured interviews are well suited to IPA studies (Smith & Osborn, 2003) as they can yield rich verbal descriptions (May, 1997; Pring, 2004; Wentling, 2004).

Repeated readings of the data highlighted particular topics or themes which were assigned a code (for instance T1 to T6 for types of knowledge - see appendix 2 for a

full list of codes). These codes were then assigned to passages in the transcript. Strauss (1988: 20-1) defines coding as: “the general term for conceptualising data; thus, coding includes raising questions and giving provisional answers (hypotheses) about categories and about their relations. A code is the term for any product of this analysis (whether a category or a relation among two or more categories)”. NUD-IST software was utilised to facilitate this process. A cross-case analysis was carried out, exploring areas of similarity and difference between the three cases. This approach also involved tabulation (e.g. the quantification of the frequency topics and themes were referred to by participants) enabling further comparisons to be made between individual participants and cases. Combining software analysis with manual analysis was designed to encourage reflexivity and avoid the “tendency among researchers doing computer-assisted analysis to reduce materials to only those data that are codable” (Denzin & Lincoln, 2003b: 55). Over the course of the project there was a shift from coding data into categories to the more complex process of theory building (Seale & Kelly, 1998). Theories are critical in providing “a springboard for the inventive investigator to find ways of making that which when first conceived is unobservable, available for empirical scrutiny” (Harré, 1981). In terms of the new university business school context there is a lack of empirical studies on knowledge sharing processes in academic communities from which to draw relevant theory. Consequently, initial theory-building was heavily reliant on a literature review of knowledge management processes in other types of organisation and sector.

Relationship maps, designed by the author, were produced for each participant. Using semi-structured interviews to uncover relationship is similar to the approach taken in other studies (for instance, Ambrosini & Bowman, 2001). An initial relationship map

was constructed at the start of the interview, refined as the interview progressed and checked against the transcript later. The map acted as a form of “mediating object” (Eraut, 2000) to help illicit participants’ perspectives on knowledge and learning.

Qualitative data selected for inclusion in subsequent chapters are reproduced as articulated by participants.

3.2 Research paradigms

Discussions on research paradigms have been characterised as ‘wars’ over the relative superiority of one or other of the two principal paradigms in the social sciences (Tashakkori & Teddlie, 1998). These are usually presented as opposing paradigmatic positions; and have been described in a variety of ways (see table 3.3).

Table 3.3 Paradigm descriptors

Examples of theorists	Descriptors	
Clarke (1999)	Quantitative	Qualitative
Tashakkori & Teddlie (1998)	Positivist	Phenomenological
Silverman (1993); Layder (1997); Denzin & Lincoln (2003)	Positivist	Interpretative
Guba & Lincoln (1989).	Post-positivist	Naturalistic or constructivist
Wells et al (2002); Delanty (2005)	Realist	Constructivist
Guba & Lincoln (1994); Jennings & Waller (1995); Burr (2003)	Critical realist	Constructivist
Smith & Deemer, 2003; Hodkinson & Smith (2004)	Neorealist	Relativist

The tendency to polarise debate around an either-or choice can create problems for researchers who do not conform to a prescribed 'conventional' position. Dualism (Silverman, 1993; Clarke, 1999; Pring, 2004) is an oversimplification that creates dichotomies and tensions (for instance, the association of quantitative methods with the post-positivist paradigm and qualitative methods with the constructivist paradigm). This debate has been described as "vacuous" (Weber, 2003: v) as it is based on an assumption that inconsistencies or contradictions between ontological and epistemological positions are reflective of a fundamentally flawed research paradigm or methodology. In contrast it can be more appropriate to think of a continuum than two opposing poles (Tashakkori & Teddlie, 1998) as this better reflects the different ways in which ontological, epistemological and axiological assumptions can interact (Ruona & Lynham, 2004).

3.3 The researcher's paradigm

To guide him through the project (Lincoln & Guba, 1994) the author adopted a neo-realist ontology and social constructivist epistemology. Neorealism (Smith & Deemer, 2003; Hodgkinson & Smith, 2004), also referred to as critical realism (Lincoln & Guba, 1994; Jennings & Waller, 1995; Burr, 2003; Denzin & Lincoln, 2003), non-naïve realism (Smith & Deemer, 2003) and post-positivist realism (Denzin & Lincoln, 1998, 2003; Delanty, 2005), builds on realism which is an ontological rather than epistemological theory (Searle, 1996; Sayer, 2000). Realism asserts that an external world or reality exists independently of our individual consciousness or knowledge of it (Jennings & Waller, 1995; Hammersley, 2002;

Burr, 2003; Pring, 2004; Delanty, 2005). This external world comprises a natural reality, or non-human world, *and* a socially created reality, or human world (Searle, 1996; Sayer, 2000; Delanty, 2005). These two realities are intertwined (Searle, 1996; Burr, 2003) with the social world functioning as an open system that “includes mechanisms and structures that both depend on human agency and condition it” (Austen & Jefferson, 2006: 259). Human agency is reliant on reflexivity as it is this which enables individuals “to design and determine their responses to the structural circumstances in which they find themselves” (Archer, 2007: 11). The nature of the relationship between structure and agency has implications for the study of social contexts and any claims to our knowledge or understanding of them.

Neorealism is concerned with causal explanations of social reality (Sayer, 2000; May, 2001; Delanty, 2005); although any findings are usually imprecise and represent more of an approximation of reality (Tashakkori & Teddlie, 1998; Burr, 2003; Denzin & Lincoln, 1998, 2003). Causal explanations are not in themselves observable but need to be inferred (Jennings & Waller, 1995; Ruggie, 1998) giving rise to potential problems such as researcher bias. Causal explanations remain “provisional and tentative because there are so many other factors which influence what happens” (Pring, 2004: 65). This can result in an oversimplification of complex social relationships, many of which may remain unidentified by the researcher.

In terms of being able to infer causal explanations the neo-realist researcher endeavours to move beyond mere observation (as in positivism and empiricism) and use methods that explain observations “within theoretical frameworks which examine the underlying mechanisms which structure people’s actions” (May, 1997: 12). These

theoretical frameworks are revealed by the researcher through a process of abduction, which is a characteristic of neo-realist research whereby evidence is accumulated and then rationally assessed (Walters & Young, 2005). This reference to rationality acknowledges the 'scientific' principles associated with the realist tradition but does not lay claim to the identification of universal (social) laws (Fleetwood, 2005) with the same degree of precision found in the natural sciences. Rather the focus is on identifying reasonably stable tendencies, associations or relationships between social phenomena that exist in an objective world (Tashakkori & Teddlie, 1998; Burr, 2003; Denzin & Lincoln, 1998, 2003; Fleetwood, 2005). In order to achieve this, the author has adopted a social constructivist epistemology utilising the qualitative research method of semi-structured interviews.

Neorealism is seen as counter-posed to both positivism and social constructionism (Contu & Willmott, 2005). However, neorealists:

accept that knowledge, at least in part is socially constructed...[and] that any claim to knowledge must take into account the perspective of the person making the claim (Hodkinson & Smith, 2004: 152-153).

Consequently, the neorealist researcher is interested in discovering "how individuals interpret and make sense of their social experiences" (Clarke, 1999: 58). Any understanding of reality is reliant on an understanding of human subjectivity and the meanings individuals give to phenomena in the real world (Harré & Gillert, 1994; Clarke, 1999). Participant perceptions may not necessarily mirror reality precisely but they do reference the real world in some way (Burr, 2003; Pring, 2004). This explains

why “we experience ourselves as living in a common world and we understand one another more often than not” (Stuewe-Portnoff & Stuewe-Portnoff, 1994: 6).

At this stage it is important to draw a distinction between constructivism, social constructivism and social constructionism. Social constructivism builds on a constructivist position that acknowledges the role of personal construct theory (Kelly, 1955). Constructivism is where the mind constructs reality but within a systematic relationship to the external world: the construction is inherently psychological (Gergen, 1999, 2001). Social constructivism posits that these mental processes are significantly informed by influences from social relationships (Gergen, 1999, 2001). From a neorealist perspective these social relationships are embedded in a pre-existing social reality that reflects a layered or stratified ontology in which underlying social structures exist and endure beyond the day-to-day constructions of individuals (Stacey, 2001; Layder, 1997; Fleetwood, 2005; Reed, 2005; Mearman, 2006). Embedded in these structures are generative mechanisms or causal powers (Tsoukas, 1994) which are independent of human activity and the events they generate. They reflect enduring social relations that “exist and are reproduced over time, independently of the activities and conceptions of specific groups of individuals who are subject to them” (Layder, 1990: 61). Thus the social world has objective features that provide a background and context for human actions and activities (Layder, 1997) but the individual has responsibility for their own actions and activities (Stacey, 2001). In contrast social constructionism regards language as something to be investigated in its own right rather than as a vehicle for revealing the life-world of individual participants (Ashworth, 2003; Burr, 2003; King, 2004). This perspective privileges the social over the individual and is too removed from the theories of

causality underpinning neorealism (Stacey, 2001). Consequently, social constructivism can be seen to draw upon the domains of constructivism and social constructionism (Gergen, 1999). The social constructivist position acknowledges the role of psychology (Burr, 2003), the dualism of individual mind and an external reality (Gergen, 2001), and the importance of the social in relation to the structure-agency debate. Social constructionism fails to explain adequately the implications of the structure-agency debate (Burr, 2003).

The origins of these concepts along with alternative terms are shown in figure 3.1. The different theoretical positions illustrated, labelled as 'sects' by Phillips (1995), are often described as simply 'constructivist' (Light & Cox, 2001) with some writers failing to distinguish any differences between them (Delanty, 2005). In other disciplines alternative terms have arisen such as 'naturalistic constructivism' (Ruggie, 1998).

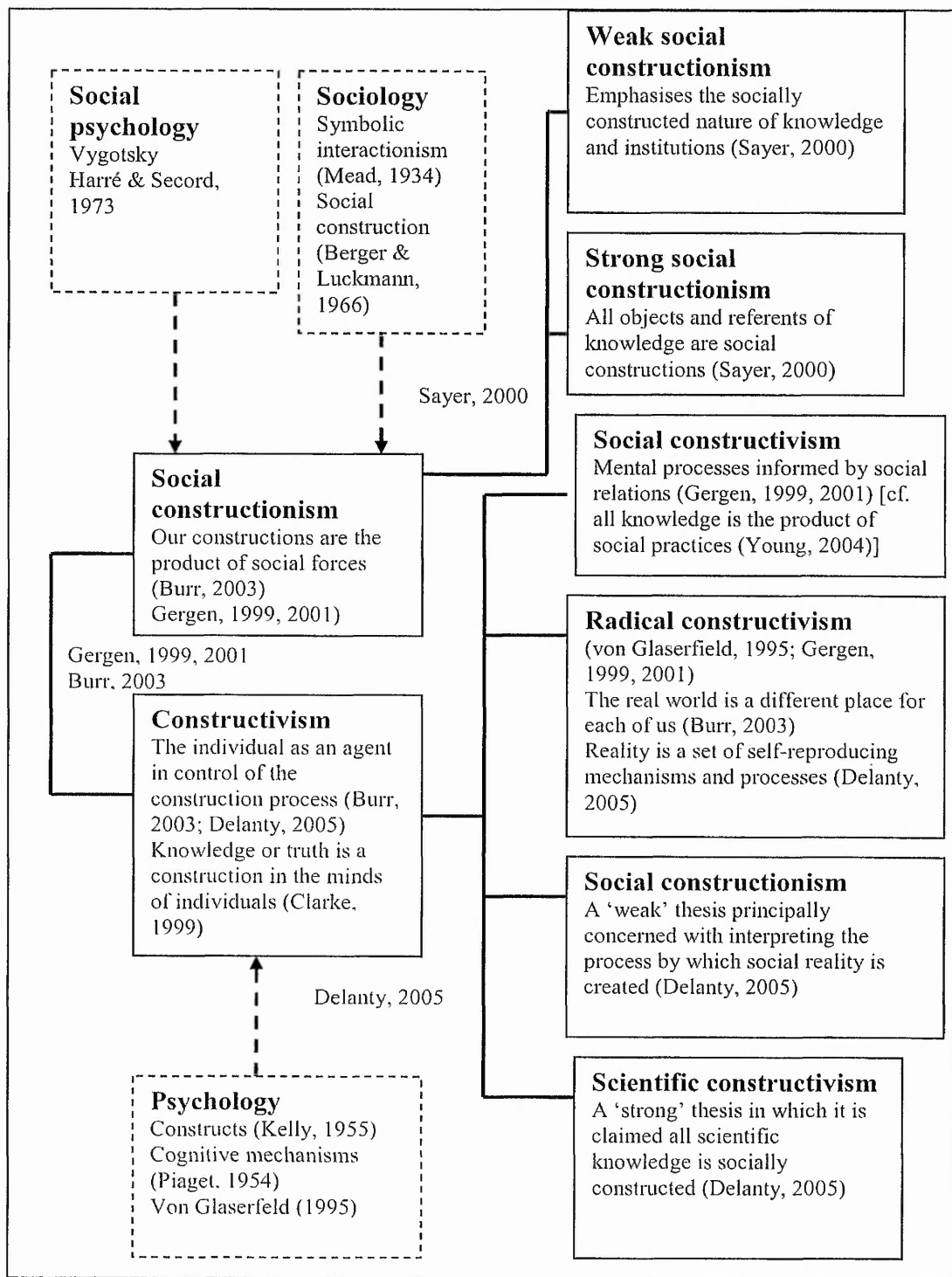


Figure 3.1 Definitions of constructivism, social constructivism and social constructionism

The essential differences between constructivism and social constructionism are shown in table 3.4. Social constructivism acknowledges that the social world is dependent on “the interpretative practices of its members” (Gherardi & Nicolini, 2001: 43) but stops short of the social constructionist position that “nothing at all exists apart from language” (Searle, 1996: 168). Rather than the existence of multiple realities (Lincoln & Guba, 1994; Tashakkori & Teddlie, 1998; Pring, 2004) there is, as explained above, an external social reality (entwined with a natural reality) that has some objective features (Layder, 1997). Individuals’ understanding of this reality remains partial (May, 2001), anchored in specific micro contexts, although influenced by meta-level social (institutional) structures. This is why constructivist and social constructivist researchers:

seek to *understand contextualised meaning*, to understand the meaningfulness of human actions and interactions – as experienced and construed by the actors – in a given context.

(Greene, 2003: 597 – emphasis in original).

Arguably, the social world is best understood through a social constructivist epistemology while the physical world is best understood through scientific realism or empiricism.

Table 3.4: A comparison between constructivism and social constructionism

	Constructivism	Social constructionism
Reality	An independent external physical world (reality) exists in conjunction with a socially constructed social world (Greene, 2003; Pring, 2004; Delanty, 2005) or world of experience (Gergen, 1999). Consequently, there are multiple interpretations of reality.	Reality is socially constructed and does not exist independent of the actor (Burr, 2003) There are multiple realities (Gergen, 1999; Clarke, 1999; Pring, 2004)
How knowledge is constructed	Inside the individual mind – a psychological basis (Gergen, 1999; Clarke, 1999) The individual as an agent in control of the construction process (Burr, 2003; Greene, 2003; Delanty, 2005)	Through daily interactions (discourses) (Burr, 2003) or social interactions (Pring, 2004)
What knowledge is	A construction shaped by its context (Delanty, 2005)	Negotiated understandings (Burr, 2003) Negotiated meanings (Gergen, 1999)
What underpins knowledge	Personal constructs – individual perceptions of reality (Burr, 2003)	Shared concepts and categories (Burr, 2003)
Context	[Historically, geopolitically and culturally specific (Greene, 2003)]	Historically and culturally specific (Gergen, 1999; Burr, 2003)
Truth	Negotiated consensus (Pring, 2004)	Current accepted ways of understanding the world (Burr, 2003)
Role of language	'sociality' (Kelly, 1955) – to gain some appreciation of other people's worlds	A necessary precondition (Burr, 2003) Constructs rather than simply describes the external social world (King, 2004) Something to be investigated in its own right (Ashworth, 2003)
Focus of enquiry – unit of analysis	Individual and their mental processes (Clarke, 1999; Gergen, 1999, 2001; Burr, 2003)	Social unit: social processes (Gergen, 2001) and practices (Burr, 2003)

The aim of neorealist research is to understand the underlying social structures that exist and act independently of the pattern of events that they generate (Reed, 2005).

Social structures impose limits on human agency (Lopez & Potter, 2001) at what Reed (2005) refers to as the 'surface' level. In turn, human agency can be described as being *relatively* autonomous (Lawson, 1997): human actions and activities do not necessarily 'create' social structure but they do reproduce and transform it (Lopez & Potter, 2001; Barker, 2003). Archer (2007) argues that reflexivity is the process that mediates the structure-agency relationship:

Our internal conversations perform this mediatory role by virtue of the fact that they are the way in which we deliberate about ourselves in relation to the social situations that we confront (page 15).

Social constructivism requires the researcher to interact with participants in some way (Heron, 1981) and design methods which move beyond a naïve-realist position (Smith & Deemer, 2003; Denzin & Lincoln, 2003; Pring, 2004) which argues social research should be conducted in the same scientific manner as in the natural sciences (Clarke, 1999). The natural sciences and social sciences are both seeking causal explanations but are dealing with different types of phenomena (Ruggie, 1998).

By revealing participants' knowledge (interpretations) of the social world it is possible to infer some of the underlying social structures that influence behaviour within specific contexts; although inferences entail an imprecise or approximate understanding only. Adopting a social constructivist epistemology enables the researcher to investigate participants' perspectives which have evolved through negotiation with others (Cassell & Walsh (2004). The challenge facing the researcher is to gain insights into the 'inner conversations' (Archer, 2007) of participants in order to understand how they interpret the social world. Such conversations are

interior, subjective and not necessarily reducible to language (Archer, 2007). What we hear and interpret as a researcher is not necessarily how the participants 'talk' to themselves in their own minds. Spoken language has limitations that 'self-talk' (Archer, 2007) does not and this has implications for the inferences made by researchers.

A particular dilemma is reconciling researcher-participant interaction with the realist tradition of researcher detachment. Within the realist paradigm the researcher is viewed as independent from what is being researched and, consequently, an objective point of view is believed to be possible. In this relationship decisions about what to study, how to study it, and what conclusions can be drawn are the responsibility of the researcher (Sayer, 2000). From a social constructivist perspective the researcher *interacts* with what is being researched and consequently the knower and the known are regarded as being inseparable (Lincoln & Guba, 1994). In this situation social constructivist inquiry is seen as value-bound (Tashakkori & Teddlie, 1998) and the interview can be viewed as a negotiated text (Fontana & Frey, 2003). Direct questions in an interview situation may not reveal the full extent of an individual's inner conversations and/or infer a particular bias or position that limits the participant's openness. However, neo-realists researchers believe it is possible to control or reduce the extent to which the researcher's values influence results and interpretations (Tashakkori & Teddlie, 1998). They believe it is possible to disentangle themselves from the participant(s) through the use of reflexivity; although detachment can only be partial (unlike in the natural sciences).

Demonstrating reflexivity (Callero, 2003; Davey & Liefoghe, 2004; Archer, 2007) as part of the methodological approach helps to minimise rather than eliminate the incursion of the author's own values into the study in the form of biases and assumptions (Antonacopoulou & Tsoukas, 2002; Bryman & Bell, 2003). The author used his own inner conversations, field notes and research diary to achieve this. Potential bias can be minimised further through the rigour of the research approach, the methods used and how they are used, and the rigour of the data analysis phase. The author strove to accurately record the words of participants (through taped interviews and transcripts) and at the analysis stage adopted an iterative approach to the analysis of the data; although it is the author who has constructed connections between accounts: a process which is clearly influenced by the values he brings to the study (Pring, 2004).

3.4 Precedents for the author's paradigm

A constructivist epistemology is usually associated with a relativist rather than realist ontology (Pring, 2004). Realists focus on discovery and finding out while relativists focus on the construction of knowledge (Hodkinson & Smith, 2004). However, the author is not alone in the view that a social constructivist epistemology can be accommodated by a realist ontology (for instance, see Parker, 1998). The argument that the two principal paradigms are based on fundamentally different philosophical premises (Guba & Lincoln, 1989; Clarke, 1999; Delanty, 2005) and are therefore logically incompatible has been challenged by several authors (for instance, Cook and Reichardt, 1979; Beck, 1996; Burkitt, 1999; Brglez, 2001; Nightingale & Cromby,

2002); while Smith and Deemer refer to the “neorealist acceptance of epistemological constructivism” (page 432). As May (2001: 13) comments:

there are those within this [realist] tradition who have built bridges between the idea that there is a world out there independent of our interpretation of it (empiricism and positivism) and the need for researchers to understand the process by which people interpret the world.

May (2001) describes the metaphor of ‘bridge building’ as an approach “that fuses the twin aims of ‘how’ (understanding) and ‘why’ (explanation) in social research” (page 15). Roy Bhaskar, regarded as the ‘father’ of critical realism in much of the literature, drew comparisons with natural structures when describing social structures (Lawson, 2002). He argued for an “essential unity of method between the natural and social sciences” (Reed, 1997: 30). As argued above social structures or institutions can be relatively enduring and thus provide an objective reality independent of its perception by social actors. Such perceptions will vary depending on the social actor’s relative position in those social structures or institutions. In this way, the co-existence of an objective reality (ontology) and subjective interpretations of this reality (epistemology) can be accommodated..

To date there has been a tendency to associate ‘competing’ paradigms with particular approaches to research: quantitative research with realism and qualitative research with constructivism. This has helped to create the false ‘dualism’ or ‘two world’ problem (‘out there’ versus ‘in here’) (Gergen, 1999) referred to above. This obscures the fact that it *is* possible to embrace both paradigms (Pring, 2004). Constructivism and realism are:

exclusive only if they are conceived naively. Naïve constructivism fails to see that behind the constructions of social actors there are objective realities and naïve realism neglects the extent to which social actors and science construct reality (Delanty, 2005: 151).

In their discussion on reflexivity in management research Johnson and Duberley (2003) argue that a realist ontology can be combined with a subjectivist epistemology resulting in what they term *epistemic reflexivity*:

although our conceptualisation and explanation of causal regularities must always be open to question, our ability to undertake practical actions that are successful and our ability to reflect upon and correct actions that seem unsuccessful, implies that we have feedback from an independent 'reality' which constrains and enables practices that would otherwise be inconceivable (ibid: 1290).

Various authors have used some form of epistemological relativism in conjunction with a realist ontology (Smith & Deemer, 2003). Delgado (2004) combines paradigms in order to better understand how we see, comprehend and understand colours; while Peroff (1999) uses the combination to arrive at a better understanding of the theory and practice of the management of organisations.

3.5 Strengths of the author's methodology and methods

In order to understand the structure-agency relationship (Reed, 1997; Archer, 2007) in relation to knowledge sharing processes, and underpinning learning theory (Wenger, 1998; Scully-Russ, 2005), the author viewed the individual as the unit of analysis. This is consistent with a neorealist perspective where the individual is

primary “because individual actions are required to construct the social” (Stacey, 2001: 49). It is also consistent with a social constructivist epistemology (Trondal, 2001): an individual’s understanding of the social world is informed by social relationships but it is necessary to understand the individual’s perspective of the social by gaining insights into their inner experience (Faraday & Plummer, 1979). In contrast, social constructionists are critical of this individualist perspective (Gergen, 1999). This approach allowed for the emergence of biography as an important aspect of understanding knowledge sharing structures and processes in academic communities (this had not been identified as a factor prior to the data collection phase).

Semi-structured interviews were chosen as the vehicle to help participants externalise their perceptions of the social world including unconscious or taken for granted assumptions and meanings about social phenomena (Williams & May, 1996). Qualitative methods are better suited to helping the researcher understand the other person’s experience from their point of view (Hammersley, 1992; Davies, 1996; Miller & Glassner, 1997; Clarke, 1999; Silverman, 2000; Hanscome & Cervero, 2003; Rytmeister & Marshall, 2007) and so build a richer understanding of social phenomena (Silverman, 2000). Qualitative methods are well suited to exploratory and explanatory studies (Vryonides, 2007). Interviews are also consistent with a realist position (Seale, 1998). They can provide information about the social world (Holstein & Gubrium, 1997) and are particularly useful for accessing interpretations about an external reality (Silverman, 2000) and providing evidence of self-reflexivity among participants (Miller & Glassner, 1997). Equally, the author’s own self-reflexivity

throughout the project was important as reflexive researchers need to be aware of their own paradigmatic assumptions as part of the research process (Weber, 2003).

Whilst reflexivity is usually associated with post-modernism (Hardy & Clegg, 1997; Silverman, 2001) and social constructionism (Burr, 2003) it can be viewed as a process of good practice for any form of qualitative research which is seeking to understand participants' interpretations of reality. Reflexivity in research acknowledges the complex nature of qualitative data and offers an opportunity for a more sophisticated analysis (Alvesson, 2003) through the identification of "interrelationships between the sets of assumptions, biases, and perspectives that underpin different facets of the research" (Weber, 2003: v). In terms of theory building, reflexive researchers not only try to use theories in creative and adaptive ways but also to provide multiple lenses through which phenomena can be analysed and understood (Weber, 2003). Reflexivity can challenge a researcher to revise or even abandon theories and conceptual frameworks (Miles and Huberman, 1994). The development and evolution of two inter-related conceptual frameworks in the literature review and analysis chapters is one example of this process. The adoption of a reflexive approach was evident in other ways. For instance, the idea of a 'fingerprint' based on an individual's pattern of relationships illustrated on the relationship map (see analysis chapters) first emerged on 14th January 2004 as a result of reflecting on the implications of identity and biography; and was refined further over time as more data was collected and analysed.

The adoption of grounded theory ensured there was an ongoing iterative process between data collection, data analysis and literature review that was consistent with

the author's reflexive approach (Eisenhardt, 2002). Grounded theory is normally associated with an inductive approach. In this study a deductive-inductive approach evolved as the study progressed from exploratory to explanatory. A case study is well suited to a deductive-inductive approach as it benefits from the prior development of theoretical propositions to guide data collection and analysis (Yin, 1994) and is also suited to areas of original and emergent theory (Hartley, 1994). Case 1 analysis was used to inform the data collection phase in the second case study and data drawn from both of these cases were used to inform the interview questions in case 3. This resulted in the adoption of new codes (e.g. T7 and T8) and the modification to existing codes (e.g. L6 refined as L6.1 to L6.5). Coding was very much an ongoing, iterative process and therefore critical to the data analysis phases confirming the view that "coding is analysis" (Miles & Huberman, 1994: 56). Repeated readings of the data highlighted particular topics or themes which were assigned a code (Ryan & Bernard, 2003). Linkages and patterns were highlighted where it was felt that several pieces of information from the same case could be related to one or more of the propositions associated with each research question. Overall, this enabled the author to organise the thoughts and experiences garnered from participants (McCracken, 2004).

Social constructivist studies are also pertinent to research involving an understanding of the role of informal knowledge within organisations (Stacey, 2001) and how identities and roles are constructed (Trondal, 2001). As the literature review and subsequent data analysis show these are central tenets of knowledge sharing processes in academic communities in new university business schools. The design and utilisation of relationship maps as an integral aspect of the semi-structured

interviews has been pivotal in developing an understanding of how participants perceive their academic identities, their respective roles and their relationship to underlying social mechanisms in the form of structures and processes (both formal and informal). The relationship maps offer a visual record of the pattern of social relationships for each participant. At one level they reveal the structural dimension of social capital (Nahapiet & Ghoshal, 1998) and make visible “the complex web of formal and informal relationships among employees” through which information and knowledge flow (Gant et al, 2002: 297). At the same time they also offer important insights into the underpinning social structures that provide the context and rationale for human action. Some of these structures are readily enduring and knowable (such as the organisation or rules) while others are more emergent and less knowable (such as communities of practice). This reflects the layered nature of a stratified ontology and is “fundamental to realist-based research and explanations” (Reed, 2005: 1638). The view that organisations are institutional structures that exist independently of individual constructions (Bhasker, 1975) can be contrasted with social constructionists’ insistence that they are simply examples of temporary and negotiable agreements about social reality (Steyaert & Bouwen, 1994; Reed, 1997).

The author has endeavoured to make the theory building aspects of the study explicit (as part of a critical review of the literature and in the analysis chapters). He has developed conceptual frameworks; and this is a recognised method for the critical analysis of literature (Torraco, 2005). As a result of the deductive-inductive approach taken, the conceptual frameworks that evolved from the literature review and initial, ongoing analysis of case 1 could be ‘tested’ in the second and third cases through a grounded theory approach. The conceptual framework which emerged from the

analysis of the literature is based on several propositions. Propositions direct attention to something that should be examined within the scope of a study (Yin, 1994). The propositions were:

1. There *is* a relationship between individual, group and organisation (although that between the individual and the organisation may be abstract or focus specifically on the actions and behaviour of an organisation's senior management team)
2. There are differences between communities-of-practice and formal groups in relation to knowledge sharing processes.
3. The activities of communities-of practice and formal groups are interrelated by the outcomes of particular activities, shared practice, or experience gained by individuals
4. There is a difference between individuals *choosing to share* knowledge and *exchanging* knowledge. Exchange and sharing imply different notions of reciprocity. .

3.6 Limitations of the author's methodology and methods

The study does have limitations. The author acknowledges that any analysis will offer an approximation of reality rather than a complete and accurate 'picture'. This is an inevitable outcome of research in the social sciences. Whilst studies have been criticised for using semi-structured interviews as an "easy solution to data collection" (Trowler, 2008: 161) the method does allow the researcher and participant to establish a rapport which can be critical to the successful externalisation of

participants' interpretations of reality. This is important for addressing the limitations of being an 'outsider' rather than an 'insider' (Trowler, 2008); although being an 'outsider' can also bring benefits. The interview enables the researcher to modify initial questions in the light of the participants' responses and "probe interesting and important areas which emerge" (Smith & Osborn, 2003: 55). Biography was one such area to emerge in this way. On the other hand, there is no guarantee that trust is established between the interviewer and participant (Seale, 1998) which has implications for the externalisation of 'inner conversations'. Interview data will always retain a degree of ambiguity (Fontana & Frey, 2003); tacit knowing and feelings are always difficult to capture (Trowler, 2008); knowledge of causal mechanisms might be "outwith the grasp of participants" (Mutch, 1999: 329); and, the responses of participants to the same structural circumstance are unlikely to be uniform (Archer, 2007). Given the neorealist notion that "all knowledge is subject to revision", beliefs shared by group members can differ according to time and place (Mearman, 2006: 110). These variations may not be captured by a researcher relying on small samples and single methods within case settings. This could be addressed through a longitudinal study utilising a larger sample and using a mix of methods (Hart & Conn, 1990). This would strengthen the exploration of causal mechanisms (Wells et al, 2007). This had been the author's original intention.

The adoption of a mixed methods approach would have enabled the author also to strengthen considerably the quantitative aspects of the study. The adoption of the repertory grid technique would have been a potentially useful refinement for the purposes of added depth and triangulation. Mixed methods would also have aided the theory-building aspect of the research (Danielson, 2004). In terms of sampling,

neorealists believe that there are case populations waiting to be uncovered and analysed (Wells et al, 2002) and that the researcher sets the case parameters (Goetz & LeCompte, 1984). This reflects the approach adopted by the author in cases 1 and 2 where clearly defined case boundaries were established before field research took place. However, in case 3, circumstances necessitated a constructivist approach in which the case boundaries emerged as the investigation progressed (Wells et al, 2002):

As iterated above it is not possible to claim a *precise* understanding of social reality. There are inevitable limitations on validity, reliability and generalisability. As Longino (1993: 166 cited in Barker, 2003: 103) observes, "one of the difficulties in doing social science is that the least units of analysis – humans – deliberate and act on the basis of (changing and always incomplete) understandings of themselves and their social worlds". There is no guarantee that an investigation and the results emerging from it can be replicated within the same context. Neither should the results be generalised beyond the context under investigation. In making tentative proposals in the final chapter the author acknowledges that he is pushing at the boundaries of the study's limitations but he has done so in order to stimulate further research and theoretical debate. This approach has been adopted in other studies; for instance, Beattie's (2006) investigation of workplace learning in the voluntary sector. Additional research is needed in order to draw further inferences that may have implications for other types of faculty and/or university.

In terms of validity and the notion of truth (Hammersley, 1990; Silverman, 2000, 2001), from a neorealist perspective the real world is only partially knowable

empirically and any interpretations of it are transitory (Wallerstein, 2004). From a social constructivist perspective how people make sense of the real world is transitory as participants' interpretations of social phenomena may differ over time. Any valid account or explanation of social phenomena must respect the perspective of the participants (Maxwell, 2002) in order to produce accounts that correspond to how they perceive reality (Hammersley, 2002). The individual accounts can only be judged in relation to each other rather than to some absolute truth (Burr, 2003). In turn, participants' descriptions of reality reveal as much about themselves as they do about the world (Antonacopoulou & Tsoukas, 2002). Consequently, plausibility and credibility emerge as key elements of validity (Hammersley, 1990). This is why the author has endeavoured to preserve the 'voices' of the participants when constructing his analysis; although it is the author rather than the participants who has identified many of the connections between these accounts. However, using a comparator case study to test out provisional hypotheses is an acceptable method for validating research results (Silverman, 2000) and is an important element in a grounded theory approach. The use of tabulations by the author also acts as a further measure of validity:

there is no reason why qualitative researchers should not, where appropriate, use quantitative measures. Simple counting techniques, theoretically derived and ideally based on members' own categories, can offer a means to survey the whole corpus of data ordinarily lost in intensive, qualitative research. Instead of taking the researcher's word for it, the reader has a chance to gain a sense of the flavour of the data as a whole (Silverman, 2000: 185, 2001: 37).

The data collected by the author in the form of audio tapes, transcripts, additional notes, research diary and computer files comprise an audit trail (Lincoln & Guba, 1985) and are available for retrieval for the purposes of validity.

In terms of reliability, transcripts of audio recordings offer a highly reliable record to which researchers can return when developing theories (Silverman, 1993, 2001). Interviews, particularly those that use open-ended questions, enable the researcher to gather an 'authentic' understanding of people's experiences and it is this *authenticity* rather than *reliability* that is the real issue in qualitative research (Silverman, 1993). The author has endeavoured to maintain a chain of evidence (Yin, 1994); for instance, transcripts contain all the questions asked by the author in each of the interviews, the date of the interview has been recorded, and cited quotations can be traced back to the transcripts. The utilisation of a research diary is also an important aspect of this process of ensuring consistency when repeating data collection methods (Silverman, 2000) and the minimisation of errors and/or bias in a study (Yin, 1994).

Given the multifaceted nature of interview data it is important to be as rigorous as possible over the validity and reliability of the data. At an early stage of the data analysis process in case 1 a sample of participants offered to review the transcripts and confirm their accuracy. This was repeated in cases 2 and 3. The author decided to completely reanalyse the case 1 interviews. This was done to ensure rigour of process and to satisfy some lingering doubts from the case 1 phase, for instance:

The first [draft] of the data analysis for Case 1 is almost complete. But I feel I need to further refine the categories – Revisit all coding and where necessary create new categories or sub-categories. (a) This can take into account: EXPLICIT evidence + IMPLICIT

evidence (b) Take into a/c where in the past I have... not been totally certain if the coding fits 100% (?)...amalgamated codings (research diary entry 10th May, 2005)

Reviewing all of case 1 data at this stage ensured a comprehensive data treatment (Silverman, 2000) was carried out and that uncategorised activities could be reviewed as part of a reflexive process as defined by Alvesson, 2003:

conscious and consistent efforts to view the subject matter from different angles and avoid or strongly a priori privilege a single, favoured angle and vocabulary... This means challenging the initial interpretation and the researcher confronting himself or herself and possibly the reader with alternative views; these views may facilitate arriving at the “strongest” or most interesting interpretation and/or producing alternative ones, in which the study may offer more than one type of result (page 25).

It is often only over the course of the research that researcher discovers what the research is really ‘about’ (Hammersley & Atkinson, 1983).

Generalising results from a micro-study need to be treated with caution. A case study approach sets boundaries for the generalisation of data beyond the context of the study (Sayer, 2000) as the answers people give to interview questions do not necessarily have a stable relationship with how they behave in naturally occurring situations (Silverman, 2001). Inferences may be drawn when comparing cases if two or more cases are seen to support the same theory (Yin, 1994); although caution should be exercised when drawing inferences (Reio & Sutton, 2006; Slattery et al, 2006). Analysis of cases 1, 2 and 3 revealed, for instance, evidence of *informalisation* in all three cases (but to varying degrees).

The potential limitations of a reflexive approach are fourfold: firstly, unless the researcher focuses on all aspects of the research he/she is being *reflective* rather than *reflexive* (Weber, 2003). Reflexivity requires the researcher to understand the assumptions underpinning their research paradigm as well as the way in which they build theories, how data is collected and interpreted, and how it is written up. This is an ongoing, iterative process that has been captured by entries in the research diary. For instance, in arriving at a research paradigm that provided a framework for the project:

Since starting the project I have believed that my knowledge and understanding will take the form of an emergent reality. This approach reflects my belief that... whilst there may be only one reality (the external world) there can never be any notion of absolute truth or true knowledge. Different people will perceive, interpret and construct the external world in different ways and bring to any discussion (verbal or text) their own interpretation(s) of what that reality is... In terms of my epistemological approach at first my perspective was probably more in line with *constructivism*... but after more reflection I have shifted through *social constructivism* to *social constructionism*. At the present time though I am undecided as to the best way to analyse the transcripts of conversations with informants – a critical issue as I shall be seeking to *understand* the perspectives of informants; and then explain them (28th November 2002).

This extract reveals a lack of clarity to the author's thought processes at that time. For instance, the uncertainty of the statement, "To some extent I subscribe to realism"; the hesitancy about "the best way to analyse the transcripts of conversations with informants"; the use of the term "conversations" rather than "interviews". The adoption of a social constructionist perspective at that time reflected a research design with the group as the unit of analysis. The shift to the individual as the unit of

analysis required a corresponding philosophical shift to a different 'constructivist' perspective.

Secondly, the creation of an illusion (Burr, 2003) which is acknowledged in the following diary entry:

I need to develop my analogy (metaphor?) of my methodology equating to that of a film and I, as the researcher, being the film's director (including editing in which I reconstitute the 'story' into a compressed space of a 2hr movie). In effect I am taking elements (participants' accounts) of the whole and re-crafting these into an apparent whole (but film is an illusion!). From the different accounts I am taking chunks and reconstituting them as 'scenes'. The overall story arc is determined by my existing ideas etc (deductive) (artistic tendencies) and the emergent views of participants/actors (inductive). This analogy of being a film director parallels the REALIST paradigm (i.e. I am filming an (external) reality – unscripted – but as director I am setting parameters and deciding the scenes – interviews will be chopped up and remixed/constituted to tell a coherent story). In effect, I am re-editing reality (thesis) into an image that reflects my personal paradigm as well as the paradigm of participants. But am I making a film or a documentary? (research diary entry dated 9th July, 2004).

Thirdly, a degeneration into narcissism as the researcher falls in love with his/her own voice and neglects the voices of those being studied (Antonacopoulou & Tsoukas, 2002; Weber, 2003). Fourthly, there is the possibility of endless regression (Wetherell, 2001) or interpretations of interpretations (Giddens, 1991). Consequently, it is not surprising that reflexivity is frequently discussed as a 'problem' which threatens to undermine the efforts of the researcher (Davis & Klaes, 2003).

3.7 Summary

The diagram in figure 3.2 illustrates the component elements of the author's methodology from paradigm to the methods used.

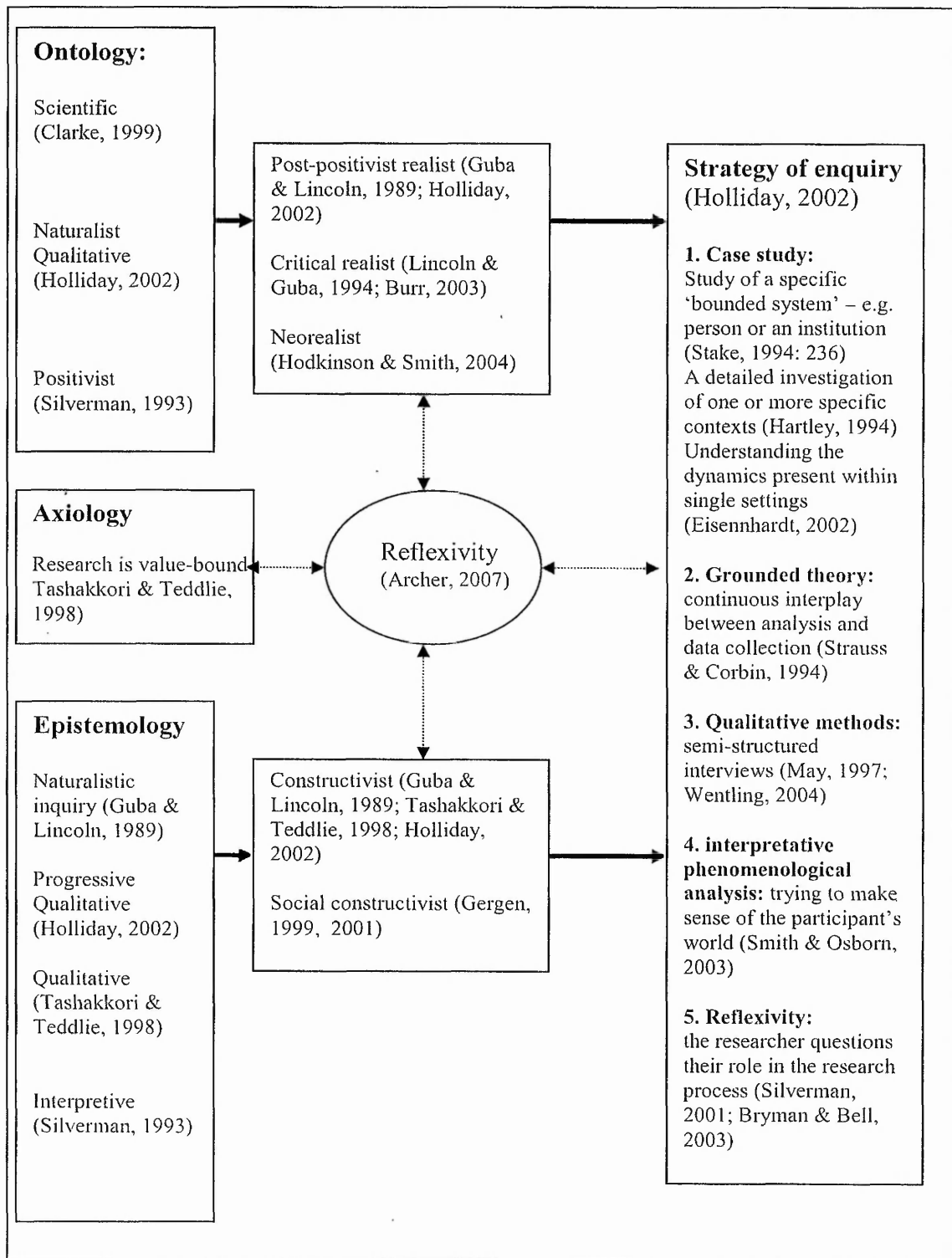


Figure 3.2: Diagram illustrating the principal components of the author's methodology

Chapter 4: Discussion and analysis of findings

Introduction and Participant interpretations of knowledge

4.1 Introduction

4.1.1 Case 1

Case 1 comprises an academic department of sixteen staff covering three subject groups, which have been labelled A, B and C. These subject groups are informal entities that do not appear on any formal organisational chart although a formal committee meets twice a year to discuss student issues in each subject area. Subject group C is located on a different campus to subject groups A and B. The head of department has his office on the same campus as the two latter subject groups. The twelve who agreed to be interviewed were the head of department (who was previously a member of subject group A), the specialist administrator (whose work is focused predominantly on subject A), seven members of subject group A and three members of subject group B (including the most recently recruited lecturer). The three members of subject group C declined the invitation to participate in the research along with one member of group B. The department is part of a business school (faculty) at a leading new university. The business school comprises six academic departments and a range of administrative and support functions. The business school employs just over 150 staff of whom 90-95 are in academic posts (the number fluctuated slightly over the course of the interviews).

Much of the data from case 1 revolves around what the participants call 'the house'. This building is located some distance from the main part of the campus. It was originally a semi-detached council house built in the 1930s that has since been purchased and converted into office accommodation. It is where the head of department and majority of staff in subject group A are located. The remaining members of subject group A along with those in subject group B are scattered around the campus. The landing and stairs in the house are described as the 'hub' of the department: this is where colleagues gather informally to chat and share ideas. Participants leave their office doors open so that they can listen in on any discussions and decide whether they wish to join in. Despite their official integration within the department only one person from subject group C regularly visits the 'house'. Colleagues in subject groups A and B located elsewhere on the same campus try to drop in whenever they can. The canteen, Tuesday morning coffee sessions in the main office block and corridors are the other loci for informal discussions. In addition various informal groups have emerged, such as the postgraduate course managers group (although as shall be seen this was subsequently formalised by management). Research-active participants are members of informal groups and/or networks within and without the university. Participants interested in teaching are often members of small informal groups that cluster around individual modules. Ten of the twelve participants are members of the same professional institute although many do not take advantage of the networking opportunities this offers.

4.1.2 Case 2

In case 2 the senior management team (SMT) comprised the dean and three assistant deans. The dean and two of the assistant deans are located on the same corridor so

that it is easy to pop in to each others' offices for informal discussions. The remainder of the corridor is occupied by administrative staff with the nearest academic staff being located on the floor above. The two assistant deans tend to operate an open-door policy. The third assistant dean has his office in a different building on the same campus. However, academics in the school would like to see members of the SMT wandering about and chatting to staff much more rather than always expecting staff to drop-in and see them. The SMT is characterised by conflictive intra-relationships although the dean has strong dyadic relationships with each team member. He is highly regarded by all members of the SMT.

Each member of the SMT has discrete responsibilities that involve regular contact with specific groups and individuals. These are predominantly formal interactions (e.g. committees and minuted meetings) although there is evidence of informal structures and processes (see analysis chapters). The SMT meets regularly on an informal and formal basis to discuss strategic and operational issues pertinent to the management of the business school. An extended SMT which includes department heads meets termly. Although case 2 is located in the same business school/university as case 1 the cultural analyses shown in the table below highlights differences in perception between these two groups of participants. In the interviews the dean highlighted the changing nature of the power relationship between the business school (faculty) SMT and the central SMT with the latter gradually eroding the business school's level of autonomy and imposing more financial controls.

4.1.3 Case 3

In case 3 the school of management is one of four schools in the business school (faculty level). The business school is part of a new university that tends to be ranked at the lower end of university league tables. The eleven participants include the head of the school of management; four members of subject group D including a former head of department (recently 'demoted' following a reorganisation); two members of group E; one member of group F; one member of group G; and, three administrators from the school of management. Half the interviews took place when participants were located in a 19th century building on one of the university's several campuses. This building was characterised by high-ceilings and wide corridors with academic staff having their own offices or sharing with a colleague. The remaining interviews took place after relocating to a modern purpose-built building characterised by larger, multi-shared and open-plan offices with large social spaces where staff, students and visitors can interact. Engrained habits and behaviours, such as keeping office doors shut, have been transferred from the old to the new building; reflecting a process of 'institutionalisation' (Beger & Luckman, 1991 [1966]).

All 80+ staff (academic and administrative) in the school of management report directly to the head of school who admits that such a flat structure and wide span of control does not work in practice. The university culture is highly bureaucratic and the head of school spends most of his time attending committee meetings at school, faculty and university levels. Participants highlight the poor level of formal communications within the university, the negative impact on staff interaction and morale that the closure of staff common rooms has had, and the conflictive nature of

intra- and inter-group relationships. The teaching fellowships group is highlighted as one of the few examples of good practice for collaborative work (along with several small informal groups comprising research-active staff). The university has been restructured several times since 1992.

The respective cultures of each case are analysed and summarised below. Although cases 1 and 2 are from the same organisation there are differences between the perceptions of academics (case 1) and managers (case 2). There are also some contradictions evident within each case. This approach to the analysis of culture does have limitations (for instance, see Alvesson, 2002).

Table 4a: Cultural analysis of cases

	Case 1	Case 2	Case 3
Symbols and artefacts; surface manifestations	<p>Informal dress code (smart, business-like attire; handbags used by female academics) creates a shared professional identity that group members take pride in; open doors in house; gathering on stairs and landing (the house is both a cultural artefact and symbol).</p> <p>Inter-group rivalry and tensions.</p>	<p>Information displayed on notice-boards along the SMT corridor (e.g. covers of textbooks written by staff; media items about the school; national league tables) creates a sense of civic pride in the business school's achievements. Open office doors (not the dean).</p> <p>High levels of intra-group conflict and tension.</p>	<p>University restructures; committee structure (and associated meetings); university regulations; closed office doors.</p> <p>High levels of inter-group and intra-group conflict and tension.</p> <p>Fragmented and dysfunctional culture.</p>
Espoused values	<p>Competitive. Participants talk the language of a work hard, play hard culture (Deal & Kennedy, 1982).</p> <p>Collaboration and team-work emphasised at subject group level.</p>	<p>A prospector (Miles & Snow, 1978) and enterprise culture (McNay, 1995) is promulgated by SMT members [although an amalgam of regulation ('bureaucracy') and executive power ('corporation') cultures (McNay, 1995) and defender culture (Miles & Snow, 1978) is more in evidence]</p>	<p>Unclear. Lack of clarity to strategic direction; lack of overarching values.</p>

		Collaboration, communications and involvement are espoused.	
Underlying/Tacit assumptions	<p>High commitment to subject group; high levels of trust and mutual support between colleagues in the same subject group; shared meanings are understood intuitively; sub-cultures exist – participants' own group is seen as unique in the business school.</p> <p>Lack of confidence in bureaucratic structures and processes.</p> <p>Low trust in management. SMT seen as detached.</p> <p>Resistance to change (they want to preserve the house).</p>	<p>Low risk-taking and reliance on formal, bureaucratic processes; executive power and centralised control is emphasised. Increasing emphasis on efficiency and cost reduction.</p> <p>Tensions between people- and control-oriented approaches that reflect the impact of new managerialist ideology on how the business school is managed.; SMT subscribe to 'culturalism' (i.e. managers can manipulate culture) (Trowler, 2008); monolithic culture is believed to exist.</p> <p>Lack of understanding about the nature of informal structures and processes.</p> <p>Resistance to change (not open to alternative approaches to managing the business school).</p>	<p>Low risk-taking and reliance on formal, bureaucratic processes; strong emphasis on efficiency and cost reduction.</p> <p>Distrust of management: exploitation of goodwill; high levels of intra-group conflict and tension; lack of community ethos at faculty level.</p> <p>Resistance to change (there is a real sense that participants have been worn down by the number of changes and restructurings that have taken place since 1992).</p>
Structures	Bureaucratic; tall	Bureaucratic; tall	Bureaucratic; flat
Communications and knowledge flows/role of technology	Lateral at subject group and network level (predominantly informal); vertical at department and faculty levels (predominantly formal and often focused on information). Very limited use of technology. Heavily reliant on written communications.	Lateral among SMT members; vertical within faculty (mainly through formal mechanisms with an emphasis on passing on information). Very limited use of technology.	Predominantly formal and vertical (often information) with some examples of informal lateral: emphasis on the 'grapevine' (although this is criticised for being unreliable). Email is popular.
Governance	Corporate governance model (although staff aspire to a shared or collegial governance model) (Trakman,	Amalgam of stakeholder and corporate governance models (Trakman, 2008)	Corporate governance model (Trakman, 2008)

	2008)		
Cultural descriptors	Role culture (Handy, 1993); process culture; managerial culture (Berquist, 1992).	Role culture (Handy, 1993)); managerial culture (Berquist, 1992); power culture (Harrison, 1972); strong process culture (Deal & Kennedy, 1982).	Role culture (Handy, 1993); managerial culture (Berquist, 1992); strong process culture (Deal & Kennedy, 1982); defender culture (Miles & Snow, 1978).
Implications	<p>Problem-solving, innovation in teaching and learning, decision-making, sharing of information, developing academic skills, collaboration all occur as a natural by-product of day-to-day informal social interaction within specific micro-contexts characterised by high levels of trust.</p> <p>Ambiguous nature of academic identity; concerned about the erosion of academic autonomy.</p>	SMT members as professional managers rather than administrators; shift in power relationship between faculty SMT and university central SMT (the new managerialism or corporatist approach is impacting on how the SMT manage the business school and, in turn, how the business school itself is managed).	<p>Limited examples of innovation and much lower levels of informal collaboration than in case 1 (reflecting general disillusionment of staff).</p> <p>Ambiguous nature of academic identity; erosion of academic autonomy.</p>

Throughout the analysis chapters participants are referred to by pseudonyms, which preserve gender, along with additional identification data in a parenthesis. This additional data comprises the letter signifying their subject group or an abbreviation for management and administrative staff. These signifiers are always preceded by the case number (i.e. 1, 2 or 3). A full list of participants is shown below which contains additional information which can be supplemented further by referring to the appendices.

Table 4b: Participant profiles

Case 1	Case 2	Case 3
<p>Bruce (1HOD): is head of department and is based in the house. He identifies primarily with the department. He appreciates the extent to which the house environment is conducive to knowledge sharing, recognises that this is an emergent and organic feature but still wants to relocate to an office block so that all department members are located together. He previously worked in the private sector as a senior manager.</p>	<p>Peter (2SMT): has been in post as dean for six years and believes in developing relationships with the assistant deans based on mutual trust and respect. He is well liked by other members of the SMT. He is conscious of increased managerialist pressures on his role that are now compromising his people-oriented approach to the management of the business school. Before joining the university in the late 1980s he worked in the financial sector.</p>	<p>George (3HOS): is head of the school of management and identifies primarily with the school. He is critical of the decision to close down staff common rooms and recognises the benefits of informal structures and processes. He feels overwhelmed by the number of committee meetings he has to attend. He is a career academic who has worked at the university for just over 20 years.</p>
<p>Kirk (1A): is a principal lecturer not located in the house. He does not see himself as a full member of his subject group but still identifies with this informal group rather than the department. He describes the subject group as his 'home'. His principal interest is teaching and course management. Previously worked in the private sector and changed careers in his mid-40s. Has worked at the university for nearly ten years.</p>	<p>Mack (2SMT): is an assistant dean. He is seen as something of a maverick in his approach. He recognises the importance of informal structures and processes but from a one-way perspective only (i.e. to confirm SMT perspectives). He networks extensively. He has worked at the university for over ten years having previously worked as a manager in the public sector.</p>	<p>Nancy (3Ad): provides administrative and secretarial support to George. She is very protective of George and highly critical of senior management. She describes the university as 'a mess'. She has worked at the university for 3 years having previously worked in a number of secretarial posts.</p>
<p>Bobby (1A): is a senior lecturer whose outlook is different to all his department colleagues in that he identifies with broad academic communities rather than discrete informal groups or departments. His principal interest is teaching. He has worked at the university for five years and previously worked for a multinational and then as an independent training and development consultant.</p>	<p>Tom (2SMT): is an assistant dean who stresses the need for order and systems but also recognises the role of informal structures and processes. He has strong administrative skills. There is a high level of mutual dislike between himself and Mack. He has worked at the university for nearly ten years having previously been a manager in the manufacturing and voluntary sectors.</p>	<p>Kate (3D): is a senior lecturer who identifies primarily with her professional occupation rather than any university group. Her principal interests are research and teaching. She spent her twenties working in a professional role before embarking on an academic career 14 years ago. She is a member of a professional institute.</p>
<p>Elsie (1A): is a senior lecturer who has rejoined the subject group after working in a central department for several years. She is trying to reintegrate herself and feels this is made more difficult because she is not based in the house. Her principal interest is teaching. She has worked for the university for 15 years and spent three years on secondment to a leading blue chip company.</p>	<p>Art (2SMT): is an assistant dean who has a non-academic background. Neither Mack nor Tom regard him as a 'proper' member of the SMT. He has strong entrepreneurial skills and is highly people-focused. He admits that he and Mack do not get on. His background is highly varied and at one point he ran his own SME with a multi-million pound turnover.</p>	<p>Liz (3D): is a principal lecturer who feels colleagues do not appreciate her work and the contribution she makes. She is primarily interested in research and networks informally with colleagues from a different group. She has worked at the university for 2 years and is a career academic apart from a short spell working for a trade union in her twenties.</p>

<p>She is a career academic.</p>		
<p>Joanne (1A): is a principal lecturer who is based in the house. She is an active researcher and networks within and outside the university. She values highly the level of knowledge sharing experienced in the house. She is a career academic.</p>		<p>Sophie (3D): is a lecturer interested in teaching and research; and is an active networker through the teacher fellowship scheme. Her primary identity is shared between her subject group and the teacher fellows group. She is a career academic. She is a member of a professional institute.</p>
<p>Jilly (1A): is a senior lecturer who is based in the house and whilst recognising the high levels of knowledge sharing and mutual support found in the house she prefers to restrict her contributions to work-related matters only. Her principal interest is teaching plus some research. She previously worked in the FE sector.</p>		<p>Maggie (3D): is a former head of department and feels very negative about recent changes. She believes that informal structures and processes are being stifled by overly bureaucratic formal structures and processes. She sees herself in a brokering role. She is a career academic and has worked at the university for over 20 years. She is a member of a professional institute.</p>
<p>Meryl (1A): is a senior lecturer who is based in the house and is one of the most vocal in her criticisms of the university. She is also very critical of subject groups B and C (in stark contrast to her comments about subject group A). Her principal interest is teaching plus some research. She ran her own small business before joining the university 3 years ago.</p>		<p>Phil (3E): is a senior lecturer very critical of management and the levels of stagnation and inertia within the school and faculty. His primary source of identity is a small informal group within his subject group. He has worked at the university for 13 years having joined from industry (8 years experience). He is a career academic.</p>
<p>Zoe (1A): is a senior lecturer who is based in the house and is also highly critical of the university describing the business school as 'a joke'. Her primary interests are research and teaching research methods. She worked previously for the government (as a researcher) before joining the university in the mid 1990s.</p>		<p>John (3E): is a senior lecturer and technically a member of subject group E but works in a specialist academic development role that is detached from that group. He is very critical of the lack of any community ethos in the faculty. He is a career academic who started his academic career in a different country. He has worked for the university for 2 years.</p>
<p>Craig (1B): is a principal lecturer who places little value in his membership of the department and rarely attends department meetings. He is intensely loyal to his subject</p>		<p>Tony (3F): is a senior lecturer who identifies primarily with his subject group which he feels functions as a community. He has informal social networks externally which reflect his</p>

<p>group colleagues (particularly Richard). His primary interest is course management. Prior to joining the university he worked as a senior manager in the retail sector.</p>		<p>interest in research but he does not network internally beyond the boundaries of the school of management. He worked previously as a manager in the private sector.</p>
<p>Richard (1B): is a principal lecturer who is totally dismissive of the department and is also intensely loyal to his subject group colleagues (particularly Craig). His primary interest is course management. He has worked at the university for 6 years and was previously a director for the subsidiary of a well known blue chip company.</p>		<p>Annie (3G): is a senior teaching fellow and identifies primarily with the teaching fellows network. She is the only participant to claim any allegiance to the university. She networks internally rather than externally. She has over 30 years academic experience, most of which has been spent at the case 3 university.</p>
<p>Mary (1B): is a senior lecturer who has recently joined the department and is based in the house. She is full of praise for her house colleagues and the level of support and knowledge sharing she has encountered there. She is highly critical of the business school. Her primary interests are teaching and scholarly activity. She is a career academic.</p>		<p>Marilyn (3Ad): is an administrator who identifies primarily with the faculty rather than the school of management although her administrative role is school focused. She has worked at the university for nearly 20 years having joined after she left school.</p>
<p>Hayley (1Ad): is an administrator based in the house and most of her work focuses on subject group A. She recognises the benefits of working in the house. Has over 20 years administrative experience.</p>		

A fuller description of each participant, along with individual relationship maps, is shown in the appendices Table 4c lists some of the principal examples of formal and informal groups and processes in all three cases.

Table 4c Principal examples of formal and informal groups and processes in cases

Case	Formal	Informal
1	Department – meetings	The house – collaborations and discussions
	The business school – formal committee meetings (e.g. teaching and learning committee).	Subject groups (A and B) – collaborations and discussions
	The university – formal committee meetings	Module teaching teams
		Research networks
		Course managers group
		Tuesday morning coffee sessions (main campus building)
		Canteen
2	SMT meetings	Corridor
	Extended-SMT meetings	Module teaching teams
	The business school – formal committee meetings (e.g. teaching and learning committee).	Canteen
3	School of management	Canteen
	Teaching fellows: teaching and learning committee	Teaching fellows: informal network
		Subject departments (no heads of department)

4.2 Research question and associated proposition(s)

The original research question and associated proposition(s) is shown in table 1 below.

Table 4.1 Original research question and associated proposition(s)	
Research question	Proposition
1. What do individuals claim constitutes knowledge?	<p>1.1 Universities are characterised by particular types of knowledge:</p> <p>i personal knowledge: comprising ‘knowledge of’ and ‘know-how’.</p> <p>ii codified academic knowledge: embedded in texts and databases.</p> <p>iii uncodified cultural knowledge: the cultural practices of teaching, studentship, scholarship, and research.</p>

In cases 1 and 2 participants were asked to define knowledge. In case 3 it was decided to explore whether a participant definition would emerge as part of the interview discussion. Several participants in case 1 struggled to articulate a definition of knowledge: an illustration of Alvesson's (1993) observation that it is extremely difficult to define the concept. For instance:

I think knowledge is information that can be used, knowledge is...more than just information... it's a whole range of facts and experiences, of interpretations, of experiences, interpretation of events and occurrences, of experimentation, of hypotheses and, proofs that provide a resource that can be used to help interpret future events or occurrences (Craig, 1B).

Knowing how, knowing for sure, the truth. Possibly, knowledge is truth, knowledge is power...I don't know... Interpreting...information and putting it into a relevant concept...but information doesn't necessarily imply a skill, whereas knowledge does. You can read all the books you like about the theory of something but knowing how to do it means that you have knowledge (Jilly, 1A).

The range of participant definitions of knowledge are summarised in table 4.2. Differences in participant definitions reflect the multi-faceted nature of the concept (Nonaka, 1994; Blackler et al, 1998; Bertels & Savage, 1998; Ahmed *et al*, 2002; Patriotta, 2003). As Peter (2SMT) explains, the problem is that "everybody's perception of knowledge is going to be different". Defining knowledge in terms of its relationship to information is consistent with a body of literature on organisational knowledge (for instance, see Leonard & Sensiper, 1998; Burton-Jones, 1999; Huseman & Goodman, 1999; Davenport & Prusak, 2000; Hager, 2000). Four of the

five participants refer to knowledge as transcending information, using terms such as ‘interpretation’ and ‘judgement’ to express this process. The most popular perspectives were the reification of knowledge which emphasises the explicit or propositional dimension of knowledge: how it can be articulated (Winter, 1987; Hedlund, 1994) and codified (Bierema & Eraut, 2004); and the tacit or practical dimension of knowledge. However, the majority of the latter were in case 1 only. References to ‘truth’ (and “factual accuracy”) reflect the extent to which some participants are influenced by traditional epistemology which focuses on ‘truthfulness’ as the essential attribute of knowledge (Nonaka, 1994). Art (2SMT) was the only participant to offer a constructivist definition of knowledge suggesting participants have a lack of familiarity with second wave concepts.

Table 4.2: Participant definitions of knowledge
(the number of participants offering each definition is indicated in brackets)

	Case 1	Case 2	Case 3
Knowledge is defined in terms of its relationship to information	<p>The collection of facts, data and information (1)</p> <p>The accumulation of information from different media and the ability to deploy that information in different situations (1)</p> <p>Information and how to interpret it (1)</p>	<p>Largely information (1)</p> <p>Information that is interpreted (1)</p>	<p>Information (1)</p> <p>Exercising judgement about information (1)</p>
Knowledge is objectified (reified)	<p>Having lots of knowledge about the subject or to give to others (4)</p> <p>There’s knowledge flying and floating around here (Joanne)</p> <p>Facts about something (2)</p>	<p>Stuff that is outside me (1)</p>	<p>A body of knowledge that can be transferred, disseminated or exchanged (3)</p> <p>Having knowledge (1)</p> <p>Having a lot of experience (1)</p>
The practical dimension of knowledge is emphasised	<p>Practical experience (5)</p> <p>The interpretation of experience (1)</p> <p>Professional expertise or</p>	<p>Wider experience (1)</p>	<p>Experience (1)</p>

	expertise (2) Practice Knowing how to do something (1) The softer skills (1)		
Knowledge is about truth	Knowledge is truth (1)	Something that is known and is truth and therefore has a factual accuracy (1) The truth about something (1) Not knowing about the reality of something (1)	
Knowledge is socially constructed		Knowledge is essentially constructed (1)	

The author was intrigued that participants struggled to define the concept given their academic roles. “Most researchers, as well as their informants, seem to have problems in specifying and making explicit what they refer to as knowledge and as ways of knowing” (Alvesson & Kärreman, 2001: 1014). Yet, participants act as supervisors for undergraduate and/or postgraduate dissertations on a regular basis. Several are actively engaged in research. No one referred to the different ontological and epistemological paradigms that exist when attempting to define and explain the concept of knowledge. What does this suggest? Perhaps it is difficult for participants to relate to or transfer academic propositional knowledge from the classroom to the work context. It may be that although defining concepts and explaining alternatives is an everyday aspect of academic practice, the utilisation of this knowledge is compartmentalised and restricted to classroom settings.

4.3 Quantitative analysis of the data

4.3.1 The tacit-explicit distinction

Quantitative analysis reveals that explicit (i.e. propositional or articulated) knowledge accounts for only a minority of the total number of incidences of ‘types’ of knowledge identifiable in the transcripts (i.e. 29.2% in case 1; 29.3% in case 2; 17.3% in the case 1 house) The reason for this apparent contradiction is aptly captured by Tony (3F): “intuitively we sort of know the world is not a positivist one”. The data in table 4.2 above reveals how participants differentiate between the tacit and explicit dimensions of knowledge (Ryle (1990 [1949]); Polanyi (1962, 1967)).

Examples of informal knowledge sharing within the house (case 1), the corridor (case 2), and the canteen (case 3) illustrate that while tacit (i.e. practical) and explicit (i.e. propositional) knowledge can be referred to as ‘types’ of knowledge they are, in effect, two inter-related or intertwined dimensions of the same thing (Lam, 2000; Tsoukas, 2005). The house (case 1), in particular, is a very good example of the action-oriented and context-specific nature of knowledge (Nonaka, 1994; Lam, 2000; Ambrosini & Bowman, 2001). Discussions focus predominantly on the practices of teaching and learning, and of research, and involve the utilisation and development of both propositional and practical knowledge.

4.3.2 A typology of knowledge

Analysis of the three cases reveals a typology of knowledge which has been coded from T1 to T8 and is shown below in table 4.3 (see appendix 2 for a more detailed

explanation of each T code including illustrative data examples). This tendency to refer to types of knowledge is characteristic of the literature generally.

T1	Individual practical knowledge	Personal knowledge (embodied)
T2	Group practical knowledge	Group knowledge (embedded) where the informal group or social network lies predominantly within the faculty's formal and informal structures and processes
T3	Organisation practical knowledge	Group knowledge (embedded) where the informal group or social network lies predominantly outside the faculty and within the organisation's formal and informal structures and processes
T4	Individual propositional knowledge	Personal knowledge (codifiable)
T5	Group propositional knowledge	Group knowledge (encoded) that is located primarily within the faculty
T6	Organisation propositional knowledge	Group knowledge (encoded) that is located primarily outside the faculty and within the organisation
T7	Group practical knowledge	Group knowledge (embedded) where the informal group or social network lies predominantly outside the organisation's formal and informal structures and processes
T8	External propositional knowledge	Knowledge (encoded) that is located primarily within the public domain

4.3.3 T1 (practical) and T4 (propositional) knowledge explained

T1 (practical) and T4 (propositional) constitute personal knowledge (Eraut, 2001) and reflect an individual's cognitive structures (Billett, 1994). The use of the term practical knowledge reflects the embodied nature of knowledge (Baumard, 1999; Morçöl, 2005) and its action orientation (Clarke, 2005). This type of knowledge is difficult to articulate (Von Krogh, 1998; Hinds & Pfeffer, 2003) which is illustrated by Jilly (1A) who explains that "it's not always easy to convey what you're expecting the tutor to do". The emphasis is on knowing how to do something; and this underpins both academic practice (e.g. Mary 1B: learning how to become a teacher; Zoe 1A: learning how to rewrite module guides; Meryl 1A: collaborative writing) and management practice (e.g. Craig 1B and George 3HOS: how best to manage). T4 is propositional knowledge that an individual possesses although in an academic context such knowledge can easily become "dated" (George 3HOS).

The opening proposition in table 4.1 above focuses on traditional interpretations of academic practice (i.e. research and teaching). Analysis of the transcripts reveals the existence of what the author has termed *working* knowledge (i.e. involving organisational policies, rules, procedures and systems). For instance: "knowledge of the rules, policies, procedures, how the university works" (Tom, 2SMT); "operational knowledge of how things work around here" (Craig, 1HOD). Consequently, working knowledge as well as academic knowledge incorporates 'uncodified cultural knowledge' (Alvesson, 1993; Bierema & Eraut, 2004) which Eraut (2004:202) argues "plays a key role in most work-based practices and activities". Richard (1B) describes

this as cultural 'awareness or sensitivity'. However, there is also a codified, propositional aspect to cultural knowledge which needs to be recognised.

4.3.4 T2 (embedded practical) and T5 (encoded propositional) explained

T2 represents knowledge that is socially constructed as a result of social interaction between two or more individuals, typically within an academic community or social network, and drawing upon their practical knowledge. In this sense, practical knowledge is embedded within a group or social network that is located predominantly within the immediate case context (i.e. the business faculty). T2 knowledge accounts for 47.0% in case 1, 57.9% in case 2 and 40.6% in case 3 of the total 'T' references in each of the cases. This supports the view that practical knowledge can be the property of a group as well as an individual (Kogut & Zander, 1992; Spender, 1996; Cook & Brown, 1999; Gourlay, 2004). The lower percentage in case 3 reflects the greater degree of tension and conflict apparent in this particular case. The percentage in case 2 reflects the existence of dyadic relationships between the dean and his assistant deans, rather than SMT intra-group relationships as a whole, which are characterised by tension and conflict. In this sense, the dean is holding the group together and if he did not perform this role the incidence of T2 in case 2 would probably be much lower.

T2 examples illustrate the context-specific nature of socially constructed (shared) knowledge (Lave & Wenger, 1991; Brown & Duguid, 1998; Hansen, 1999; Lam, 2000) which are characterised by mutually supportive or "close knit" (Phil 3E)

relationships illustrative of strong ties (Granovetter, 1973). Social interaction is an ongoing process centred on a particular aspect of practice:

we talk regularly about the modules, particularly at the beginning when we're setting programmes and setting assessments, thinking about what we're going to teach, reviewing the programme from last year. And then throughout...we're just sort of liaising as and when. At the end we get together a lot more, to review...to look at the feedback...and then to review it for the next session (Sophie, 3D).

Further examples from the data illustrate how such informal knowledge sharing processes are triggered by routines (Nelson & Winter, 1982) that have consolidated over time (Patriotta, 2003). For instance, the way in which informal knowledge sharing occurs: on the landing in the house (case 1); within module teaching teams (cases 1 and 2); and, within the teaching fellows network (case 3). In case 2, Peter (2SMT) believes involving academic staff in formal strategic planning groups is one way the organisation can establish new routines that utilise the expertise of academics:

in the same way as the marketing strategy group, which makes use of expertise within the school, I mean, here we are, we've got HR specialists in the school and at long last, after many years, we actually sit down with the HR specialists in the school and ask them what they think of the way we do things.

T5 is the explicit dimension to T2 knowledge; but it is more than just codified academic knowledge that is "embedded in texts and databases" (Bierema & Eraut, 2004: 63). For instance, Craig (1B): "there's knowledge of...what we've done in the past, what we've tried and failed, what we tried and was successful, what the

environment was like then". This example also illustrates the concept of community memory (Orr, 1990). The strong ties (Granovetter, 1973) that characterise social relationships underpinning T2 knowledge influence T5 knowledge. For instance, Meryl (1A):

We were discussing plagiarism this morning at 9 o'clock. We were discussing different [subjects] or intra, intra-school, intra-business school problems with how different people deal with issues over plagiarism, today. We were discussing other academics in [subject A], academics in other universities yesterday morning, what their output was and where they were moving to, and that kind of thing. We discuss all sorts of, 'have you seen this in the paper?' whether it's topical for current affairs or whether it's marketing practitioner news. We discuss non-business school stuff...We're quite a close [group], we get on very well. Quite a lot of us have families and so there's a lot of chatting about those sorts of things as well.

T5 knowledge also comprises the codified dimension of *working* knowledge that enables participants to carry out their roles. This working knowledge is encoded in the policies, procedures and routines of the business school. As with T4 knowledge, T5 knowledge is also expressed in terms of knowing who knows what (Kogut & Zander, 1992) which involves transactive memory:

when I first started my job I was able to pick up everything very quickly...I just understand the rules and procedures...and now, having an understanding of how a university works, although my knowledge for this university is specific, I know who everybody is (Marilyn 3Ad)

4.3.5 T3 (embedded practical) and T6 (encoded propositional) explained

T3 constitutes practical knowledge that is embedded within a group or social network which is located predominantly outside the business school and predominantly within the parent organisation (i.e. rest of the university). T3 knowledge shares the same characteristics as T2 knowledge. However, a comparison of the data analysed quantitatively reveals that T3 references are 3.5%, 6.0%, and 10.0% respectively in cases 1, 2 and 3. These are significantly lower than those for T2 knowledge (i.e. 47.0%, 57.9% and 40.6%) indicating the low levels of internal networking in all three cases. T6 knowledge shares the same characteristics as T5 knowledge. It is a mix of codifiable subject or discipline knowledge and codifiable working knowledge (e.g. university-wide policies and procedures rather than business faculty specific ones). A quantitative analysis of the data shows that T6 references are 2.1%, 0.8% and 8.1% respectively for cases 1, 2 and 3 (in comparison to 11.7%, 12.0% and 12.3% for T5 data). The author anticipated that case 2 participants would cite more examples of university-wide policies and procedures. That this did not happen reflects (a) the level of autonomy the business school has, and (b) the general dissatisfaction with university fora expressed by the participants.

4.3.6 T7 (embedded practical) and T8 (encoded propositional) explained

Codes T7 and T8 refer to groups and networks that are predominantly external to an organisation. Craig (1B) articulates the potential benefits of such networks:

there's a whole range of experiential knowledge that people bring with them from what they do outside the university and what they've done before

However, a quantitative analysis of the data shows that T7 references for cases 1, 2 and 3 are 5.7%, 6.0% and 13.1%; and 3.5%, 0.8% and 1.9% respectively for T8. These indicate that there is evidence of external network activity, although this is still relatively low (and much lower than the author had anticipated). Most networks in the three cases involve research-active participants who are in a minority. The three cases also demonstrate little evidence of commercial activities, another potential source of networks.

4.3.7 A quantitative analysis of the mix of knowledge types in each case

Participants made more references to practical knowledge than to propositional knowledge (see table 4.3 below: for reasons of space in the tables practical knowledge is described as tacit and propositional as explicit). The total percentages for each are remarkably similar for cases 1 and 3; and show only a small variation to case 2 figures. T2 (group practical) is the most significant code in all three cases demonstrating that practical knowledge can be the property of a group as well as an individual (Kogut & Zander, 1992; Spender, 1996; Cook & Brown, 1999; Gourlay, 2004).

Table 4.4 Data on all contexts in each case

	T1	T2	T3	T7	Total Tacit	T4	T5	T6	T8	Total Explicit
Case 1	70 (14.6%)	225 (47.0%)	17 (3.5%)	27 (5.7%)	339 (70.8%)	57 (11.9%)	56 (11.7%)	10 (2.1%)	17 (3.5%)	140 (29.2%)
Case 2	5 (3.8%)	77 (57.9%)	8 (6.0%)	8 (6.0%)	98 (73.7%)	17 (12.8%)	16 (12.0%)	1 (0.8%)	1 (0.8%)	35 (26.3%)
Case 3	18 (7.0%)	105 (40.6%)	26 (10.0%)	34 (13.1%)	183 (70.7%)	18 (7.0%)	32 (12.3%)	21 (8.1%)	5 (1.9%)	76 (29.3%)

Subsequent analysis reveals that in cases 1 and 3 the percentage of practical knowledge decreases as the context becomes less local. This illustrates the context-specific nature of practical knowledge and the limited engagement of participants in wider business school and university level groups (over an above duties associated with specific formal groups and committees). For instance, in case 1 the total practical percentage decreases as follows: 82.7% (the house), 76.4% (the subject group), 68.0% (the department), 58.3% the business school, 55.6% (the university) (see tables 1 in appendix 3). A broadly similar trend is evident also in case 3. In case 2 the ratio of tacit to explicit incidents increases for networks and decreases for formal groups.

Tables 4.5 and 4.6 compare the data between informal and formal structures within each case. Informal structures and processes comprise: subject groups (case 1 only), departments (case 3 only – these are being treated as quasi-informal groups), internal and external networks, course managers' group (case 1 only), informal SMT activities (case 2 only), and team teaching activities (cases 1 and 3 only).

Table 4.5 Data by informal structures and processes

	T1	T2	T3	T7	Total Tacit	T4	T5	T6	T8	Total Explicit
Case 1	48 (16.3%)	137 (46.4%)	11 (3.7%)	26 (8.8%)	222 (75.3%)	34 (11.5%)	22 (7.5%)	5 (1.7%)	12 (4.0%)	73 (24.7%)
Case 2	1 (2.2%)	29 (64.4%)	8 (17.8%)	6 (13.3%)	44 (97.8%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (2.2%)	1 (2.2%)
Case 3	16 (9.4%)	66 (38.8%)	14 (8.2%)	34 (20.0%)	130 (76.5%)	17 (10.0%)	16 (9.4%)	2 (1.2%)	5 (2.9%)	40 (23.5%)

Formal structures and processes comprise: university committees and groups, business school/faculty committees and groups, departments (case 1 only), school of management excluding departments (case 3 only), formal committees and groups, and the SMT and extended SMT (case 2 only).

Table 4.6 Data by formal structures and processes

	T1	T2	T3	T7	Total Tacit	T4	T5	T6	T8	Total Explicit
Case 1	22 (12.0%)	88 (47.8%)	6 (3.3%)	1 (0.5%)	117 (63.6%)	23 (12.5%)	34 (18.5%)	5 (2.7%)	5 (2.7%)	67 (36.4%)
Case 2	4 (4.6%)	48 (54.5%)	0 (0.0%)	2 (2.3%)	54 (61.4%)	17 (19.3%)	16 (18.2%)	1 (1.1%)	0 (0.0%)	34 (38.6%)
Case 3	2 (2.2%)	39 (43.8%)	12 (13.5%)	0 (0.0%)	53 (59.6%)	1 (1.1%)	16 (18.0%)	19 (21.3%)	0 (0.0%)	36 (40.4%)

Tables 4.5 and 4.6 again illustrate the remarkable similarity between cases 1 and 3 in relation to the practical and propositional percentages; although there are variations within these totals that reflect contextual differences between the cases (for instance, the relatively higher level of network activity in case 3). The ratio of practical to

propositional is very similar for cases 1 and 3 for both informal (3:1 and 3:2 respectively) and formal structures and processes (1.7: 1 and 1.5: 1 respectively). The data for case 2 is different for informal structures and processes but remarkably similar for formal structures and processes. Unlike cases 1 and 3 the data in table 4.5 relates to informal processes only apart from networks. In terms of the informal, there is only one reference to explicit knowledge illustrating the emphasis participants place on practical knowledge in informal face-to-face interactions. Consequently, a key difference between the cases is that academic practice involves both informal structures and processes whereas management practice involves informal processes only.

Informal structures and processes are crucial to academic practice (1 and 3) with the ratio of informal to formal being 1.6:1 (case 1) and 1.9:1 (case 3). In contrast, they are less critical to management practice (a ratio of 0.5:1 in case 2) and are regarded primarily as a means for consulting staff and obtain feedback on issues. Table 4.7 focuses on informal structures and processes. It compares case 1 subject groups with case 3 departments and SMT-informal activities in case 2. Table 4.8 compares informal networking processes. In both tables the total practical and propositional percentages for cases 1 and 3 are remarkably similar. This is in line with previously noted similarities.

Table 4.7 Data by subject group level

	T1	T2	T3	T7	Total Tacit	T4	T5	T6	T8	Total Explicit
Case 1	30 (20.3%)	82 (55.4%)	0 (0.0%)	1 (0.7%)	113 (76.4%)	17 (11.4%)	12 (8.1%)	1 (0.7%)	5 (3.4%)	35 (23.6%)
Case 2 (SMT Informal)	1 (4.8%)	19 (90.4%)	1 (4.8%)	0 (0.0%)	21 (100.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Case 3	12 (13.8%)	50 (57.5%)	1 (1.1%)	2 (2.3%)	65 (74.7%)	11 (12.6%)	10 (11.5%)	0 (0.0%)	1 (1.1%)	22 (25.3%)

Table 4.8 Data by networks

	T1	T2	T3	T7	Total Tacit	T4	T5	T6	T8	Total Explicit
Case 1	2 (3.0%)	14 (21.2%)	11 (16.7%)	23 (34.9%)	50 (75.8%)	3 (4.5%)	4 (6.1%)	2 (3.0%)	7 (10.6%)	16 (24.2%)
Case 2	0	5 (27.8%)	6 (33.3%)	6 (33.3%)	17 (94.4%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (5.6%)	1 (5.6%)
Case 3	2 (3.0%)	5 (7.5%)	13 (19.4%)	32 (47.7%)	52 (77.6%)	6 (9.0%)	3 (4.5%)	2 (3.0%)	4 (5.9%)	15 (22.4%)

Tables 4.9 and 4.10 compare different formal groups in the three cases. Table 4.11 compares teaching in cases 1, 2 and 3. Limited data from cases 2 and 3 has impacted on comparisons in tables 4.10 and 4.11. It is possible to discern and conclude, tentatively, from tables 4.9 and 4.10 that at these formal levels (termed the medial-context by the author) there are some broad similarities between cases.

Table 4.9 Data by department

	T1	T2	T3	T7	Total Tacit	T4	T5	T6	T8	Total Explicit
Case 1 (Dept)	17 (16.5%)	50 (48.5%)	2 (1.9%)	1 (1.0%)	70 (68.0%)	16 (15.5%)	10 (9.7%)	2 (1.9%)	5 (4.9%)	33 (32.0%)
Case 2 (SMT)	2 (3.6%)	30 (54.6%)	0 (0.0%)	1 (1.8%)	33 (60.0%)	13 (23.6%)	9 (16.4%)	0 (0.0%)	0 (0.0%)	22 (40.0%)
Case 3 (school of Mgt)	2 (4.2%)	30 (62.5%)	1 (2.1%)	0 (0.0%)	33 (68.8%)	1 (2.1%)	12 (25.0%)	2 (4.1%)	0 (0.0%)	15 (31.2%)

Table 4.10 Data by business school or faculty

	T1	T2	T3	T7	Total Tacit	T4	T5	T6	T8	Total Explicit
Case 1	4 (5.5%)	38 (52.8%)	0 (0.0%)	0 (0.0%)	42 (58.3%)	5 (6.9%)	24 (33.3%)	1 (1.4%)	0 (0.0%)	30 (41.7%)
Case 2	2 (12.5%)	7 (43.8%)	0 (0.0%)	0 (0.0%)	9 (56.3%)	2 (12.5%)	5 (33.2%)	0 (0.0%)	0 (0.0%)	7 (43.7%)
Case 3	0 (0.0%)	9 (81.8%)	0 (0.0%)	0 (0.0%)	9 (81.8%)	0 (0.0%)	2 (18.2%)	0 (0.0%)	0 (0.0%)	2 (18.2%)

Table 4.11 Data by teaching

	T1	T2	T3	T7	Total Tacit	T4	T5	T6	T8	Total Explicit
Case 1	13 (26.0%)	19 (38.0%)	0 (0.0%)	2 (4.0%)	34 (68.0%)	13 (26.0%)	3 (6.0%)	0 (0.0%)	0 (0.0%)	16 (32.0%)
Case 2	0	5	1	0	6 (100.0%)	0	0	0	0	0
Case 3	2 (12.5%)	11 (68.7%)	0 (0.0%)	0 (0.0%)	13 (81.2%)	0 (0.0%)	3 (18.8%)	0 (0.0%)	0 (0.0%)	3 (18.8%)

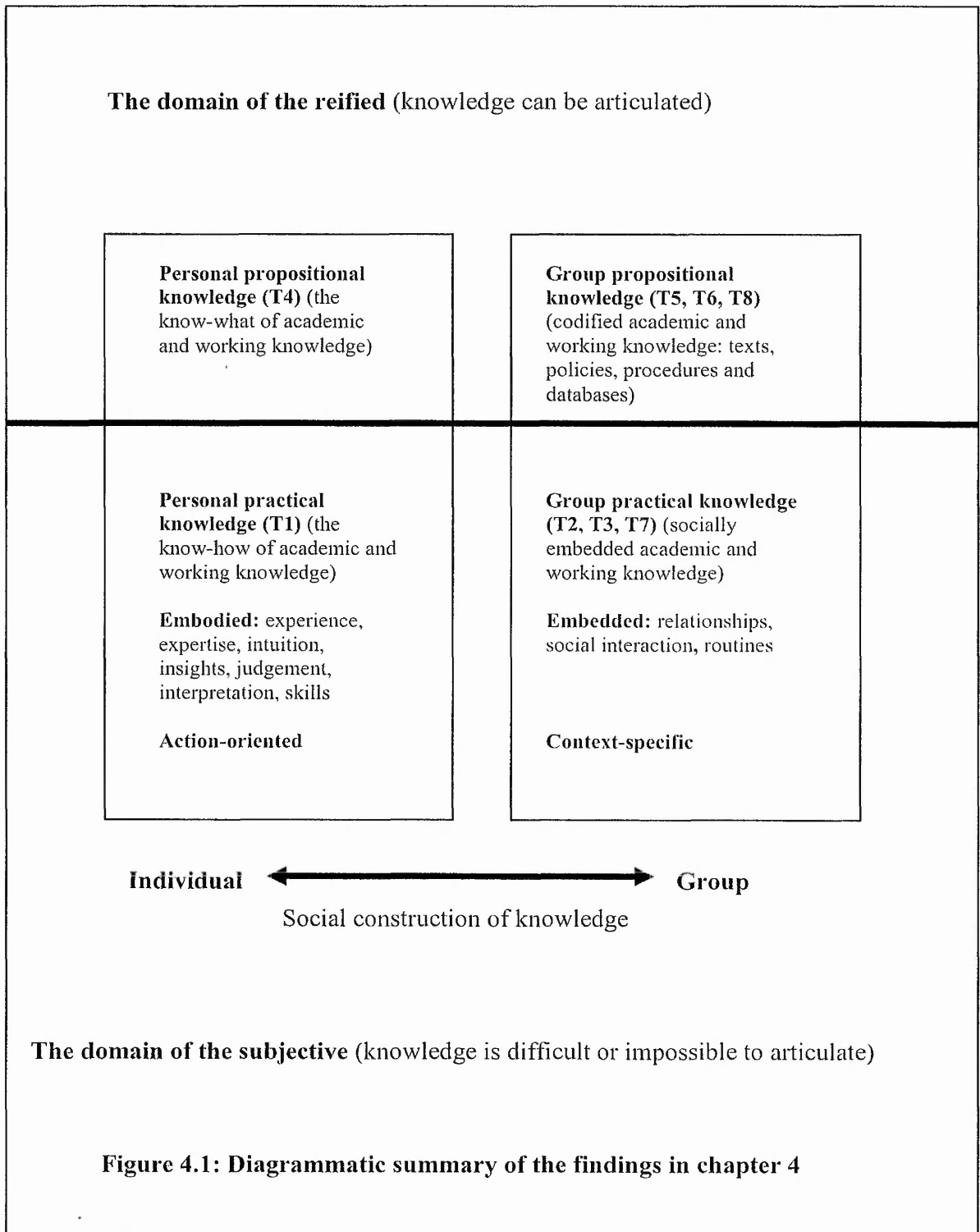
4.4 Summary

These quantitative analyses do not reveal the precise nature and frequency of knowledge formation processes although it is possible to deduce from the incidences of T2, T3, and T7 that within micro-contexts knowledge is being socially constructed.

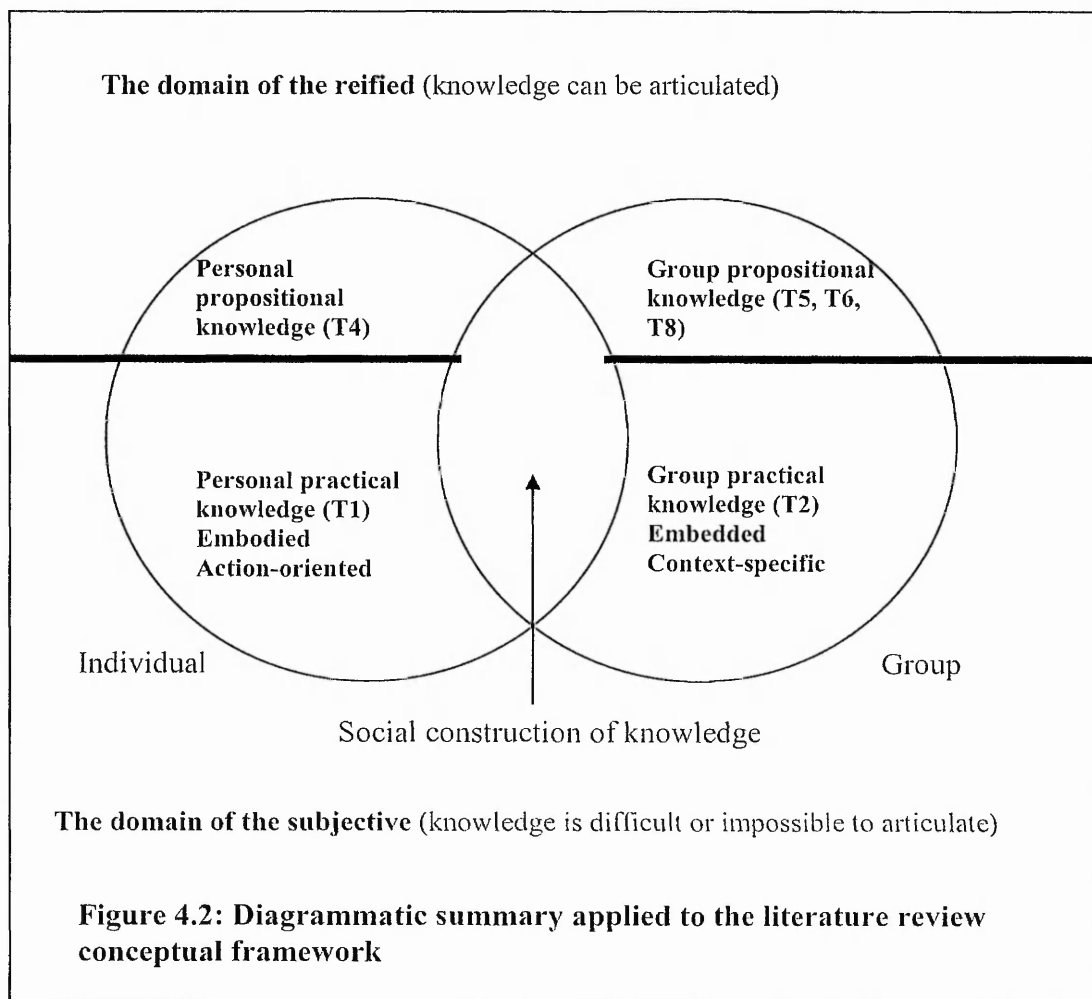
4.4.1 Key findings:

1. Practical and propositional dimensions of knowledge can be applied to both individuals and groups.
2. Practical knowledge embedded in groups which are located within the business school (T2) is the most frequently cited 'type' of knowledge. This illustrates the context-specific nature of such knowledge.
3. Working knowledge (e.g. rules, policies, procedures) is identified as being important to both academic and management practice.
4. There are relatively few references to knowledge associated with internal (T3, T6) and external (T7, T8) networks.
5. Academic practice involves both informal structures and processes whereas management practice relies on informal processes apart from networks.

Figure 4.1 is a diagrammatic interpretation of the data analysis in this chapter. The positioning of the line of demarcation between the two domains reflects the extent to which participants' accounts yielded greater incidences of practical knowledge.



This diagram can be converted into the same format as the first conceptual framework in the literature review (see figure 4.2). The overlap signifies the social construction of knowledge although the exact nature of the relationship between individual and group is not yet clear.



4.5 Summary of discussion and analysis chapters

Chapters 5 and 6 analyse participants' explanations of how knowledge is shared and proposes a taxonomy of knowledge formation processes. It is argued that in order to understand the relationship between individual, group and organisation in the social construction of knowledge it is necessary to understand the concept of informalisation (the intertwining of formal and informal structures and processes). Chapter 7 analyses the relationship between personal knowledge and shared knowledge and this includes a discussion of the relationship between knowledge and learning in the three cases.

This discussion raises questions about the validity of personal knowledge unless it is understood in tandem, or intertwined, with sociological perspectives on knowledge. Consequently, psychological and sociological perspectives on learning need also to be understood as intertwined. From a situated learning perspective knowledge is shaped by the contexts in which it has been acquired and used (Eraut, 2000). The data show that it is difficult to differentiate between personal and socially constructed knowledge in micro-contexts. Chapter 8 analyses the barriers to and the facilitators of knowledge sharing processes within the three cases and provides a range of examples of each. Finally, in chapter 9 the data are analysed to better understand why and how participants choose to share knowledge. For the purposes of these subsequent analysis chapters, tacit knowledge shall continue to be described as practical knowledge and explicit knowledge as propositional knowledge.

Chapter 5: Discussion and analysis of findings

Participants' accounts of how knowledge is shared or exchanged

5.1 Research question and associated propositions

The original research question and associated propositions are shown in table 1 below.

Table 5.1: Original research question and associated propositions

2. What account do individuals give of how knowledge is shared or exchanged within organisations?	<p>2.1 Knowledge sharing tends to be a characteristic of informal groups (such as communities-of-practice or social networks) and knowledge exchange tends to be a characteristic of formal groups (such as departments, committees or project teams).</p> <p>2.2 An organisation's formal and informal structures, processes and practices are <i>intertwined</i> with the formal providing a structural framework or context for the informal.</p> <p>2.3 The activities of informal groups (such as communities-of-practice) and formal groups are inter-linked by the outcomes of particular activities, shared practice, or experience gained by individuals (referred to in this thesis as outputs).</p> <p>2.4 Analysis of the literature on knowledge management reveals that the concept has evolved in the form of 'waves' and it is proposed that a third wave is now underway in which knowledge <i>management</i> (i.e. control) and knowledge <i>development</i> (i.e. cultivation) are complementary rather than either-or processes.</p> <p>2.5 The third wave of knowledge management embraces the application of technology to communities of practice. Virtual, or on-line communities, reflect the development of a new kind of technologically mediated social environment (Di Petta, 1998).</p>
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This chapter will focus on the first proposition (2.1). Chapter 7 will address the four remaining propositions (2.2 – 2.5). In all three cases participants were asked to give examples of how knowledge is shared or exchanged within organisations. Analysis of the data enabled the construction of taxonomy of knowledge formation processes with various forms of knowledge sharing being principal processes. This taxonomy is summarised in table 5.2 below and a copy including illustrative data examples is in appendix 2. Some knowledge formation processes include sub-codes.

Table 5.2: a taxonomy of knowledge formation processes	
K1	Knowledge acquisition by an individual (know-what or know-how not specified) K1.1: acquisition of know-what (e.g. reading texts) K1.2: acquisition of know-how (e.g. practising teaching skills)
K2	Knowledge generation by an individual (personal knowledge) K2.1: adaptation & experimentation; learning from mistakes K2.2: Codifying knowledge for research (e.g. research bids, conference papers, articles, books and book chapters) K2.3: codifying knowledge for teaching (e.g. lecture slides, module guides) K2.4: a specific example of self-awareness being demonstrated/articulated
K3	Formal collaboration (knowledge sharing) within a formal context between individuals who are not members of the same group, community or network (e.g. cross-functional group, project or committee)
K4	Formal collaboration (knowledge sharing) within a formal context between individuals who are members of the same formal group or community or network (e.g. department meeting; project team meetings)
K5	Knowledge diffusion (informal knowledge sharing) between individuals in the same community or network (e.g. at the coffee machine/in the corridor/ on the landing in the house/in the canteen).
K6	Informal collaboration between individuals in the same community or network – purpose specific discussion.
K7	Knowledge transfer – across the organisation or between organisations

	<p>K7.1: Informal knowledge transfer (e.g. chatting informally at a conference)</p> <p>K7.2: Formal knowledge sharing (e.g. minutes; presenting a paper; delivering a research seminar; working as a consultant)</p> <p>K7.3: Informally through membership of professional institutes and other bodies; through external examiner role</p>
K8	<p>Information exchange in a group context</p> <p>K8.1: Formal contexts (e.g. department meeting)</p> <p>K8.2: Informal contexts (e.g. discussion in an office)</p>
K9	Information exchange by one individual to another individual
K10	Informal knowledge sharing between two individuals in a specific relationship (e.g. coach-learner)

5.2 Quantitative analysis of the data

5.2.1 Knowledge formation processes in the three cases

Table 5.3 provides a breakdown of knowledge formation processes across all groups and networks within the three cases. There is remarkable similarity between the cases in relation to informal knowledge sharing processes (K5 and K6) although there are differences between the cases when this figure is broken down by setting. K5 and K6 provide evidence of social capital whereby much of the knowledge created by individuals and groups is socially embedded (Lin, 2002). The ratio of individual (K1, K2, K9, K10) to group (K3-K8) knowledge formation processes is 1:1.6 in case 1, 1:4.4 in case 2 and 1: 2 in case 3. These ratios suggest that group processes play a more significant role in management practice than in academic practice. But is this necessarily surprising? The nature of management practice requires daily attendance

on a '9-to-5' basis throughout the year which is in stark contrast to academic practice. Case 2 participants are also involved in a greater number of formal groups. Academic practice is such that it is a combination of individual and group activities, with much scholarly activity being undertaken in isolation from colleagues. Academics can choose to work at home or in the field for much of the year; and they can choose who they collaborate with on many activities (e.g. research). In contrast the SMT "have to work together" (Art 2SMT) even though the relationships between the assistant deans is characterised by tension and conflict.

Table 5.3 Knowledge formation processes across all groups and networks

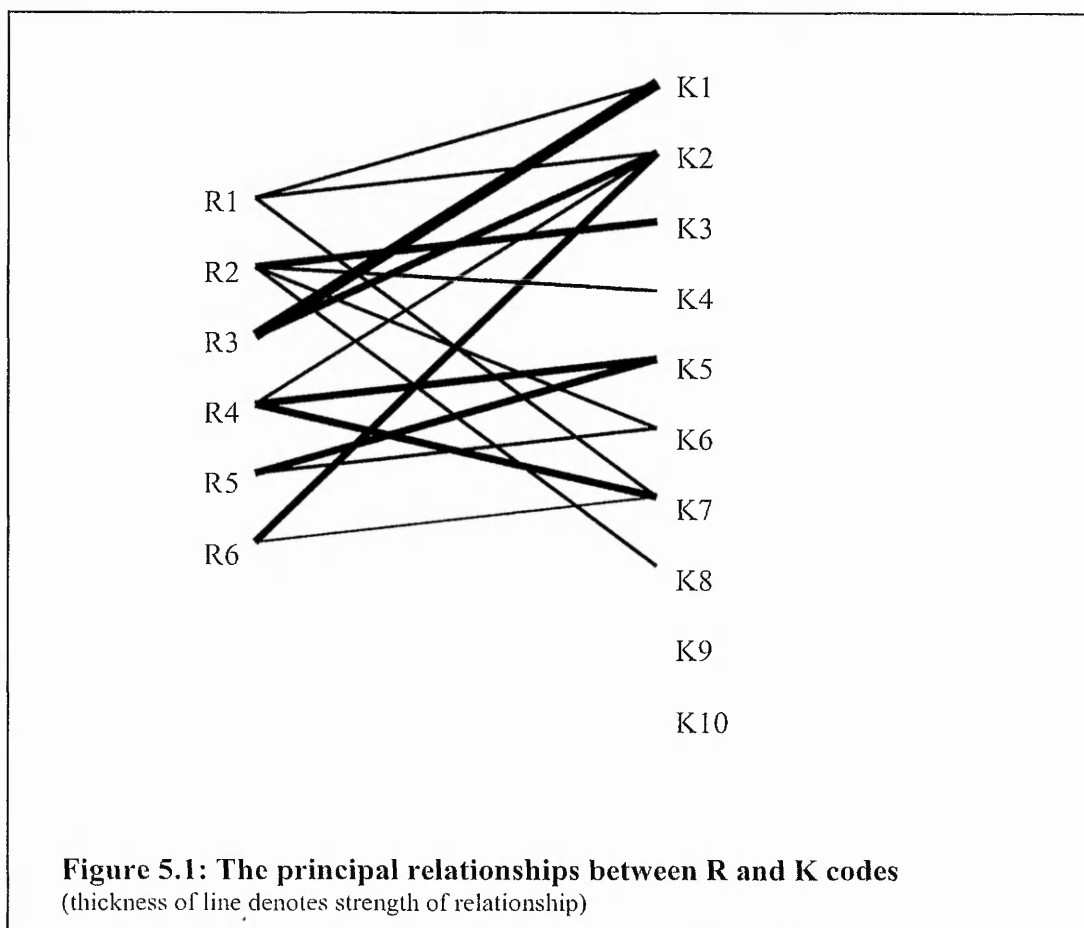
	K1	K2	K3	K4	K5	K6	K7	K8	K9	K10
Case 1	74 15.3%	93 19.2%	41 8.5%	46 9.5%	65 13.4%	53 11.0%	42 8.7%	49 10.1%	10 2.0%	11 2.3%
Case 2	9 6.5%	15 10.8%	21 15.1%	20 14.4%	20 14.4%	14 10.1%	14 10.1%	25 18.0%	1 0.7%	0 0.0%
Case 3	35 11.1%	56 17.7%	42 13.3%	24 7.6%	43 13.6%	34 10.8%	45 14.2%	24 7.6%	9 2.8%	4 1.3%

5.2.2 Comparing knowledge formation (K) codes with knowledge repository (R) codes

Tables 5 in appendix 3 show the number of incidences where it is possible to discern the way in which knowledge is stored (R codes). These incidences can be cross-referenced to knowledge formation (K) codes to identify the principal relationships between the two codes (see table 5.4 and figure 5.1).

Table 5.4 Principal relationships between K codes and R codes

	Highest incidence of R1	Highest incidence of R2	Highest incidence of R3	Highest incidence of R4	Highest incidence of R5	Highest incidence of R6
Case 1	K1, K2	K8	K1, K2	K6, K7, K2	K6, K5	K4, K7, K2
Case 2	n/a	K3	K1, K2	K5, K7	K5	n/a
Case 3	K7	K7, K4, K3	K1	K5	n/a	K2



External repositories (R1) tend to be associated with individual knowledge acquisition and generation (K1, K2) and knowledge transfer (K7) (e.g. conference papers). Structured internal knowledge (R2) is wide ranging, from emails to course guides, and therefore is associated with a range of K codes. Individual memory (R3)

tends to be associated with individual knowledge acquisition (K1) and individual knowledge generation (K2) (e.g. teaching materials and module guides). Network memory (R4) and community memory (R5) tend to be associated with informal knowledge sharing processes K5 and K6 (e.g. group discussions and group problem solving). Structured internal knowledge in the public domain (R6) tends to be associated with individual knowledge generation (K2), formal collaboration (K4) and knowledge transfer (K7) (e.g. journal articles and textbooks). None of these findings are a surprise; the data are confirming what you would expect to discover: that network memory (R4) and community memory (R5) involve predominantly practical knowledge: 98.7% in case 1, 100.0% in case 2 and 100.0% in case 3.

5.2.3 The different ways of storing knowledge

Table 5.5 has been constructed using data from tables 3 in appendix 3. The table compares the percentage breakdown of different modes of storage (individual, embedded and codified).

Table 5.5 Comparing different modes of storage

	R3 Individual	R1	R2	R6	Total Codified	R4	R5	Total Embedded
Case 1	148 (42.8%)	13 (3.8%)	74 (21.3%)	38 (11.0%)	125 (36.1%)	13 (3.8%)	60 (17.3%)	73 (21.1%)
Case 2	24 (32.4%)	0 (0.0%)	25 (33.8%)	3 (4.0%)	28 (37.8%)	7 (9.5%)	15 (20.2%)	22 (29.7%)
Case 3	64 (40.5%)	5 (3.2%)	56 (35.4%)	8 (5.1%)	69 (43.7%)	6 (3.8%)	19 (12.0%)	25 (15.8%)

The table shows that embedded memory accounts for 21.1% of the examples identified in case 1, 29.7% in case 2 and 15.8% in case 3. These percentages are lower than the levels of embedded knowledge identified in the previous chapter (i.e. 56.2% in case 1, 69.9% in case 2 and 63.7% in case 3). The reason for this difference is that type of repository was not always made explicit in the transcripts. Although this could be inferred these examples were excluded from the data analysis. The implication of this decision is that more examples of network or community memory exist than have been identified *explicitly* through the study. The findings suggest that if an organisation wishes to exploit much of its practical knowledge it needs to leverage this from the organisation's social capital. The data further suggests that organisational memory involving the storage or codification of information exists *alongside* community memory (Orr, 1990). The existence of embedded practical knowledge indicates the distributed nature of knowledge (Dixon, 1999) and the situated nature of cognition (Hutchins, 1994, 1996; Ardichvill, 2003; Risku, 2004). Although, as shall be discussed in chapter 8 (barriers and facilitators), the *balkanisation* effect (Brown & Duguid, 2001) inhibits the connectedness between informal groups and networks and compounds the problems caused by 'stickiness'.

5.2.4 Knowledge formation processes in subject groups (cases 1 and 3) and in informal SMT activities (case 2)

Table 5.6 is a breakdown of knowledge formation processes within subject groups A and B in case 1 and departments D to G in case 3, and the informal SMT activities in case 2. It is within these groups, particularly in cases 1 and 3 that the majority of informal knowledge sharing (K5 and K6) occurs. The exceptions include the canteen,

corridors and the occasional formal group; as well as several other informal groups and networks (e.g. the course managers' group in case 1 and the teaching fellows network in case 3). Some of the examples given by participants are historical (e.g. referring to staff common rooms that no longer exist). Table 5.7 provides illustrative examples from the data of the canteen, corridor and formal groups.

Table 5.6 Knowledge formation processes in subject groups (cases 1 and 3) and in informal SMT activities (case 2)

	K1	K2	K3	K4	K5	K6	K7	K8	K9	K10
Case 1	35 18.5%	32 16.9%	2 1.1%	20 10.6%	54 28.6%	25 13.2%	8 4.2%	6 3.2%	5 2.6%	2 1.1%
Case 2	1 5.3%	1 5.3%	0 0.0%	0 0.0%	8 42.1%	3 15.8%	0 0.0%	5 6.3%	1 5.3%	0 0.0%
Case 3	22 23.9%	21 22.8%	0 0.0%	20 21.7%	9 9.8%	10 10.9%	4 4.3%	4 4.3%	2 2.2%	0 0.0%

Table 5.7 Illustrative data examples of knowledge sharing in informal and formal contexts

Forum	Illustrative example
Canteen or staff room	We'd meet with different people from different schools down at lunchtime... so we were used to talking and sharing and some of the stuff that I've got involved in, in terms of programme development, in terms of overseas activities, in terms of research, all happened because of conversations in a coffee room or conversations at lunch (Maggie, 3D)
Corridor	I am aware of the importance of being out and about, of being seen... but if I see someone in the corridor... I want to know what's going on. I want people to have the opportunity to express themselves... and sometimes I'm wanting to give a message to, to someone else (Tom, 2SMT).
Formal groups	I think that the most important ways of sharing good practice in the school, the most successful ways, have been team teaching and programme committees at which we consider our critical self evaluations of our modules... that second one can be very powerful as people get together in order to talk about their module. (Tom, 2SMT) there's also lots of informal meetings going on all the time... people are in and out of each other's offices all the time... which is how I tend to work... I'll just pop in and ask 'how's it going?'. I do a lot of that sort of informality (Art, 2SMT)

The example given by Maggie (3D) in the table is a historical one that highlights the fluidity of social capital as informal structures and processes change over time.

In case 3 there is a much lower incidence of knowledge diffusion (K5) within the departments than there is in case 1 subject groups and a correspondingly higher incidence in the school of management than within the department in case 1 (this reflects structural and operational differences between the two cases). Where knowledge diffusion (K5) occurs it “tends to happen with people who we get on with” (Liz 3D). This illustrates how social capital is dependent on the quality of relationships within a social group (Szreter, 2000). Cliques and sub-groups have emerged within cases 1 and 3 subject groups around particular teaching and research interests. This is consistent with trends within universities internationally (Illes, 1999). In some incidences these sub-groups are subsets of established informal relations that already exist within the subject group (Hansen et al, 2005); and in the case of subject group D in case 3 appear to be compensating for the lack of cohesive intra-group relations in the ‘parent’ group. In case 2, rather than cliques or subgroups, dyadic relationships between the dean and individual assistant deans have emerged and it is these dyadic relationships that underpin K5, K6 and K8 processes.

5.2.5 Knowledge formation processes for formal groups and networks

Table 5.8 shows the figures for formal groups (units). As before, incidences of individual knowledge acquisition (K1) and generation (K2) are lower in case 2 where formal collaboration and sharing (K3 and K4) and information exchange (K8) are

more dominant. The much higher incidence of K5 in case 3 reflects structural and operational differences.

Table 5.8 Knowledge formation processes for formal groups

	K1	K2	K3	K4	K5	K6	K7	K8	K9	K10
Case 1 (Dept)	16 13.6%	25 21.2%	1 0.8%	19 16.1%	4 3.4%	10 8.5%	11 9.3%	21 17.8%	3 2.5%	8 6.8%
Case 2 (SMT)	5 8.3%	8 13.3%	11 18.3%	18 30.0%	1 1.7%	2 3.3%	3 5.0%	12 20.0%	0 0.0%	0 0.0%
Case 3 (School of Mgt)	10 12.3%	13 16.0%	10 12.3%	3 3.7%	19 23.5%	7 8.6%	8 9.9%	8 9.9%	2 2.5%	1 1.2%

Table 5.9 combines internal and external networks for each case.

Table 5.9 Knowledge formation processes in internal and external networks

	K1	K2	K3	K4	K5	K6	K7	K8	K9	K10
Case 1	4 (12.1%)	6 (18.2%)	2 (6.0%)	0	1 (3.0%)	6 (18.2%)	13 (39.4%)	1 (3.0%)	0	0
Case 2	0	0	0	0	8 (42.1%)	3 (15.8%)	7 (36.8%)	1 (5.3%)	0	0
Case 3	9 (11.2%)	11 (13.8%)	16 (20.0%)	0	10 (12.5%)	9 (11.2%)	16 (20.0%)	3 (3.8%)	4 (5.0%)	2 (2.5%)

The most significant knowledge formation processes associated with networks are knowledge transfer across and between organisations (K7) at 39.4% (case 1), 36.8% (case 2) and 20.0% (case 3). K3 at 20.0% in case 3 reflects the inter-disciplinary nature of some networks. K5 at 42.1% in case 2 reflects the management recognition of the canteen and corridors as a locus for their internal networking. It has been argued that individuals who do not network with others to share knowledge tend to fall behind peers (Slotte & Tynjälä, 2003). Data from cases 1 and 3 indicate that it is those who are research active who tend to maintain external networks. As being engaged in research is an important aspect of being identified as an academic,

arguably those who do not engage in research and therefore tend not to network are, in effect, falling behind their peers, particularly in comparison with traditional universities.

Along with informal groups, networks provide concrete settings within which individual action takes place (Tsoukas, 2001) and this is reflected in the percentages in table 5.9 for individual knowledge acquisition (K1) and knowledge generation (K2) that occurs within a network context and involves the interaction between practical and propositional knowledge. These networks are seen by participants as valuable fora for getting work done (Davenport & Prusak, 2000). For instance, Mack (2SMT) talks about the “expertise” you “share” with network colleagues, while Art (2SMT) explains that the networks he is involved in are “absolutely vital” to the work of the business school. That said there are deficiencies in knowledge transfer processes within all three cases that suggest there is scope to improve the utilisation of networks. One suggestion is that a strong cross-disciplinary curriculum is needed in conjunction with in-house conferences and collaborations that focus on common or shared issues (Illes, 1999).

5.2.6 Levels of knowledge transfer in the three cases

In case 3 the incidence of knowledge transfer (K7) within and between organisations is higher (14.2%) than in case 1 (8.7%) or case 2 (10.1%). This reflects contextual differences between the cases. In terms of transfer across the organisation Liz (3D) offers research seminars as one example of how this can be achieved. Similar seminars are held in case 1 but tend to be poorly attended. In case 2 Peter (2SMT)

recognises that the situation has been improving but still feels the need for more change:

now there is much more interaction between the school and the centre...we are now pulled into anything and everything, which is good news because there is more consultation. We are more involved in informal groupings which are looking at everything from funding models through to the way marketing is carried out...Where there is a problem at the moment is, I think, in terms of management information. We need to set up the systems to give us that information.

However, Art (2SMT) is sceptical about formal university groups: "I have to say I doubt the value of them...It is not integrated out there. There's a huge amount of money wasted. There is no integration".

In all three cases there are very few examples of fora for knowledge transfer between organisations although Tom (2SMT) recognises the need for "stimulation from outside" and Art (2SMT) mentions that "we need to look at more interactivity with companies and with people and organisations". Only a small number of case 1 participants are research active and attend conferences or publish journal articles. The majority of participants in case 3 are research active and receive better support for conference attendance than their case 1 counterparts. Case 2 participants do network externally in order to better understand the market place and to secure various forms of funding.

Table 5.10 compares the level of knowledge transfer (K7) as a percentage of the total knowledge formation processes occurring within the networks identified in each case.

Table 5.10 The level of knowledge transfer (K7) occurring within internal and external networks

	Knowledge transfer (K7) Number of incidents	Knowledge transfer (K7) As a percentage
Case1	13	39.4%
Case 2	7	36.8%
Case 3	16	20.0%

The percentages may be relatively high but the number of incidences is relatively low. Many of the participants in all three cases believe there is still room for improvement in knowledge transfer (K7) processes:

things could be so much better. I mean there are some people who run the undergraduate stuff here, like [Barbara] and [Michelle], and you know they are so up on teaching and learning strategies its fantastic but none of that seems to get filtered over (Joanne, 1A)

A particular problem is that many of the groups studied are characterised by a ‘sil mentality’ or *balkanisation* (Brown & Duguid, 2001). The reasons for this are discussed in chapter 8 which explores barriers to knowledge sharing.

5.2.7 Key findings

1. Ten knowledge formation processes have been identified. Knowledge formation involving social interaction accounts for 65.5%, 82.7% and 71.2% of the total incidences identified in cases 1, 2 and 3 respectively.

2. Network memory (R4) and community memory (R5) tend to be associated with informal knowledge sharing processes (K5 and K6).

3. There is very limited evidence of knowledge transfer (K7) across and between organisations.

5.3 A comparison of knowledge sharing and knowledge or information exchange

To what extent do the data support the proposition that knowledge sharing is a knowledge formation process that is more characteristic of informal groups (such as communities-of-practice or social networks) than formal groups? And the extent to which formal groups (such as departments, committees, project teams or senior management teams) are characterised more by the exchange of knowledge or information? In order to answer these questions it is necessary to examine the formal and informal contexts within which knowledge sharing occurs.

5.3.1 The levels of knowledge sharing in the three cases

The overall levels of informal knowledge sharing (K5, K6), as a percentage of total knowledge formation processes, is remarkably close in each case (see table 5.11). In terms of formal knowledge sharing (K3, K4), the figure in case 2 is higher reflecting a tendency for management practice to rely more on formal structures and processes than academic practice.

Table 5.11 Comparison of the levels of informal and formal knowledge sharing

	Informal knowledge sharing (K5, K6, K10)	Formal knowledge sharing (K3, K4)
Case 1	26.7%	18.0%
Case 2	25.1%	29.5%
Case 3	25.7%	20.9%

A more interesting picture is revealed when specific groups are compared (see table 5.12).

Table 5.12 Comparison of informal and formal knowledge sharing of principal groups in each case

	Group (F) denotes a formal unit)	Informal knowledge sharing (K5, K6, K10)	Formal knowledge sharing (K3, K4)
Case 1	The house	73.4%	13.9%
	Subject group A	19.1%	10.6%
	The department (F)	18.7%	16.9%
	The Business school (F)	10.5%	35.6%
Case 2	SMT (F)	17.7%	36.7%
Case 3	Departments	23.2%	24.4%
	The school of management (F)	33.4%	16.0%
	Teaching fellows	26.2%	20.0%

The house in case 1 stands out. The house is characterised by a high level of knowledge diffusion (K5 at 59.5%) reflecting how discussions in the house are:

fairly spontaneous. Generally around the kettle. You go up the stairs and it's generally whoever's put on the kettle and when the tea or coffee is made; and most people take turns to bring supplies in and, so several times a day when the kettle is, you know, we all tend to congregate when we're in (Meryl 1A).

The other 13.9% (K6) which makes up the 73.4% reflects informal collaborations between colleagues, often revolving around research. A straight comparison between the house and/or subject group A in case 1 and the departments in case 3 is problematic because of structural differences between the two cases. For the purposes of this study the case 3 departments are being treated as quasi-informal because they

correspond to subject groups and do not have a head of department. What is striking about the case 3 data is the level of informal knowledge sharing occurring within the school of management. This is symptomatic of staff trying to work around the high levels of bureaucracy that are a particular feature of case 3. The relatively low level of knowledge diffusion (K5) for the teaching fellows reflects the way in which this group function as an internal network rather than a group who are co-located.

Table 5.13 shows the overall levels of informal collaborations (K6) associated with formal and informal structures. This highlights the extent to which management practice in case 2 is reliant on formal structures to provide a context for informal as well as formal knowledge sharing (K3, K4). This is in contrast to academic practice which relies on both informal structures *and* processes. However, both Mack (2SMT) and Tom (2SMT) argue the corridor “is crucial” to finding out what is happening in the business school; as well as the canteen and specific social networks:

Take workload for example. I mean that was an issue that I brought to the management team because of lunch in the refectory...It was crystallised, it was brought to a head by a conversation in the refectory with a valued member of staff, a really good committed member of staff who was saying 'the joy's gone out of it' (Tom, 2SMT).

Table 5.13 Levels of informal collaboration (K6) in formal and informal structures

	Formal structures	Informal structures
Case 1	34.0%	66.0%
Case 2	78.6%	21.4%
Case 3	55.8%	44.2%

Table 5.14 shows the overall levels of formal knowledge sharing (K3, K4) occurring within formal and informal structures. Table 5.12 revealed that the business school in case 1 and the SMT in case 2, both formal structures, had the highest levels of formal knowledge sharing. Table 5.14 confirms that in cases 1 and 2 formal knowledge sharing processes are associated with formal structures. The split in case 3 reflects the decision to treat departments as quasi-informal groups.

Table 5.14 The overall levels of formal knowledge sharing (K3, K4)

	Formal structures	Informal structures
Case 1	84.8%	15.2%
Case 2	100.0%	0.0%
Case 3	45.5%	54.5%

These figures illustrate the context-specific nature of knowledge sharing processes.

5.3.2 The levels of exchange in all three cases

Participants' language is different when discussing informal and formal groups. For instance, 'debating', 'discussing', 'chatting' tend to be used when talking about the informal in contrast to 'updating', 'giving', 'receiving' when talking about the formal. When participants talk about 'experience' or 'expertise' this is predominantly in relation to informal structures and processes. Often participants differentiate between knowledge and information when discussing formal groups suggesting that this is where a strong symbolic value is put on information (Feldman & March, 1981). Table 5.15 compares the levels of information exchange in a group context (K8) and

information exchange by one individual to another individual (K9) with the knowledge sharing data from tables 5.11 and 5.12.

Table 5.15 Comparison between knowledge sharing and information exchange

	Informal knowledge sharing (K5, K6, K10)	Formal knowledge sharing (K3, K4)	Information exchange in a group context (K8)	One-to-one information exchange (K9)
Case 1	26.7%	18.0%	10.1%	2.0%
Case 2	25.1%	29.5%	18.0%	0.7%
Case 3	25.7%	20.9%	7.6%	2.8%

The level of K8 is highest in case 2 indicating a greater pre-occupation with information in management practice.

Table 5.16 Comparison of knowledge sharing with exchange in the principal groups in each case

	Group (F) denotes a formal unit)	Informal knowledge sharing (K5, K6, K10)	Formal knowledge sharing (K3, K4)	Information exchange in a group context (K8)	One-to-one information exchange (K9)
Case 1	The house	73.4%	13.9%	3.8%	0.0%
	Subject group A	19.1%	10.6%	3.2%	5.3%
	Department (F)	18.7%	16.9%	17.8%	2.5%
	Business sch. (F)	10.5%	35.6%	17.1%	2.6%
Case 2	SMT (F)	17.7%	36.7%	21.4%	1.4%
Case 3	Departments	23.2%	24.4%	4.9%	2.4%
	School of Mgt(F)	33.4%	16.0%	9.9%	2.5%
	Teaching fellows	26.2%	20.0%	3.8%	5.0%

This table shows that higher levels of K8 are associated with formal groups in all three cases (particularly in 1 and 2). The lowest incidences of K8 are associated with informal groups. K8 is a characteristic of formal meetings. For instance, Zoe (1A) feels that at the formal department meetings there is “a sort of exchange of information”; while Jilly (1A) sees the meeting as “one of the main mechanisms that

we have for imparting of information” adding that at formal meetings “I share information. I don’t necessarily share experiences”. Bruce (1HOD) views the formal department meeting primarily as “a formal means of communication” adding that his role as chair of department meetings can be described as “a conduit of information”. The data shows that the highest incidence of knowledge sharing within departments is formal collaborative work between individuals from the same group (K4) and that this is taking place outside formal meetings.

The perception that the head of department is a conduit is replicated in case 2, with Tom (2SMT) describing the role as “crucial”. In case 2 formal collaborative work between individuals (K4) is a feature of the daily workings of the SMT and not of the twice-termly meeting of the extended SMT which is used as an opportunity to communicate information. Peter (2SMT) describes the extended-SMT as somewhere heads of department have “a proper avenue to feed into the management of the school”. According to Tom (2SMT), the extended-SMT is “a forum for heads of department to feed up concerns” and is “not tremendously important in decision-making terms”. Mack (2SMT) associates the exchange of information more generally with formal group meetings. For instance, he cites the meetings of the postgraduate course managers group as an opportunity to “give information from the university level” as well as course managers “passing things up to me”. Mack (2SMT) refers to exchange processes rather than sharing processes when discussing the SMT. For instance, the “exchange of knowledge” and “the amount of information we exchange on a daily basis is really, really high”. This is qualitatively different from the language used by many of the participants in cases 1 and 3 when referring to their subject groups. The SMT is part of the school’s formal structure and participants in

case 2 recognise that they have no choice but to work together even when levels of trust are low between some individuals.

Formal communications at faculty level are a problem in all three cases. Case 1 participants criticise formal communications for being too reliant on written media. For instance Richard (1B) doesn't "ever read the business school newsletter. I don't know who does". In case 3 use the grapevine to find out what is happening elsewhere in the university. Peter (2SMT) acknowledges formal communications are a problem; with Art (2SMT) adding that "it needs to be better".

Chapter nine (choosing to share knowledge) builds on these findings and explains how exchange processes are characterised by politics and power relationships in contrast to sharing processes which are characterised by high levels of mutual trust.

5.3.3 Key findings

4. Knowledge sharing is a characteristic of both formal and informal structures. However, management practice in case 2 is more reliant on formal structures whilst academic practice is reliant on both structures and practices.

5. The house stands out as the most significant example of informal knowledge sharing and in particular of knowledge diffusion (K5). This suggests that members of this sub-group work together in a way which is different to other groups in all three cases.

6. The levels and mix of knowledge sharing processes are context-specific to each case. Higher levels of information exchange (K8) are associated with formal group meetings in all three cases (but particularly in 1 and 2). The lowest incidences of K8 are associated with informal groups.

7. Information exchange (K8) tends to be a characteristic of management practice.

The findings so far in this chapter are summarised diagrammatically in figure 5.2 which builds on figure 5.2 at the end of the previous chapter.

The conversion of this to the conceptual framework from the literature review is shown in figure 5.3. This better illustrates a blurring between the two domains by removing the line of demarcation. This reflects the fact that types of knowledge are actually dimensions of knowledge that are inextricably linked. The content of figure 5.3 demonstrates a divergence from the original conceptual framework as it has been shown that knowledge sharing is also a characteristic of formal groups although (a) there is a lower incidence of informal sharing than is found in informal groups.

Chapter 6: Discussion and analysis of findings

Participants' accounts of how knowledge is shared or exchanged within organisations (continued)

6.1 The intertwining of formal and informal structures, processes and practices

There is evidence of informal knowledge sharing in all three cases. But how is this informal knowledge sharing linked to formal structures and processes? Does it assist or hinder formal structures and processes? An analysis of the respective advantages and disadvantages of formal and informal structures and processes is revealing (see table 6.1).

Table 6.1: The advantages and disadvantages of formal and informal structures and processes (the number in brackets is the number of the case citing the example)

Formal		Informal	
Advantages	Disadvantages	Advantages	Disadvantages
Structural:	<p>Structural:</p> <p>a) Lack of connectedness between formal fora: There are a lack of effective links between formal fora (3); atomisation of teaching teams (1); poorly designed structure (3)</p> <p>b) Disconnection from day-to-day academic practice:</p>	<p>Structural:</p> <p>a) The informal emerges: Informal groups emerge to fill a need (1, 3)</p> <p>b) Connected to day-to-day academic practice: You find out what the underlying issues are (1); you find out what people really think about certain issues (2)</p> <p>c) Connected to day-to-day management</p>	<p>Structural:</p> <p>a) Unreliable as a communications system: The grapevine can be unreliable (3)</p>

	<p>Committee decisions have little impact on the development of teaching and learning (1, 2)</p> <p>c) Inefficient communications: Poor communications (1, 2, 3); Too much need-to-know (3)</p>	<p>practice: An important way of getting things done (1, 2, 3); breaks down barriers and engenders trust (2)</p> <p>d) Bypasses inefficient formal communications: Colleagues keep you informed about what is happening (e.g. elsewhere in the university): the informal grapevine (1, 2, 3)</p>	
<p>Procedural:</p> <p>a) Formalises: formal meetings codify discussions (1, 2)</p>	<p>Procedural:</p> <p>a) Rigidity: Lack of flexibility (1, 3)</p> <p>b) Irregular: Formal meetings are often infrequent (1, 2)</p> <p>c) Lack of focus: Lack of structure to many formal meetings (3); can become an ineffective 'talking shop' (1)</p>	<p>Procedural:</p> <p>a) Lack of bureaucracy: Much more flexible (e.g. no minutes or agendas; nothing is 'set in stone') (1, 3)</p> <p>b) Ongoing and frequent: Informal interaction tends to be daily or weekly (1)</p>	<p>Procedural:</p>
<p>Time:</p>	<p>Time:</p> <p>a) Lack of time: Information overload (1, 3); and lack of time generally to discuss issues properly (2, 3)</p>	<p>Time:</p> <p>a) Focused discussions: Able to focus on particular problems or issues (1); consensus is reached informally thus ensuring more effective use of time at a formal meeting (e.g. 'you've got some kind of focus, the agenda's much clearer') (1, 2)</p>	<p>Time:</p>
<p>Role:</p>	<p>Role:</p> <p>a) Role constrained: You are expected to take a particular line on things (2)</p>	<p>Role:</p> <p>a) Involvement is voluntary: You can walk away if you're not interested (1)</p>	<p>Role:</p>
<p>Outputs:</p> <p>a) Codification: Formal meetings codify decisions as outputs (1, 2, 3)</p>	<p>Outputs:</p> <p>a) Not conducive to problem solving: Problem solving tends to take place</p>	<p>Outputs:</p> <p>a) Problem solving: Informal processes are conducive to problem solving (1, 2, 3)</p>	<p>Outputs:</p>

	outside formal meetings (1, 3) b) Not conducive to innovation: Innovative ideas tend not to emerge from formal meetings (1, 2, 3)	b) Source of innovation: Informal processes are conducive to innovation in both teaching and research (1, 3); a source of ideas (2)	
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The table clearly shows that formal structures and processes are characterised by a range of disadvantages while informal structures and processes are characterised by a range of advantages. This suggests the informal are acting as a correcting or compensating set of structures and processes. Evidence from the three cases reveals that informal structures and processes make four important contributions to the case organisation.

6.1.2 Informal structures and processes emerge to compensate for the lack of opportunities to share knowledge through formal structures and processes.

The data show that informal structures and processes emerge when a specific need to share knowledge exists and this need is not being catered for by formal structures and processes (the author describes this phenomenon as the *formal vacuum*). A good example of this is the course managers' group in case 1 where course managers needed a forum to discuss common problems. Another example is a "nascent" subject A strategy group which:

emerged because it had to...it needed to emerge because of the nature of the way [the subject] was being undertaken (Bruce, 1HOD).

Craig (1B) refers to liaison managers who “wanted a forum where they could share problems and get a bit more support”.

Across all three cases there is a tendency to discuss teaching issues informally, as Zoe (1A) explains:

I am interested to hear what my colleagues are dealing with and doing although I can't say that those discussions necessarily take place in formal meetings (Zoe, 1A).

Opportunities to share knowledge about teaching and learning practice in formal fora are:

very few other than at individual module level, so individual tutors on the course will share with their own subject [colleagues]. There's no formal mechanism other than at the course committee (Jilly, 1A).

However, this raises a problem:

some of the academics feel that they also want a forum for discussion that isn't when the students are there, so we have also set that up a bit too, but not formally, it is more informal (Hayley, 1Ad)

The formal teaching and learning committee in case 1 is intended to be a forum “to share good practice” but is “under exploited at the moment” due to divisions within the group (Jilly, 1A). In case 2 where the teaching and learning committee has “still got some way to go” (Art, 2SMT). The three assistant deans believe that it is the

module teaching teams that are the primary locus of knowledge sharing. These teams operate informally. This is also true of case 1:

we tend to meet before we teach and we meet sometimes after we teach or at least we correspond by e-mail or talk on the phone after to discuss what went well, what didn't go well, or if there's any misunderstanding about what's been expected to be covered that evening, for example, 'what do you mean by this? Tell me what you mean', because sometimes it's not always easy to convey what you're expecting the tutor to do (Jilly, 1A).

John (3E) observes that committee meetings "instead of resolving issues...simply raise additional issues...and nobody is left handling the details". As Peter (2SMT) observes: "there is a great danger that we tie ourselves up in knots with these committee meetings". It is the "details" and the "knots" that impact on academic practice and these are usually resolved through informal group and network processes, including discussions in the corridor and canteen. Mack (2SMT) tends "to have a lot of informal meetings in corridors" as well as his office as colleagues "just call in for a chat about a particular [issue]". Art (2SMT) explains that "we do have informal meetings about projects" as well as team members popping in and out of each others' offices. George (3HOS) and Sophie (3D) talk about the informal discussions that take place in the canteen. Subject A participants in case 1 talk about the informal discussions that take place daily in the house.

The way in which informal structures and processes addresses the formal vacuum is shown diagrammatically in figure 6.1.

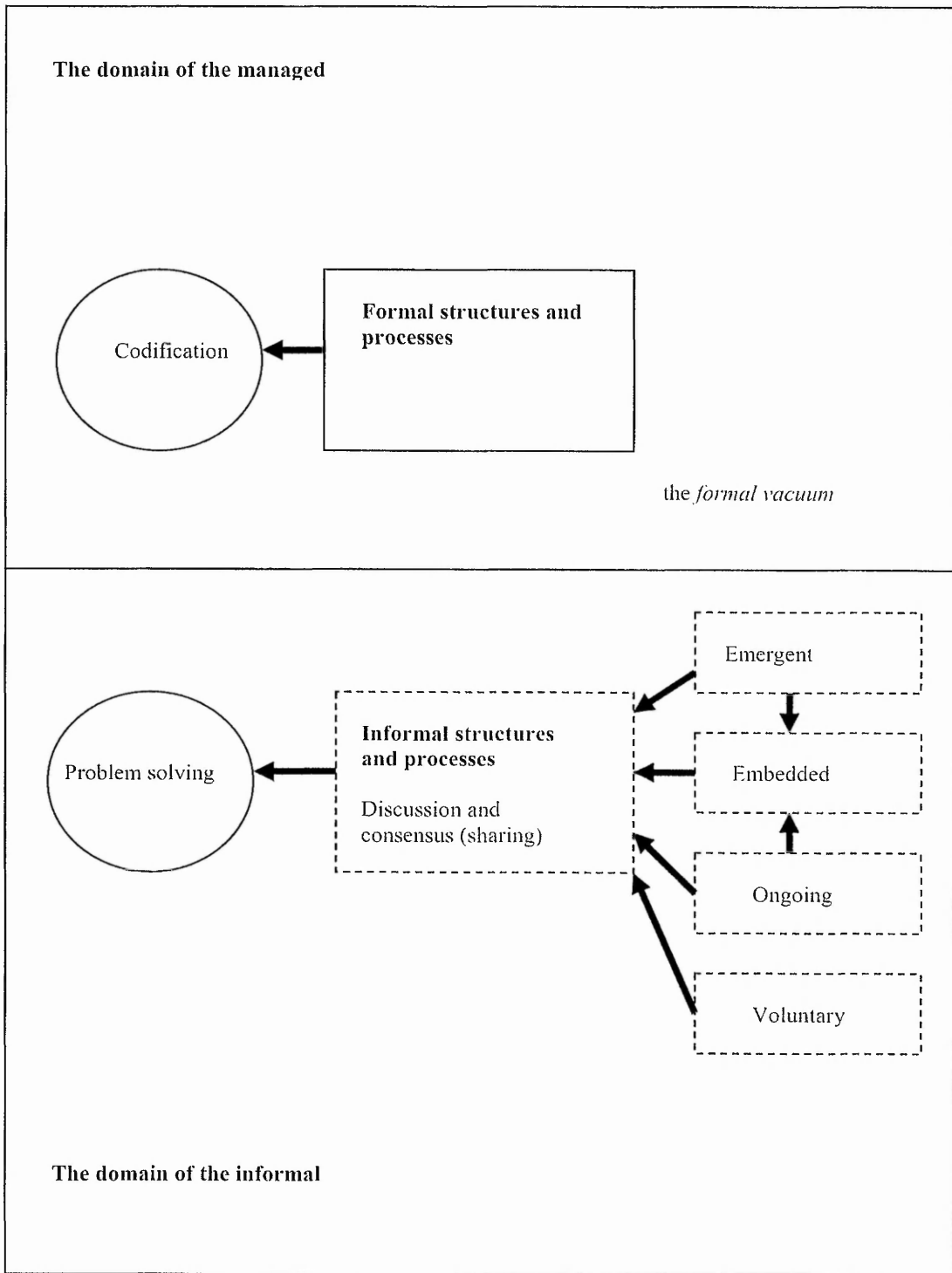


Figure 6.1: How informal structures and processes address the formal vacuum

6.1.3 Informal knowledge sharing informs formal decision-making (outputs)

A key constraint on formal processes, such as committee meetings, is time and this problem is commented on in all three cases. For instance, Peter (2SMT) doubts that they have “got it right in terms of the amount of time” while Tom (2SMT) observes “its always time constrained”. Other constraints have been classified as structural, procedural and role. These impact on the effectiveness of formal discussions and decision-making as illustrated in table 6.1. Rather, it is in the informal groups, communities or networks that issues are discussed more thoroughly, that positions are arrived at, that a consensus is reached prior to (and when required also after) the formal meeting where the formal decision-making takes place. The data on information exchange highlighted earlier suggests that in formal contexts participants may be more concerned with information in order to rationalise the decision-making process (Alvesson, 1993) although this may simply reflect the nature of such decision-making which the author describes as ‘constraint-bounded’. The data indicate that informal discussions improve decision-making by reducing the reliance on heuristics at formal fora. The latter tend to be characterised by “a brief discussion” only on a particular topic (John, 3E). Participants are using informal processes (K5, K6) to strengthen the rationality of the decision-making process and reduce subjectivity. These informal processes help to limit or minimise the bias that all judgemental decision making involves. The references to formal meetings given by participants suggest that without the informal discussion process it is more likely that formal decisions are arrived at in a less rigorous fashion because of the lack of time devoted to debate and discussion. The intertwining allows for feedback from and

between the formal and informal contexts. Informal structures and processes are used to reach a consensus to facilitate formal discussion and decision-making:

We will often bounce ideas off each other beforehand and try to get a little bit of support before [the formal meeting]. So, if we are trying to get a message to [management] or people are actually getting really hacked off...us speaking informally beforehand helps that meeting, when we are all saying the same thing (Richard, 1B).

We'd have to go through quality committee but the idea would come from, maybe management would say, 'we need new programmes in these areas; could anybody come up with ideas?'...it would also be quite informal. You would speak to [someone] and you would bounce it off him or speak to other people and say, 'what do you think?' There would be a lot of that before it even went formally, to get the informal acceptance of key people in the organisation (Sophie, 3D).

These examples also reveal a political dimension to informal discussions. Mack (2SMT) refers to management also taking advantage of the same approach referring to an informal group that:

we use to monitor attendance of students, we use it to decide post-graduate policy and once the policy has been decided the paperwork will pop out of that meeting, if there is any, and it will be rubber-stamped by Board of Studies.

Even though he views the board of studies, as "the key operational decision-making part of the school" many of the decision-making discussions are taking place beforehand. The paucity of discussion at the board of studies meeting is why Tom (2SMT) feels such meetings are not "particularly effective". Mack (2SMT) also uses

information he receives from course managers informally to inform decision-making at both SMT and university level committees. However, this is a variable process across other fora in case 2. For instance, using the head of department as a 'conduit' does not guarantee the exchange of information will translate automatically into effective decision-making (i.e. knowledge rather than information), as Tom (2SMT) explains in relation to a recent problem about workload that heads of department raised: "we don't really know the causes of the problem...we needed to know more about it". His proposed solution was to repeat the loop and "ask departmental heads to consult with their department and come back to us with a more precise definition of what is the problem". Here, management's formalisation, in effect, of the head of department's 'conduit' role has proven unsuccessful.

The data suggest that an instrumentalist approach is adopted often by participants at formal meetings. Participants are aware of the constraints on formal bureaucratic structures and processes but these are not necessarily perceived as a barrier. Rather there is an acceptance of an organic, mutually supportive relationship between the formal and informal that *works*; a finding noted by Kärreman et al (2002) in their study of knowledge intensive firms. This is termed a symbiotic relationship by the author and is illustrated in figure 6.2 below where informal structures and processes 'mirror' an organisation's formal structures and processes. This 'shadow' organisation may not appear on an organisational chart but participants are very aware of it as an integral aspect of their daily working lives. The analysis of advantages and disadvantages of formal and informal structures and processes in table 6.1 reveals the extent to which the informal provides an underlying stability for an organisation; as theorised by (Wenger et al, 2002).

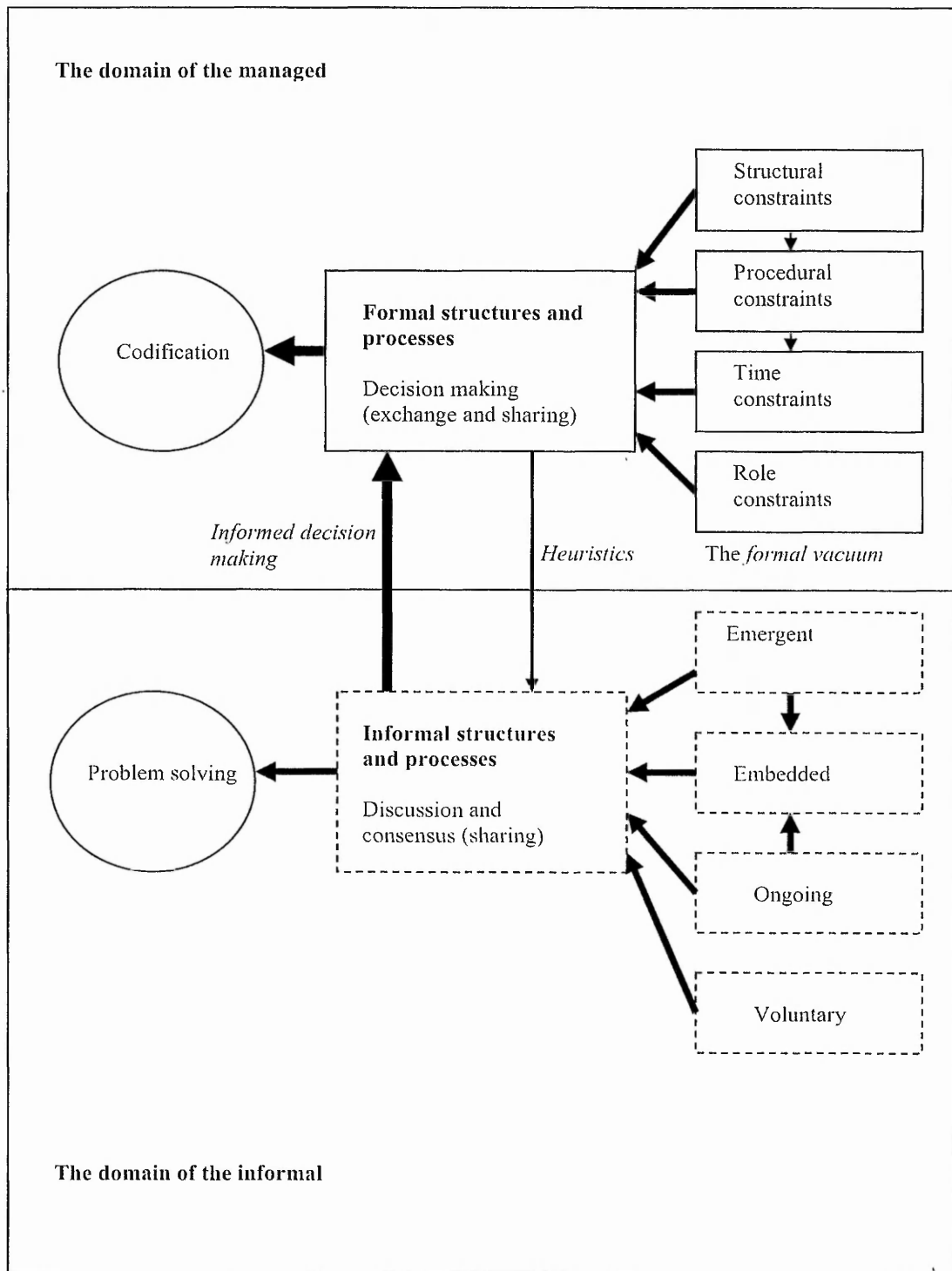


Figure 6.2: How informal structures and processes mirror the formal organisation.

Meryl (1A) stresses that “it is vital” to participate in any informal discussions as “that’s how you find out what the underlying issues are and what people’s opinions are on things. Informal feeds the formal really”. Although she acknowledges the reverse process can also occur:

if we’re all sent an official e-mail from the school of business about something, and we’re all opening our e-mails at the same time, there’s a cry of, oh god, or great, or whatever, and then we all come out of our little hovels and discuss it. So, in that case, formal is feeding informal.

Sophie (3D) explains the teaching fellows in case 3 network with each other to compensate for poor decision-making at the formal teaching and learning committee. They “get together” to respond to “some information” from other committees that “feed down and say, ‘can you look at this’...so we really just go down avenues that we think are important”. Liz (3D) is aware that the formal structures and processes set up at school and university levels to consider research “don’t sort of link into” other formal fora. She provides an example of this, explaining how a report on research ethics written on behalf of a “working group” was received:

I first came back to the committee and said I wrote a paper about one proposed group action to achieve what’s necessary to serve the university requirements. Nothing happened. I raised it at the next meeting, still nothing happened...so there should be processes within the school, [but] there are none.

In terms of the day-to-day functioning of the SMT, Tom (2SMT) explains that “we do discuss some [operational issues] together but I think the purpose of the group is actually supporting us in those rather than actually for us to discuss them”. This

'support' can involve knowledge sharing, for instance, asking for advice from SMT colleagues: "I'm thinking of doing this. That group of people won't like it. Is this a good idea?' that sort of thing" (Tom 2SMT). However, the illustrative examples offered of this are dyadic discussions with Peter (2SMT), the dean, rather than of group discussions. These informal interactions happen:

everyday...for example, I popped in to see Peter this morning about a particular issue [and] as he often does, he pointed out a different way of looking at things, so that was a very useful discussion (Tom, 2SMT).

Such discussions inform the content of the informal weekly meetings of the SMT which, in turn, inform the discussions of the monthly formal meetings of the SMT and the termly formal meetings of the extended SMT:

we have an informal meeting every week and a formal meeting, I think its once a month but its soon to be once a fortnight...The formal meetings are, well, we have to look at what the projects are, 'what are we doing?', look at exactly where we are... and the informal meetings are updates, discussions, y'know, really sort of off-the-record type 'where are we on this?', 'we need to talk about this', 'well that needs to go to a formal meeting' etcetera, etcetera" (Art, 2SMT)

Peter (2SMT) explains that the weekly informal meetings are not minuted and are used "to have a look at what is going on, the issues" and that these issues are carried forward "from meeting to meeting".

6.1.4 Informal knowledge sharing is pivotal to academic practice.

The data in cases 1 and 3 show that a pivotal activity of academic practice is the resolution of teaching and research problems often involving innovative solutions (e.g. developing new approaches to teaching, improving teaching skills, designing new modules, sharing research interests). This activity is heavily reliant on informal processes or routines, such as knowledge diffusion (K5) on the landing of the house in case 1, rather than on formal structures and processes:

We have formal meetings once a term but we have an awful lot of informal meetings on the corridor and on the stairs, about two or three times a week generally...and if something important is decided then one of us normally says, oh well, I'll e-mail everybody else (Meryl, 1A).

Often you have a problem with teaching and learning. You'll often find that other people have had similar problems and help you with solutions... come and sound off about teaching experiences and...things that have gone wrong. Share things that have gone really well, but also things outside work as well: politics, the news, what everyone's been doing. Basically, its very friendly (Zoe, 1A)

As Tillema (2005) observes, it is within informal learning communities that “professionals discuss, study, and construct conceptual principles and ideas, generate and enact new strategies for their work environment, and above all share insights about what they learn” (page 82). This illustrates the centrality of informal structures and processes as a locus for learning (Geiger & Turley, 2004) and innovation as a principal output of this learning:

in terms of innovation and changing how we do things within the [subject group], informal feeds formal. So, somebody will have a brainstorming idea over coffee at the top of the stairs and then we'll take it further and then we'll discuss it as a [formal] meeting and then we'll implement it, possibly. So that's what I mean, informal feeds formal (Meryl, 1A).

It is the interaction between informal and formal contexts that brings about the “inherently creative potential of human action” (Tsoukas, 2002: 420). This builds on pre-existing perspectives. For instance, Tushman and Nadler (1996) argue that while formal structures and processes facilitate corporate learning and innovation “individual creativity springs from a healthy informal organisation” (page 149). Without the informal structures and processes there would be very little evidence of innovation in cases 1, 2 or 3.

In case 2, Art (2SMT) concedes that while innovation in teaching and learning is the result of “the way individual people teach” those same individuals share this expertise informally with colleagues. In contrast, he confides that the formal committee for teaching and learning “is not innovative and that worries me”. In case 3 the teaching fellowship scheme may be part of the formal structure but the way in which the teaching fellows operate has emerged as an informal internal network as a result of the teaching fellows being “very motivated, always questioning and trying to apply new ideas” (Phil, 3E). Sophie (3D) explains that the innovation and creativity:

really comes from informal networking with people. I don't really think an awful lot comes from any formal structures that the university has put in place. Learning from each other and talking to each other, brainstorming. You know, all these

things are the basis of what we do and how we get new ideas and new directions...the formal structures don't really help.

Informal knowledge sharing processes (K5 and K6) are also important for networking at conferences, as Kate (3D) explains:

the content was useful but it was outside the session bit that was most useful because we talked about the content, in fact, during the coffee break...so we had a chat over coffee and [after the conference] [Jane] sent me all the assessments that she uses. She was very generous

The utilisation of social capital in this way has been identified by other writers (for instance: Gant et al (2002) in relation to HRM practices; Sullivan (2000) refers to decision-making discussions that take place over coffee, outside the formal structure). There were very few references to commercial activities in cases 1 and 3. In case 2, Art (2SMT) who has responsibility for developing the business school's commercial activities, admits "there is a long way to go".

Informal processes are equally critical to management practice as Mack (2SMT) explains that "it would be impossible" to do his job if these informal processes did not exist. Citing two of his internal social networks he explains that one of these is:

important for finding out what's going on...you get the 'word on the street'... So if we want to find out what's really happening in the school I would go and chat to that group of people.

The other network he refers to as 'the curry group', which also provides him with "quite good information". This illustrates how the SMT place great emphasis on informal structures and processes as a source of information. As Tom (2SMT) concedes, from the

conversations, lunch tables, the corridors, all that sort of, the informal groups, coming with views from other people...I'm aware that what I'm bringing to [the SMT] is not necessarily what people are really feeling, what they're thinking. 'm operating at a more superficial level but then that's still valuable...It s important, perhaps it is better to talk to more people at a superficial level to get a more representative idea of what people think about the direction we're going.

The weekly SMT meetings are conducted in an informal manner (e.g. no agenda or minutes) and a great deal of daily interaction between Peter (2SMT) and the other members of SMT is carried out in a highly informal manner (e.g. popping into each others' offices). Tom (2SMT) feels that "the informal access is more important than the meeting". As well as the extended-SMT which is attended by heads of administrative and academic departments, Peter (2SMT) holds separate termly meetings with academic heads of department. Although a formal group he acknowledges the benefits of running the meeting along more informal lines because "it gives a different feel to the thing". Informality is also embedded in the leadership style of SMT members according to Mack (2SMT):

most of the leadership is done outside SMT, informally. Not within SMT in a formal sense...So the leadership of the school is done on a day to day basis informally, working with people, largely wandering around and chatting to people in corridors and finding out what's going on.

The underlying reason for this approach is summed up by Art (2SMT): “people don’t feel afraid to come and say, ‘there’s something, can I come and talk to you, or talk to you about that?’”. This corresponds with theoretical discussions which have highlighted the importance of social capital to the leader-follower relationship in universities (e.g. Bolden et al, 2008).

Figure 6.3 provides an updated version of the relationship between formal and informal structures and processes previously shown at different stages in figures 6.2 and 6.1.

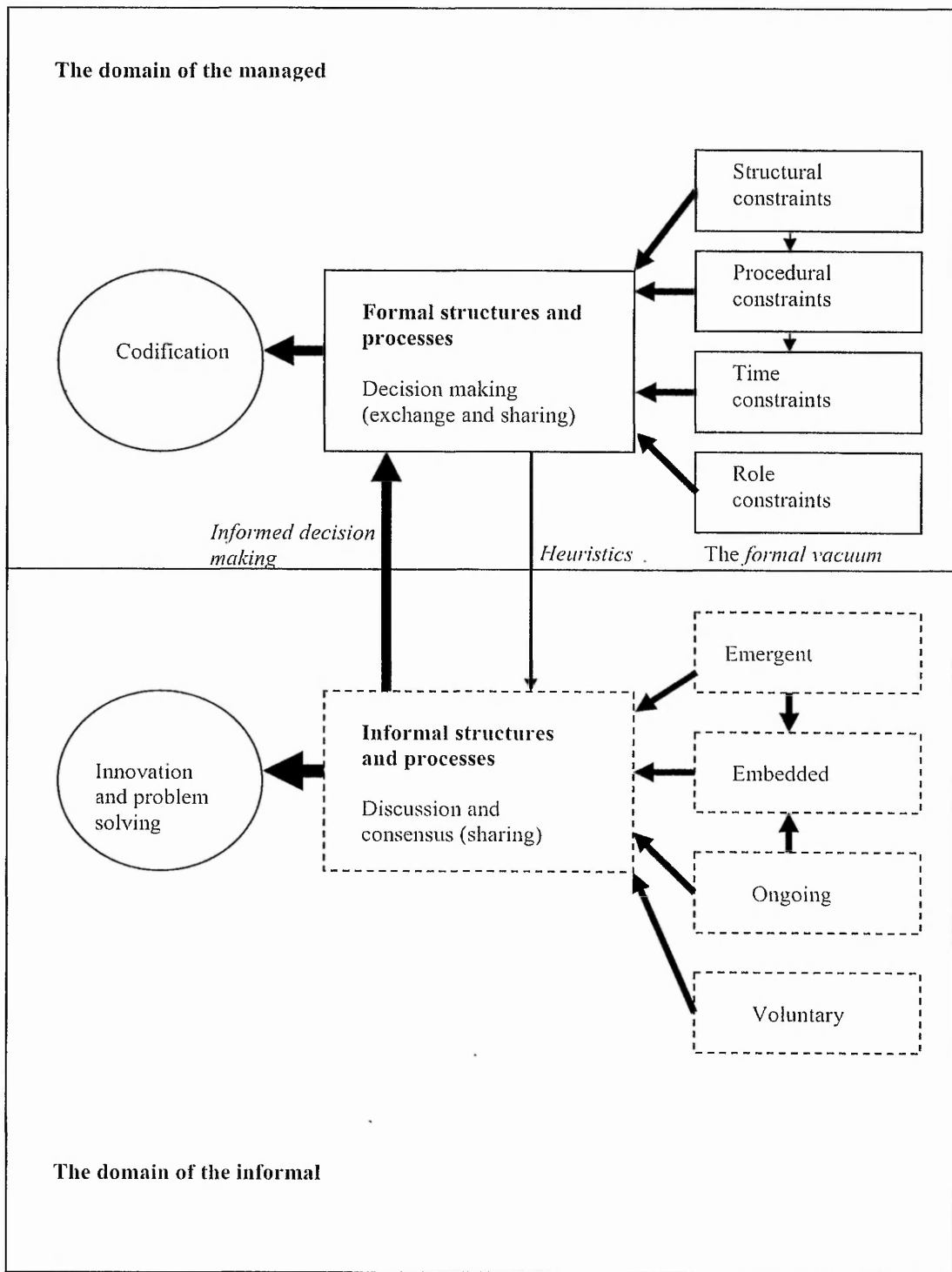


Figure 6.3: The relationship between formal and informal structures and processes

6.1.5 Informal knowledge sharing enables participants to find out what is happening in their own organisations.

Participants exploit social capital to compensate for weaknesses or deficiencies in formal communications. For instance, Kate (3D) explains that:

very often, if we are trying to find out what's going on in the university, it's when someone who does a lot of teaching at [the other site] comes back, saying 'I bumped into [George], I had a chat with him in the corridor'. He very rarely comes over here.

In contrast, Liz (3D) explains that "the informal conversations" she gets involved in tend to be more about teaching issues such as dissertation supervision ("we talk all the time about supervision") rather than about information that appears to be on "a need to know basis" and "just never gets to you". These two examples illustrate how informal social networks are a means through which individuals find or exchange information (Keele, 1986) as well as learn how to do their jobs more effectively (Abrams *et al*, 2003). However, the grapevine can be unreliable:

I mean the number of things I heard over the years that were going to happen that haven't happened and were never going to happen (John, 3E)

Participants in case 2 admit that university and business school communications need to be improved. Mack (2SMT) describes it as "a communication of perspective thing that we haven't been very good at". Peter (2SMT) explains that:

the idea that, actually, we can communicate and manage through a system of 'toing and froing', cascading and coming back up and so on, is okay to an extent but it isn't the whole answer...people will always put a slight spin on things...if you were to ask how you get round that it's by not relying on a single system of communications

Limitations in the communications between people is seen to impact on knowledge formation processes (Hutchins, 1996) within all three cases. This final point is added to the diagram showing the relationship between formal and informal structures and processes in figure 6.4.

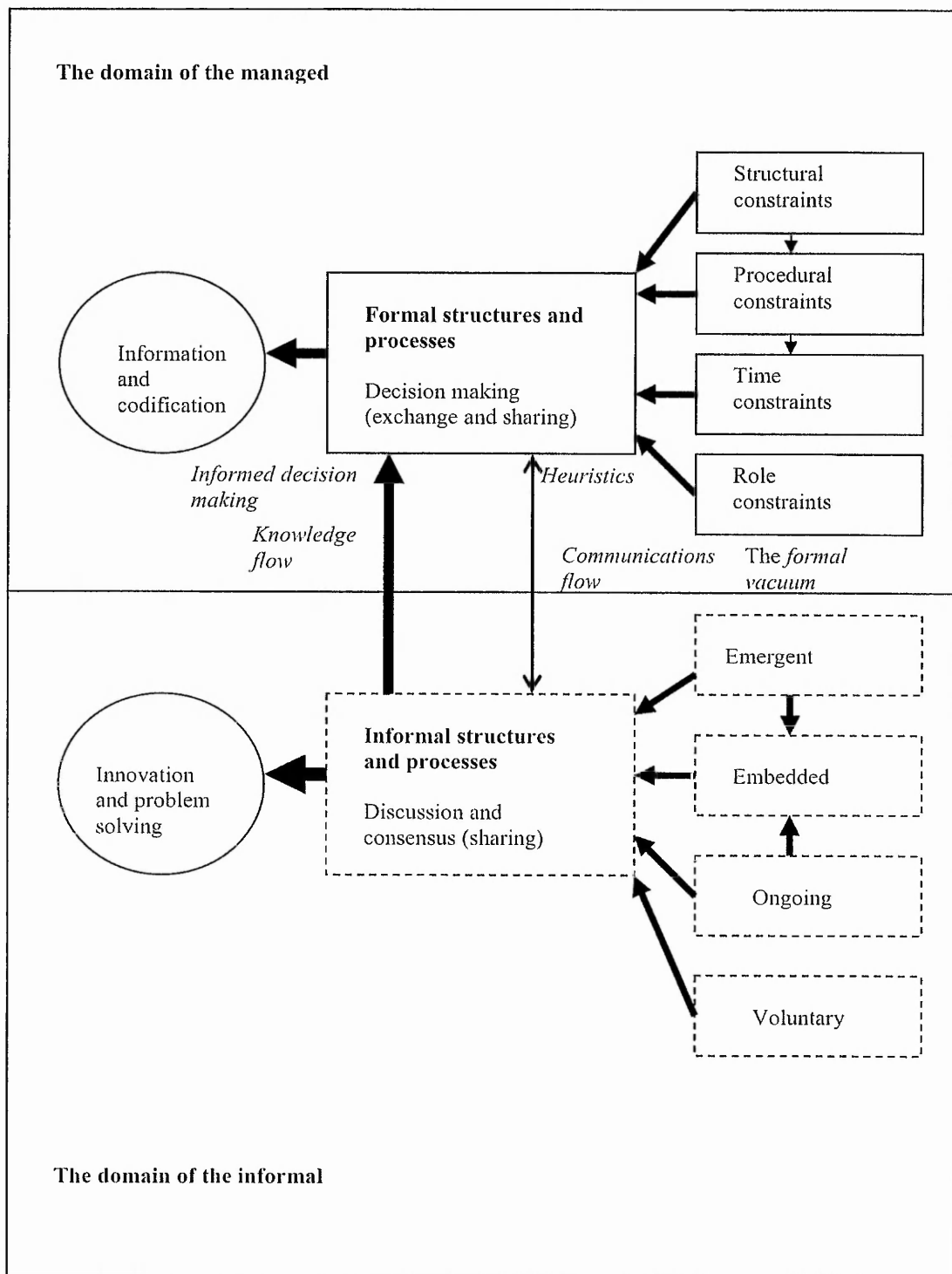


Figure 6.4: The relationship between formal and informal structures and processes

6.1.6 Informalisation

This intertwining of informal and formal structures and processes is termed *informalisation* by the author. A consideration of the formal or informal only provides an incomplete explanation of how knowledge is socially constructed and, in turn, the nature of the relationship between individual, group and organisation. The significance of informal organisation has long been noted, for instance see Barnard (1962 [1938]). Barnard acknowledges that autonomy (the informal) can be an asset to controlled administrative processes (the formal). A particularly pertinent observation by him is that informal processes can facilitate a reduction in the necessity for formal decisions (see the discussion in 6.1.3 above). More recently, adopting a knowledge-based lens, Wenger (1998) refers to 'formal and informal mechanisms' and Tsoukas (2002: 420) to "formal and informal processes of interaction". Understanding how formalisation works in a particular organisation brings clarity and precision to understanding how organisational knowledge is shared and stored within that organisation. As Tsoukas (2002) argues, organisational knowledge comprises sets of routines and experiences. Participants' experiences are shared through the routines that involve informal as well as formal processes. Data has revealed several routines or recurring patterns of behaviour (Feldman, 2000) that are a characteristic of formalisation. Routines can either encourage or discourage knowledge sharing as shown in table 6.2.

Table 6.2: Routines that encourage or discourage knowledge sharing

(the figure in brackets indicates the number of participants making the point; (F) indicates a formal routine)

Routines	Case 1	Case 2	Case 3
Routines that encourage knowledge sharing	<p>Making coffee on the first floor landing area in the house (6)</p> <p>Chatting on the staircase in the house (2)</p> <p>Leaving office doors open in the house (5)</p> <p>Listening to conversations on the stairs or landing in the house while sitting in your own office ('earwiggling') (3)</p> <p>Having lunch together on the house steps in the summer (1)</p> <p>Having lunch together in the canteen (4)</p> <p>Having an away-day (2)</p> <p>Socialising with subject group colleagues (1)</p> <p>Meeting together outside formal meetings to share ideas, arrive at a consensus (2)</p> <p>Research collaboration – writing a joint paper (F) (4)</p>	<p>Leaving your office door open (4)</p> <p>Working closely with colleagues in an informal basis (1)</p> <p>Popping in and out of colleagues' offices to discuss issues informally (4)</p> <p>Having weekly informal meetings (3)</p> <p>Having an away-day (1)</p> <p>Involving more staff in strategic planning groups (F) (1)</p>	<p>Team teaching (3)</p> <p>Research collaborations (F) (3)</p> <p>Always going for coffee together (1)</p>
Routines that discourage knowledge sharing	<p>Having to make a 'special' trip across campus in order to replicate the informality of a shared space as in the house (3)</p> <p>A lot of people work at home and there's not a lot of sharing (1)</p>	<p>Having to make a 'special' trip across campus in order to replicate the informality of a shared space (1)</p> <p>Attending formal meetings, particularly at university level (F) (4)</p>	<p>Everybody shuts their door when they are in their office (1)</p> <p>A door between corridors is kept closed and this literally closes us off from colleagues (1)</p> <p>Staff from other departments in the same building will not speak to you in the corridor unless you speak to them first (1)</p> <p>Staff who have moved to open-plan offices have put up little barriers (1)</p>

			People now spend more time working at home (1) Eating lunch in the office (1)
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The routines identified above are predominantly informal. This is interesting because it has already been identified that knowledge sharing processes are a characteristic of formal as well as informal structures (although the levels and mix of knowledge sharing processes are different). Yet participants tend to focus on routines that are associated with informal structures and processes. This suggests that there is something distinctly different about informal interactions. Certainly, participants appeared more energised in the interviews when discussing informal structures and processes. Also, participants appeared to accept formal routines as a given (e.g. conforming to bureaucratic protocols etc). Many of the routines that discourage knowledge sharing are a consequence of decisions made through formal structures (e.g. office location; committee attendance).

As before the house in case 1 stands out across all three cases: Participants working in the house use the first floor landing area as a social space within which they can share ideas and expertise, discuss problems and chat about outside interests as well as work. By leaving their office doors open they can hear if a discussion is taking place and join in that discussion if they so wish. Several case 1 participants also use the canteen as an opportunity to interact socially as well as to eat their lunch (which many admit they could just as easily do in their own offices if they so wished). These informal routines illustrate how social capital can result in institutionalised behaviour (Carroll & Stanfield, 2003). This institutionalised behaviour is as much a part of academic

practice as the institutionalised behaviour resulting from formal routines. The two are dependent on each other. This intertwining, that characterises informalisation, also includes the embedded and encoded aspects of stored knowledge: organisational memory that is based on codification exists alongside community memory (Orr, 1990) that is embedded in the social capital found in informal groups and networks.

Participants are aware of informalisation:

it's the integration of the two. It's the fact that both are necessary. I'm a social animal so [I] consider conversations are always going to go on, wherever you are...I think a lot of our corridor conversations or lunch conversations are very positive. That's very, very important. Its the sort of weft and weave of an organisation, that strength that allows it to do that, to bend and not break, and takes the strain...The other part, the sort of more formal interaction is important because we do have to have certain ways of communicating formally and a formal structure...The formal meetings are to codify...So I don't think either is more important than the other. I think its getting them both right to the level where one benefits the other (Art, 2SMT).

There is, in effect, a symbiotic relationship between the formal and informal (Mankin, 2003a). Mack (2SMT) even argues that the informal meetings are "more important than the formal ones". Art (2SMT) offers an example of the symbiotic relationship between formal and informal structures and processes, also illustrating the role of outputs, in the form of decisions and information, as the linkage between different fora:

we've been meeting once a month, regularly, plus quite a lot of informal discussions as well...the [monthly meeting] has been very important because there are issues that come to that of how people are handling the [issue]. What people think, what views are coming out. And that's been an important sounding board, an important way of getting things done. So we make decisions there, 'we'll do it this way, that'll be done that way, let's talk about that'. So, yes, I think its had a very important effect...People can also raise issues or concerns with other people involved in the [issue] that they're unhappy with...Its logged as an official meeting and the minutes go to the SMT

This intertwining of the formal and informal provides an explanation of how knowledge is socially constructed and shared between individuals, as well as within and between groups that constitute the organisation. Informalisation binds together formal and informal routines; as well as the experiences arising from the routines (Tsoukas, 2002). Viewing organisations through the lens of informalisation builds on the socio-technical perspective but develops the perspective by differentiating between informal and formal subsystems of an organisation. rather than focusing on "a single template (the autonomous work group)" (Pan & Scarborough, 1999: 361). Unlike previous studies based on a socio-technical perspective, such as that by Pan and Scarborough (1999), the lens of informalisation does not presume the prior existence of a formal knowledge management strategy or KM architecture which can result in prescriptive recommendations (such as reward systems) that can be counter-intuitive to the realities of the context.

At this stage in the analysis it needs to be noted that the significance of this study is that it (a) contributes empirically to an understanding of the relationship between informal and formal structures and processes, and (b) reveals the importance of this to

a particular type of organisation: the new university. A diagrammatic interpretation of informalisation is shown in figure 6.5.

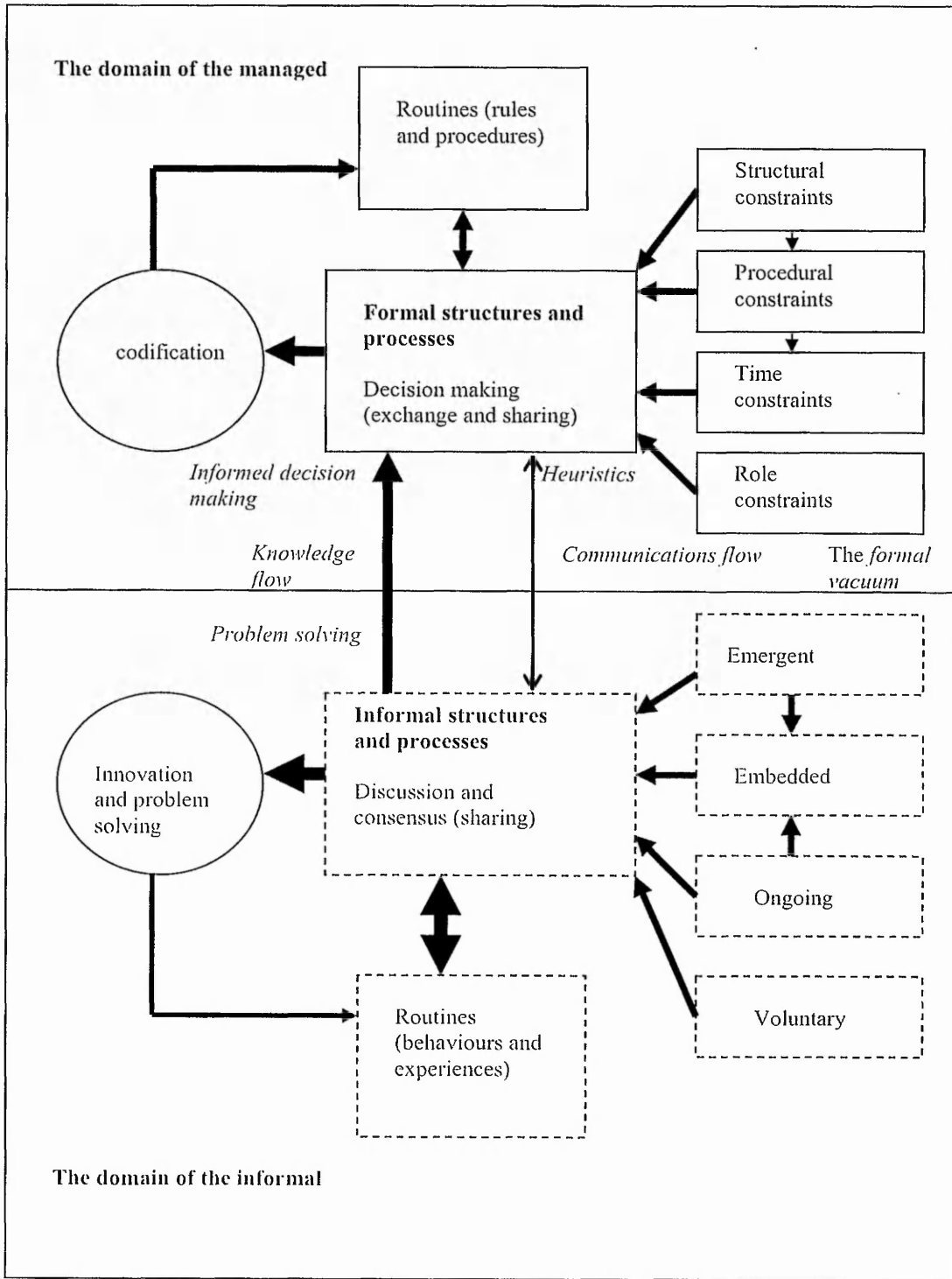


Figure 6.5: Diagrammatic representation of informalisation

6.2 The third wave

6.2.1 The validity of the third wave concept: evidence of a first wave perspective

Analysis of the literature on knowledge management reveals that the concept has evolved in the form of 'waves' and it is proposed that a third wave is now underway in which knowledge *management* (i.e. control) and knowledge *development* (i.e. cultivation) are complementary rather than either-or processes. What data can be drawn from the three cases to validate this proposition? None of the participants in the three cases refers to a formal organisational strategy or policy for managing knowledge and there is a lack of evidence of any knowledge management systems being in place. However, it is possible to discern several observations on the control versus cultivation debate which shed some light on the credence of this proposition.

The managers in case 2 all describe their roles in the same business-like (managerialist) way and agree that the primary purpose of the SMT is to manage the strategic and operational aspects of the business school. For instance, Tom (2SMT) asserts that the purpose of the SMT is "definitely to do with the direction the organisation goes in". They appear to share "a passion for the business school" (Art, 2SMT) and stress the role of "collaboration" (Tom, 2SMT). Yet Mack (2SMT) concedes that colleagues would probably decline his request for help if he "asked as a manager" suggesting a gap between the rhetoric and the reality. There are several examples of management attempting to formalise (control) what has been informal in the past: imposing an assistant dean as chair and insisting on agendas and minutes. Changes to the post graduate course managers' group also reveal a change in focus:

from innovation and problem solving to income generation. This formalisation process, in which the focus is on financial considerations, is consistent with trends in higher education generally (Taylor, 2002).

In case 1 Jilly (1A) views such *engineering* (Mankin, 2003b) as a constructive move explaining that in terms of the formalised course managers group the assistant dean now:

runs this group primarily to find out what's bugging people who are in course management positions and...to make plans for the future about where the courses are going, and recruitment and all that kind of thing.

In contrast Richard (1B) warns of the potential dangers of this formalisation process. He feels the "beauty" of informal processes "is that stuff isn't down in stone". This view is endorsed by Hayley (1Ad) who explains that Bruce (1HOD):

tried to have a weekly lunch session meeting, but more formal, and only three or four of us went. It was very hard to get everybody together and it was felt that you didn't get that spontaneity that you just get some days on the stairs.

This raises questions about the merits of management attempting to bring such groups under direct control. The formalisation of an informal group ignores the bottom-up, emergent nature of involvement and commitment (Alvesson, 2004) and the degree to which informal work groups are a manifestation of worker autonomy (Katz, 1965). In case 3, Liz (3D) articulates the dilemma:

there are things that need to be controlled but actually in practice we all operate in a fairly free fashion and I think that actually is very conducive to innovation and thinking in both the teaching and research areas.

Richard (1B) feels that the growth in size of the business school in recent years means that a great deal of knowledge sharing which “used to just all happen fairly informally” now needs “more formal structures and systems in place”. Joanne (1A) has a similar view arguing that formal fora, such as scheduled research-based staff seminars need “needs to be better managed”. These examples indicate a management-by-control perspective that is consistent with the first wave approach to KM and contradictory to the second wave in which “knowledge needs to be nurtured, supported, enhanced, and cared for” (Nonaka & Konno, 1998: 53). There is no evidence to support a third-wave approach.

6.3 The role of technology

6.3.1 How academics use technology

Di Petta (1998) asserts that virtual, or on-line communities, reflect the development of a new kind of technologically mediated social environment. However, there is very little evidence from the data to support the validity of this proposition in relation to the three cases. There are only a handful of references made to technology and most of these are in case 3. There is one reference only to any kind of knowledge database which simply lists the publications of academics; although Kate (3D) believes this to be “a wonderful tool” for creating connections between people. She is adamant though that the actual knowledge sharing process is the result of subsequent

“collaboration” between academics. Other references are to e-mail communications apart from one reference to learning technologies. Case 3 is characterised by increased usage of e-mail for on-site communications. Phil (3E) acknowledges that although email “is used an awful lot... it is not always the best means of communication” and George (3HOS) admits the volume of email has become “a real problem” because people “want an instant answer”. Tony (3F) observes, “what hasn’t happened is actually having technology change how we do things”. Given the lack of references to technology in cases 1 and 2 the study appears to support the view that technology can have a limited impact on routines (Nelson & Winter, 1982) which remain focused on face-to-face contact. This suggests that new university business schools appear to share a similarity with certain professional service firms: the role of technology is relatively minor (Robertson & Hammersley, 2000).

6.4 Summary

6.4.1 Key findings

The key findings from this chapter are:

8. Informal structures and processes emerge where there is a ‘formal vacuum’ (i.e. a lack of opportunities to share knowledge about specific issues through formal structures and processes).

9. Informal knowledge sharing informs formal decision-making (outputs). Without this formal decision-making is ‘constraint-bounded’ and typified by heuristics.

10. Participants exploit social capital to compensate for weaknesses or deficiencies in formal communications

11. Informal and formal structures and processes are intertwined in a symbiotic relationship described as *informalisation* by the author. The significance of this study is that it (a) contributes empirically to an understanding of the relationship between informal and formal structures and processes, and (b) reveals the importance of this to a particular type of organisation: the new university. Preceding analysis of knowledge formation processes highlights the context-specific nature of informalisation.

12. Participants tend to focus on routines that are relevant to knowledge sharing within informal structures. This suggests that there is something distinctly different about these informal interactions.

13. There is no evidence to support a third-wave approach. Management practices tend to reflect a control or engineering approach.

14. Technology has very little impact on the knowledge sharing processes identified in the study.

These findings have been added to the developing conceptual framework in figure 6.6.

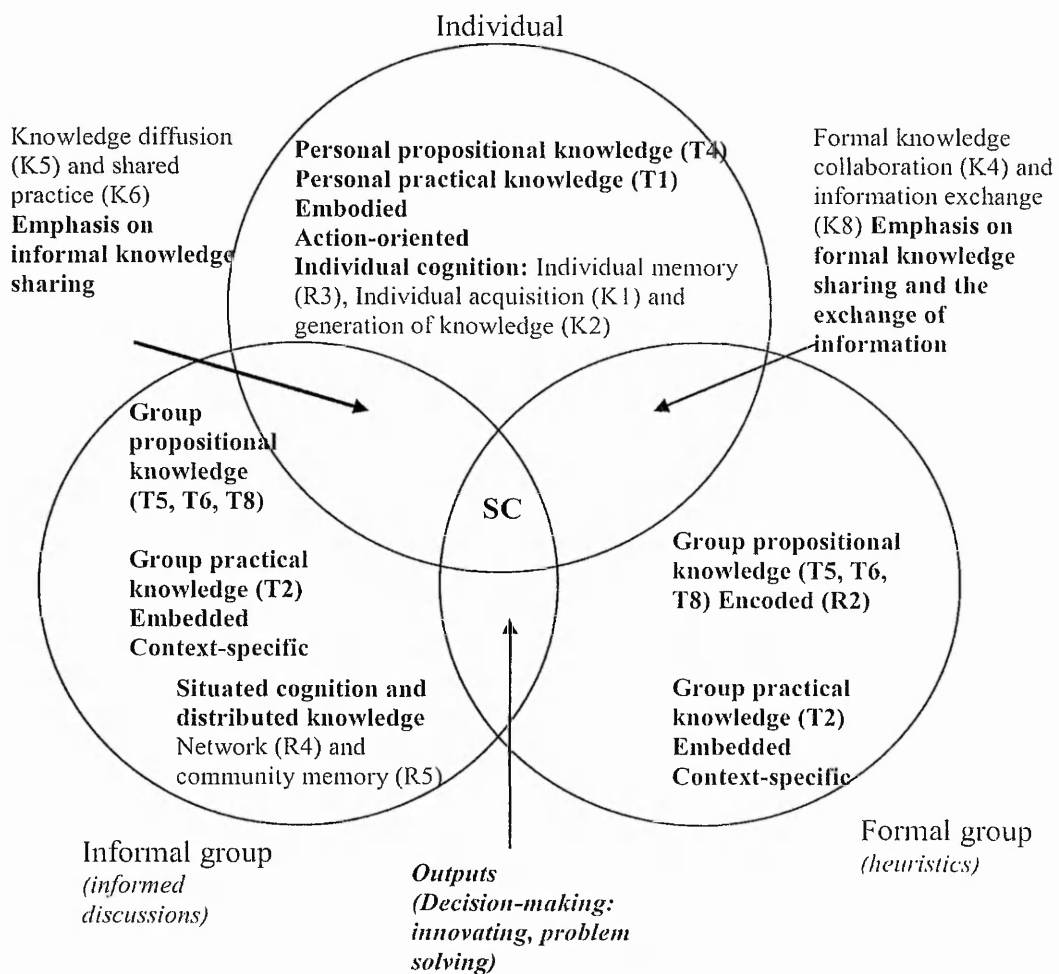
The two domains:

1. The reified (knowledge can be articulated)

External repositories of knowledge (R1) and structured internal Knowledge transfer between organisations (K7)

Knowledge in the public domain (R6)

2. The subjective (knowledge is difficult or impossible to articulate)



SC = Social construction of knowledge

Figure 6.6: Diagrammatic summary

Chapter 7: Discussion and analysis of findings

Personal knowledge and shared knowledge

7.1 Research question and associated propositions

The original research question and associated proposition(s) is shown in table 1 below.

Table 7.1 Original research question and associated proposition(s)

Research question	Proposition
3. What do individuals claim are the similarities and differences between personal knowledge and shared-knowledge?	<p>3.1 Psychological and sociological perspectives on learning and knowledge are complementary (reflecting a third wave approach to knowledge management). An individual learns through the combination of individual and social learning theories. He/she learns from the shared practice within a community of practice (situated learning) and through the acquisition of skills and knowledge within and without the community (cognitive learning).</p> <p>3.2 Shared knowledge is socially constructed. Personal knowledge is the individual's interpretation of this shared knowledge in the form of practical and propositional knowledge and involves knowing who to ask if that personal knowledge is perceived to be incomplete or inadequate.</p>

In order to understand the relationship between personal knowledge and shared knowledge it is important to understand the relationship between knowledge and learning. The data support the view that learning and knowledge are inextricably linked or "intertwined in an iterative, mutually reinforcing process" (Vera & Crossan, 2005: 131).

7.2 The principal learning processes

7.2.1 A taxonomy of learning processes

From the data it has been possible to construct a taxonomy of learning processes, summarised in table 7.2. Some learning processes have sub-codes. A more detailed version of the table including illustrative data examples is in appendix 2. Other theorists have produced typologies of learning. For instance, a typology of non-formal learning (Eraut, 2000) and a typology of planned versus unplanned learning (Hodkinson & Hodkinson, 2004). Some of the L codes reflect the relationship between learning and knowledge formation processes (e.g. L2 and L3 referring to 'knowing what' and 'knowing who').

Table 7.2: A taxonomy of Learning processes

L1	Experiential learning (learning by doing)
L2	Knowing what (also who/where)
L3	Knowing how
L4	Problem solving
L5	Reflective practice
L6	Situated learning - learning through social participation/shared practice (learning from colleagues) L6.1: Specific example of situated practice L6.2: Sharing information L6.3: One-to-one collaboration L6.4: Sharing expertise L6.5: Discussing a specific issue

L7	Giving or receiving information to others L7.1: giving information to others L7.2: receiving information from someone else
L8	Cognitive (e.g. reading, listening, writing)

Data on learning processes for each of the cases is shown in appendix 3. This data is drawn upon in subsequent sections of this chapter.

7.2.2 Key learning processes identified in the study

Table 7.3 compares the *overall* number of incidents for each learning process identified in each of the three cases. This isolates the figures for situated learning (L6), highlighting the extent to which learning is a collaborative activity (Sun, 2003) which is situated in workplace practice (Lave & Wenger, 1991). The figures for situated learning are remarkably close across the three cases although there are underlying differences when the figures are broken down. The level of L6 in case 2 illustrates the relevance of situated learning to management as well as academic practice.

Table 7.3 Overall incidences of learning processes

	L1	L2	L3	L4	L5	L6	L7	L8
Case 1	25 (5.7%)	60 (13.6%)	30 (6.8%)	27 (6.1%)	8 (1.8%)	197 (44.8%)	69 (15.7%)	24 (5.5%)
Case 2	2 (1.4%)	7 (4.7%)	6 (4.0%)	21 (14.2%)	3 (2.0%)	75 (50.7%)	32 (21.6%)	2 (1.4%)
Case 3	8 (2.8%)	27 (9.6%)	10 (3.6%)	39 (13.9%)	12 (4.3%)	120 (42.7%)	58 (20.6%)	7 (2.5%)

Table 7.4 concentrates on the levels of L6 in formal and informal structures.

Table 7.4 Levels of situated learning in formal and informal structures

L6 Situated learning	Informal	Formal
Case1	63.5%	36.5%
Case 2	16.0%	84.0%
Case 3	50.8%	49.2%

Table 7.5 compares levels of giving or receiving information (L7) in formal and informal structures.

Table 7.5 Levels of giving or receiving information in formal and informal structures

L7 Processing information	Informal	Formal
Case1	31.9%	68.1%
Case 2	9.4%	90.6%
Case 3	60.3%	39.7%

These tables reveal that situated learning is a feature of formal structures but to different degrees in each of the cases. As with knowledge formation processes this demonstrates two things. First, the context-specific nature of informalisation in each of the cases; second, the extent to which management practice is much more reliant on formal structures complemented by informal processes whilst academic practice is reliant on both informal structures and processes. If the departments in case 3 were treated as purely formal constructs the respective figures would be 28.3% and 71.7% for situated learning (L6) and 32.8% and 67.2% for processing information (L7), much closer to case 2 than case 1.

In terms of the house in case 1, 78.2% of all learning incidences refer to L6 (situated learning) with only 2.9% referring to L7 (information exchange): a ratio of 27:1 which again highlights the uniqueness of this sub-group in the study. At the subject group level, which incorporates several participants located in different office blocks,

there are many more incidences of individual learning while information exchange remains low (7.6%).

In terms of situated learning (L6) further analysis of the L6 sub-codes for the three cases reveals further evidence of contextual differences (see table 7.6).

Table 7.6 Situated learning sub-codes

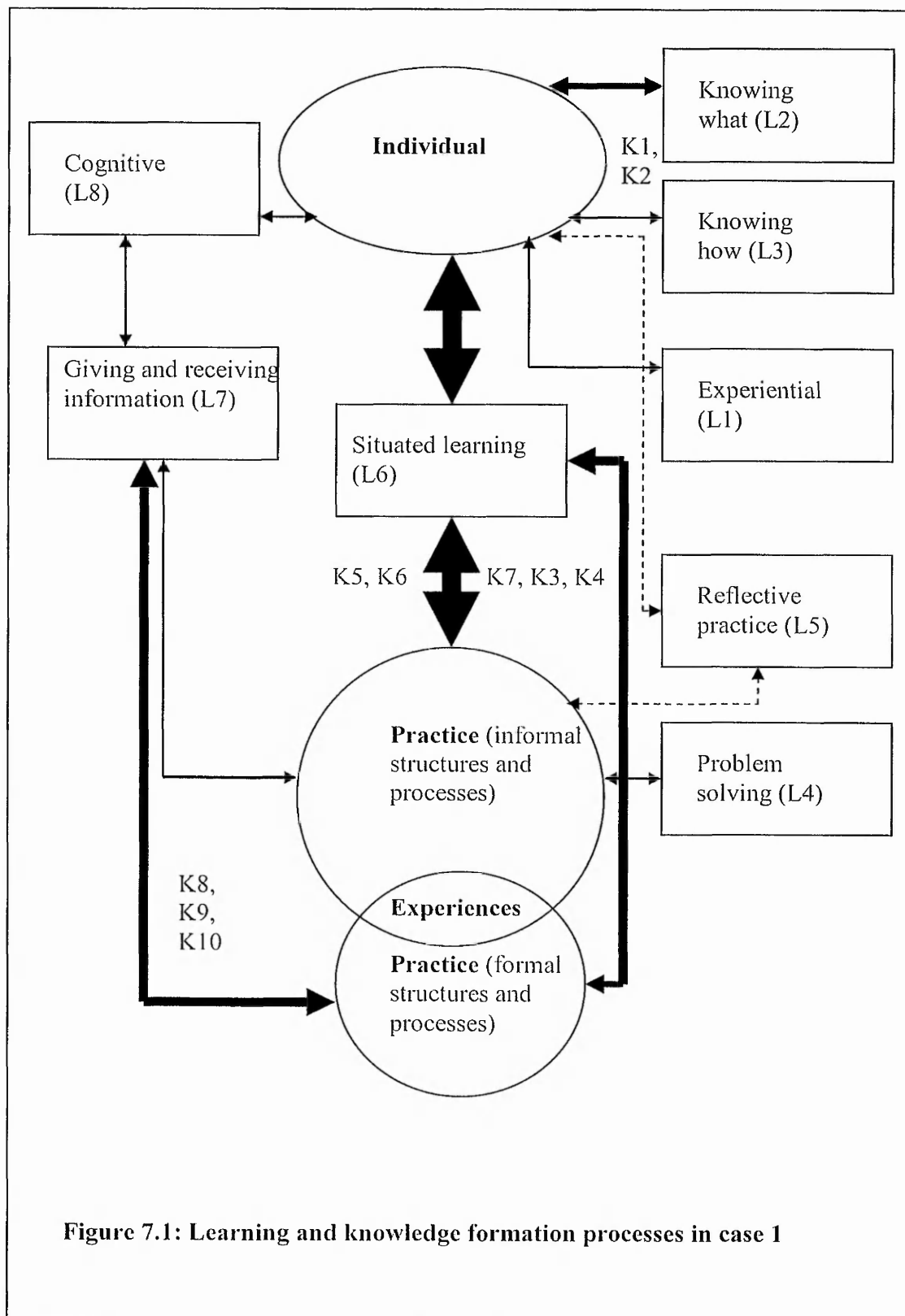
	Case 1	Case 2	Case 3
L6 Learning from colleagues	17.3%	18.6%	27.5%
L6.1 Specific detailed example of situated learning	6.0%	2.7%	5.6%
L6.2 Learning through the sharing of information	15.7%	24.0%	11.7%
L6.3 Learning through one-to-one collaboration	11.7%	2.7%	9.7%
L6.4 Learning through the sharing of expertise	23.9%	12.0%	21.7%
L6.5 Learning through discussing a specific issue	25.4%	40.0%	23.8%

The higher L6.5 and L6.2 percentages in case 2 illustrate differences between academic and management practice; with the L6.2 figure reflecting the stronger management focus on information processing. Cases 1 and 3 are characterised by higher levels of sharing expertise.

7.2.3 The relationship between different learning processes in each of the cases

The findings for case 1 are summarised diagrammatically in figure 7.1 (which also draws on previously analysed data for knowledge formation processes). At the heart of the model is the concept of practice which takes place in both formal and informal contexts. These are linked through the experiences that comprise an individual's daily working life (academic practice). The thickness of a line reflects the 'strength' of the

relationship based on the quantitative analysis of data. A dotted line reflects a 'weak' relationship (i.e. very limited evidence provided by the data).



Case 3 is markedly different to case 1 as noted above in tables 7.3 and 7.4. There are other differences between the two cases. Members of the same informal group engage in formal collaborations with each other to a lesser extent than in case 1. 12.1% of L6 incidences relate to formal collaborations between members of the same group (K4). This compares to 25.3% in case 1. This may be symptomatic of the deeper divisions and tensions evident in case 3 and the way in which participants form small informal subgroups and cliques which in the case of the teaching fellows network spans departmental boundaries. Also L6 incidences that relate to formal collaborations between members of different groups (K3) is higher in case 3 than in case 1: 25.8% to 11.2% suggesting there is less of a silo or balkanisation effect in case 3. Figure 7.2 shows the knowledge formation and learning processes diagrammatically for case 3. As before, the thickness of the line denotes the 'strength' of the relationship based on the data; with a dotted line indicating a weak relationship based on a lack of data.

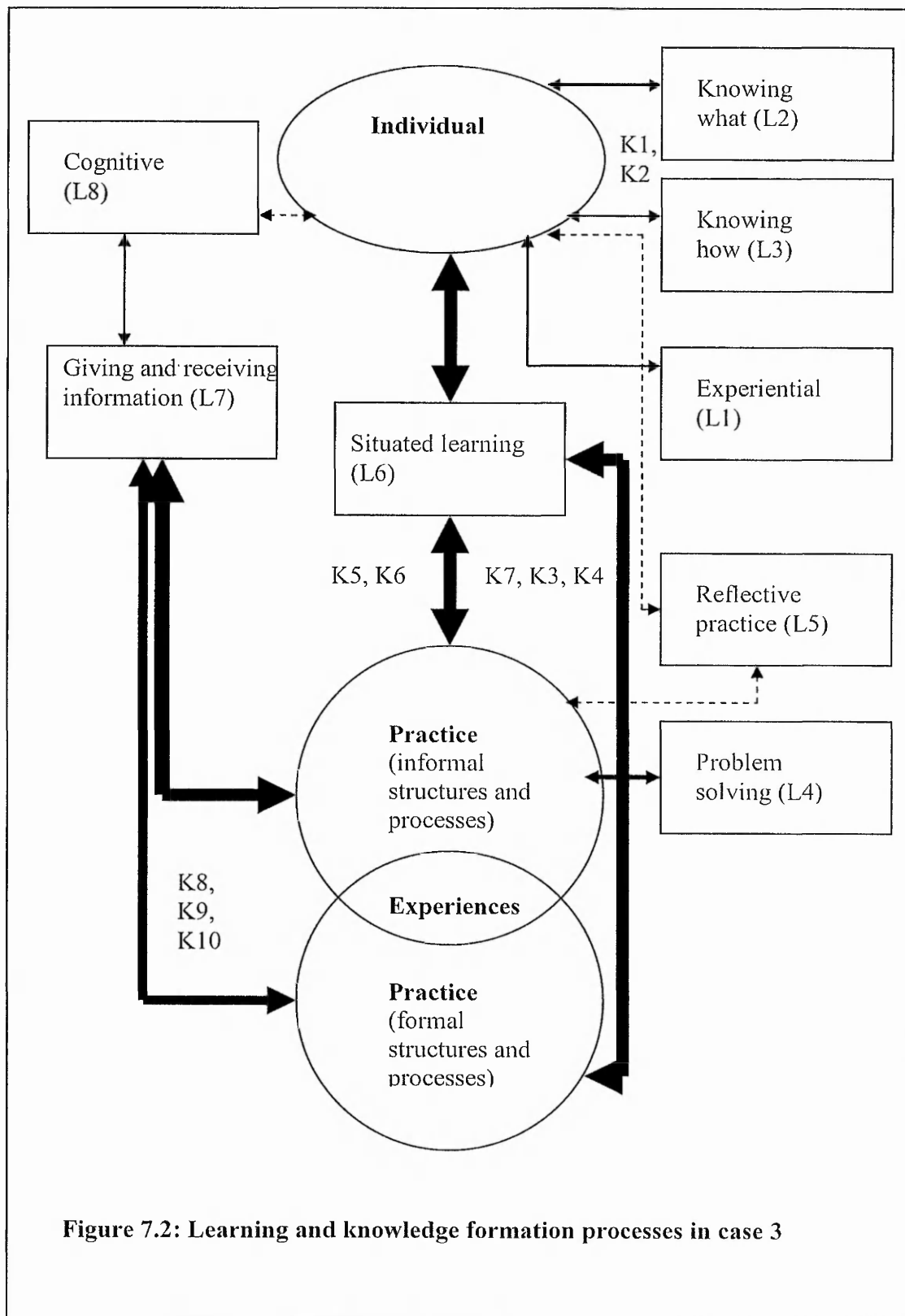


Figure 7.2: Learning and knowledge formation processes in case 3

The principal differences between management practice in case 2 and academic practice in cases 1 and 3 was highlighted above. In case 2 the number of incidences of situated learning (L6) that relate to formal collaborations between members of the same group (K4) stands at 18.8%. This compares with 25.3% and 12.1% in cases 1 and 3 respectively. L6 incidences that relate to formal collaborations between members of different groups (K3) is 20.2% which compares with 11.2% in case 1 and 25.8% in case 3. It was anticipated that this figure would be higher for members of the SMT given their management roles which involve attending a great many cross-functional groups and committees. It reflects the extent to which all four participants placed limited value on many of the formal fora (particularly university level groups) and focused primarily on day-to-day workings within the SMT itself.

Figure 7.3 shows the knowledge formation and learning processes diagrammatically for case 2. As before, the thickness of the line denotes the 'strength' of the relationship based on the data; with a dotted line indicating a weak relationship based on a lack of data.

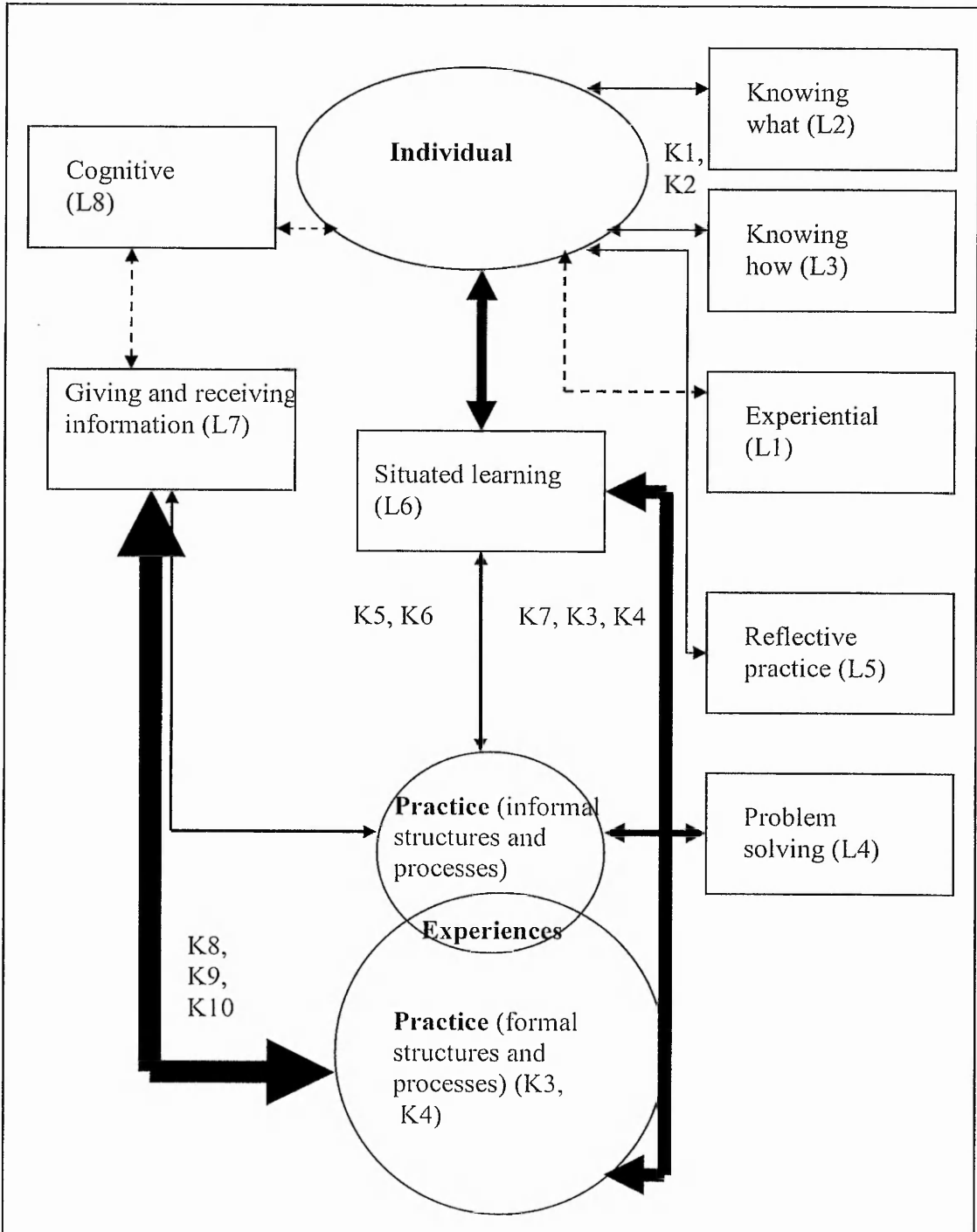


Figure 7.3: Learning and knowledge formation processes in case 2

7.2.4 Reflections on the data

One interesting difference in table 7.3 above concerns L4 (problem solving). Not only is the percentage higher in case 3 but so is the number of examples identified from the transcripts (39 to 27). This may reflect the extent to which formal structures and processes are more stable in case 1 than in case 3. In case 3 major restructurings are more frequent and staff were in the process of being relocated to a new campus at the time the interviews took place. Participants gave very few examples of reflective practice (L5) although it can be argued that this is implicit in shared practice as part of the process of learning from colleagues (L6). It was also evident that the interview process itself prompted participants to reflect on certain issues: many commented that they hadn't consciously thought about some of the issues they were now being asked about. The much higher incidence of L2 than L3 processes in cases 1 and 3 reflects the ability of participants to articulate the acquisition of know-what (i.e. propositional knowledge coded as T4) rather than know-how (i.e. practical knowledge coded as T1).

7.2.5 Key findings

The association of a practice-based perspective on learning within informal communities (Lave & Wenger, 1991; Wenger 1999) is confirmed by case 1 data. However, the situation is less clear in case 3. In terms of management practice much of the social learning in case 2 is the result of dyadic relationships between individual assistant deans and the dean and the SMT 'having to work with each other' (as

expressed by Art (2SMT). The nature of informalisation in case 1 strongly supports the view that informal structures and processes are more effective than formal systems for knowledge sharing (Scarborough & Carter, 2000). In case 3 there is more of a balance between the informal and formal. The findings in all three cases support the social capital perspective in which social relations constitute a resource (Leana & Van Buren, 1999). It is about “connecting with other people” (Kate, 3D).

The key findings from this section are:

15. Social learning theory best characterises academic and management practice. The most common learning process identified in all three cases is situated learning (L6). 78.2% of all learning incidences in the house (case 1) related to situated learning.

16. As with knowledge formation processes the data on situated learning (L6) demonstrates the extent to which management practice is much more reliant on formal structures complemented by informal processes whilst academic practice is reliant on both informal structures and processes.

17. The analysis of learning processes reveals the context-specific nature of informalisation.

7.3 The relationship between personal knowledge and shared knowledge

7.3.1 The identification of personal knowledge in the three cases

Personal knowledge is expressed as propositional knowledge (T4) by participants. The practical (T1) dimension of personal knowledge can be inferred often from how this T4 knowledge is expressed. For instance, George (3HOS) explains that “student numbers have increased” (a T4 statement) but in identifying that “teaching is not the problem... marking is the problem” T1 knowledge is inferred (i.e. the *practice* of assessment). This, in turn, is linked to a L4 process (i.e. problem solving). This illustrates how the two dimensions of knowledge and different learning processes are intertwined. The interaction between T1 and T4 dimensions is further illustrated by Nancy (3Ad), with L1 and L4 processes inferred:

it took me quite a while to see how I could help him...because he was doing everything himself. Yes, he needed somebody to answer the phone but I was at a loss as to what else I was supposed to be doing. But now I have got access to his calendar which, even to my knowledge, has never been done before.

Marilyn (3Ad) articulates what she sees as her most valuable personal knowledge and offers an insight into how this has accrued:

my biggest skill is basically having the knowledge. I have more knowledge about the whole because I have been here longer than anyone else, even longer than downstairs. It is my knowledge of how things used to be, who people are, the way it

is done and the way it has been done... my understanding of how [the university] works.

Personal knowledge implies a role for individual memory and it is possible to identify examples of this in the data; for instance, Elsie's (1A) description of herself as a "repository of a certain amount of knowledge". Quantitative analysis of the incidences of personal memory in comparison to collective (network or community) memory are shown in table 7.7

Table 7.7 Comparison of individual and community memory

	Individual memory (R3)	Collective memory (R4, R5)
Case 1	42.8%	21.1%
House	22.0%	48.0%
Networks	20.0%	36.0%
Case 2	32.4%	29.7%
Case 3	40.5%	15.8%
Departments	10.4%	20.8%
Networks	43.6%	20.5%

The figures for the house and networks in case 1 indicate the significance of knowledge that is social embedded in micro-contexts. This indicates that cognition is *situated*. In discussing expert knowledge Risku (2004) emphasises the importance of situated cognition, observing:

the individual history and the present environment, together with its artefacts, form an integral part of the process of expert knowledge and activity. Due to the major role played by the environment, any attempts to explain expert activity by describing processes in the brain or an individual alone are bound to fail (page 39).

As with other cross-case comparisons the differences between cases reflect the context-specific nature of the processes being studied. However, collective memory

can be fragile as Annie (3G) explains: “when the faculty went...we lost a lot of our things which had worked”.

7.3.2 The relationship between learning and knowledge formation processes

Table 7.8 draws upon data from tables 6 in appendix 3 which is an analysis of the relationship between knowledge formation processes (K codes) and learning processes (L codes). These tables show the number of incidences where a particular learning process has been identified against a particular knowledge formation process. These relationships can be described as identifying when:

- i. an individual is learning independently of others, such as reading an article or book: psychological theory only;
- ii. an individual is learning in a passive manner in a social context, such as observing or listening to others: specifically Bandura’s (1977) cognitive-social (socially mediated) theory; and,
- iii. an individual is learning through active engagement with others, such as a group discussion about a shared practice (social learning theory).

Table 7.8: The relationship between L and K codes

	Psychological theory	Cognitive-social theory (Bandura, 1977)	Social learning
Case 1	31.2%	3.9%	64.9%
Case 2	14.3%	5.0%	80.7%
Case 3	19.9%	12.6%	67.5%

This shows that social learning, involving the active engagement of individuals in a social context, best characterises academic and management practice; and, supports

earlier findings in relation to the analysis of L codes only. As Tom (2SMT) observes: “people learn from each other”. The low figure for psychological theory in case 2 (14.3%) reflects differences between management and academic practice mentioned in section 5.2.1.

It may appear from tables 7.7 and 7.8 that individuals often learn in isolation from a social context (e.g. reading an article or a book); however, articles and books are social artefacts which act as triggers for individual learning. In this sense an individual is still actively engaging with a social context albeit in a predominantly passive manner (i.e. *thinking* rather than *acting*). However, the outcome of this passive learning is normally socially oriented and requires active engagement (i.e. *acting*) in the work-world (e.g. research collaboration; teaching; management discussion etc). Illustrative examples of learning triggers taken from the three cases are shown in table 7.9.

Table 7.9 Illustrative examples of learning triggers

Reading a book or article	Observation and imitation
Writing a conference paper	Listening to others
Preparing a research bid	Giving or receiving feedback
Thinking about any aspect of academic or management practice	Discussing student learning
	Gossiping (which can trigger something to do with work)
	Problem solving with colleagues

The left-hand column would, again, seem to suggest the primacy of psychological processes and the right-hand of sociological. This is an over-simplification and very much a theoretical distinction. The levels of situated learning (L6) and knowledge sharing (K3, K4, K5, K6, K10) identified in the study and discussed earlier highlight

that much of the knowledge in the three cases is being socially constructed. This requires the active engagement of the individual in social contexts (i.e. the individual is thinking *and* acting within the work-world). However, the boundaries between individual and social learning and between personal knowledge and socially constructed knowledge become blurred in a dynamically entwined relationship. Drawing upon the data examples in the transcripts it has been possible to arrive at a model for learning that captures this relationship. This is shown in figure 7.4.

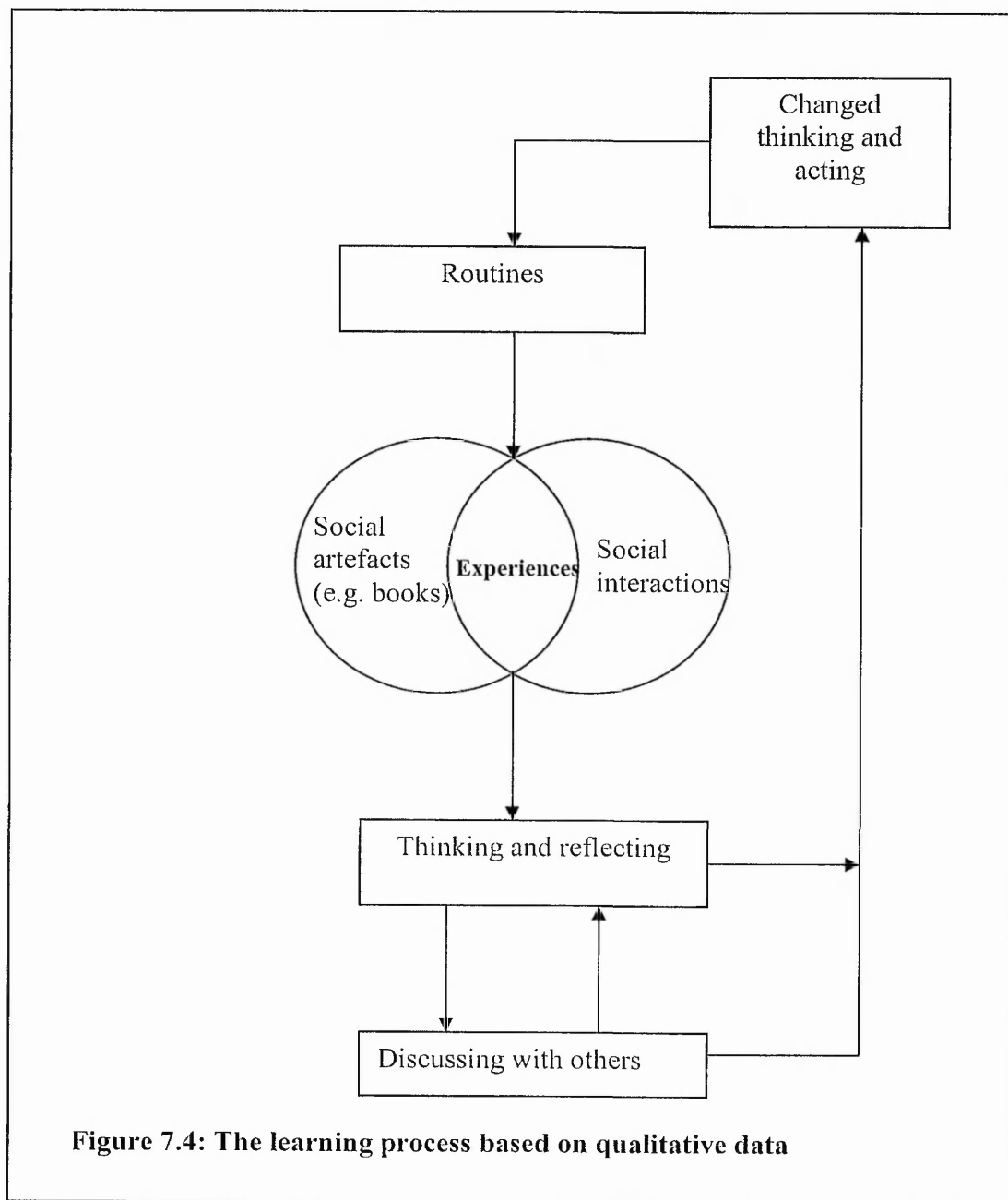


Figure 7.4: The learning process based on qualitative data

Learning and knowledge acquisition and generation that may be attributed to the individual remain anchored in social contexts. The ‘movement’ between personal and social knowledge has been referred to as the *social exchange* (Kayes, 2002). This process is implicit in the mediating role of groups within the learning-knowledge exchange discussed by the author in chapter 2. Language and experience are pivotal

to the learning process. Social interaction provides the primary experience for individuals (Jarvis, 2006) and therefore is pivotal to understanding how people learn and share knowledge. Situated cognition and learning (Lave & Wenger, 1991) are anchored in the micro-context which is the locus for practice (academic practice and management practice in cases 1, 2 and 3). Social interaction stimulates individual cognition (Vygotsky, 1978).

Figure 7.5 applies the learning process in figure 7.4 to a specific example from case 3.

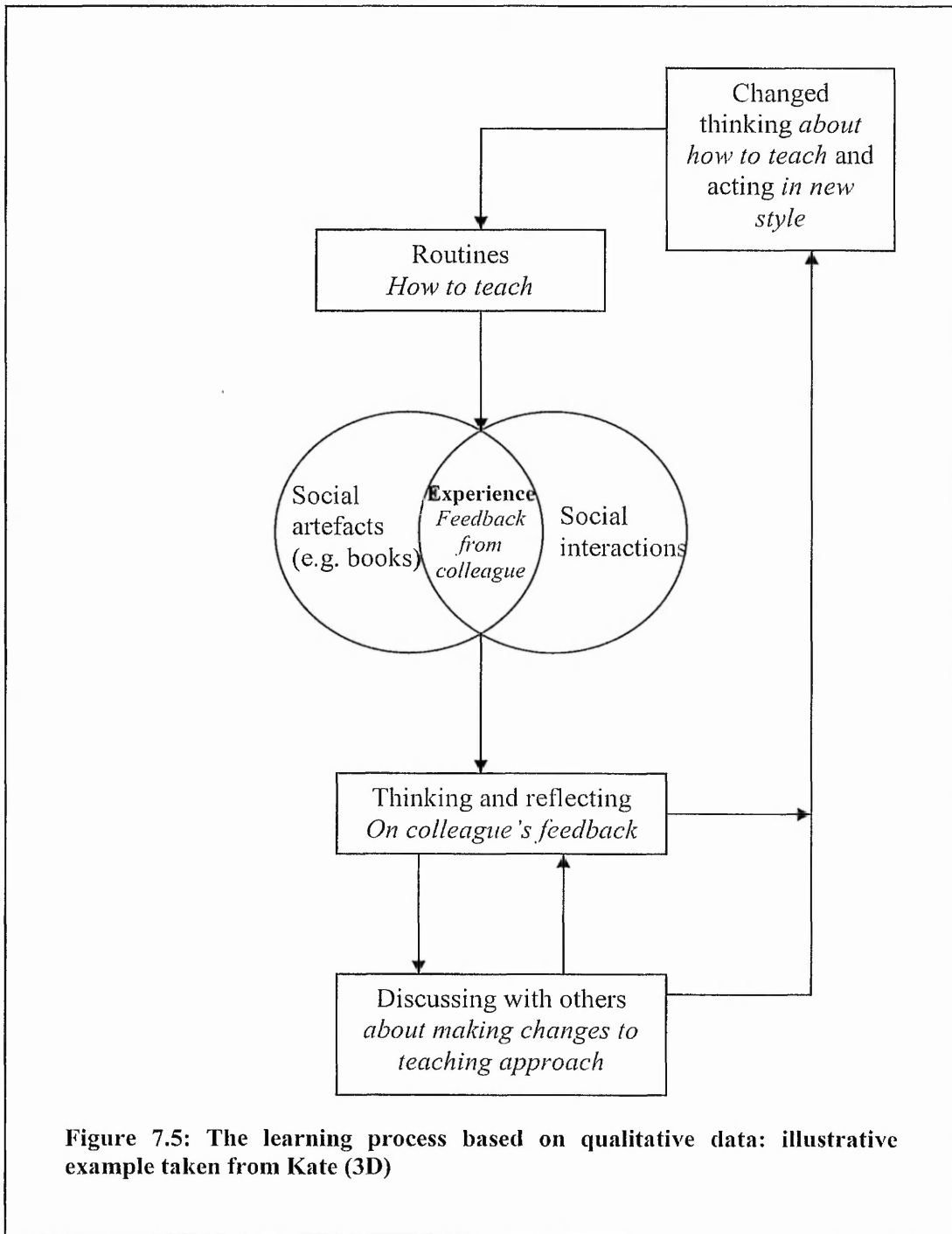


Figure 7.5: The learning process based on qualitative data: illustrative example taken from Kate (3D)

In this example Kate (3D) is making sense of an aspect of her work-world through the interaction between individual cognition and social processes (Scully-Russ, 2005). This illustrates how learning is an ongoing process of interpretation and sense-making (Van der Sluis & Poell, 2003) that involves the ongoing application and adaptation of

routines (in this example, how to teach). Reflection was made explicit by Kate in this example. Although there are relatively few explicit references to reflective practice in the transcripts the examples of learning involved some form of individual or socially-mediated reflection as shown in figure 7.8. Tom (2SMT) explains that “critical self-reflection” means “you think about it [the experience] and next time want to do it better”. An example of reflection being a natural consequence or by-product of social interaction is given by Liz (3D):

if you're always teaching with someone that process of reflection happens all the time, as a matter of course...because whoever you happen to be working with...there is a real sense of shared knowledge.

Earlier chapters have included examples of the socially constructed nature of knowledge. Kate (3D) offers an example of how personal knowledge and socially constructed knowledge are related:

in the team recently our dean actually joined in because it was felt that there needed to be some issues discussed; and he facilitated that, which is very unusual...and there was a discussion about role and [Jasmine] raised an issue. And [Jim] asked her, 'hang on [Jasmine], are you saying the core job of the lecturer is teaching and administration?' He said, 'things have moved on, research is a core activity now'. So that was quite an interesting shift. What it means is that people doing research from [Jasmine's] perspective are doing it for themselves...[and] it is not seen as something that is contributing to the team in any huge sense and yet from the researcher's perspective, [Sophie], myself and [Maggie], we would argue that without research we wouldn't survive.

It demonstrates again how psychological and sociological perspectives on learning are inextricably linked or intertwined with individual learning and personal knowledge acquisition (and generation) being anchored in social contexts.

However, aspects of personal knowledge can be vague or elusive to participants:

I get the impression from others that I seem to accomplish quite a lot. Quite what it is, I am not very sure, and part of it is the listening involved and the fact that they can just, they know things will get done (Nancy, 3Ad).

Is this simply false modesty or an inability to articulate the practical dimension (T1) of her knowledge and how this contributes to her effectiveness? In contrast, Marilyn (3Ad) displays more self-awareness of how her experience (T1 and T4) impacts on her role:

when anything comes in for the whole school I tend to get it because I can give the longest and most experience on it... I've had the chance to change some of the forms and the procedures we do for the timetabling. So it really is my way of doing it and the way I want it to be done. And so I get everyone else to work around it... I trained myself to change the procedures and the paperwork that goes behind the whole process and system... I told them how I was doing it and hoped that they would take up my way of doing it because I've been doing it for longer and I know that if you do it this way you don't get a response and if you do it that way, you do. In the other schools they have adopted some of my forms and procedures. I have been doing it for so long I pretty much know what [academic colleagues] are going to say as they answer.

This illustrates the interconnectedness of work and learning (Wick, 1993; Matthews & Candy, 1999; Boud & Garrick, 1999; Fuller et al, 2004) and how practical knowledge tends to be learned informally on the job (Wagner & Sternberg, 1987) through a L1 process, learning by doing (Zuboff, 1988), and involving both knowledge acquisition (K1) and generation (K2). Marilyn (3Ad) explains that when she first started the job there was some initial training given by “the person who did it before me”, which is indicative of a master-apprentice relationship of situated learning (Lave & Wenger, 1991; Lave, 1996a, 1996b; Fuller et al, 2004). The development of T1 knowledge (linked to L2, knowing what, and L3, knowing how) is captured nicely in her reference to knowing what they are going to say just “as they answer”.

Another example of the apprentice-master relationship involved in situated learning is offered by Kate (3D) when she explains how she was inducted at the start of her academic career:

When I started I was thrown straight into teaching 22 hours a week, all at postgraduate level...So it was a very, very different world... We had a chap who was near retirement then. So I slotted in quite well, worked with him quite well. So he was a tremendous influence on me as well...you depended on someone giving you informal support and mentoring and he was that person

The relationship between personal and socially constructed knowledge helps to explain the relationship between individual, group and organisation.

7.3.3 The social construction of knowledge as the link between individual, group and organisation

Annie (3G) explains how she and her colleagues socially construct knowledge relevant to teaching practice, which also illustrates the emergent and organic nature of informal groups:

we meet once a week and we talk through how we are going to run the tutorials and what activities we'll do and why we are doing them and that sort of thing...this is just something we do, we weren't directed to do it or following anyone else's model...I think it works very well because we all learn from each other. I mean, I am not telling them how to tackle this. People chip in and come up with good ideas and we use the email a lot and send ideas around and that sort of thing. And we share resources, so, if I produce a set of slides for use in the tutorial, we do copies and keep them in a drawer in the office so everybody can use them.

This example illustrate how much of the knowledge created by individuals and groups is socially embedded (Lin, 2002) and distributed across the group in the form of a community memory which is partially codified (e.g. teaching materials; research papers). This is built up over time through the establishment of close working relationships typified by specific routines and predicated on strong ties (Granovetter, 1973). Much of this socially constructed knowledge remains embedded within the micro-context it was 'created' (there is a detailed discussion on the silo effect and its implications in chapter 8). This knowledge involves a practical dimension (T2, T3 or T7) that is embodied directly by those individuals involved in the social construction process. In this way socially constructed knowledge becomes shared amongst those in the micro-context within which the knowledge was constructed (although the

propositional dimension can be shared with others as part of a 'second-hand' codification process). This can have a powerful impact: "it is changing the way I act" (Richard, 1B) (see the learning model in figure 7.8).

Data analysis reveals evidence of distributed cognition whereby cognition is shared with other individuals or with organisational artefacts *beyond* the immediate group context. Peter (2SMT) provides an example of how distributed cognition beyond a specific group is the product of a series of intertwined social interactions involving several micro-contexts, both formal and informal, within which knowledge is socially constructed and reconstructed. In this way the individual, group and organisation become linked:

course ideas are coming from three directions. There is an opportunity at department meetings for you to talk about life in the school. And your department head comes along to meetings with SMT and, separately with me. An example might be, the part-time MA in [subject Y], your department will have a view on that, and you're talking about that. Equally, [if] it's a Masters programme, Mack will have a view on that and he's putting his view in, and he'll be talking to the course managers about it. Equally, you've then got the marketing group... So, the market is telling us this, the staff are telling us this, the people running the course are telling us this, and somehow or other that all needs to be mixed round in a 'so what's the sensible outcome?'

This example in effect illustrates a complex interweaving of routines (Nelson & Winter, 1982; Patriotta, 2003) that represent distributed cognition *across* an organisation. Often this distributed cognition is linked to personal knowledge and memory in the form of transactive memory:

earlier this year we put in a very large research bid and that created a lot of trouble because, obviously, I now know people well enough to know who delivers, who you can rely on (Liz, 3D).

Tony (3F) explains how he is often “approached by other colleagues in the university who are aware of what we do”.

Socially constructed knowledge, and situated and distributed cognition provide the foundation for understanding the relationship between the individual, group and organisation. Distributed cognition *across* an organisation is dependent on how connections are made between the micro-contexts which provide the locus for socially constructed knowledge and situated cognition. The organisation *is* a web of micro-contexts. Much of the knowledge within micro-contexts remains ‘sticky’; however, each participant is involved in their own complex web of micro-contexts which represents a partial ‘picture’ only of the organisation. They interact with a range of colleagues in different settings (i.e. formal and informal structures) bringing to the discussions in each context insights, experiences and judgements (i.e. practical knowledge) and theories, concepts and ideas (i.e. propositional knowledge) that have been grounded in other contexts. This is the process through which the individual, group and organisation are linked. This confirms previous theorising in which it is argued that all cognition is essentially interactive (Seiler, 2004) and that it is through social interaction that individual cognition is connected with group, distributed cognition (Ardichvill, 2003). (Van Wijk et al, 2005: 434). The next three chapters will expand upon this thesis and provide insights into knowledge sharing processes.

7.3.4 Key findings

The key findings are:

18. Boundaries between individual and social learning and between personal knowledge and socially constructed knowledge become blurred in a dynamically entwined relationship.

19. Learning and knowledge acquisition and generation that may be attributed to the individual remain anchored in social contexts.

20. Socially constructed knowledge and distributed cognition provide the foundation for understanding the relationship between the individual, group and organisation.

Chapter 8: Discussion and analysis of findings

Barriers and facilitators

8.1 Research question and associated propositions

The original research question and associated proposition(s) is shown in table 1 below.

Table 8.1 Original research question and associated proposition(s)

Research question	Proposition
4. What barriers and facilitators do individuals claim exist in the sharing or exchange of knowledge in organisations?	<p>4.1 Analysis of the literature suggests that there <i>is</i> a relationship between individual, group and organisation (although the relationship between the individual and the organisation is essentially an abstract one which is symbolised by the psychological contract and is influenced by a range of factors including the quality of relationships with immediate colleagues as well as the actions and behaviour of an organisation's senior management team).</p> <p>4.2 The relationship between individual, group and organisation is mediated through the shared practice that occurs within informal groups such as communities of practice and social networks.</p> <p>4.3 Individuals identify most closely with their subject or discipline colleagues.</p> <p>4.4 Biography and identity are inter-related concepts which impact on the nature of knowledge sharing processes.</p>

8.1.1 The first two propositions

The first two propositions need to be considered together. Shared knowledge is socially constructed within formal and informal structures and processes. These structures and processes are intertwined in a symbiotic relationship referred to by the author as informalisation. Collectively these structures and processes constitute the

organisation. The organisation is a social institution that is characterised by relatively stable physical structures and bureaucratic boundaries in tandem with relatively fluid psychological and professional boundaries. The latter are anchored in small groups or sub-groups that provide a micro-context for knowledge sharing. They tend to be formal or informal groups in relation to academic practice, and formal groups in relation to management practice. Rather than viewing an organisation as a constellation of communities (e.g. Wenger, 1998), which ignores the role of the formal, an organisation should be viewed as a complex web of intertwined formal and informal micro-contexts. It is the socially constructed knowledge that emerges within and between these micro-contexts that explains how the individual, group and organisation are related to each other.

Informalisation is characterised by formal and informal routines that enable participants' to share their experiences within particular contexts. Examples of formal routines include: exchanging information in line with the procedural requirements of the organisation (e.g. minuted decision-making at formally constituted department meetings in case 1, SMT meetings in case 2 or committee meetings in case 3). Examples of informal routines include sharing experiences and expertise on the house landing (case 1), in the corridor (case 2) or in the canteen (case 3). The data in the cases reveal that these interactions are occurring predominantly as face-to-face encounters in a shared physical space (even when discussing external networks participants tend to focus on face-to-face contact at conferences or external meetings).

8.2 The barriers and facilitators

8.2.1 The barriers to knowledge sharing

The data from all three cases has revealed that there are both barriers that hinder and facilitators that assist knowledge sharing. These are summarised in table 8.2 (barriers) and table 8.3 (facilitators). Original versions are in appendix 4. This section will focus on an analysis of the barriers.

Table 8.2: Frequency analysis of principal barriers

(Number of participants citing the same or similar factor shown in brackets)

Barriers	Case 1	Case 2	Case 3
Lack of shared social spaces			Lack of shared social spaces (3); closure of social spaces (5); poor office design – before and after relocation (5)
Lack of geographical and spatial proximity – accessibility - to colleagues	Relationships influenced by lack of proximity (3) e.g. psychological detachment (1); waning of group ties (2); peripheral membership (4)	Relationships influenced by lack of proximity e.g. peripheral membership of group (4); direct reports are located elsewhere (1)	Split-sites (4); and, site design (1)
Poor relationships	Intra-group tensions as a result of peripheral membership (5) Inter-group conflict (paradigmatic): division between UG and PG teaching communities (2)	Intra-group conflict: interpersonal tensions within SMT (3) Inter-group conflict (paradigmatic): centralisation vs autonomy (1); division between UG and PG communities (1); lack of trust in management (2)	Intra-group conflict: conflict between research-active staff and teaching only staff (4); sense of isolation (1) Inter-group conflict (paradigmatic): division between research and teaching only staff (3); tensions between administrative and academic communities (5); lack of trust (1)
Structural and procedural (bureaucratic) barriers	Being constrained by formal frameworks (4); formal meetings: information overload (1); poor design (1)	Too much bureaucracy (2); formal meetings: ineffective (1); time constrained (2); poor formal communications (1)	Too much bureaucracy (2); poor communications and being 'kept in the dark' (4)

	Work overload and time pressures (3) PG modules are atomised (1)	Work overload and time pressures (1) Disparate nature of university (1)	Work overload and time pressures (3) Poor structural design: 'cobbled together' (1)
Inertia	Apathy, complacency, (4); resistance to change (1)	Complacency (1); risk averse (1)	Apathy and disinterest (3); resistance to change (1); risk averse (4)
Knowledge hoarding (intentional)	People having their own agendas (1)	Opting out of team teaching (2)	Colleagues who do not share (2)
Silo effect	Inward focus: too insular (3); clique mentality (1); having lunch with subject group colleagues only (1); a belief that their group is unique (2); lack of awareness of other departments in the school (1)	Departments are insular (2); 'silo thinking' and clique mentality (3); subgroups cluster around a particular issue (1)	Inward focus: too insular (4) a belief that their group is unique (2); lack of connections between groups (1); lack of fuzzy boundaries (1)

The barriers are very similar across all three cases indicating that whilst the precise nature or pattern of informalisation may be context-dependent, the barriers are relatively generic. A difference between cases 1 and 3 is the absence of any references to the first barrier (lack of shared social spaces) in case 1. This reflects, again, the unique nature of the house as a locus for knowledge sharing. Even though participants not located there feel some sense of detachment or peripheral membership they acknowledge the benefits of 'dropping in' and joining the informal discussions taking place there. A further difference is that case 3 is characterised by more references to paradigmatic inter-group barriers (Von Krogh, 1998). A difference between case 2 and cases 1 and 3 is that many of the problems cited were in relation to the business school as a whole rather than to the workings of the SMT itself.

8.2.2 The facilitators of knowledge sharing

The facilitators of knowledge sharing are shown in table 8.3.

Table 8.3: Frequency analysis of principal facilitators

(Number of participants citing the same or similar factor shown in brackets)

Facilitators	Case 1	Case 2	Case 3
Shared physical space (geographical and spatial proximity – accessibility to colleagues)	Relationships are heavily influenced by proximity (3); being co-located (2); knowledge sharing happens spontaneously in the house (1); and discussions are taking place throughout the day (2) Having shared social spaces (e.g. canteen) (1)	Being co-located (2) works well for SMT members (1) Having a smaller business school so that you know everyone better (1)	Working on same site/co-location (2); Working in the same corridor (1); knowing who people are and what they do (1) Having shared social spaces (2) such as a canteen (2) and staff common room (4)
Face-to-face contact	The advantage of working together in the house (5) The advantage of shared social spaces (2) Networking at conferences (2) Making the effort to go and see someone rather than using email (1) People prefer being told things in person (1)	The advantages of face-to-face communication (2); being able to see each other (SMT) easily (3); being seen around the campus (1); being able to pop in and see people informally (1)	Importance of the grapevine (1) and bumping into people in the corridor (1) Having coffee and/or lunch together (4) Creating social spaces and working near each other for face-to-face contact (3) Making external connections through conferences (1)
Strong ties 1: Relationships	Having very good, supportive colleagues (2); a close-knit community (1); able to say what you like (1); making an effort to sustain relationships (1) Important to making connections (2)	A characteristic of the canteen 'group' (1)	Having shared values (1)
Strong ties 2: Friendships	Being friends with immediate colleagues in same group or social network (3); working together for a great many years (1); colleagues		Always having coffee together and bringing birthday cakes (1)

	making you feel good about yourself (1) Informal discussions take place socially as well as at work (1)		
Strong ties 3: Goodwill and inclusiveness	High levels of goodwill within the subject group (1); sharing knowledge relies on goodwill (1); willingness to learn from mistakes (1)	Fostering and valuing goodwill (1)	Sustaining goodwill (1)
Strong ties 4: shared interest/focus	Sharing practical experiences (1); having the same views (1); synergies within the group (2)	Working collaboratively on research (1); working closely with colleagues in an informal way (1) Teaching teams are an important vehicle for the sharing of practice (1)	Shared interests, having a common focus (3); synergies (2) Collaborative activities: research (3); team teaching (1) and teaching with different people (1)
Strong ties 5: psychological convergence/shared psychological space	Trusting your colleagues (5); being open and frank (1)		Working with like-minded people (1); opening up shared space through the creation of fuzzy boundaries (1)

As with barriers, the facilitators are very similar across all three cases indicating that whilst the precise nature or pattern of informalisation may be context-dependent, the barriers are relatively generic. Case 3 participants emphasise the role of shared social spaces because these have been subjected to either closure or poor design. In case 1 the emphasis is much more on the co-location of group members. This enables face-to-face interaction that is predicated on strong ties. This characterises the house, in particular in case 1. In contrast the fewer references to strong ties in case 3 reflects the deeper divisions and tensions that exist within that case. There are far fewer references to facilitators in case 2 than cases 1 and 3 suggesting that management

practice is less reliant on the bonds found in academic communities such as the house. As was cited earlier, the SMT “have to work together”.

The house demonstrates that having colleagues working in the same office, corridor or building can impact positively on the level of informal knowledge sharing. It was earlier noted that the house has the highest levels across all three cases of informal knowledge sharing (K5, K6, K10) and in particular of knowledge diffusion (K5) (see table 5.11). Data from the three cases indicate that physical location provides a micro-context within which face-to-face knowledge sharing can emerge: but there is not necessarily a causal relationship between location and knowledge sharing. *Ba* (Nonaka & Konno, 1998) needs to be psychological as well as physical. This empirical finding supports the proposition by Chae et al (2005) that a practice-based perspective on knowledge sharing needs to incorporate a psychological dimension, such as trust, as well as a capability dimension, such as absorptive capacity.

Shared location has been previously shown to be important (Allen, 1977; Kraut et al, 1990; Burton-Jones, 1999). Close contact has been shown contribute to cooperative behaviour (Marwell & Oliver, 1988) which supports knowledge sharing (Alvesson & Kärreman, 2001). However, there needs to be strong underpinning ties. Case 3 illustrates how colleagues may work in the same neighbouring corridors but doors are kept closed and participants tend to drink coffee in their own offices. This behaviour has continued after the relocation and from the perspective of several participants has actually got worse:

People used to come and knock on the door and you would go out for lunch. It was a lot more friendly. That has stopped. We've actually got to make a big effort to get

together...we don't really knock on each others' doors and say, 'are you going for lunch?'. We just don't do that anymore, it just doesn't happen. I know one of my colleagues, who I'm friendly with, she says it's exactly the same in her office (Sophie, 3D).

People seem to speak to each other less here... people don't even use the canteen as much. Everyone shuts their door when they are in their room... the corridors where [Sophie] and myself are, are very quiet. There is hardly anyone who walks up and down them apart from the people that reside in the rooms there. So, why the rooms have to be shut every time, I don't know...Where I used to be was always quite friendly. People did keep their doors open there. (Phil, 3E).

The relocation appears to have disrupted pre-existing behavioural cues (Von Krogh, 2005).

Sophie's (3D) references to 'knocking on doors' is in contrast to the atmosphere and open door arrangement that exists in the house in case 1. In the house the act of leaving office doors open enables participants to recognise cues for knowledge sharing. Mary (1B) offers examples of two such cues: 'earwigging' and 'seeing if the coffee has brewed'. Cues signal when, where and how knowledge sharing is appropriate (Von Krogh, 2005). These cues reflect behaviours that are symptomatic of intra-group relationships that are characterised by strong ties, trust, shared values, shared interests or focus, and a shared social identity. The first floor landing in the house acts as "the hub of department activity and gossip and business" (Mary, 1B):

Chatting over the kettle and the microwave and the fridge... are important things and its nice that I can sit at my desk and I can earwig the group conversation that's going on out there, go out and be a part of it or not be a part of it, just listen to it,

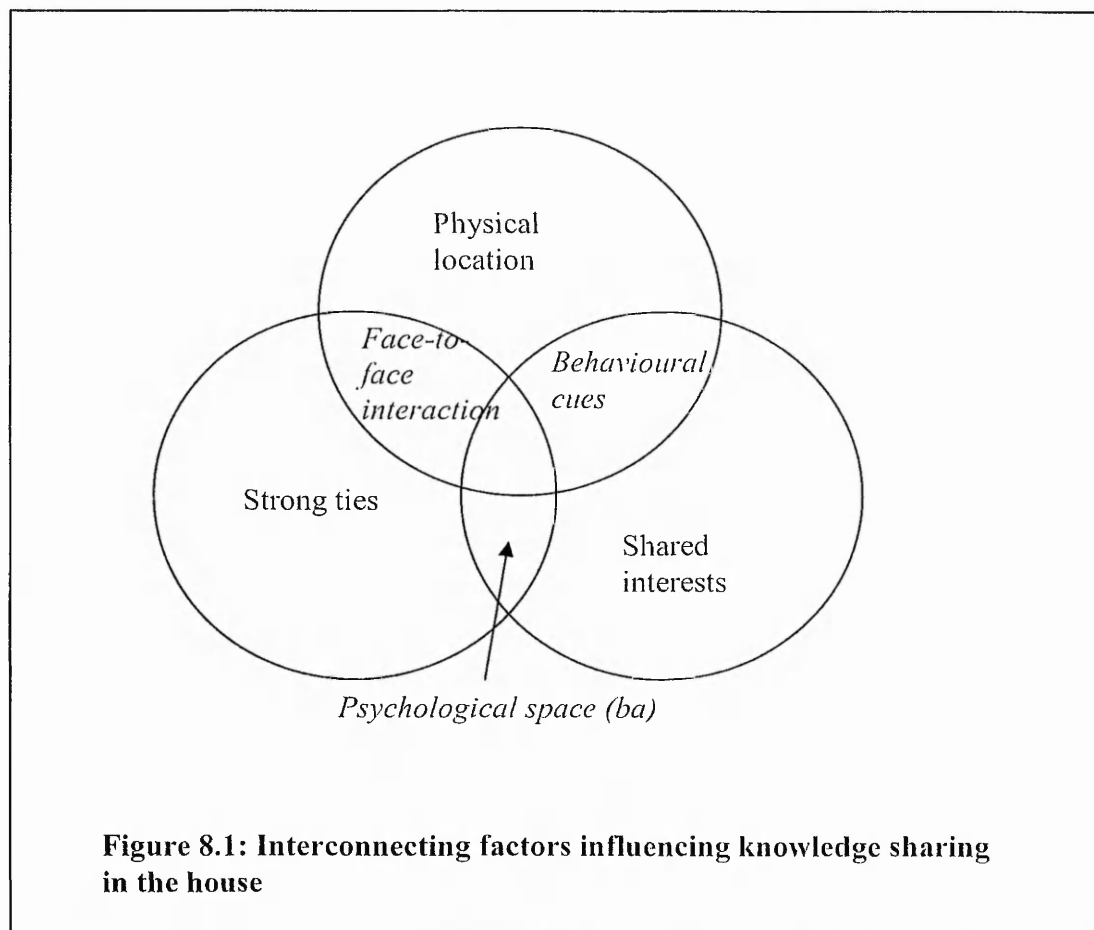
without kind of having to go out of my way to impose myself on whatever grouping happens to be there. So, you do get to hear a lot. Not only about things that are happening but you hear a lot of the dynamics between individuals. You hear a lot of grumbling and gossip and you get insights into the bigger structures within which we work and the problems with them or whatever. It's incredibly valuable and much more so than if I was in an office [block] like this or you shut your door and it's you and you have to seek out interaction...and you don't need a reason in the house. The biggest reason you need is, 'oh, I'll go and see if the coffee's brewed' and, you know, it just feels more natural and more informal.

The co-location of most of subject group A participants in the house highlights the importance to knowledge sharing processes of face-to-face contact (Layder, 1997; Nonaka, 1994). However, Mary's description also makes explicit the criticality of relationships to knowledge sharing processes (Käser & Miles, 2001). The strength of relationships in the house is such that Mary's description conveys a real sense of belonging which also has positive implications for identity formation (Wenger, 1998). The house illustrates the emergent nature of knowledge (Tsoukas, 1996, 2000, 2001; Lam, 2000; Brown & Duguid, 2002; Tsoukas & Mylonopoulos, 2004) and confirms the findings in Geiger and Turley's (2004?) study of a sales team, that when participants chat informally "personal knowledge is shared more liberally than through the other modes of information exchange" (page 64).

The house "works because we bounce academic ideas of each other" (Bruce, HOD). Yet Hayley (1A) refers to plans by Bruce (IHOD) to relocate all members of the department to a new building and fears "we will lose that top of the stairs discussion because I don't think it will work anywhere else quite like it works here". This suggests that it can be difficult to replicate the emergent, organic nature of informal

knowledge sharing processes through formal structures or the engineering of communities (Mankin, 2004). Previously Bruce (IHOD) tried to introduce a regular informal get-together for all department members which took place in the post-graduate lounge but hardly anyone attended and the idea was dropped.

Figure 8.1 illustrates the interconnection of key factors impacting on behaviour in the house.



In case 1 subject group B appears to have functioned previously as a close-knit community but its members no longer work together in the same building or on the same courses. They are now physically dispersed across the campus. However, a

psychological bond has continued to exist between them although this has been lessening recently, apart from the friendship between Richard (1B) and Craig (1B) which dates back to the origins of the group. This illustrates how communities form along friendship lines as well as within local geographical or organisational contexts (Wenger et al, 2002). The strength of the community bond is illustrated by Richard's (1B) disillusionment over a subject B colleague's decision to migrate to subject A. This highlights a form of psychological rigidity or inertia, an unwillingness to let go and accept change easily. This can create divisions within a community (Bauman, 2000); and can be associated with the silo mentality (Brown & Duguid, 2002). The weakening of ties in subject group B highlights the fragility of the informal group or community. There is no guarantee that a community will exist indefinitely. This has implications for organisational knowledge that is embedded in the network of relationships of a specific group or community; this knowledge is relation-specific and contextual (Lam, 2000). As communal norms (Burgess, 2005) have become diluted over time a fragmented network appears to have replaced the cohesive community that characterised subject B in the past.

Relationships within case 3 are characterised by a greater degree of tension and conflict than is found in case 1. Fracture lines exist within the same subject group (D) and more widely between teaching and research communities:

I used to think we got on really well as a group...but now it's clear that there are divisions. It's a shame because I think that has caused a bit of separation, it's caused cliques. Without a doubt a big, big black line down the middle of the group...I think a lot of it is deeply engrained...I think there's just a lack of mutual understanding going on between a lot of people... [More widely] there's a lot of

bickering...this idea of research against teaching and what's more important, and what people are actually doing to contribute in each of those areas. People are very aware of that, all the time...The teaching versus the research is a big conflict (Sophie, 3D)

Liz (3D) confirms that “we have factions in the team” and that “this research-teaching divide is really acute”. This highlights the extent to which conflictual relations between and among individuals pervade the workplace and influence how individuals act and learn through work (Billet, 2001). This issue also involves participants’ sense of status and perceived inequality in status has been identified previously as a barrier to knowledge sharing (Michailova & Husted, 2003; Hansen et al, 2005).

The intra-group tensions highlight again how physical location may provide a context for knowledge sharing (Allen, 1977; Kraut et al, 1990; Burton-Jones, 1999) but it is the psychological nature of relationships that may or may not lead to intra-group knowledge sharing processes, particularly knowledge diffusion (K5) and informal collaboration (K6). This can be seen in case 2 where both Tom (2SMT) and Mack (2SMT) have regular informal contact with Peter (2SMT) but very rarely with each other, yet all three offices are next door to each other. As Mack (2SMT) explains: “although we act as critical friends to each other, talking about ideas...I wouldn’t necessarily say everything to Tom...a political reason is that I don’t feel that Tom says everything to me”. Tom’s (2SMT) perspective is that:

the relationship with Mack is more problematic...we’re both aware of that and we both need to work on that, we both work on it. Trying to put my finger on why its

problematic, I think its to do with different styles. I'm a structure freak and I think that Mack prefers to bumble along...so there's a tension in the way of operating there.

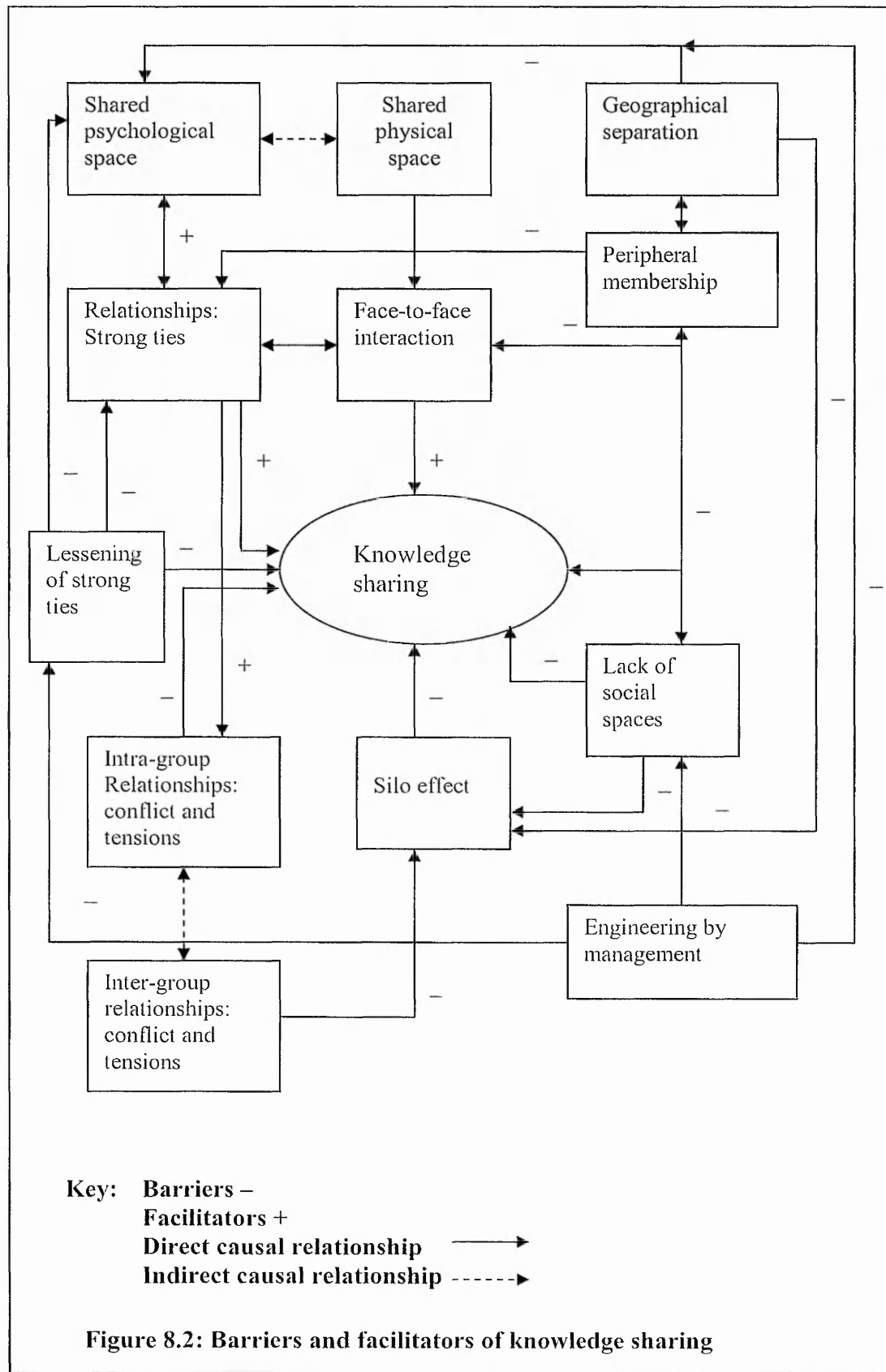
The lack of trust between Tom (2SMT) and Mack (2SMT) highlights that the SMT, a formal construct, functions differently to the informal subject groups in case 1. SMT participants in case 2 also highlight two deep divisions. The first is a structural issue. Mack (2SMT) refers to the "fragmented" nature of the university due to a "massive tension" between stakeholder who favour centralisation over those who favour decentralisation and faculty autonomy. The second is a deep division between undergraduate and postgraduate teaching communities. For instance, Mack (2SMT) comments that the undergraduate community "don't know the postgraduate reality". This illustrates how the silo effect can pervade wider academic communities than those associated with micro-contexts. A consequence of these divisions is a lack of knowledge transfer between structures.

The data from the study appears to support the assertions by Tsoukas (2002: 423) that "for new organisational knowledge to emerge in groups, some conflict and dissent, as well as playfulness, are necessary" but not necessarily "intense conflict" as suggested by Cooperrider and Dutton (1999: 164).

Some facilitators can also be barriers. For instance the downside to strong ties, which facilitate knowledge sharing within the group, can lead to the acerbation of the silo effect which inhibits knowledge sharing between groups. It is important, therefore, to understand how the range of barriers and facilitators interact and impact on knowledge sharing.

8.2.3 How barriers and facilitators interact and impact on knowledge sharing

How barriers and facilitators interact and impact on knowledge sharing is shown diagrammatically in figure 8.2. It can be seen that barriers exceed facilitators by a ratio of 4:1.



The silo effect in particular merits more detailed consideration because of the attention given to it in the literature generally. This *balkanisation* of internal units (Brown & Duguid, 2002) is viewed as a principal barrier to inter-group knowledge sharing and intra-organisational knowledge transfer. Practical knowledge tends to be sticky (Tsoukas, 2002) or context specific as previously highlighted. This makes it difficult to transfer outside that context as has been noted for some years (for instance, see Teece, 1977). The silo effect is evident in all three cases reflecting the extent to which it is a pronounced characteristic of universities (Barnett, 2000a; Brown & Duguid, 2002). Illes (1999) notes that higher education institutions have become characterised by disciplines that “tend to split off into further subgroups with corresponding research and professional interests making interdisciplinary contact and communication even more problematic” (page 58). The effect “can be quite claustrophobic” (Joanne, 1A), “a bit incestuous” (Hayley, 1Ad) and “rather insular” (Bruce, 1HOD).

Quantitative analysis reveals low percentages of K3 (knowledge sharing in a formal context between members of different department) and K7 (knowledge transfer across and between organisations), thus providing evidence of inward-looking absorptive capacity (Cohen & Levinthal, 1990; Hansen et al, 2005) that characterises the silo effect. For instance, in case 1, for subject group A, K3 is 1.2% and K7 is 0.8% in comparison to 0.6% and 2.3% respectively at department level and 5.6% and 0.6% at faculty level. This silo effect may also explain the lack of references to electronic knowledge sharing processes. Given the dominance of face-to-face contact, the relatively low-level of involvement in networks, it is perhaps not surprising that there were so few references to computer systems.

In cases 1 and 3 the silo effect influences how participants perceive their own subject group. Many of the participants believe that their own group functions in a unique way. For instance, Meryl (1A) comments: “I don’t know any other department that has the same kind of working environment that we do”; and John (3E): “we are much more dynamic than other parts of the university”. This sense of uniqueness reflects in-group bias (Hansen et al, 2005). This is an insular perspective which undervalues the activities of non-members and gives rise to negative perceptions about others; thus giving rise to a sense of uniqueness or of feeling better than other individuals or groups. It is a phenomenon that is linked to social identity. Most of the participants in cases 1 identify primarily with their subject group and all four participants in case 2 identify primarily with their SMT role and/or the business school. The situation is much more diverse in case 3 with only four participants identifying primarily with their subject group. There is a body of literature that argues that strong levels of identification with a subunit rather than with the organisation, as has been identified in this study, results in lower levels of inter-group knowledge sharing or transfer (see for instance, Argote & Ingram, 2000; Tsai, 2002; Burgess, 2005).

This same sense of perceived uniqueness is found in case 3. For instance, Tony (3F) believes that his department is “much more dynamic than other parts of the university” yet he adds “but I really don’t know what they are doing. I am very much in my own little world”. This latter point is echoed by John (3E) who declares “a lot of staff have no reason to go to other sites and no reason to go to other floors...I’ve only been to the fourth floor a couple of times to have a look”. George (3HOS) believes this silo effect is endemic within the university, describing the institution as

“a combination of silos”. The challenge, he admits, is to “try and get things migrating across the silos”. Case 2 offers a managerial perspective on this phenomenon: “departmental meetings are kept very isolated from each other”. The inability to address the silo effect, and the frustrations this can cause, is captured by Peter (2SMT) who admits “I don’t like silos. Silos are not good...the world doesn’t work like that. I’d get rid of all departments and have a school of integrated business”. Art (2SMT) expresses a similar view describing departments as “silos” that “stop people working together”.

The formal organisation within case 1 appears to militate against knowledge transfer which is consistent with von Krogh’s (1998) assertion that formal processes can act as a barrier to knowledge formation processes. As a consequence, knowledge transfer tends to be a characteristic of informal cross-disciplinary structures and processes, such as the informal course managers’ group in case 1 and the teaching fellows network in case 3. These act as a locus for both knowledge sharing and transfer, illustrating the importance of having established relationships in place. Another example is the social networks in case 2 which also illustrate the role of weak ties (Granovetter, 1973), found in social networks (Keele, 1986), but which can be a source of knowledge sharing and transfer (Levin et al, 2002) in both internal and external networks:

within the university there are people that I have got to know that I, sort of use, interact with, plot together with, resolve problems with but really they’re one-to-one relationships. We do things together and then it feeds into other things...we’re interacting as part of our normal work (Tom, 2SMT).

we meet occasionally and you find out what's going on in their lives, they find out what's going on at the university, which they find really interesting...you get the added advantage of their expertise which they're very happy to share (Mack, 2SMT).

However, networks across all three cases account for a small fraction of the knowledge sharing that takes place.

Mary (1B) captures the nature of the silo effect:

I have no sense of the other departments at all. I really don't. I couldn't even tell you how many there are or what they're called. Nobody has introduced the school structure to that level of detail and I haven't felt the need really to go off and find out...I met [an economist] over the photocopier last week. He was really nice, he actually introduced himself. I don't engage with the accountants.

This phenomenon of disconnection and detachment from the broader academic community is not unusual in academic institutions (Illes, 1999) and can be linked to the tribal nature of academic groups (Becher & Trowler, 2001; Duke, 2002).

Several other barriers to knowledge sharing that contribute to the silo effect have been identified from the data include: perceived lack of time and work-overload; knowledge hoarding; and, inertia (manifesting as apathy, complacency and risk-aversion). As Sophie (3D) comments: "if we had more time we could come up with a lot more ideas but we're always very aware of the resource implications of the ideas that we would like to do". Peter (2SMT) observes that "time has become very difficult, short". With regard to knowledge hoarding (Davenport & Prusak, 2000;

Leonard & Sensiper, 1998; Michailova & Husted, 2003; Hansen et al, 2005), Sophie (3D) comments that:

I think people consciously keep it to themselves so that they don't have to deal with the reaction to certain information. It takes them a lot longer...to consult with people

John (3E) endorses this view: "The reality is a lot of people...are very possessive of what they have done". A form of knowledge hoarding also occurs when individuals "opt out" of teaching teams and are reluctant to engage in reflective practice, thus appearing to be "insensitive" to the needs of others (Tom 2SMT).

In terms of inertia Sophie (3D) comments that "nobody seems to listen" and "information tends to stop at the [formal] meeting and doesn't get out". Mack (2SMT) describes a similar phenomenon in case 2 in relation to the information given to heads of departments at extended-SMT meetings: "I would love to do an audit trail to see if all the messages get through but I suspect they don't because when you talk to people in departments it is evident that those messages are not getting through". Tellingly he adds "but I have no idea why". John (3E) refers to "a stagnation" in developing new programmes "and I think it is only when there is a restructuring every four five years that that spurs some development work". A similar phenomenon is evident in case 2. Tom (2SMT) believes the business school is "living on past glories" adding, "we're too slow to react...at introducing innovations...there's a sort of complacency". Complacency is also a criticism raised by four of the case 1 participants. Kirk (1A) believes that "you've got to kick people from time to time. Kick yourself as well, saying, 'come on, you need to look at this'".

There is also a risk-averse quality to formal structures and processes. For instance, Sophie (3D) explains that “if you come in and criticise something you are viewed as being very negative”. As Liz (3D) and Maggie (3D) comments:

if you try and say 'where's this going?' or 'can we hurry up?', you get shot down in flames. It's like, 'how dare you criticise me, how dare you'. And you get a nasty comment thrown at you and so what happens as a result of that [is] we all sit there like lemons and then we wait until we are out and then we complain (Liz, 3D)

if you actually try to challenge things then you are seen as being whingers or complainers rather than what we would argue, which is that we are challenging it because we want to improve. We want to improve the service for the students, we want to improve the opportunities for staff (Maggie, 3D).

This stifles debate and the generation of new knowledge by individuals (K2) and groups (K3-K6).

From the above it can be seen that a range of barriers exist within the three cases. Paradigmatic barriers have a fundamental impact on knowledge sharing (Von Krogh, 1998): tensions and conflict between broad communities such as teaching and research in case 3 and undergraduate and postgraduate in case 1; apathy and complacency, such as in case 1. All three cases are characterised by a silo effect which limits knowledge transfer across the organisation. Knowledge sharing is situated in subject groups or other informal groups and communities. Figure 8.3 updates figure 8.2.

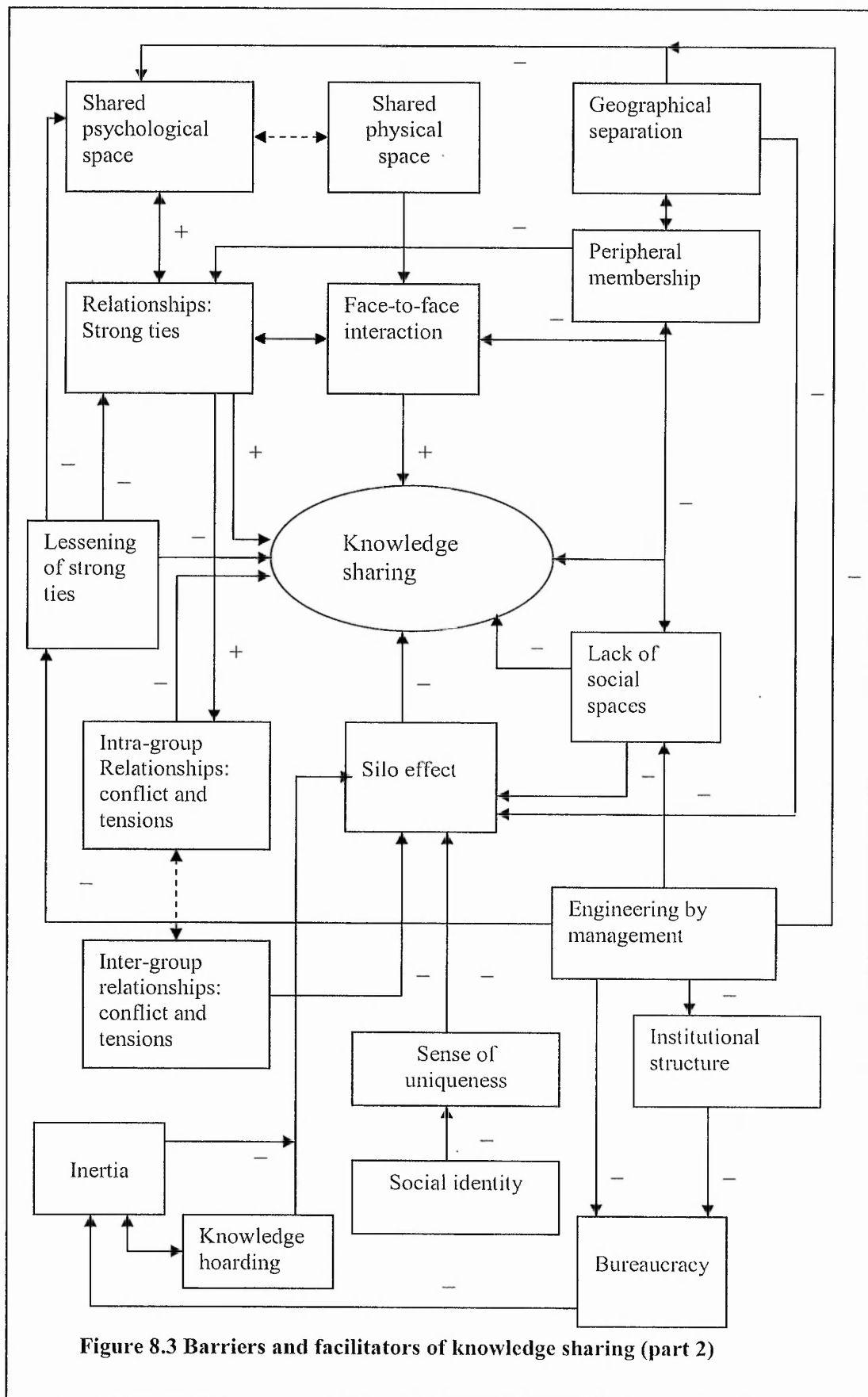


Figure 8.3 Barriers and facilitators of knowledge sharing (part 2)

8.2.4 Key findings

The key findings in this section have been:

21. Both barriers and facilitators of knowledge sharing are very similar across all three cases indicating that whilst the precise nature or pattern of informalisation may be context-dependent, the barriers are relatively generic.

22. Physical location may provide a context for knowledge sharing however it is the psychological nature of relationships that may or may not lead to such sharing.

23. Routines and behavioural cues that underpin knowledge sharing develop over time and tend to be context-specific. Changes in routines and cues can have a negative impact on knowledge sharing processes.

24. Knowledge sharing in all three cases is a predominantly face-to-face process.

8.3 Identity

8.3.1 The implications of social identity for knowledge sharing

To what extent is the proposition that individuals identify most closely with their subject or discipline group a valid one? What are the implications of this for knowledge sharing processes? In all three cases participants' narratives support the existence of multiple identities (Ashforth & Mael, 1989; Weick, 1995; Barnett, 2000a) that are predominantly defined in terms of relationships and group memberships (Triandis, 1995). Tom (2SMT) explains that his identity "changes depending on my context" while Mack (2SMT) says it "depends on which audience I'm talking to".

Participants' relationships are illustrated visually by the construction of individual relationship maps. A full set of these are shown in appendix 1; for the purposes of this discussion illustrative examples will be used. The maps support Boland and Tenkasi's (1995) argument that individuals will be members of several interwoven communities within any given organisational setting. Participants tend to have a particular group with which they identify most strongly which the author has termed their primary identity. There has been limited research on the nature and implication of an individual's numerous social/group identities (Roccas & Brewer, 2002) and so the data from this study can make an important contribution to the literature. The relationship maps illustrate visually a *social categorisation* process (Tajfel, 1978; Tajfel & Turner, 1979; Ellemers *et al*, 2004). The data differentiates between formal groups (such as a department, committee or project team) and informal groups (such

as communities-of-practice, communities-of-interest, and social networks) as well as between the four principal contexts (department, business school, university and external). In this way each relationship map provides a participant's interpretation of informalisation from his/her perspective.

Using Joanne (1A) as an example it can be seen that a relationship map that shows formal groups only (as in figure 8.4) offers an incomplete picture. It is with the addition of informal groups (as in figure 8.5) that the fully story is revealed. The source(s) of primary identification are shown in bold in figure.

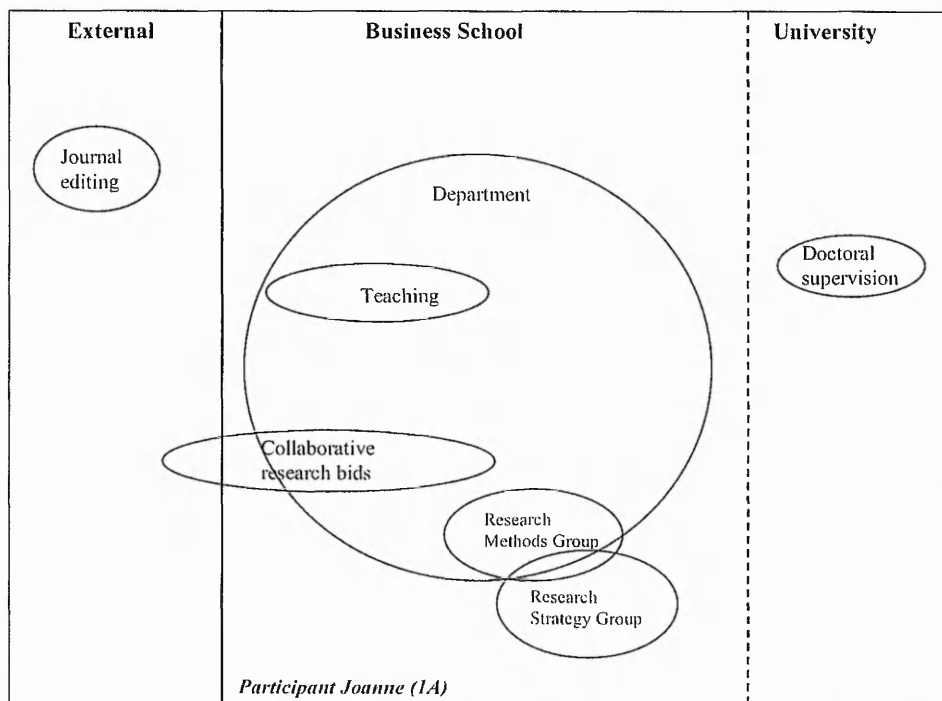


Figure 8.4: Relationship map for Joanne (1A) showing formal groups only

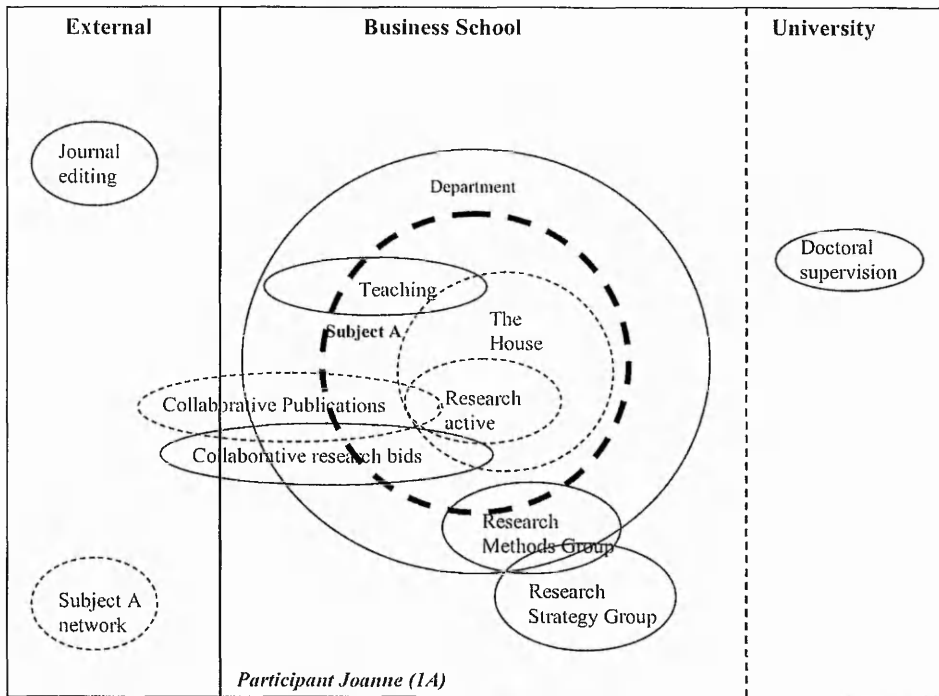


Figure 8.5: Relationship map for Joanne (1A) showing formal and informal groups

Joanne’s primary source of identity is subject group A even though her role spans all three subject groups. She admits that “if I have some work to do for any of the others, then I’m a [subject A specialist]”. She is a member of a sub-groups within subject group A (colleagues in the house) and a further sub-group within that sub-group (research active colleagues). In addition she is also involved in an informal group which includes colleagues from the same subject group, the business school and external organisations (collaborative provisions) and an external research-focused social network comprising colleagues from outside the University. She stresses the importance of being able to “interact with other academics” and feels her office location in the house is “highly advantageous” because that is where “a lot of informal meetings take place”.

Although all twelve of the case 1 participants are members of the same formal group (department) it is their informal (subject) group that tends to be their primary source of identity; although in three cases, the postgraduate courses that they manage take equal importance with their subject group (i.e. Richard, Craig and Kirk). For these three participants the course manager role, in conjunction with a dispersed office location, has strengthened their sense of detachment from the department; but not from the subject group. For instance, Richard (1B) describes the head of department role as “an extra layer that wasn’t really needed” and declares that the department “means bugger all to me, to be honest”.

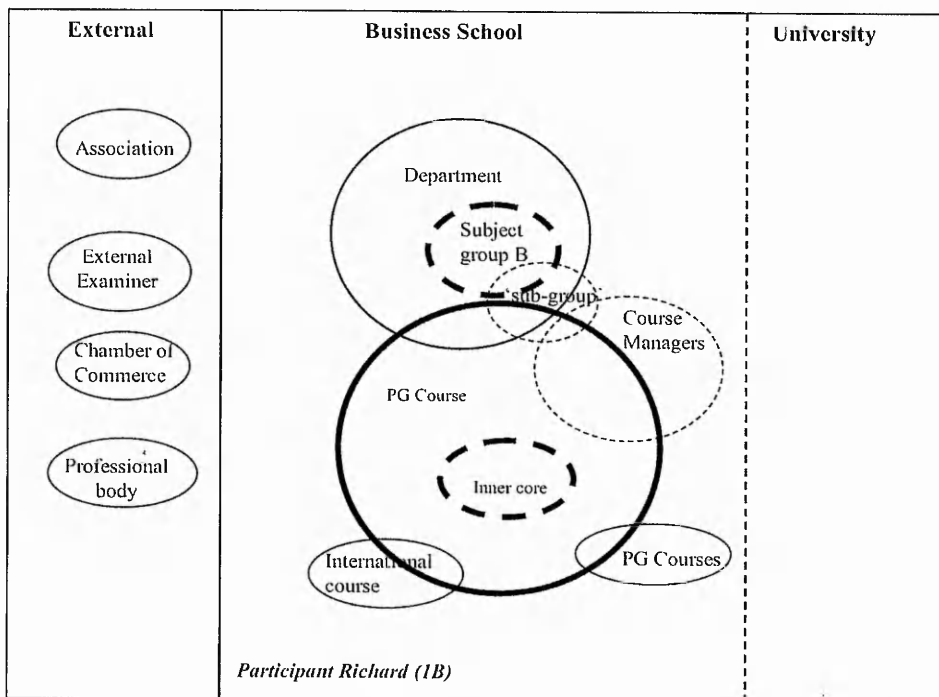


Figure 8.6: Relationship map for Richard showing formal and informal groups

Richard is involved in several informal groups within the business school. He is also involved with external official bodies but does not have any informal social networks. Subject group B and the course managers group demonstrate some characteristics of a community of practice. His biography has influenced his decision to become a course manager and the way in which he carries out this role. Unlike Craig (1B) and Kirk (1A) he stresses the crucial role of having an inner core of academic and administrative staff which he trusts implicitly. This inner core team will not be found on any organisational chart.

Zoe (1A) is based in the house and clearly enjoys being there (using phrases: “comforting and familiar”, “feels right”, “inclusiveness”). Her primary identification is with subject group A and she describes the department as a “basic line management function” which exists for administrative reasons only. As with several other participants she is forthright in her criticisms of the business school which she describes as “a joke”. She is actively involved in external projects but all of these are formal fora rather than social networks. She is an active researcher and much of her teaching is actually about teaching research methods to both undergraduate and postgraduate students. Her strong interest in academic research has been influenced by her biography.

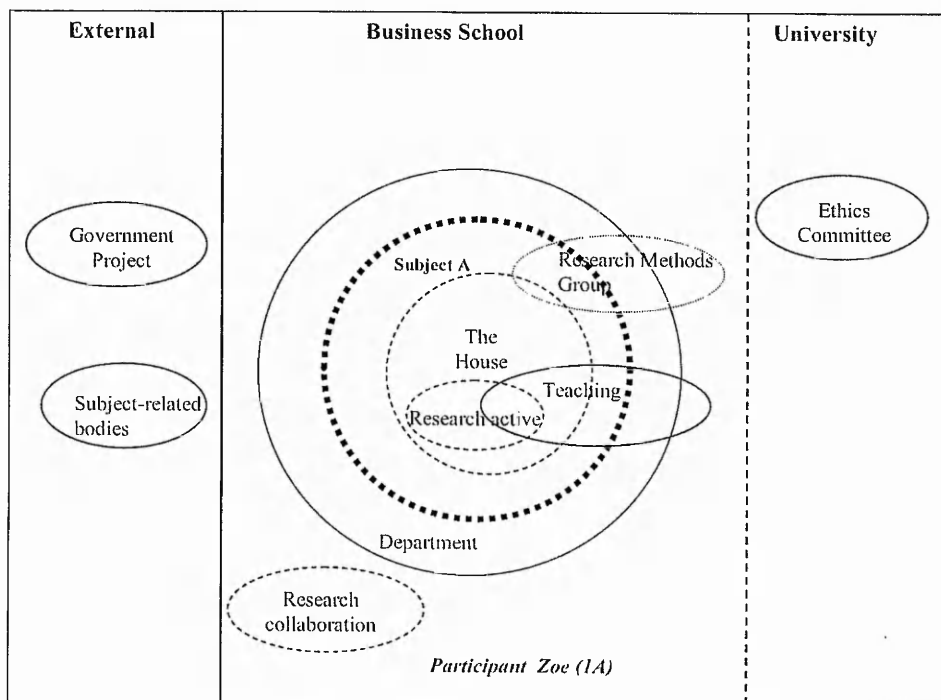


Figure 8.7: Relationship map for Zoe (1A) showing formal and informal groups

Bruce (1HOD) is unusual in identifying with the department and the business school rather than with the (informal) subject group. He enjoys being associated with “a properly recognised university business school”. There is an indication that ego, as well as status underpin the descriptions of his identity.

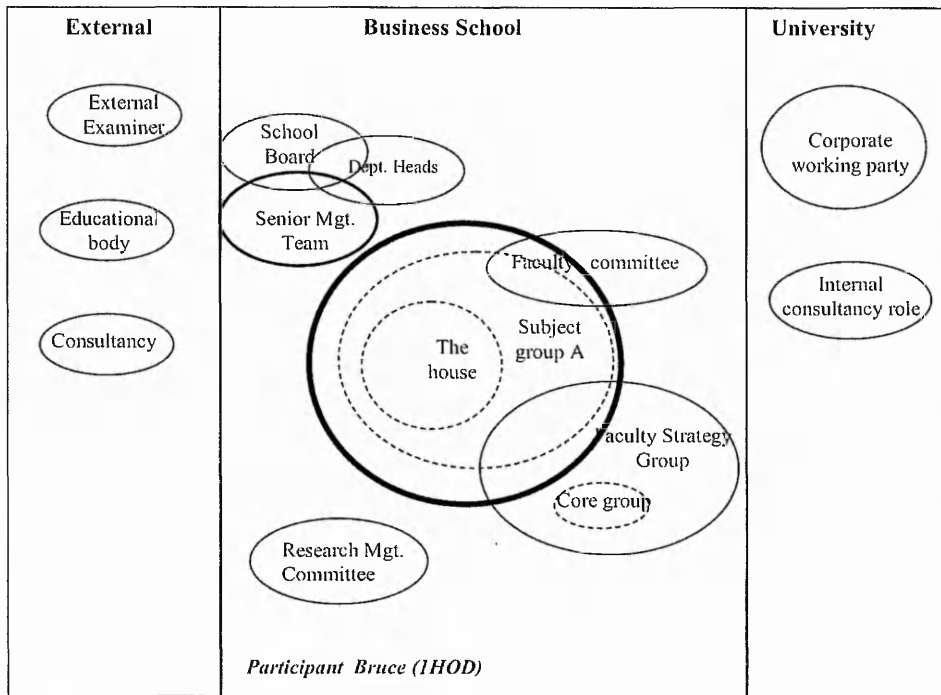


Figure 8.8: Relationship map for Bruce (IHOD) showing formal and informal groups

Bobby's (1A) relationship map is different to those of the other eleven participants in allocating colleagues to broad communities. His views on teaching have been influenced significantly by his biography. As a former training consultant he believes the approach to teaching and learning adopted by his colleagues needs to become more workshop based.

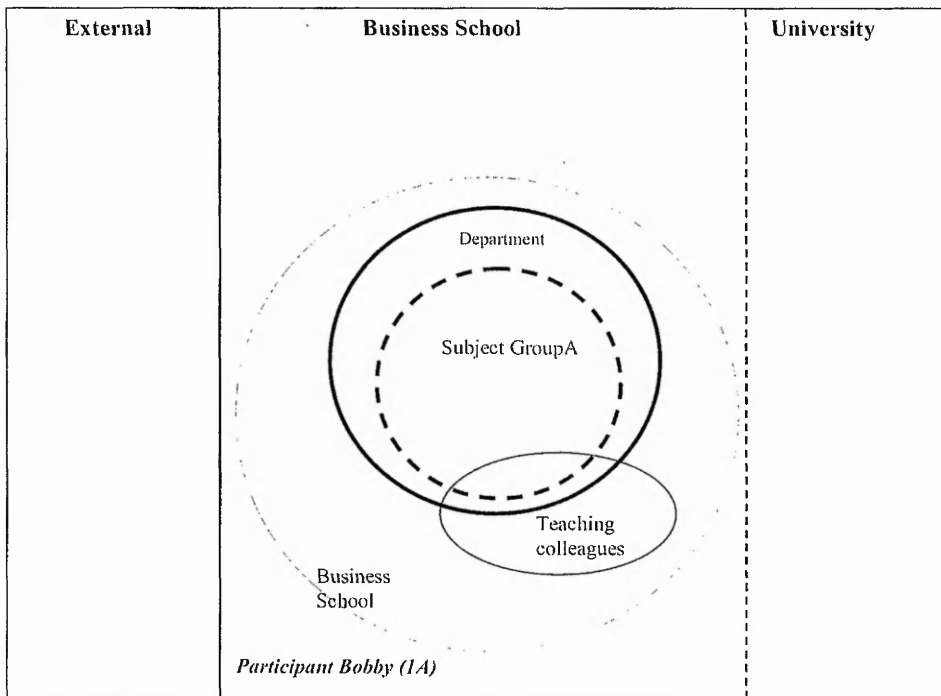


Figure 8.9: Relationship map for Bobby (1A) showing formal and informal groups

In case 2 all four participants see themselves as academic managers rather than administrators. What is evident in the four relationship maps) is a strong focus on formal structures and processes (see figures 8.10 to 8.13).

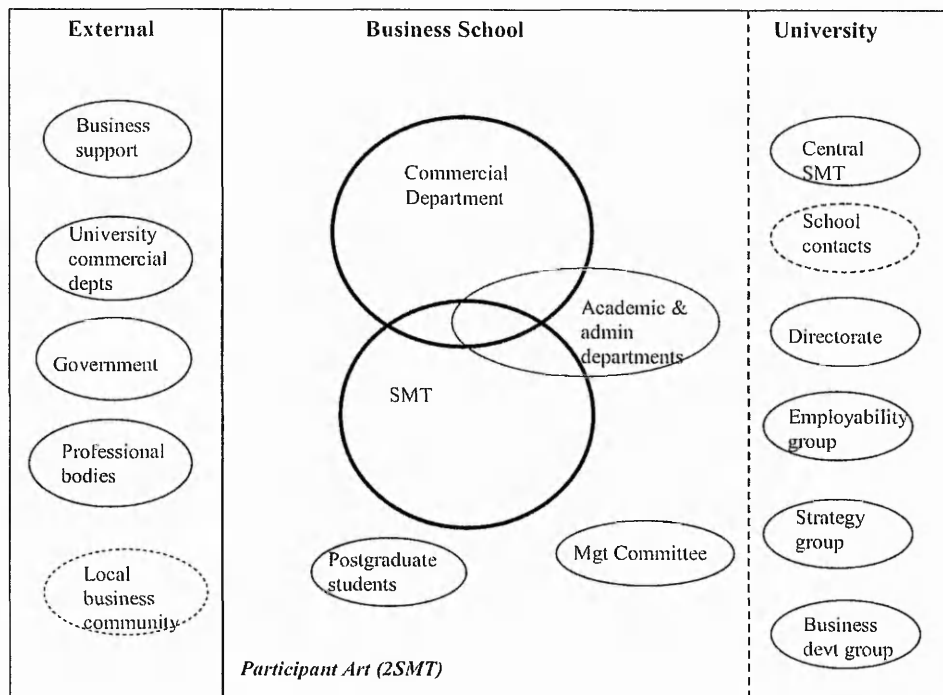


Figure 8.10: Relationship map for Art (2SMT)

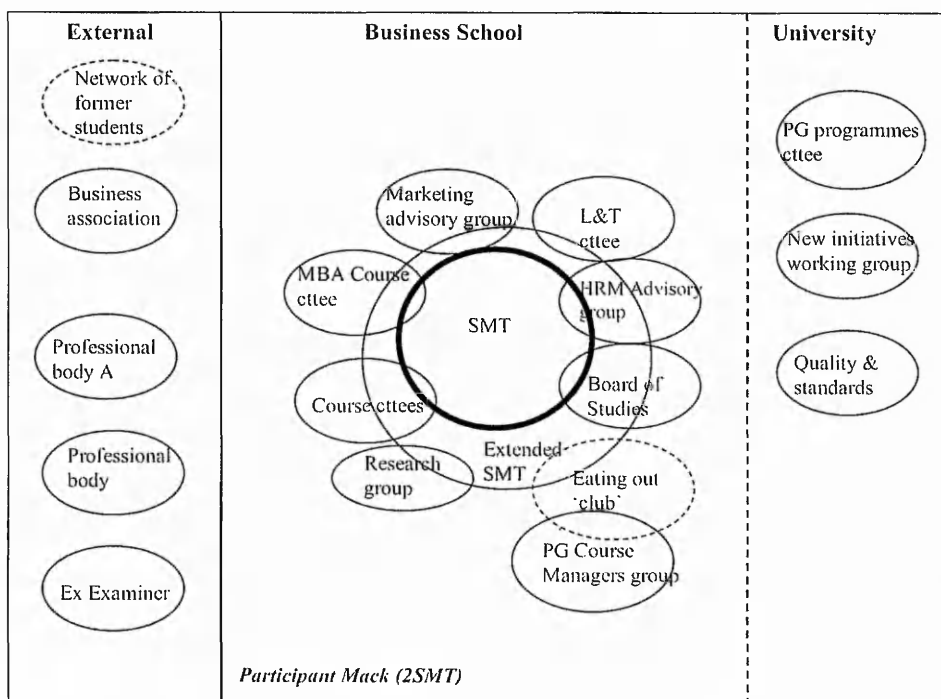


Figure 8.11: Relationship map for Mack (2SMT)

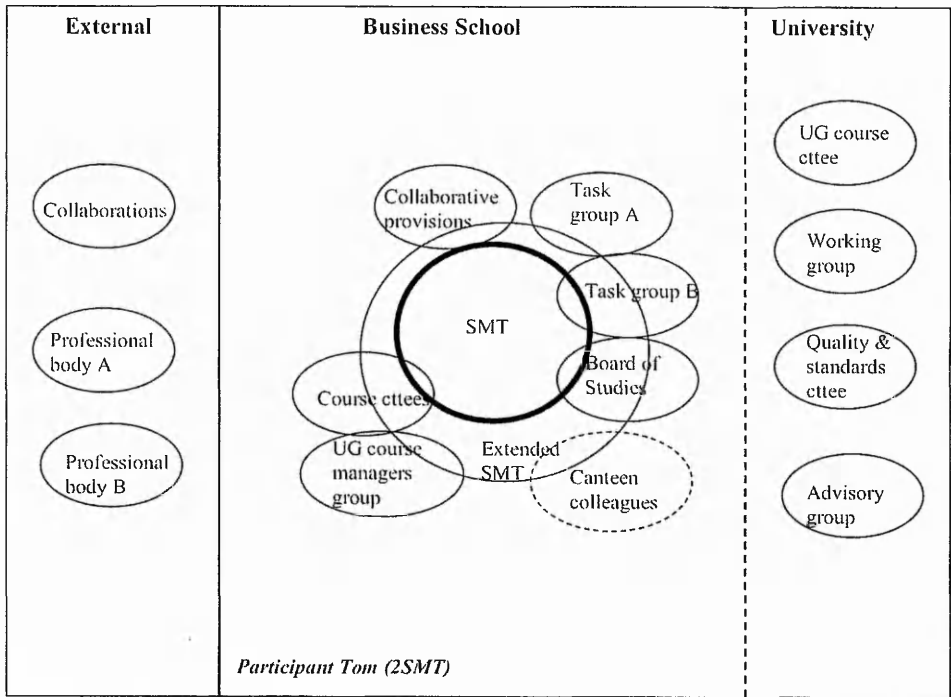


Figure 8.12: Relationship map for Tom (2SMT)

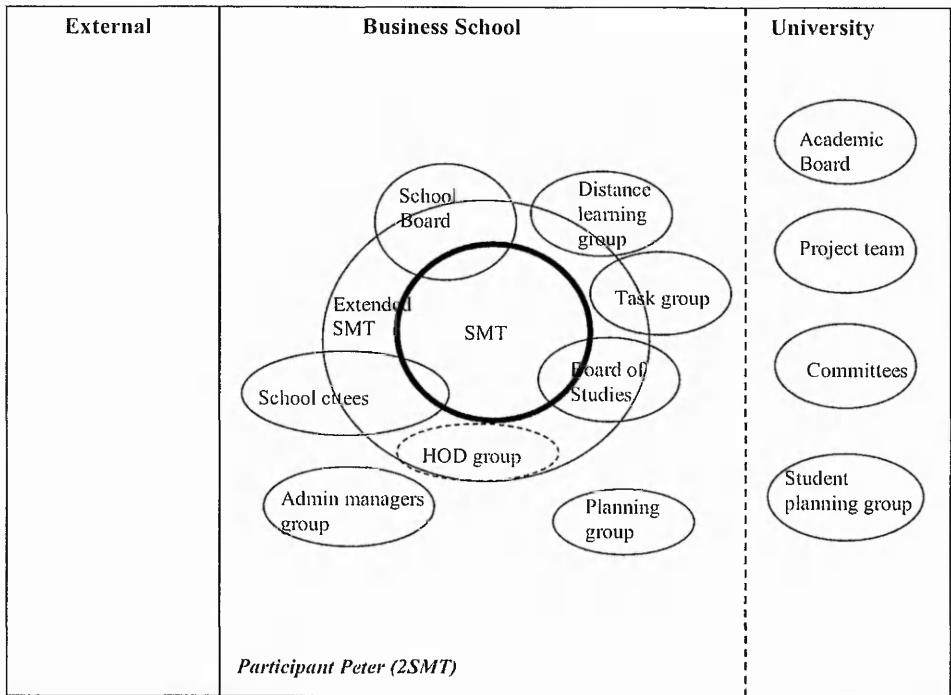


Figure 8.13: Relationship map for Peter (2SMT)

The reliance of the SMT on formal structures is evident in these maps. There are several networks shown. Within these formal structures informal knowledge sharing is used to facilitate formal decision-making as discussed earlier. This raises a possible refinement to the maps which is to indicate formal and informal knowledge flows across the web of groups.

It is particularly noticeable that Peter (2SMT) does not cite any external groups, either formal or informal.

In case 3 there is more variation in primary identity and this is illustrated by Sophie (3D), Liz (3D), John (3E) and Kate (3D). These differences reflect the fragmented nature of intra-group relations in this case.

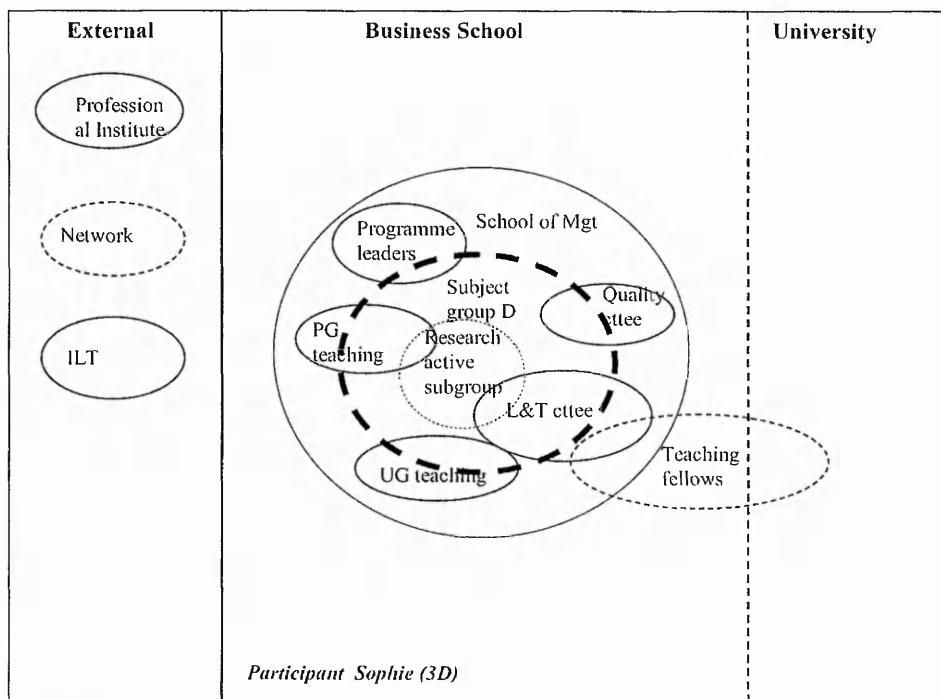


Figure 8.14: Relationship map for Sophie (3D)

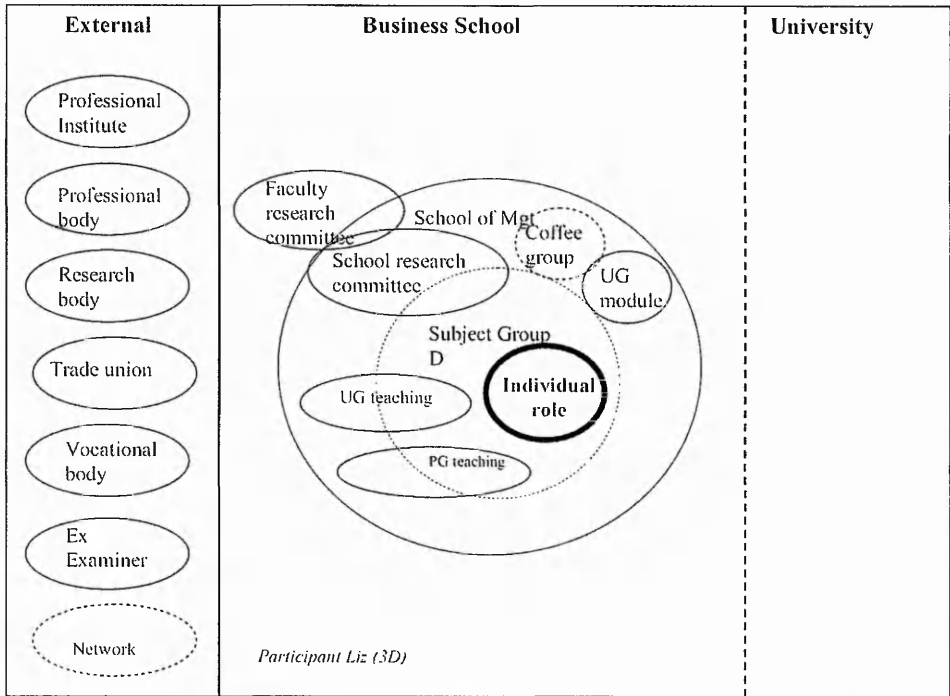


Figure 8.15: Relationship map for Liz (3D)

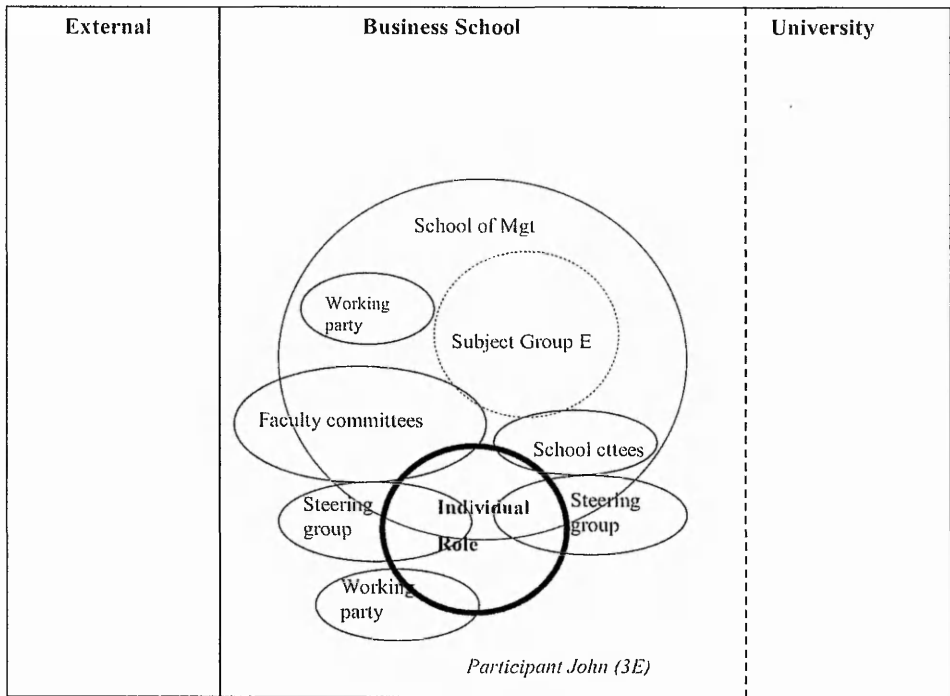


Figure 8.16: Relationship map for John (3F)

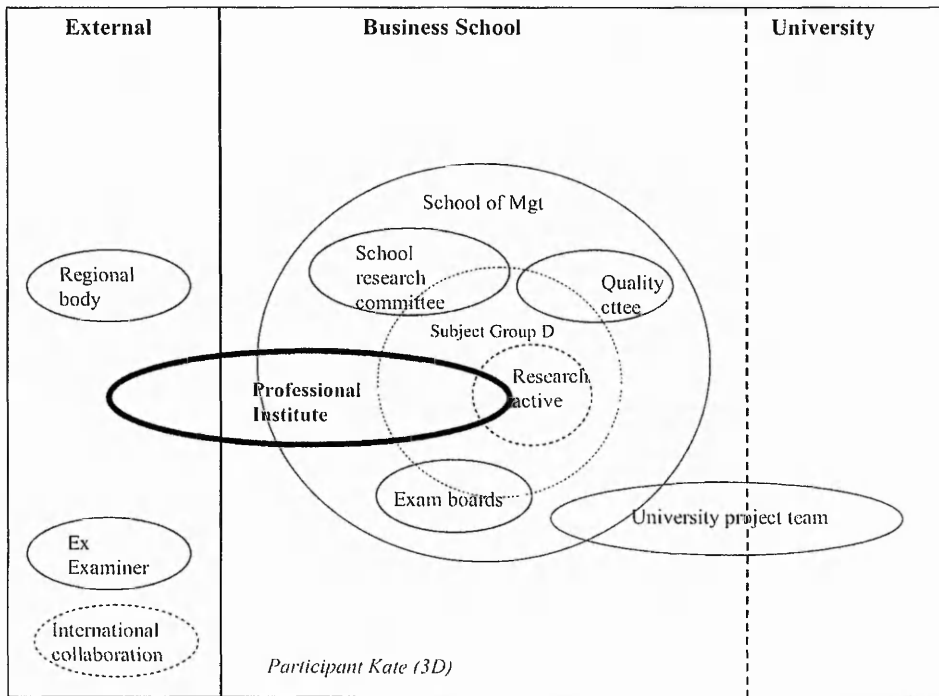


Figure 8.17: Relationship map for Kate (3D)

Two of these examples illustrate an individualist perspective on identity, in which the individual is privileged over the group (Cook & Brown, 2002). There are no examples of this in either cases 1 or 2.

The view that academics tend to draw their identity from discipline or subject groupings (Kogan, 2000) is confirmed by case 1 data but not case 3. However, across cases 1 and 3 the multiple identities that do exist, such as course management, research collaborations and teaching fellowships support the view that there are further differentiations within subject groups (Roccas & Brewster, 2002). Social identity has tended to be associated with formal constructs and this is partly the situation in case 3 but not in case 1. The findings from case 1 illustrate the role of informal groups and networks in the process of social identification. The data has made visible what is often described as invisible because it is not captured by formal

structures and processes (Cross et al, 2002). The social construction of knowledge provides a means for creating both community and social identity by offering participants a shared language and promoting their self-esteem (Alvesson, 1993). As Craig (1B) observes, working with his subject B colleagues in the past has made him “feel good about myself”. The data confirm the dwindling of the importance of institutional identification to academics (Pilbeam, 2006).

8.3.3 Being an academic

Professional or occupational identity is often a strong source of social identity (Hogg & Terry, 2000; Alvesson, 2004) yet the data from cases 1 and 3 reveals ambiguity and uncertainty surrounding participants’ perceptions of what is required to be an ‘academic’. There is a strong sense that participants see lecturers within new universities as teachers rather than academics and this has implications for both their sense of self and their social identity (see table 8.4).

Table 8.4: Perspectives on academic identity

Perspective	Case 1	Case 2	Case 3
Traditional perspective	<p>Developing an in-depth understanding of a topic through research and sharing that knowledge with others (2)</p> <p>Someone who can think about, reflect on and analyse old and new knowledge and write something about it (1); someone who is paid to think (1)</p> <p>An academic is different to a lecturer – its getting involved in arcane areas of the subject (1)</p>		Active researcher (2); someone who generates and disseminates research (1)
New university perspective	<p>Being an academic involves teaching (1)</p> <p>I see myself as a teacher not an academic (2)</p> <p>I am an academic manager (1)</p>	<p>We use the term loosely: an academic is someone who is paid on an academic contract (1)</p> <p>I am an academic manager not an administrator ()</p> <p>Depending on my audience I am a manager, teaching colleague or co-ordinator (1)</p>	<p>Teaching and scholarly activity (1)</p> <p>Its about being a lecturer rather than an academic (1)</p>

Richard (1B) sums up the traditional perspective: “to be a real academic you have got to do research”; while Sophie (3D) and Joanne (1A) sum up the new university perspective:

I would always call myself a lecturer...If you think of an academic you do think more of the research side (Sophie, 3D)

I don't see myself as an academic. I think that's half the problem, I see myself as a teacher...We're fooling ourselves that we're academics. We're not. We're teachers.

The whole establishment is geared towards large numbers of students and I don't think we can compete as a research unit. And I don't think we should even try (Joanne, 1A).

George (3HOS) is the only participant who argues that research and teaching are of equal importance to the concept of being an academic. Participants feel that the particular demands of working in a new university made it difficult to lay claim to the 'title' of academic. As Zoe (1A) observes it is "someone who's under pressure, under resourced, trying to make a silk purse out of a sow's ear".

The process of identity formation is linked often to perceived status within a social or cultural context (Knights & Wilmott, 1999). Within the academic context status can be derived from a combination of job title or role, publications and parent institution. In case 1 Bruce (1HOD) associates himself principally with his management role and draws his identity from being associated with a successful "properly recognised" new university business school. However, Bruce (1HOD) is unusual in identifying with the business school or university. Other case 1 participants tend to identify with the (informal) subject group first, the business school second (and rarely the department or institution).

8.3.2 Institutional identification

In both cases 1 and 3 there is a lack of identification with the institution. However, this is most striking in case 3 because of the fragmented nature of relationships within this case. Sophie's (3D) view of her own university is typical of other participants in case 3: "[The university] has always got this problem of image, how we are viewed

by the outside world. That is a problem for us". This has implications for the nature of the psychological contract. The impact that institutional management has had on case 3 participants is captured by Maggie (3D): "the bottom line is like nobody cares and that's the feeling I certainly have and I'm quite sure a lot of the other staff in the school [have]". While John (3E) observes that senior management "don't understand the amount of goodwill that is in the system and the benefits of having that there".

Maggie (3D) believes that the senior management team of the university:

haven't a clue. They haven't a clue what goes on in the university. You never see the principal, you never see the vice principal, you never see any of the senior management...you never see them. We've got a new, well a fairly new principal and she does communicate by email now, but that's all... She's got a vice-principal who she doesn't get on with at all and so they fight cat and dog. The vice principal? I've no idea what she's done...she certainly doesn't know what's going on in terms of the grass roots stuff and what's going on in the university.

Colleagues may be less scathing in the language they use but are equally critical of management. Sophie (3D) believes "management is not terribly good... they don't really know how to manage"; which is a view endorsed by Phil (3E) who sees the business faculty as "hindered by a total lack of management". He describes management indifference to problems such as poor communications as "just the usual shrugging of shoulders". He believes management "are detached from reality". The problem as Liz (3D) sees it is that "the whole people management of the institution is based on an assumption that lecturers are lazy skivers and that we need greater levels of control". The key, according to Sophie (3D) is the "personal pride in what you do" and "knowing that you have got a job to do and you are going to do it to the best of

your ability and you are actually going to do it in spite of the institution". George (3HOS) concedes that "I've seen people get a bit less willing with things and I can't blame them".

The findings in case 1, and to a more limited extent in case 3, support the literature that links identity formation in universities with social processes within small units (Trowler & Knight, 2004) such as discipline or subject groups (Kogan, 2000), 'guilds' (Kerr, 1995) or 'tribes' (Becher & Trowler, 2001). However, for a minority of participants in cases 1 and 3 primary identity is role-driven. For instance, Richard (1B) and Kirk (1B) identify most strongly with their postgraduate course managers role. Richard (1B) still has "affinities" with department colleagues but overall "I don't really have a lot to do with them. I am friendly...if there is a Christmas lunch I will go to it". Kirk (1A) explains that "my interest group is not just the [subject] group that I belong to" although it is the latter that provides him with his "home" because "I think it's important. I think you need a home. I think you need colleagues with whom you have some close association". When discussing his own subject group he has a tendency to refer to it as "that group" and to the department as "that unit". In case 2 all the participants identify primarily with their management roles and this is what they project to the outside world.

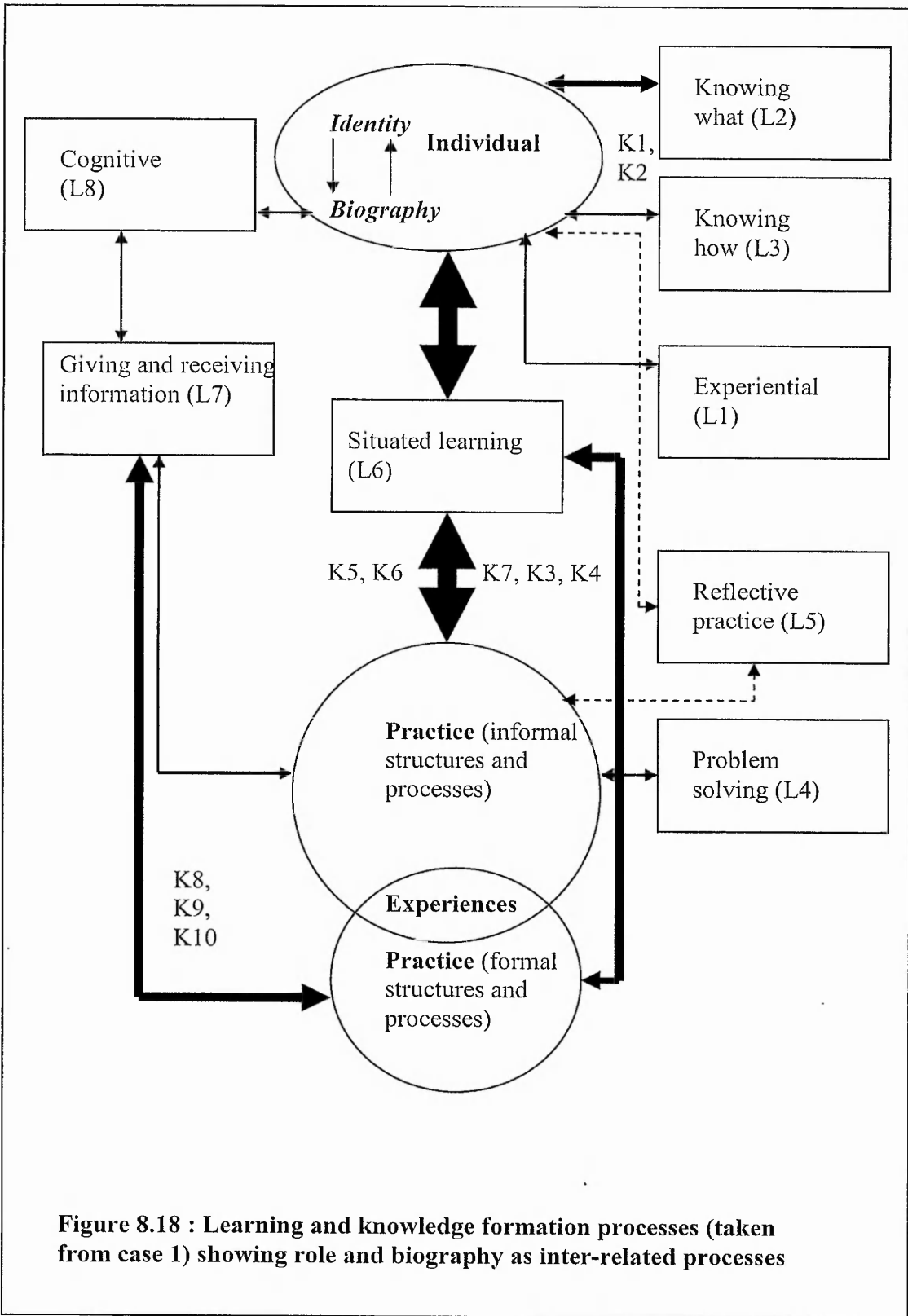
8.3.4 Identity and biography

To what extent is the proposition that biography and identity are inter-related concepts which impact on the nature of knowledge sharing processes a valid one?

What are the implications of this for knowledge sharing processes? Identity, biography and learning are inter-related concepts. Identity formation, the process of becoming in a particular context, is partly anchored in previous contexts in the form of a biographical narrative. This narrative or life-story comprises memories of learning experiences and reflections on how other people treat us or respond to us (Jarvis, 2006). The concept of biography is captured by Tony (3F) who reflects that:

most of the things you do in life have an impact later on, they resonate through your life. So certainly the academic work that I did was very useful, but also some of the real world experience, if we can make what I think is a somewhat silly distinction between the real world and the academic world. So they all come to the fore at various moments here

His reference to “moments” is consistent with the concept of episodic experience or disjuncture (Jarvis, 2006) or surprises (Schön, 1984). The learning that takes place is integrated into our biography (Jarvis, 2006) resulting in a changed or more experienced person and contributes to our sense of identity. In this way learning is an ongoing process of interpreting, sensemaking, and adjusting one’s own actions to the actions of others (Van der Sluis & Poell, 2003) as we “navigate” through life (Scully-Russ, 2005: 263). This has been added as a theoretical refinement to the diagrams showing the relationships between learning and knowledge formation processes and the model for learning both introduced in chapter 7 (see figures 8.18 and 8.19).



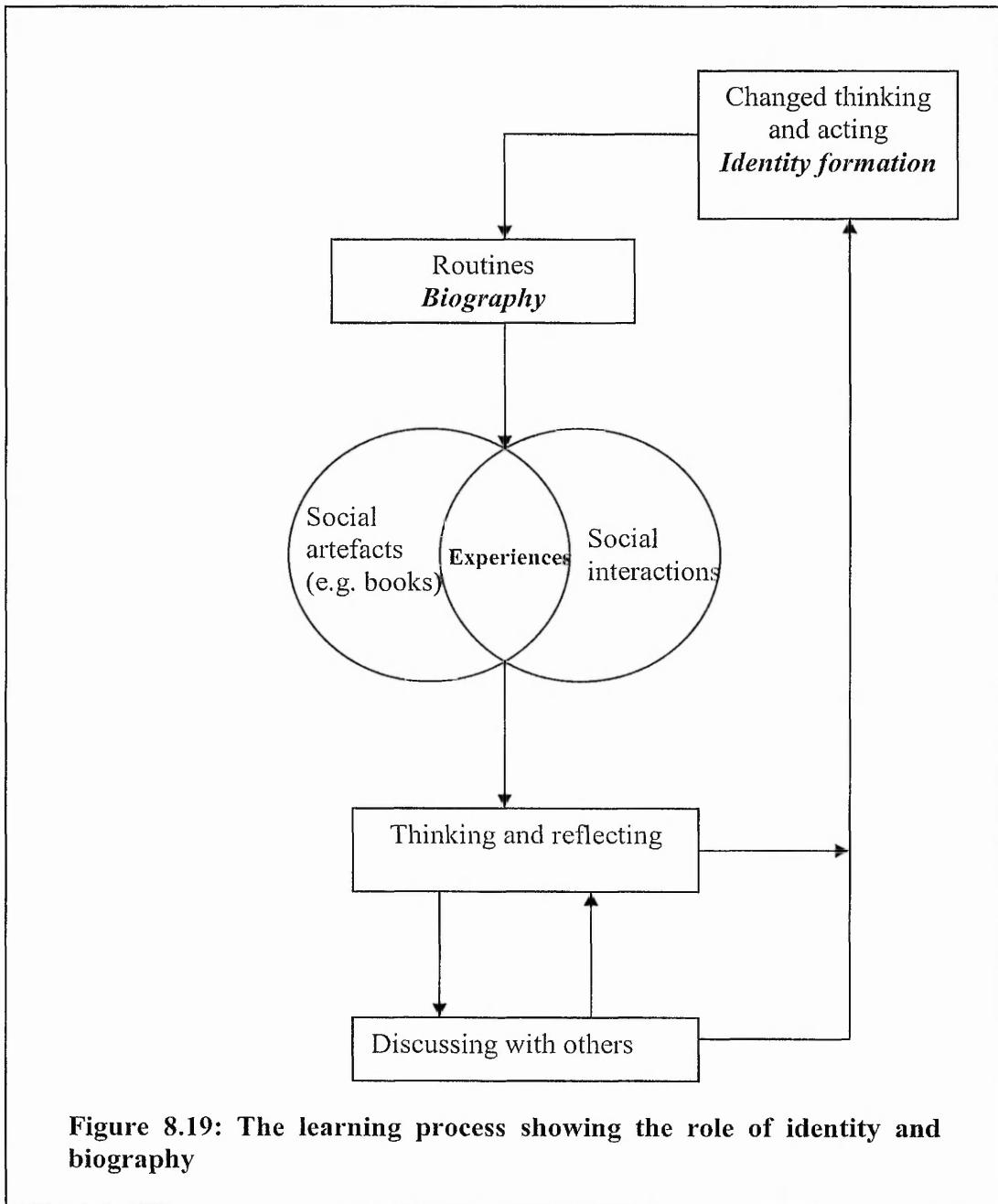


Figure 8.19: The learning process showing the role of identity and biography

The process of changing how you think and act in the real world has implications for your identity and the changed routines that result have implications for your biography. As the learning process is repeated over time an individual undergoes a process of becoming an academic. Several of the participants' narratives illustrate how identity formation is a process of 'becoming' (Jenkins, 1996) that is intimately

linked to learning (Wenger, 1998; Jarvis, 2006). For instance, Tony (3F) feels that to be called an academic you need to have experienced a PhD:

I needed the exposure to that stuff... For me it has given me a much more confident approach to dealing with knowledge, if you will, to dealing with learning... there is another way looking at the world

The process of becoming an academic is seen as a social process. For instance, Craig (1B) feels an academic is “somebody who is prepared to share that knowledge gained from the academic investigation with others”.

The influence of ‘biographical’ routines, learned in a different context, on identity formation in a new university context are illustrated by Zoe (1A):

I think not having a sort of academic background in terms of my professional approach meant that I was terribly impatient when I got here, with all the sort of argy-bargy and flin-flannery.... [I] adapted the skills that I brought with me which were sort of research and writing and presentation skills, to fit an academic context... [Before] I was sort of research manager at [a national association] that’s responsible for all, the... of all my research. So, that’s been my approach here.

In case 2, Tom (2SMT) feels that his earlier career in the voluntary sector has helped him in “the developing of softer skills” in his present role to such an extent that these softer skills, such as the ability to empathise, have now “become embedded in how I operate”. Kirk (1A) feels that in the first few years of his academic career “many of the skills of being a sales person were actually quite valuable in dealing with people in [an] educational environment”. Jilly (1A) believes that her management experience

in industry has made “a lot of difference” to her as an academic. Meryl (1A) believes that her own experiences as a mature student at the case 1 university has given her a ‘unique insight’ into student needs and expectations:

I'm closer to the student perspective and I think that's useful to have, because I certainly think that some of my colleagues have lost sight of what we're here for... I have a slightly different perspective in that I once was a student here and then I left and came back. So I probably have unique insight.

Jilly (1A) also draws upon her experiences of being a mature student at a different university. Richard (1B) explains how his previous experience has influenced him in his present course manager's role which is his primary source of identity:

I was always running my own business unit and I feel very comfortable with that... which is what the [Masters course] is for me. It's like I'm running my own business.

The extent to which biographical experiences from many years previously can impact on decisions or behaviour in the present is further illustrated by Liz (3D) and Phil (3E). Liz (3D) “learnt to teach” while working for a trade union and before she embarked on her academic career nearly twenty years ago. Yet it was her experiences from her late teens and early twenties in the 1970s that caused her to develop strongly held views on “inequalities of wealth”. She became “fascinated by inequality” and subsequently “completely committed to trade unions” and this still drives her research interests today. This combination of early work experiences and subsequent trade union experience has instilled strongly held beliefs. She feels her time spent with the trade union “was much more meaningful to me than anything I've ever seen in higher

education". In a similar vein Phil (3E) has worked at the university for 13 years and previously worked in industry for 8 years yet this latter experience has had a significant influence on how he perceives the university and this, in turn, still shapes some of his day-to-day priorities and interactions with colleagues:

If I hadn't been in the private sector probably I would be much more willing to take on board the way things work here. But having been in the private sector when, where things have to happen quickly, because you are reacting to market pressure, here it can be extremely frustrating.

Bobby's (1A) experience as an independent training consultant has influenced his views on teaching and learning:

I've got very strong views which seem to be at odds with most people and I would hope that that created debate and movement and I know that some of my colleagues are, I would say, coming around to my way of thinking and may have thought this way independently, but we're starting to now come together in our views to the, to the way we teach. I don't think that as a professional, that we're particularly effective in the way that we teach, I think the processes in this place are wedded to an old fashioned and outmoded way of teaching which is basically a one hour lecture where people talk at you and tell you what you could have read for yourself and probably couldn't be bothered because you knew they were going to tell you; and then you've got two hours of seminars which you probably slope off from because you've got the lecture notes and, after all, seminars are boring and crap anyway. And I think it's a complete and utter waste of three hours of peoples' time. And I've looked, I've tried to look at different ways of doing that, I've also tried to look at ways in which I can make seminar activities more interactive. I don't claim to be the only one doing this, but I, its something that I'm trying very

consciously to do; and I'm also trying to make them, where appropriate, more practical. So, on the two modules that I've been leading recently, which are [subject A related], I've tried as far as possible to almost run them like training workshops with the proviso, of course, that most of these kids haven't got a clue which way's up in terms of the real world, but trying to, none the less, ease them into situations where they can at least apply some degree of, of common sense application of basic principles, even if they don't have the experience. So, I've tried to do that, and, you know, hopefully, that, that's triggered off some debates, some thoughts.

In case 2, Peter (2SMT) identifies three sets of experiences that have influenced his behaviour: working in finance means “finance is always in my mind, because of my background”; “the less obvious one, the culture of banks, it was very much about ‘we’ as a team...I think that’s had, over the years, a bit of an impact on me...I try to think about ‘we’ as the school, as a collection of people working together”; and, as highlighted in the previous chapter, how his banking experience also influenced his approach to problem solving.

These examples also illustrate a potential downside: the learning process bypasses the identity formation stage of changing how you think and act and simply reinforces existing biographical routines. This can compound the silo effect by reinforcing particular ways of looking at the world that are shared by group members. In these instances learning has not taken place although an individual may convince him/herself it has because of the thinking and reflecting that the experience has triggered. Or, it may be that learning does take place but is narrowly focused and therefore has no direct impact on identity formation.

8.3.5 Key findings

The key findings in this section are:

25. Relationship maps provide a visual representation of informalisation from an individual participant's perspective. Each relationship map provides a unique interpretation and can be described as a knowledge *fingerprint*.

26. Each participant has a primary identity which is predominantly the subject group in case 1 and the senior management team in case 2. In case 3 there is more variation in primary identity due to the fragmented nature of intra-group relations in this case.

27. New university academic identity is defined in terms of teaching whereas traditional academic identity is defined in terms of research. Managers in all three cases define themselves as academic managers not as academic administrators.

28. In cases 1 and 3 there is a lack of identification with the participant's institution. This provides empirical evidence to support the body of literature that links identity formation in universities with social processes within small units.

29. Biography and identity are an intertwined and integral aspect of the learning process. This has implications for how participants behave in the workplace which, in turn has implications for knowledge sharing processes.

Chapter 9: Discussion and analysis of findings

Choosing to share knowledge

9.1 Research question and associated propositions

The original research question and associated proposition(s) is shown in table 1 below.

Table 9.1: Original research question and associated proposition(s)

Research question	Proposition
5. What accounts do individuals give of choosing to share knowledge or not?	5.1 Knowledge sharing is characterised by tacit reciprocity which is a feature of intra-group relationships which are characterised by high levels of trust, shared values and a shared interest or practice. 5.2 Knowledge exchange is characterised by power relationships.

9.2 Tacit reciprocity

9.2.1 The evidence for tacit reciprocity

The data for all three cases was analysed for evidence of tacit reciprocity. In the literature review chapter it was theorised that tacit reciprocity is predicated on trust and mutuality. Ideally trust needs to be affective (i.e. socially oriented and non-calculative; based on strong emotional ties and shared values) and mutuality to be high care (based on shared values and interests; and an unconditional willingness to

share expertise and provide support). Tables 9.2 and 9.3 summarise the findings (original versions are in appendix 5).

Table 9.2 Analysis of references to trust

(The number in brackets indicates the number of participants making this point (F) indicates a formal context is being referred to)

Trust	Case 1	Case 2	Case 3
Affect-based trust (socially oriented; strong emotional ties; shared values; non-calculative)	Trust in colleagues is essential (5); colleagues who are friends can be trusted (1) Implicit trust between colleagues - never letting each other down (5); being able to say anything informally in the house (1)	Trust is very important (1); important to the dyadic relationships with Peter (F) (3) Building trust in informal relationships so that you can help people (2) Trust is 'absolutely' intrinsic – trust what people are doing and don't 'shaft' anybody (1)	Trust is vital (1) Lack of trust - very little mutual understanding going on in subject group (1)
Cognitive-based trust (deliberating choosing who to trust; calculative)	Trust is important for obtaining or exchanging information (1) Trust determines who I choose to share things with (1) I can work with people I don't trust, I just don't tell them as much (1) I'm reluctant to share information with people who I know will use it as their own (1) There are some colleagues I don't trust implicitly and whose work I have to check carefully (1)	Building trust in informal relationships to find out what is going on (1)	
Impersonal trust (indirect trust in organisation; institutional affiliation)	Colleagues do have a sense of corporate belonging to the school (1) <u>Lack of institutional affiliation or</u>	We are 'wedded' to the business school and the university (1)	<u>Lack of institutional affiliation or identification:</u> Lack of trust because of poor communications within

	<u>identification:</u> Not being trusted (F)(1) Decline in goodwill (2) and growth in cynicism (2) No identification with the university (3); no identification with the business school (1) Informal processes are more supportive and informative (2)		institution (F)(1) Senior management detached from reality (1); senior management haven't a clue and are never visible (1); academics are seen as people who 'whinge' (1) Disenchanted (F) (1); decline in goodwill (F) (1); 'them and us' attitude (F) (1)
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The table reveals differences across the case study. Explicit examples of affect-based trust are highest in case 1 and predominantly relate to the house. The strength of affect-based trust is aptly summed up by Craig (1B): “failing to provide support would be like disassociating themselves from the tribe”. Trust is seen as important to management practice although it is a characteristic of dyadic relationships within the SMT context. Only two participants in case 3 made explicit references to trust and one of these was concerning the lack of affect-based trust. This further illustrates the fragmented nature of relationships in this case. In terms of cognitive-based trust all the explicit examples bar one relate to case 1 participants. A lack of impersonal trust was a characteristic of cases 1 and 3 and the impact of this was discussed in the previous chapter.

Table 9.3 Analysis of references to mutuality

(The number in brackets indicates the number of participants making this point (F) indicates a formal context is being referred to)

Mutuality	Case 1	Case 2	Case 3
<p>Developing high-care relationships involving active empathy (a willingness to support group colleagues unquestionably)</p>	<p>Taking an interest in each other's personal lives (2); colleagues as friends (2); colleagues who you have worked with for years (1); socialising with colleagues (2); bonds between colleagues (1)</p> <p>Taking an interest in each other's activities (3)</p> <p>Working in a close-knit community (1); having very supportive colleagues (4); reciprocating the help that's been given (2); goodwill in the group for helping out when things are needed (1); instinctive/intuitive understanding of colleagues' needs and activities (2)</p> <p>The atmosphere in the house motivates you to do your best (1)</p>	<p>Socialising together (1)</p>	<p>Mutual understanding (1); people that you can get on with (1) and count on (1); taking an interest in colleagues' lives (1)</p> <p>Having extremely supportive colleagues (F) (1); knowing and working with the same colleague for a very long time (F) (1)</p>
<p>Having shared values and a common interest/focus</p>	<p>Its about having a 'home' (1) and close associations (1)</p> <p>Having the same interests (3) or same views (1)</p> <p>New ideas are welcomed (1)</p> <p>Able to be frank and open with each other (1)</p>	<p>Working with like-minded colleagues (1); thinking about things in the same way (F) (1) or from a similar perspective (1)</p> <p>Sharing a passion for the business school (F) (1)</p>	<p>Shared values (1)</p> <p>Having a strong interest in teaching and learning (3) or research (1); being motivated by the same thing (1)</p>
<p>Willingness to share expertise with other group members on an unconditional basis</p>	<p>Reciprocating advice, materials or help unhesitatingly and generously (9)</p> <p>Swapping ideas (7)</p>		<p>There is a real sense of shared knowledge (1)</p> <p>Sharing knowledge tends to happen with people who you get on with (1)</p>

			Working closely together on teaching (1) or research collaborations (3)
A willingness to help group members learn and to learn from them on an unconditional basis	Learning from colleagues in the house (6)	People learn from each other in research collaborations (F) (1)	

As with table 9.3 the significant differences are due to the house in case 1 (with two participants from subject B making some of the same points about their group). It is evident that the levels of informal knowledge sharing (K5, K6) and situated learning (L6) in the house are predicated on relationships that are characterised by high levels of mutuality as well as of trust (table 9.2). In case 3 the examples of shared values and/or interests relate to the research sub-groups (or “cliques”) and the teaching fellows network. In terms of management practice there is little acknowledgement of these issues reflecting the way in which the SMT tend to work (e.g. fractured intra-group relations with the assistant deans in dyadic relationships with the dean). There appears to be a consensus on the need for shared values and/or interests and it is this which may provide the ‘glue’ that keeps the SMT functioning.

The data support the proposition partially. Relationships in the house in case 1 are characterised by tacit reciprocity which is predicated on affect-based trust and high care mutuality. But the house constitutes an informal sub-group characterised by high levels of informal knowledge sharing and, in particular of knowledge diffusion (K5). There is no evidence for tacit reciprocity in any of the other formal or informal structures across the three cases. This indicates that the house is a particular type of informal group: a community of practice (Lave & Wenger, 1991; Brown & Duguid, 1991; Wenger, 1998).

9.2.2 The evidence for the house as a community of practice

Wenger (1998) refers to three essential criteria that a group needs to exhibit in order to be regarded as a community of practice: shared repertoire (e.g. artefacts; symbols; routines), joint enterprise (e.g. shared interest and understanding) and mutual engagement (e.g. working together closely; mutual support). Evidence for these criteria have been discussed in different chapters (see table 9.4).

Table 9.4: Evidence for the house as a community of practice

(the term 'within' indicates data relating to the house is included in the table but has not necessarily been flagged as relating purely to the house context but specific references are embedded in the chapter narrative)

Shared repertoire(e.g. artefacts; symbols; routines)	Informal processes are connected to day-to-day academic practice (within table 6.1); shared routines (including behavioural cues) (table 6.2 and within figure 6.5); facilitators of knowledge sharing (within table 8.3 and figure 8.1); shared artefacts and symbols (within chapter 9).
joint enterprise (e.g. shared interest and understanding)	Appreciating the practical dimension of knowledge (table 4.1); levels of embedded practical knowledge (within tables 4.4 and 4.6); informal discussions are very focused (within table 6.1); high levels of problem solving and innovation (within table 6.1); level of community memory (table 7.7); facilitators of knowledge sharing (within table 8.3 and figure 8.1); developing high care relationships (table 9.3).
mutual engagement (e.g. working together closely; mutual support).	Levels of knowledge sharing in the house (table 5.11) and in particular of knowledge diffusion (K5); and the correspondingly low levels of information exchange (table 5.15); the emergent spontaneous nature of K5 (chapters 5 & 6; within table 6.1); informal processes are ongoing and frequent (within table 6.1); high levels of situated learning (L6) (within table 7.4 and figure 7.1); facilitators of knowledge sharing (within table 8.3 and figure 8.1); levels of affect-based trust (within table 9.2); levels of mutuality (table 9.3)

In terms of shared artefacts and symbols there are some examples. Jilly (1A) refers to “a very strong corporate identity ... and also what is quite different about us is that we, as a group, have more course managers than any other group”. Zoe (1A) adds:

apparently, yes, yes, we dress to look like [subject A professionals]. So we sort of, we wear jackets and scarves and polish our shoes and what was it that [Alma] said? The handbags. We all having matching handbags. Everyone else has carrier bags...its quite funny. But, yeah, there is quite a high sartorial standard...When I came here I was told, by one of my colleagues, you have to dress as if you're going out to, out to work in a business.

The house itself is used as a term by participants to explain why the subject group is different to any other in the business school. In this way the house is both an artefact and a symbol. This also raises the issue of whether subject group A represents the boundaries of the community with the house representing the principal focus and locus or core. Wenger (1998) argues that communities are not necessarily characterised by harmony. The tensions that exist because Kirk (1A), Elsie (1A) and Bobby (1A) are located elsewhere do not exclude them from membership. They all acknowledge the benefits of dropping into the house and speak positively about the high levels of support from their house colleagues. Indeed, Kirk (1A) describes the subject group as his ‘home’. Rather they are peripheral members. The relationship maps (chapter 8) show that it is the subject group that members identify with primarily and not the house itself. The examples of affect-based trust in table 9.2 include references from Elsie (1A) and Kirk (1A) in relation to their subject group.

As much of the published material on communities of practice is theoretical and descriptive (Plaskoff, 2005) the data on the house and subject group A provides some timely empirical data.

9.2.3 The role of context

Understanding the context within which knowledge sharing processes occur is rather like unpeeling an onion and revealing layer upon layer of inter-related contexts ranging from the physical location at the centre to the external context at the outer layer. Each of these layers are characterised by particular levels and mixes of knowledge formation processes as well as being impacted upon by various constraints: structural, bureaucratic, professional and psychological (see figure 9.1).

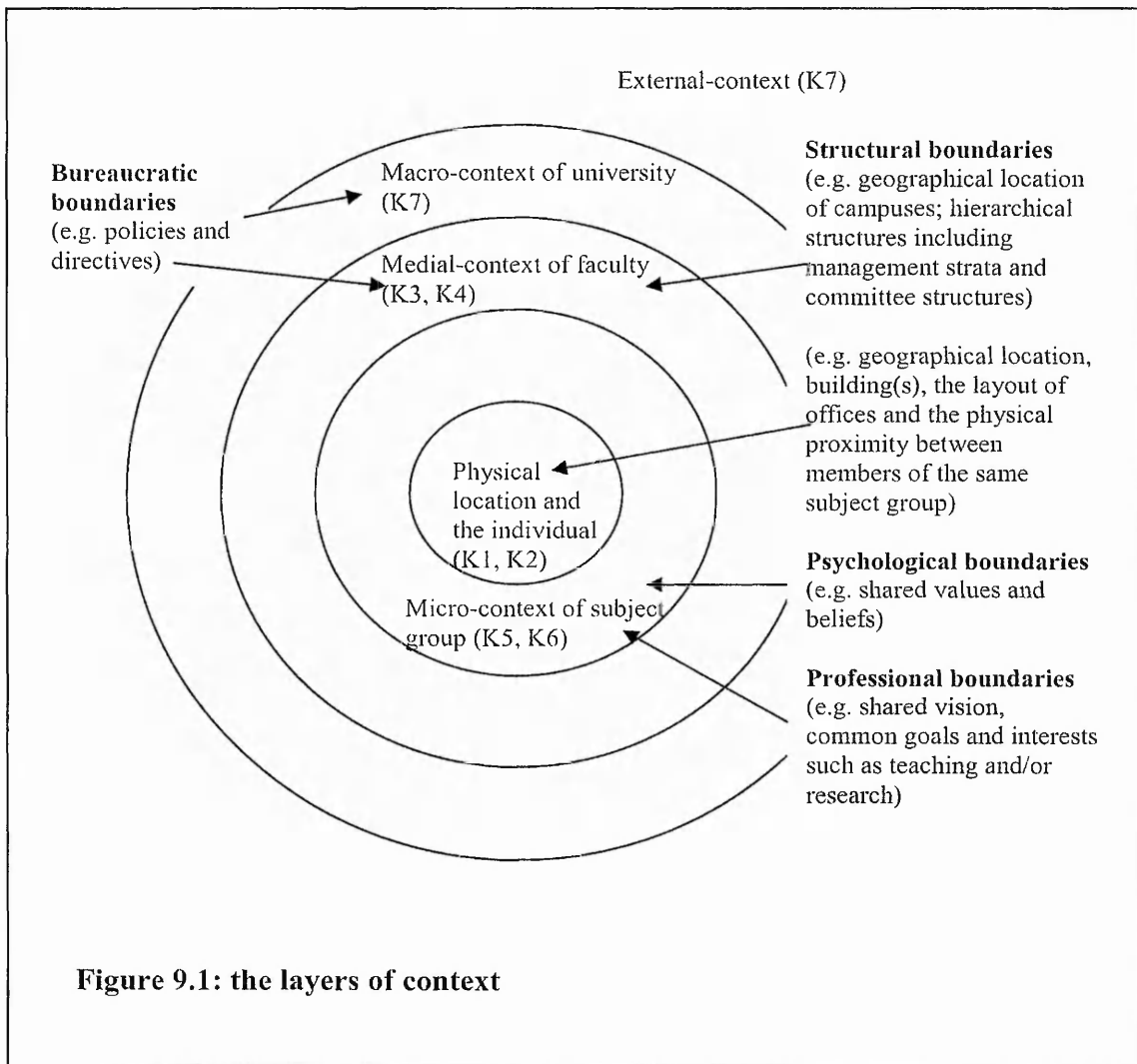


Figure 9.1: the layers of context

At the centre is the individual who is located within a physical location and is involved in acquiring (K1) and generating knowledge (K2). It is in the micro-context, within which the individual and his/her physical location is embedded, that knowledge diffusion and sharing (K5, K6) predominantly occurs *if* there is a particular blend or combination of physical and psychological space within which relationships emerge, social interactions take place and learning is situated. This is bounded by structural, psychological and professional boundaries. The medial-level (Business school) is characterised by knowledge sharing in formal contexts (K3, K4);

and the macro- and external-contexts are characterised by knowledge transfer (K7) albeit that there is limited evidence of this.

The house provides a physical location within which a sub-group of subject A to interact. Tacit reciprocity reflects a convergence of values at the level of the micro-context; and appears to be linked to a participant's primary identity. However, participants' comments about their institution and the associated behaviour of senior management, suggests a lack of convergence in values between the individual and the organisation. Consequently, it is the micro-context that has a greater influence on the participant's willingness to engage in, and commit their loyalty and energy to, a particular social practice (Billet, 2001); it is the desire to benefit the group or network that becomes the primary motivator (Snyder & Cantor, 1998). This supports the mediating role of informal groups proposed in the literature (i.e. the learning-knowledge exchange); although it was theorised that higher levels of institutional identification would exist. The findings also support previous studies of professional learning which emphasise the importance of the learning context for collaborative knowledge construction (Tillema, 2005, 2006).

9.2.5 Knowledge exchange is characterised by power relationships

There was very little evidence to support this proposition apart from a few comments. For instance, although "people are generally reasonably happy to exchange knowledge" at the micro-level, in terms of the medial- and macro-contexts "they won't do it voluntarily" (Mack 2SMT). Higher levels of exchange being associated with formal structures and processes were identified and the relationship between this

and the lack of institutional identification merits consideration. But there was a lack of data to arrive at a meaningful analysis; thus reflecting the inductive as well as deductive nature of the study (see methodology chapter).

9.2.6 Key findings

The key findings in this chapter are:

30. Relationships in the house in case 1 are characterised by tacit reciprocity which is predicated on affect-based trust and high care mutuality and is associated with high levels of knowledge sharing.

31. The house satisfies the criteria for being described as a community of practice. There is further evidence to suggest that subject group A represents the boundaries of the community with the house representing the principal focus and locus or core.

32. The data support the mediating role of groups proposed in the literature review (i.e. the learning-knowledge exchange); although it had been theorised that higher levels of institutional identification would exist than was identified in the study.

33. There was a lack of data to prove or disprove the proposition that knowledge exchange is characterised by power relationships.

34. As much of the published material on communities of practice is theoretical and descriptive the data on subject group A provides some timely empirical data.

Figure 9.2, based on the conceptual framework developed in the literature review chapter summarises the findings overall.

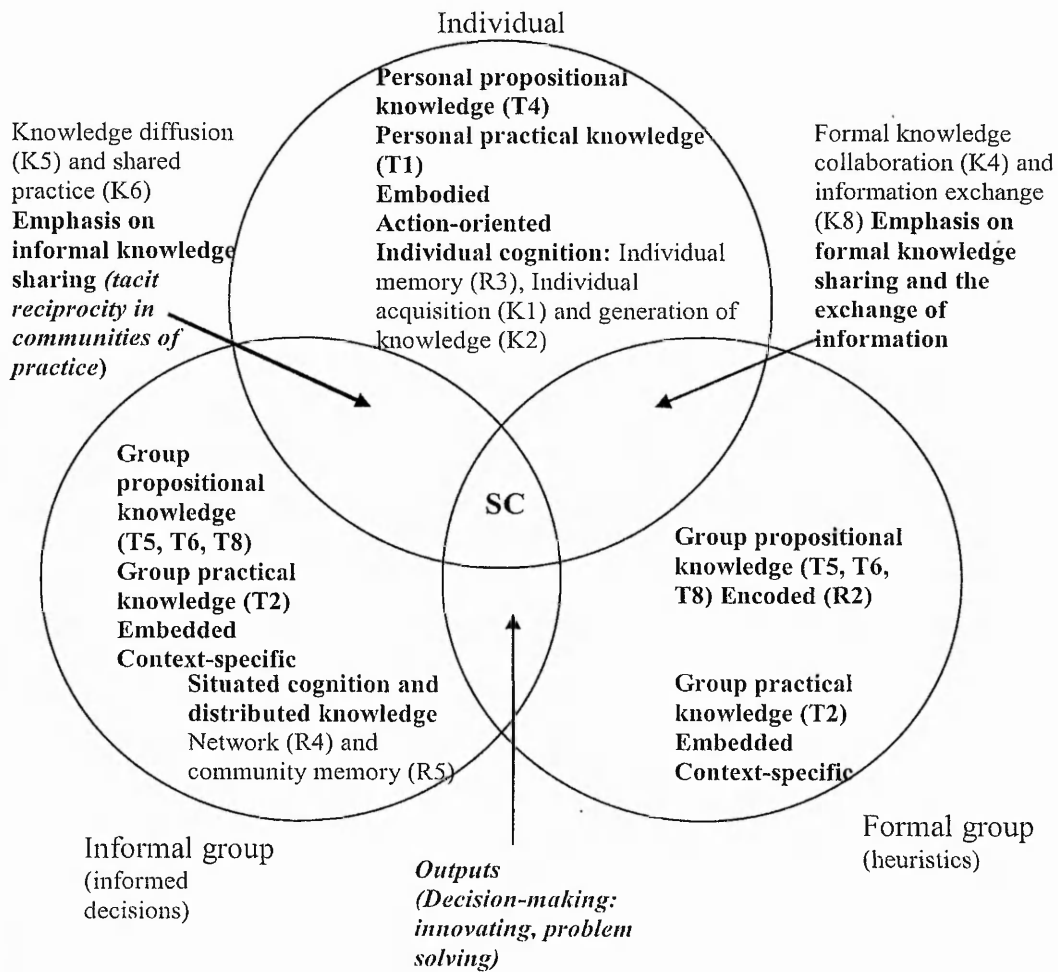
The two domains:

1. The reified (knowledge can be articulated)

External repositories of knowledge (R1) and structured internal Knowledge transfer between organisations (K7)

Knowledge in the public domain (R6)

2. The subjective (knowledge is difficult or impossible to articulate)



SC = Social construction of knowledge

Figure 9.2: Diagrammatic summary of findings

Chapter 10: Conclusions

10.1 Introduction to conclusions

This study provides tangible empirical evidence of informalisation. As stated in the introduction chapter there is a paucity of research into knowledge sharing processes (Hansen et al, 2005), particularly in terms of *how* individuals share knowledge with each other (Ipe, 2003) and *why* they choose to share (Hislop, 2003). The results from this study not only contribute to the debate but also help to move the topic beyond purely theoretical discussions; particularly in terms of the under-researched university context. It is the first known study to identify the nature of knowledge sharing processes in academic communities found in new university business schools. The relationship maps illustrate in graphic fashion that knowledge sharing, as well as other knowledge formation processes, along with the nature of the relationship between individual, group and organisational learning processes, cannot be fully understood by investigating only the formal *or* informal structures and processes of an organisation.

The conclusions are structured in accordance with the original research questions:

- i. What do individuals claim constitutes knowledge?
- ii. What account do individuals give of how knowledge is shared or exchanged within organisations?
- iii. What do individuals claim are the similarities and differences between personal knowledge and shared-knowledge?

- iv. What barriers and facilitators do individuals claim exist in the sharing or exchange of knowledge in organisations?
- v. What accounts do individuals give of choosing to share knowledge or not?

Data and theory from the analysis and literature review chapters are drawn upon. A full list of the key findings from each chapter are shown in appendix 6.

10.2 What do individuals claim constitutes knowledge?

10.2.1 Many of the participants struggled to articulate a coherent definition of knowledge, illustrating that it is a very difficult concept to define. Participants in case 1, in particular differentiated between the practical and propositional dimensions of knowledge. Several participants defined knowledge in relation to information suggesting familiarity with first wave literature. Propositional knowledge was relatively straightforward for participants to explain. In contrast, practical knowledge was referred to in a variety of ways, such as 'skills', 'expertise' or 'experience'. These terms were not defined by participants suggesting a tacit acceptance of their generic usage. The stories and examples provided by the participants demonstrated an implicit awareness of different types of knowledge and this was used to construct the typology of knowledge. It was through this process that it was possible to identify, for instance, which participants see knowledge as action oriented and better understand the distinctions made between propositional and practical knowledge.

10.2.2 The findings confirm that the practical and propositional dimensions of knowledge can be applied to both individuals and groups. Participants refer to

examples of practical knowledge far more often than to propositional knowledge. This reflects the importance of practical knowledge to academic and management practice. The identification of eight T codes (for types of knowledge) makes an original contribution to knowledge by delineating between the contexts within which knowledge is embedded or encoded. This, in turn, contributes to a better understanding of knowledge formation processes within a new university context. The findings also highlight that practical knowledge embedded in groups which are located within the business school (T2) is the most frequently cited 'type' of knowledge. This illustrates the context-specific nature of such knowledge in new university settings.

10.2.3 In terms of the first proposition (i.e. universities are characterised by particular types of knowledge: personal knowledge, codified academic knowledge and uncodified cultural knowledge), the data reveals that the situation is more complex than the proposition suggests. In particular, the types of knowledge that have been theorised do not fully reflect the propositional and practical dimensions of *working* knowledge needed by participants to function effectively on a day-to-day basis. The interconnections between different contexts (i.e. micro-, medial-, macro- and external-contexts) vary for each participant and this has implications for the working knowledge they each need to acquire and utilise. Working knowledge (e.g. rules, policies, procedures) is identified as being important to both academic and management practice. These findings reflect the lack of studies into universities as work organisations and is an example of how this study is making a contribution to existing knowledge.

10.2.4. There are relatively few references to knowledge associated with internal (T3, T6) and external (T7, T8) networks across all three cases indicating potentially low levels of knowledge transfer across and between institutions. This suggests relatively low numbers of active researchers (who tend to network) and an inward focus that needs to be addressed given the external forces impacting on universities (such as the globalisation of education) and the need to open up new income streams. Very few examples of commercial activity were cited across all three cases. The levels of knowledge transfer (K7) identified in the study are consistent with this finding.

10.2.4 Academic practice involves both formal and informal structures and processes whereas management practice relies on a combination of formal structures and processes with informal processes only. This is further confirmed by an analysis of knowledge formation (K codes) discussed in the next section. Managers want to be able to 'tap into' informal processes to improve consultation and communication processes but seem unable to accept or tolerate the existence of informal structures. The study highlighted examples of informal structures being formalised by management. This management strategy, referred to as *engineering* by the author, has been unsuccessful to date in the cases. The imposition of formal procedures and routines negates the original benefits that accrued through the informal structure. This finding can make an important contribution to the field of management development within the new university sector.

10.3 What account do individuals give of how knowledge is shared or exchanged within organisations?

10.3.1 The principal finding in this section is that informal and formal structures and processes are intertwined in a symbiotic relationship described as *informalisation* by the author. This is an important contribution to existing knowledge. The findings (a) contribute empirically to an understanding of the relationship between informal and formal structures and processes, (b) reveal the importance of this to a particular type of organisation generally ignored in the field of organisational knowledge and learning: the new university, and (c) enrich the still emergent literature on the second wave perspective of knowledge management. The data shows that the nature of informalisation (i.e. the precise mix or blend of formal and informal structures and processes) is context-dependent.

10.3.2 Underpinning this finding is the identification of a taxonomy of ten knowledge formation processes. The taxonomy differentiates between formal and informal knowledge sharing processes. This makes an important contribution to the literature on universities as work organisations and the nature of knowledge sharing within new university contexts, in particular. Knowledge sharing processes involving social interaction were the most commonly cited by participants and this corresponds with the levels of embedded group practical knowledge (T2) discussed above as well as collective memory, in the form of network memory (R4) and community memory (R5), tending to be associated with informal knowledge sharing processes (K5 and K6). The data highlights, in particular, the contribution made by informal knowledge sharing processes to academic and management practices. The levels and mix of

knowledge formation processes are context-specific to each case. For instance, higher levels of information exchange (K8) are associated with formal group meetings in all three cases (but particularly in 1 and 2). The lowest incidences of K8 are associated with informal groups.

10.3.3 Sub-groups and cliques emerge within micro-contexts (often the subject group), usually coalescing around a particular research or teaching interest and involving collaboration between two or three participants. It is within these sub-groups that much of the informal knowledge sharing takes place. In case 1 the house, as a sub-group of subject group A, stands out as being significantly different to other micro-contexts across all three cases. The house is characterised by *very* high levels of knowledge diffusion (K5). Sub-groups interact constructively with other subject group members. In case 3 such sub-groups tend to function independently of other subject group members. The situation is different in case 3 where subject groups are characterised by deep divisions and can be described as fragmented. This again illustrates the context-dependent nature of informalisation.

10.3.4 Informal structures and processes usually emerge and do so for several reasons. First, where there exists a 'formal vacuum' (i.e. a lack of opportunities to share knowledge about specific issues through formal structures and processes). Second, because formal decision-making is often 'constraint-bounded' and typified by heuristics; so participants use informal structures and processes to improve the quality of formal decision-making. Third, to compensate for weaknesses or deficiencies in formal communications. Consequently, the routines associated with informal structures and processes are very different to those for formal structures and

processes. Informal routines include behavioural cues that are unique to each micro-context and intuitively understood by group members. These are likely to remain invisible to outsiders, including senior management. Making routines visible would enable managers to better understand the nature of informalisation. This can make a contribution to management development strategies in the new university sector.

10.3.5 An important aspect of understanding these routines is that they explain how individuals share knowledge within and between micro-contexts. Consequently, working knowledge can be described as a form of situated and distributed cognition. The latter comprises a complex web of the propositional and practical knowledge that individuals socially construct with others within a range of contexts that span formal and informal structures. This web or pattern is reproduced visually in the relationship maps. The routines identifiable in the study highlight the action-orientation of knowledge. Individual expertise is developed through social interactions that often involve problem solving and innovating.

10.3.5 The study found no real evidence to support the existence of a third wave perspective on knowledge management. Management practices tend to reflect a first wave controlling approach. It is also shown that technology has very little impact on the knowledge sharing processes identified in the study.

10.4 What do individuals claim are the similarities and differences between personal knowledge and shared-knowledge?

10.4.1 The principal finding in this section is that social learning theory best characterises academic and management practice. The most common learning process identified is situated learning (L6). This is occurring in both formal and informal contexts. This shows that situated learning as a characteristic of informalisation should be associated with both formal and informal structures. However, the data show that the highest incidences of situated learning occur in the house, an informal structure comprising predominantly informal processes.

10.4.2 The principal knowledge formation processes are dependent on the social construction of knowledge. The social construction of knowledge occurs in both formal and informal contexts illustrating how talk and conversation are an important part of work. Knowledge sharing processes are shown to be related to knowledge sharing processes (which involve the social construction of knowledge). Consequently, the theoretical boundaries between individual and social learning and between personal knowledge and socially constructed knowledge become blurred in a dynamically entwined relationship. Personal knowledge, although the product of social interactions, can also exist independently of the context within which it was created, although its re-use is still dependent on an alternative social context. Data examples have enabled the identification of a model for learning that acknowledges a role for psychological as well as sociological perspectives on learning; with the former anchored in social contexts. This makes a contribution to knowledge in this area (literature on higher education has tended to focus on pedagogy). This model

links the routines associated with knowledge formation processes to the learning process.

10.4.3 Socially constructed knowledge and distributed cognition provide the foundation for understanding the relationship between the individual, group and organisation. The data raises questions about the validity of personal knowledge unless it is understood as being intertwined with socially constructed knowledge. Developing personal knowledge through social interaction with others and awareness of others' activities is evident in the data examples of situated learning. Informalisation enables the theoretical relationship between individual, group and organisation to be rationalised as a process whereby these three 'levels' become integrated through the social construction of knowledge that occurs in knowledge sharing processes within and across a complex web of formal and informal structures. Without the social construction of knowledge, organisational knowledge is limited to codified information that individuals have transferred to organisation artefacts (e.g. documents, databases). Such artefacts are limited by their inability to communicate effectively the practical dimension of knowledge and the implications of the interaction between the practical and propositional dimensions. Individual knowledge (both practical and propositional) becomes relevant to the workings of an organisation when it is brought into action through social interactions. As individuals share their knowledge within and between informal and formal groups, and as new knowledge is socially constructed, this knowledge becomes embedded in a range of informal and formal routines and artefacts that, collectively, represent the organisation. The organisation is, in effect, a web of overlapping and interconnected formal and informal structures, processes and routines.

10.5 What barriers and facilitators do individuals claim exist in the sharing or exchange of knowledge in organisations?

10.5.1 The barriers and facilitators of knowledge sharing are very similar across all three cases indicating that whilst the precise nature or pattern of informalisation may be context-dependent, the barriers are relatively generic. The principal barriers and facilitators identified were:

1. The lack of geographical and spatial proximity to colleagues. In case 3 this barrier was linked to a lack of shared social spaces resulting from management decisions to close down staff common rooms and canteens. Face-to-face interaction is favoured by participants in all three cases.
2. Poor relationships within groups, manifesting as intra-group tensions and conflicts, can cancel out the benefits of shared physical space. There needs to be psychological convergence predicated on strong ties for informal knowledge sharing, and particularly knowledge diffusion (K5), to emerge in the shared spaces. This is graphically illustrated by the comparisons made between subject group A and the house in case 1 and subject group D in case 3.
3. The routines and behavioural cues that underpin informal knowledge sharing develop over time and tend to be context-specific. Changes in routines can have a negative impact on knowledge sharing processes. Consequently, management need to consider carefully the implications of any decisions which impact on these routines.

3. Structural and procedural (bureaucratic) barriers. Participants commented that there is often not enough time to devote to discussion and debate at formal fora. Although participants acknowledge many formal committees have an important role to play in university life there is a consensus across all three cases that too much bureaucracy can stifle knowledge sharing in formal fora. Consequently, informal structures and processes often emerge which enable participants tend to improve the efficacy of decision-making at formal fora. This demonstrates how the informal and formal are, in effect, inextricably linked and how informalisation creates a balance within an organisation and thus provides underlying stability.
4. Inertia characterised by complacency and apathy. This is raised by several participants across the three cases but often in a rather sweeping and generalised manner suggesting it is symptomatic of more fundamental problems, such as the inter-group paradigmatic conflicts highlighted in the study. This can be linked to the lack of institutional identification in cases 1 and 3. Knowledge hoarding appears to be symptomatic of these underlying issues..
5. The silo effect or *balkanisation* of internal units. What is particularly interesting is the extent to which many participants do not see this necessarily as a problem or barrier to knowledge sharing but rather as a unique characteristic of their own group. This illustrates how social identification with a particular group can be characterised by problems as well as benefits. Participants in case 2 were aware of the problems caused by the silo effect, from a management perspective, but appeared to be unable to affect a solution. In all three cases there are examples of how the situated nature, or

stickiness, of knowledge, particularly practical knowledge, problems as well as benefits. Several of the academic groups studied are characterised by inward-looking absorptive capacity while at the wider medial-context there is evidence of a delineation between broader 'communities': research and teaching (case 3), postgraduate and undergraduate teaching (case 1), and academic practice and administrative practice (case 3). The reasons for this delineation between broader 'communities' are different in each case, further illustrating the context-dependent nature of informalisation. Formal organisation appears to militate against inter-group knowledge sharing or knowledge transfer and, as a consequence, this process tends to be a characteristic of informal cross-disciplinary structures and processes (for instance, the course managers' group in case 1). There are higher levels of information exchange associated with formal meetings and much of the knowledge sharing through formal collaborative activities happens outside of the committee meetings that are criticised by participants.

These findings make an important empirical contribution to an understanding of how shared physical and psychological spaces are important to the emergence of productive informal knowledge sharing in a new university context. This can be used to inform management decision-making about estates and accommodation issues at one level and about organisational development and human resource development issues at another level. Given the levels of problem solving and innovation that are associated with informal structures and processes this can help to inform management development strategies and institutional policies in the new university sector. Management, as well as academic and administrative staff, need to develop an

intuitive understanding of all these barriers and facilitators if the full benefits of knowledge sharing are to be realised. The author's concern is that some of the ways in which this can be done, as proposed in the next and final chapter may be incompatible with management paradigms predicated on control and engineering strategies.

10.5.2 The relationship maps provide a visual representation of informalisation from each participant's perspective. Each relationship map provides a unique interpretation and can be described as a knowledge *fingerprint*. Although the maps show participants spanning boundaries of a wide range of formal and informal groups, the data indicates that much of the knowledge socially constructed in one context remains sticky.

10.5.3 Each participant has a primary identity which is predominantly the subject group in case 1 and the senior management team in case 2. In case 3 there is more variation in primary identity due to the fragmented nature of intra-group relations in this case. However, this provides empirical evidence to support the body of literature that links identity formation in universities with social processes within small units. The lack of institutional identification has implications for an understanding of the psychological contract in the new university sector and so the study makes an important empirical contribution to the literature in this area. Linked to this point is the notion of academic identity. Academic identity is defined in terms of teaching in contrast to traditional academic identity which is defined in terms of research. This distinction is generally known. However, for those participants who are research-active their involvement in research sub-groups and networks is an important source

of commitment and contributes to their social identity. University management need to be aware of this and the implications it has for the day-to-day management of academic staff. At the same time there is a real sense that several participants regard themselves as 'second-class citizens' because the focus of their role is teaching rather than research. Managers in all three cases define themselves as academic managers not as academic administrators; reflecting managerialist trends in the new university sector.

10.5.5 Biography and identity are an intertwined and integral aspect of the learning process. This has implications for how participants behave in the workplace which, in turn has implications for knowledge sharing processes. The implications of learning to become an academic are implicit in several of the participants' definitions of an academic (such as developing intellectual and thinking skills). Participants' biographical narratives indicate the extent to which previous life-experiences have been integrated into their current sense of identity. This has been incorporated into the model for learning identified by the author from data examples. This makes a contribution to literature on learning and specifically to the predominantly theoretical literature on how academic staff learn to become academics.

10.6 What accounts do individuals give of choosing to share knowledge or not?

10.6.1 The house in case 1 stands out as a sub-group that functions differently to other groups and sub-groups identified in the study. The house satisfies the criteria for being described as a community of practice (there is further evidence to suggest that subject group A represents the boundaries of the community with the house

representing the principal focus and locus or core). Relationships in the house in case 1 are characterised by tacit reciprocity which is predicated on affect-based trust and high care mutuality and is associated with high levels of informal knowledge sharing. Consequently, tacit reciprocity can be described as an attribute of an academic community of practice. This makes an important contribution to our understanding of how and why knowledge is shared in academic communities in new universities. As much of the published material on communities of practice is theoretical and descriptive the data on subject group A also provides some timely empirical data to the wider literature on organisational knowledge and learning.

10.6.2 There was a lack of data to prove or disprove the proposition that knowledge exchange is characterised by power relationships.

10.7 Integrating the conclusions

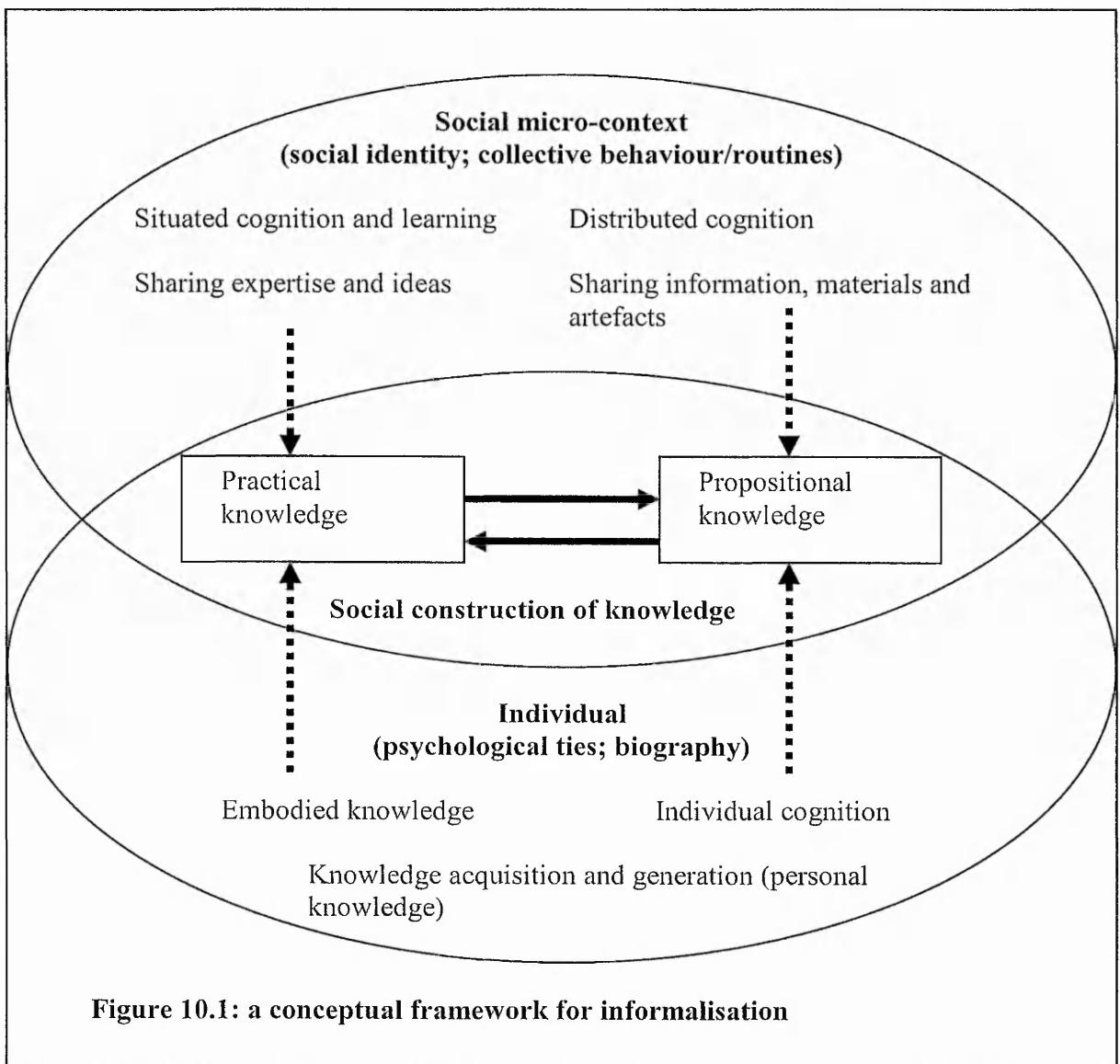
10.7.1 Having discussed the conclusions in relation to each of the original research questions it is now necessary to integrate the various findings. The principal finding from the research is the role of informalisation in explaining (a) how and why knowledge is shared within and between academic communities, and (b) the nature of the relationship between individual, group and organisation in the social construction of knowledge. This finding has implications for: understanding how organisational learning works in particular organisational contexts, how managers should react to or 'manage' informal structures and processes, and for the design of future research studies on knowledge sharing processes, particularly in the higher education sector. Chapter 11 includes proposals that cover these three points.

10.7.2 In the diagram below (figure 1: a conceptual framework for informalisation), the overlapping of individual and social context illustrates how knowledge is socially constructed as individuals engage with colleagues in the micro-context. This is consistent with a social constructivist interpretation of learning which stresses the social dimensions of knowing and acting. Social interaction provides the primary experience for individuals and therefore is pivotal to understanding how people learn and share knowledge. Situated cognition and learning are anchored in the micro-context which is the locus for practice. Social interaction stimulates individual cognition and this interaction enables the group to achieve an improved and more holistic understanding of organisational issues. Distributed cognition reflects the fact that these micro-contexts are distributed across the organisation and interwoven with codified storage systems, such as programme and module guides, teaching materials, policy statements and procedures and so on. These artefacts are in contrast to the other type of output that is the product of inter-group interactions: decisions. The study has revealed that an important aspect of informalisation is that the quality of formal decision-making processes is improved through the interaction between formal and informal structures and processes.

10.7.3 Sharing practical knowledge requires face-to-face contact which tends to emerge in physical spaces but only if strong ties exist between group members. Tacit reciprocity is associated with a community of practice which functions differently to other types of informal group. As individuals engage in social interaction in this micro-context they tacitly reciprocate their knowledge and expertise. Informal knowledge sharing is also a characteristic of other types of informal group and social network. Formal groups involve higher incidences of exchange. A recurring criticism

of many formal fora was the lack of time to debate issues which is why participants use informal fora to inform formal decision-making processes and reduce the level of heuristic decision-making that formal processes appear to encourage.

10.7.4 This is an organic approach and one which is difficult to replicate formally. Attempts by management to engineer informal processes have failed (for instance, see cases 1 and 2). This is almost certainly due to a lack of appreciation by management of the way in which psychological bonds between people are not only underpinned by high levels of mutual trust and respect but are also linked to specific routines and behavioural cues which emerge and evolve over time through custom and practice. This is in contrast to organisational routines that are formally implemented and designed to influence employee behaviour (for instance, adherence to specific procedures such as quality control).



10.7.5 Identity and biography are an important aspect of informalisation. Biography encompasses the bodily and cognitive dimensions of the conceptual framework in figure 10.1. Learning and identity are linked through an individual's membership of a particular group. Identity and biography are linked to meaning making and sensemaking as part of an ongoing process of learning through social interactions within a specific group. The development over time of psychological ties, artefacts and symbols, and behavioural cues, as illustrated by subject group A and the house in

case 1, illustrate the interdependency of the individual and the group. It is through multiple group membership, combined with the transfer of outputs between groups, both formal and informal, that socially constructed knowledge becomes organisational knowledge that is either embedded in routines and social capital or codified in organisational texts such as procedures.

10.7.6 The dilemma facing an organisation is that this intertwining may not necessarily work to the organisation's advantage. The paradigmatic debate is about whether informalisation should be subject to direct interventions (a control or engineering paradigm) or indirect interventions (a nurturing paradigm); or, simply ignored by management (a 'if it ain't broke, don't fix it' paradigm). After all, a great many formal initiatives flounder or fail to achieve all their goals; consequently, if informalisation is seen to be benefiting the organisation why tinker with it? This point is discussed further in the next chapter.

10.7.7 To what extent do these conclusions confirm the two inter-related conceptual frameworks developed as part of the literature review? As these two frameworks were developed through an iterative process over the course of the data collection and analysis phases for the first two cases, it is hardly surprising that many aspects of the conceptual frameworks have been broadly confirmed by the full data analysis. But there are some differences. The assertions that tacit reciprocity is associated with informal groups only and exchange with formal groups only are inaccurate. Tacit reciprocity is a characteristic of a particular type of informal group: a community of practice. The phrase 'generally associated with' would be a more accurate way to describe the relationship between formal groups and information exchange. Relevant

theories on learning and cognition were identified in the conceptual frameworks. However, the role of cognition was under-developed, particularly in relation to the interaction between individual, situated and distributed cognition. The author had not appreciated the role of behavioural cues until late on in the analysis; and, the inter-relationship between psychological ties and routines was under-developed in the frameworks. The role of identity and biography were endorsed by the findings (in fact biography was added to the conceptual framework because it emerged from the initial data collection and analysis phase; and relevant literature was sourced subsequently). The role of biography as set out in this thesis is seen to make an important contribution to the academic debate on knowledge sharing. The concept of biography captures an individual's re-use of knowledge in the form of routines involving memories and experiences. The psychological contract, which linked the two frameworks, was analysed from a knowledge-based perspective, as intended, and the findings revealed a lack of institutional identification. The psychological contract is strongly influenced by the micro-context. Participants demonstrate more commitment to their immediate colleagues than to the institution itself. The relationship maps provide a visual illustration of this.

10.7.8 The relationship maps provide a snap-shot of the infrastructure through which information and knowledge flow. By exploring the relationship between informal and formal structures and processes the author has endeavoured to address one of the weaknesses of existing research which has adopted a relational approach to investigating knowledge sharing processes in organisation: focusing on established informal relations that impede or facilitate knowledge sharing (Hansen et al, 2005). By studying the interactions between formal and informal a better understanding of

knowledge sharing processes is achieved. For instance, the flow of information and knowledge between formal and informal fora identified in the study indicates that absorptive capacity can best be understood by considering the effects of formal as well as informal processes.

Chapter 11: Proposals

11.1 Rationale for the proposals

11.1.1 This chapter is deliberately brief. The author is conscious of the limitations of a case study approach and the dangers of generalising beyond the case study context. However, he feels it is legitimate to make observations, in the form of proposals rather than precise and detailed recommendations. These are intended to provoke further theorising on the subject of knowledge sharing and include the identification of issues which merit further investigation. Through this he is contributing to the ongoing debate amongst theorists and practitioners.

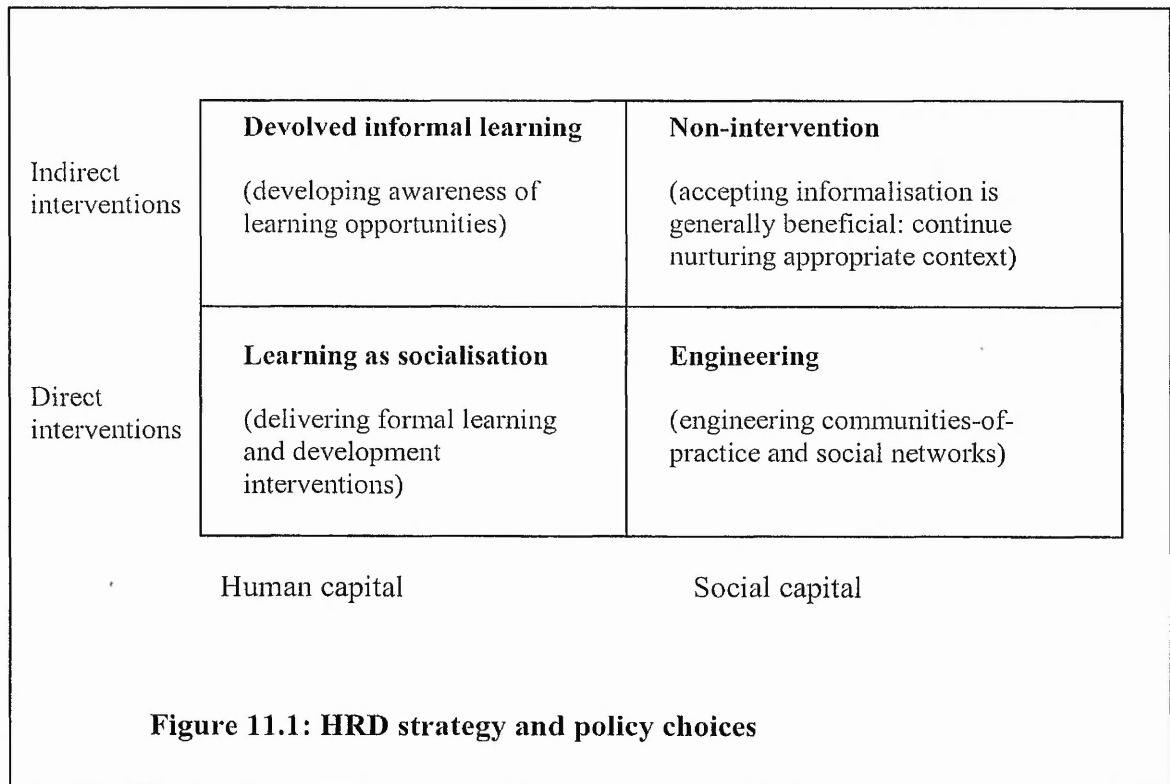
11.1.2 Models of organisational knowledge and learning often focus on specific processes. For instance, various studies have emphasised knowledge acquisition, information distribution, information interpretation and organisational memory (Lopez et al, 2005). The findings from this study can better inform our understanding of knowledge sharing processes in academic communities including the relationship between individual, group and organisation. Informalisation has been shown to be context-specific. Consequently, future studies of learning and knowledge formation processes need to identify the nature of informalisation first and avoid focusing on generic contextual factors that influence learning, such as organisational culture, individual motivation, the attitude of managers and so on. There is often a tendency to oversimplify, categorise and generalise about processes or about contextual factors; to talk about monolithic cultures that can be transformed into learning environments. For instance, Sun (2003: 155) advises that “a learning environment should be open,

inspiring both formal and informal learning and rich with resources and learning materials; more over, it should offer opportunities for social interaction. In addition, it should increase its members' creativity in response to new challenges in changing contexts". But what does such poetic rhetoric actually mean? Is it realistic? Does it make sense? Or is it simply aspirational rhetoric that typifies much of the literature over the last twenty years?

11.1.3 The findings from this study have highlighted the complex web of interactions between formal and informal structures across a range of contexts. The critical context is the micro-context. Deciding between direct or indirect interventions (Mankin, 2004, 2007) can be problematic. A bottom-up organic process can be frustrating for managers because it involves structures and processes that fall outside formal control systems. Just as managers can have a hard time getting to grips with the tacit dimension of knowledge so too they can struggle to "implicitly manage the implicit" (Huysman and de Wit, 2003:53). The problem is persuading managers to challenge existing paradigms on how structures and processes should be managed. Although requiring an investment in time construct-theory, in the form of the repertory grid technique, could be used to produce relationship maps for organisational members that can then be used to make the 'invisible' become 'visible'; thus informing management decision-making about how to 'manage the implicit'.

11.1.4 The author has decided to use the findings from the study to develop further and refine Mankin's (2004) typology for human resource development strategy and policy choices. Although it is intended for this to be context-specific (to the cases in

the new university sector) the author believes that others may wish to generalise its applicability to other contexts as part of ongoing academic debate. The typology is presented as a two-by-two matrix in figure 11.1 below.



Learning as socialisation, devolved informal learning and engineering remain unaltered. Non-intervention replaces empowered informal learning (which was described as nurturing or cultivating the context). Non-intervention is predicated on evidence from the study that suggests that the benefits from the emergent and organic nature of informalisation outweigh the potential damage that can be caused by an engineering approach. Informalisation outputs are generally beneficial to the organisation. Given that many formal initiatives fail to achieve all their goals there is a valid argument for leaving informal structures and processes alone; and to simply

continue nurturing the context as is presently done. However, in order to address the dark side (Peltonen & Lämsä, 2004), lessen inward-looking absorptive capacity and stimulate inter-group knowledge transfer managers will need to find ways for making more connections between groups. This may require some engineering of the medial- and macro-contexts without interfering in the micro-contexts. How this can best be achieved will be a decision for organisational managers to make.

11.1.5 This study has focused on the work context. It would be interesting to expand the parameters in order to analyse the interaction between work and other contexts (e.g. social, family) in order to understand how factors, such as identity and tacit reciprocity are impacted by non-work structures and processes. It may very well be that new factors emerge. How do different participant behaviours in other contexts influence how they socially interact and learn in the work context? Is it correct to theorise that the knowledge learnt through participation in social settings is applicable to other settings? The analysis of participants' biographies have offered some insights that could be explored in much more depth through additional studies.

11.1.6 Future studies should be carried out to compare the findings from this study with a wider range of higher education institutions (e.g. traditional universities; former colleges of higher education) and faculties (e.g. other vocations, such as the health sciences, and non-vocational subjects, such as visual arts). It would also be interesting to see more comparative studies with other professional groups (e.g. legal profession, occupational psychologists) and to analyse further the role of the psychological contract which linked the two frameworks. At this time these remain thoughts for future but what they do is illustrate that the results of this study need to

be placed in the context of ongoing narratives on the social construction of knowledge.

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Bibliography and Appendices For the PhD thesis submitted to Nottingham Trent University by David P Mankin

Bibliography

Appendices:

1. Case and participant profiles (including relationship maps)
2. Codes
 - 2.1 Type of knowledge (T codes)
 - 2.2 Knowledge formation processes (K codes)
 - 2.3 Learning processes (L codes)
 - 2.4 Knowledge storage (R codes)
3. Case study data tables
 - 3.1 case 1
 - 3.2 case 2
 - 3.3 case 3
4. Facilitators and barriers of knowledge sharing
5. Analysis of trust and mutuality
6. Summary of key findings for each research question

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1. Case and participant profiles (including relationship maps)

A1. Case overviews and individual profiles

Case 1

Much of the data from case 1 revolves around what the participants call 'the house'. This building is located some distance from the main buildings of the campus and near to the sports fields. The road it is located on what was once a cul-de-sac which has since been opened up to allow access to the cricket pavilion. Visit on a quiet day during the vacation period when the road is clear of parked student cars and you can get some sense of what it must have once been like as part of a larger residential estate. Throughout any given day, even during term-time, there are few comings and goings. It feels like a satellite of the main campus, hidden from view and known intimately by only a handful of staff and students. On a cold winter's day the windows are lined with ice while extra heaters inside pump out much needed heat. It is not a particularly inviting place yet the participants from subject A, who work there, dread any prospect of being relocated to one of the anonymous blocks that squat at the centre of the campus.

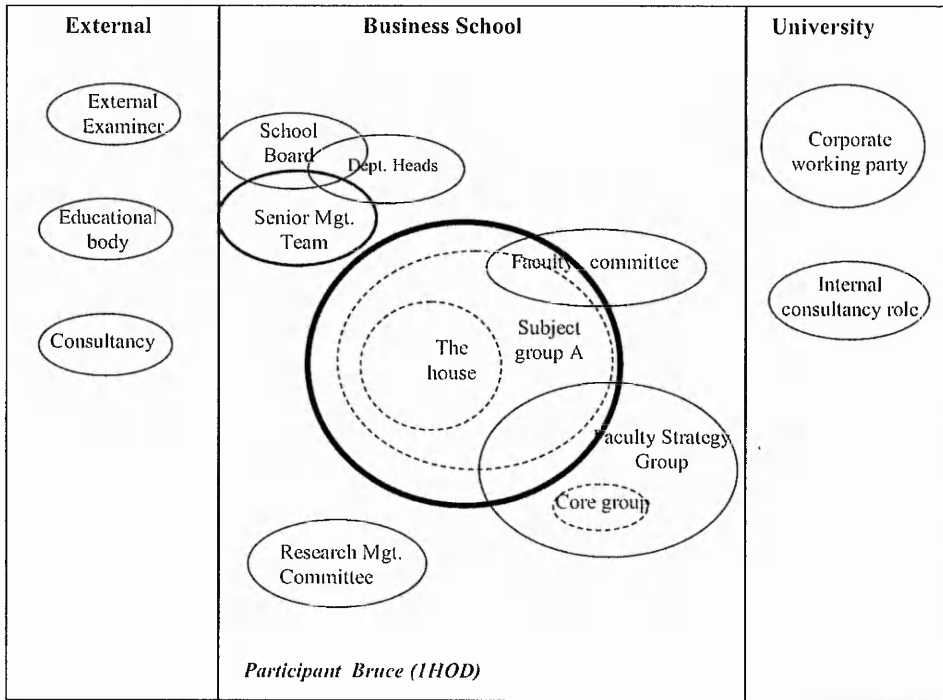
Imagine entering a semi-detached former council house built in the 1930s and converted into office accommodation. The first office on the left was once the dining room. It is currently occupied by Jilly, a senior lecturer in subject A, who recently resigned as course manager of a generalist management programme in order to devote more time to her research interests. Walk past her office and you enter what was once the kitchen but is now the office of Bruce, the head of department. It is an awkwardly

shaped room. So narrow that you have to sit to the side of Bruce's desk and twist your body diagonally in order to face him. A few posters and several sheets of typed information are sello-taped or tacked into place. Jilly works closely with Joanne who is located on the first floor, squeezed into what must once have been a tiny third bedroom or oversized airing-cupboard. If you are a visitor sitting on the only spare chair next to her desk, it is impossible to close the door. Visiting Joanne is a claustrophobic experience which she always jokes about. The advantage, she will explain, is that you step out onto the hub of 'the house': the landing area and stairs. The rest of the department, a few stray members of subject A and all four of subject B, are scattered around the campus. Subject C members are located on a different campus and despite their official integration within the department only one person regularly visits 'the house'.

The relationship maps in all three cases reveal provide an insight to the potential social capital available to each participant. Not only do they reveal the networks and the assets that may be mobilised through that network (Nahapiet & Ghoshal, 1998) but they help to reveal the complex web of formal and informal relations (Gant et al, 2002).

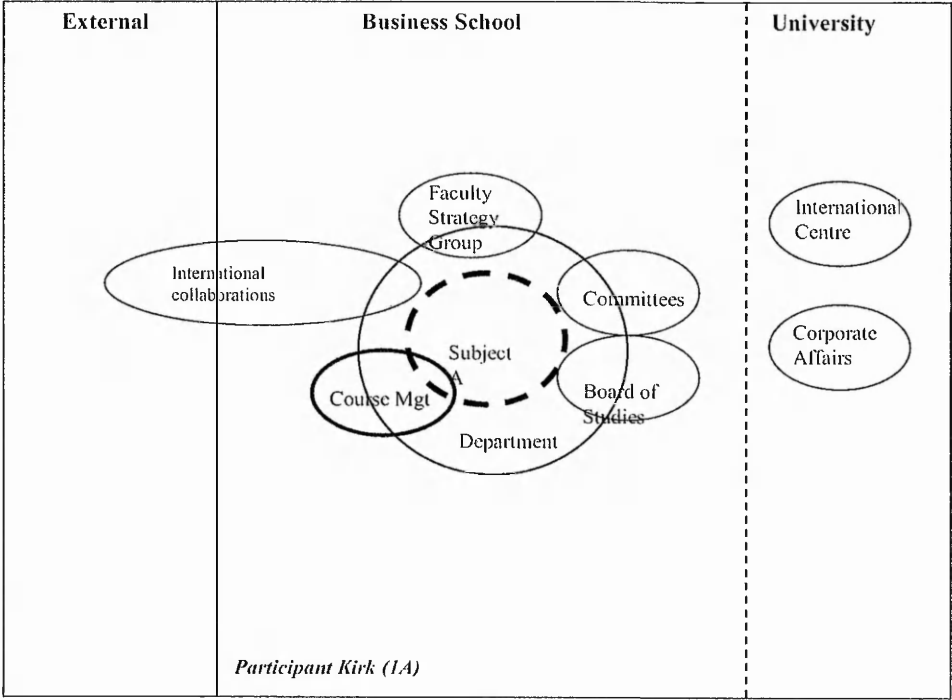
Bruce (1HOD)

Bruce's primary identity is with the department which is linked, in turn, to his management role which he is keen to emphasise throughout both interviews. He sees the house as an important locus for informal knowledge sharing within the department and acknowledges that some members of subject group A are excluded from this. He wants to relocate the whole department to a different building so that everyone will be able to participate in similar discussions. He does not appear to appreciate that it may be difficult to replicate the emergent and organic nature of the house's informal knowledge sharing even though an earlier initiative by him to have weekly informal coffee chats failed. He concedes that the formal department meetings tend to be attended by subject group A members only. He acknowledges the dispersed nature of subject B members and the problems created by subject group C being located on a different campus. Apart from his relocation idea he seems unable to find solutions to these problems and ignores them in his day-to-day management of the department. He networks within the university (emphasising this because of his management role) but has few links outside the university that he keeps in regular contact with.



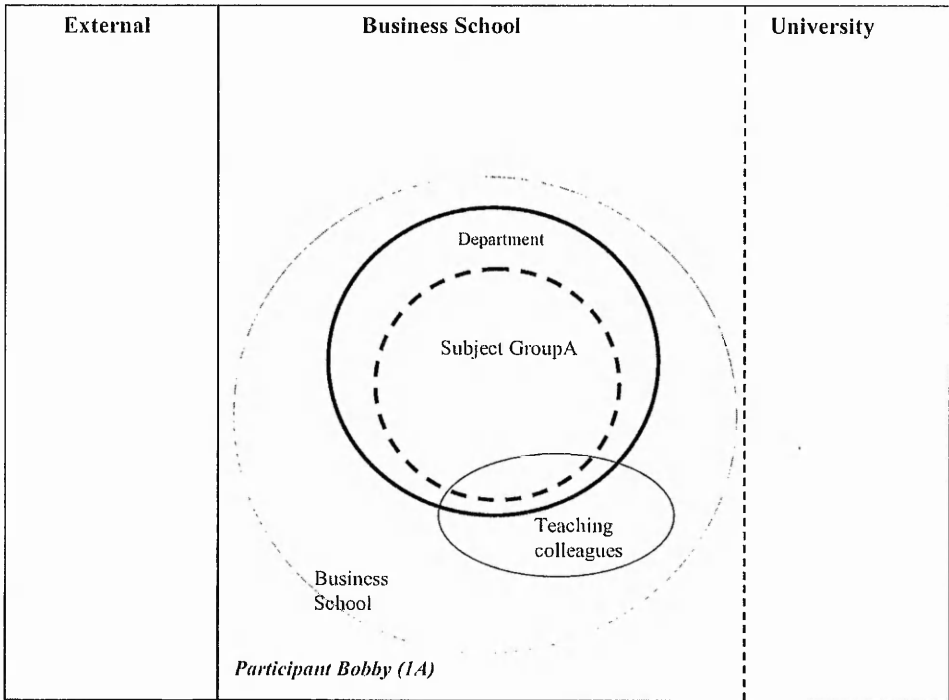
Kirk (1A)

Kirk does not see himself as a full time member of subject group A: (a) because he is not based in the house, and (b) because of his role as a postgraduate course manager on a generalist management course. However, his primary identity is still the subject group because this provides him with a “home”. He is aware that he misses out on the spontaneity of house discussions but drops in for coffee from time to time. He is a very self-reliant individual who spends a great deal of time travelling abroad to recruit international students. This role suits his biography and is a good example of the interaction between identity and biography. He is a strong advocate for the postgraduate course managers group which is his principal forum for informal knowledge sharing with other course manager colleagues. His interviews also provided some good examples of individual knowledge acquisition and generation.



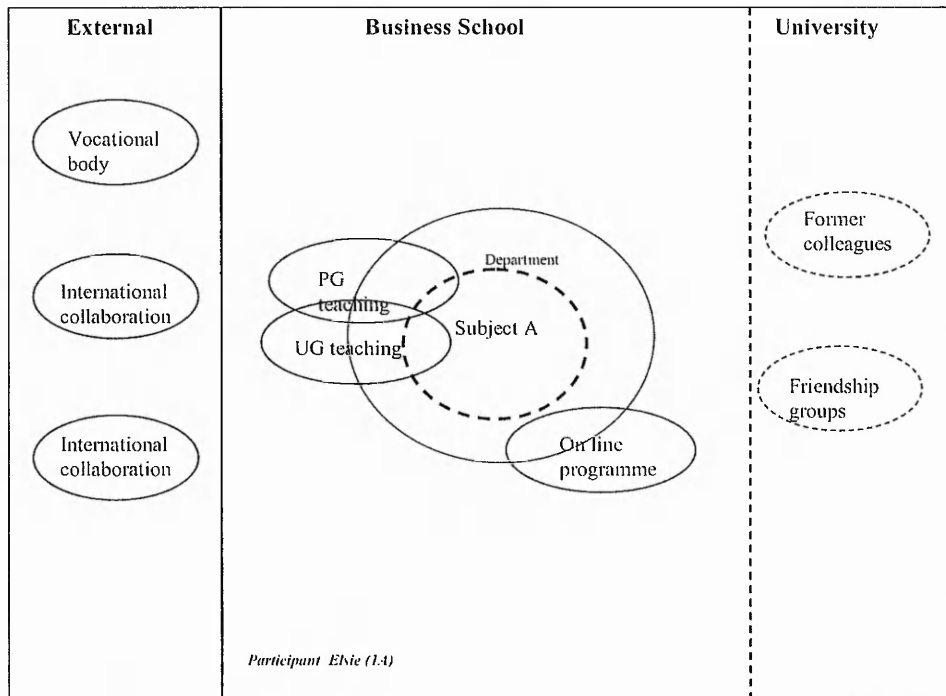
Bobby (1A)

Bobby's relationship map is distinctly different from any other in all three cases. Rather than talking about specific formal and informal groups and networks he refers to broad communities (i.e. teaching colleagues; and everyone else in the business school). In terms of this study this is a unique perspective. When he talks about the department he refers to colleagues from subject group A only. Yet he views himself as a peripheral member of subject group A. He has been based in the house historically but even then preferred to spend his time working in the resource centre. It would be misleading to describe him as a loner. He is actively engaged in trying to persuade his colleagues to change their approach to teaching (another example of the influencing effect of biography). His sense of being different to his colleagues is another example of biography. Unlike his academic colleagues he has never worked in the same vocational area (described as subject A) but ended up in the department "by accident".



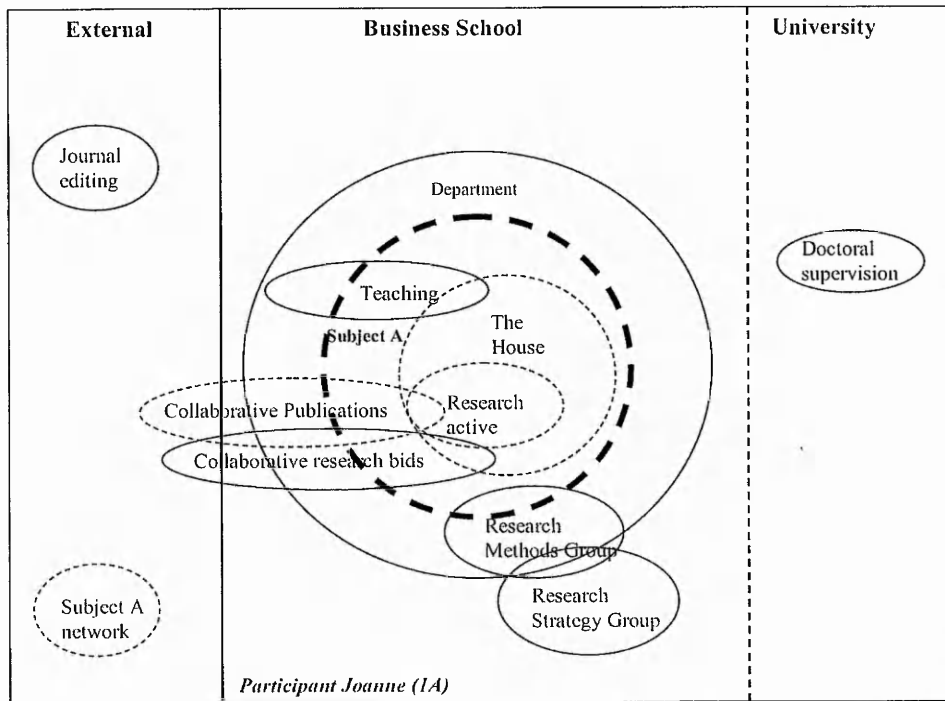
Elsie (1A)

Elsie has only recently rejoined the department after spending several years working in a central department of the university. She is located in a tiny office some distance from the house and is still trying to adapt to changes in the department's structure and membership since she left. Like Kirk the department provides her with a "home". She is aware of the informal discussions that take place daily in the house and has been pushing Bruce to be allocated a desk there. She acknowledges how subject A colleagues have been sharing teaching materials with her to assist with her re-assimilation into the department. She has some strong views about teaching and learning and likes to be involved in projects that involve collaboration with international partners.



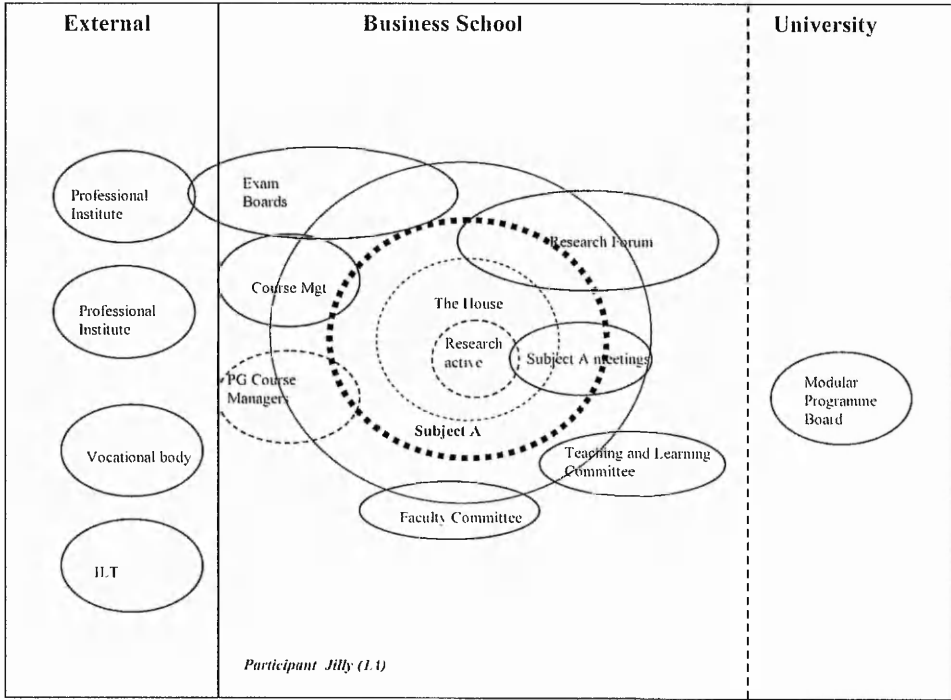
Joanne (1A)

Joanne is the department's reader and is based in the house. Although she claims to identify most with the department she talks predominantly about subject group A in her interviews. She has close working relationships with three other colleagues in the subject group, in particular, which are centred on a shared interest in research. She has external social networks one of which is based on relationships that go back a great many years. Again, the focus is a shared research interest. Of all the case 1 participants she is the most active external social net-worker. Her primary motivation, not surprisingly, is the promotion of research activity within the house; but it is not clear if her lack of references to subject groups B and Care because of a lack of research generally in these groups or because she is excluded from them. The interviews with Richard and Bruce (both subject group B) reveals a lack of research activity. The author is aware that subject group B does have some active researchers.



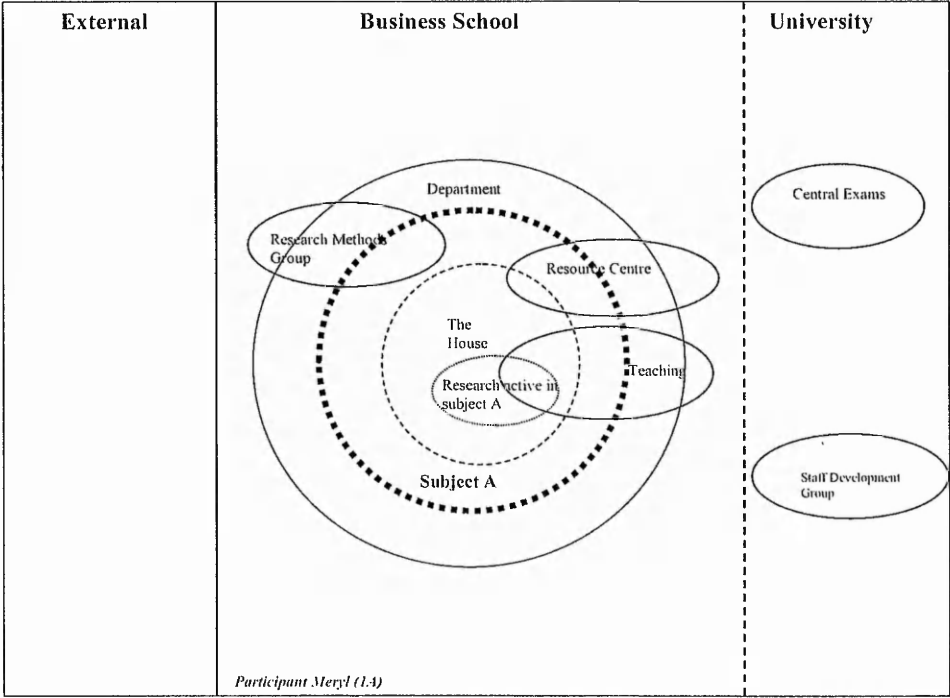
Jilly (1A)

Jilly admits that although she has some close working relationships in subject group A and is an active participant in informal discussions on the landing of the house, she prefers to keep her feelings on non-work issues to herself or close friends. During both interviews the author felt she was being guarded in some of her responses which were all relatively brief and business-like. This is in contrast to all other case 1 participants who talked in a very open and frank way. However, her language was very team oriented and she kept stressing “we” when talking about many aspects of her working life.



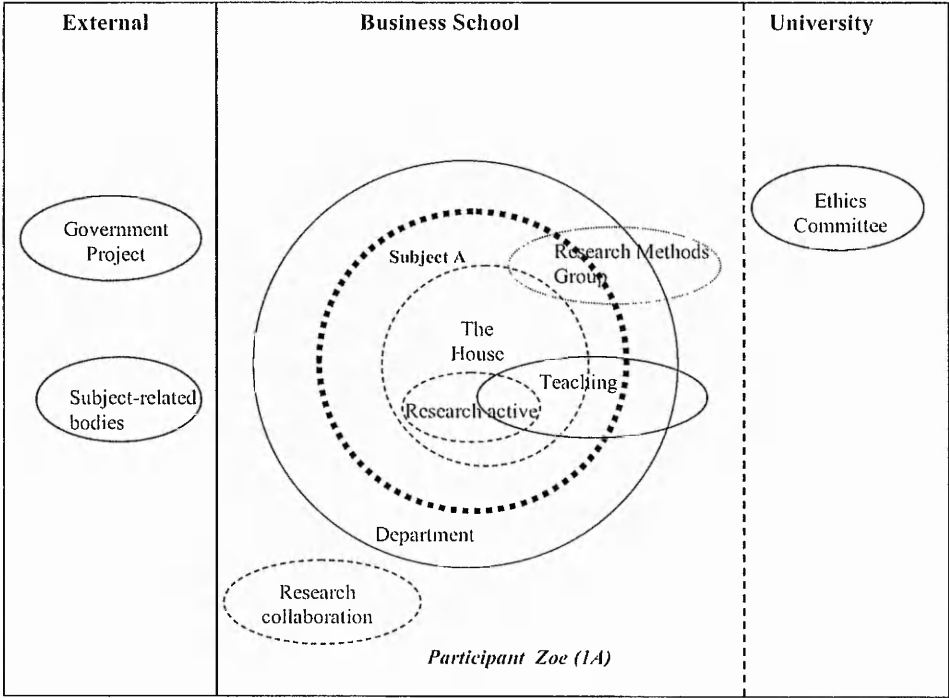
Meryl (1A)

Meryl identifies primarily with subject group A describing this as “first” rather than the department. Like Jilly when she talks about the house she tends to use language that indicates team-working and collaboration; although she does come across as more task-focused than people-focused. She refers to informal knowledge sharing in the house as “spontaneous” and involving “meaningful conversations”. This is in contrast to the language she uses to describe subject groups B and C which she refers to as “the two weaker sides” and “the two weaker legs”. Her interviews were particularly useful in providing information on the “fragmentation” of the department. She is very forthright in her criticisms of the faculty (“bureaucratic”) and the university (“confused”).



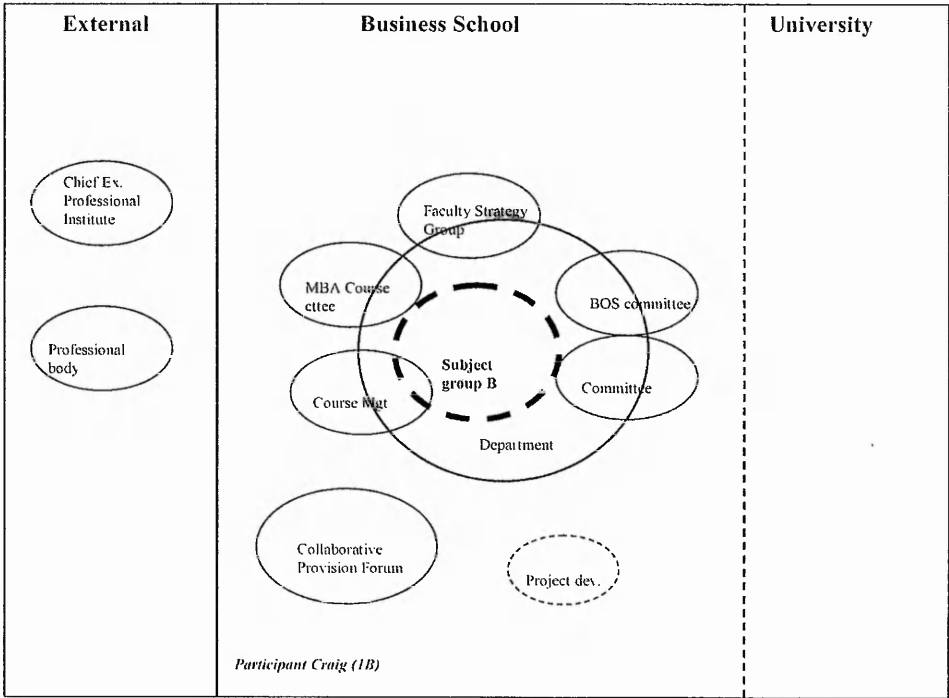
Zoe (1A)

Zoe is also based in the house and clearly enjoys being there (e.g. “comforting and familiar”, “feels right”, “inclusiveness”). Her primary identification is with subject group A and she describes the department as a “basic line management function” which exists for administrative reasons only. As with Meryl she is forthright in her criticisms of the faculty which she describes as “a joke”. She is actively involved in external projects but all of these are formal fora rather than social networks. She is an active researcher and much of her teaching is actually about teaching research methods to both undergraduate and postgraduate students. Her strong interest in academic research has been influenced by her biography (for many years she worked as a research analyst for various government bodies). Her interviews were particularly useful in identifying the subject group’s cultural artefacts and symbols.



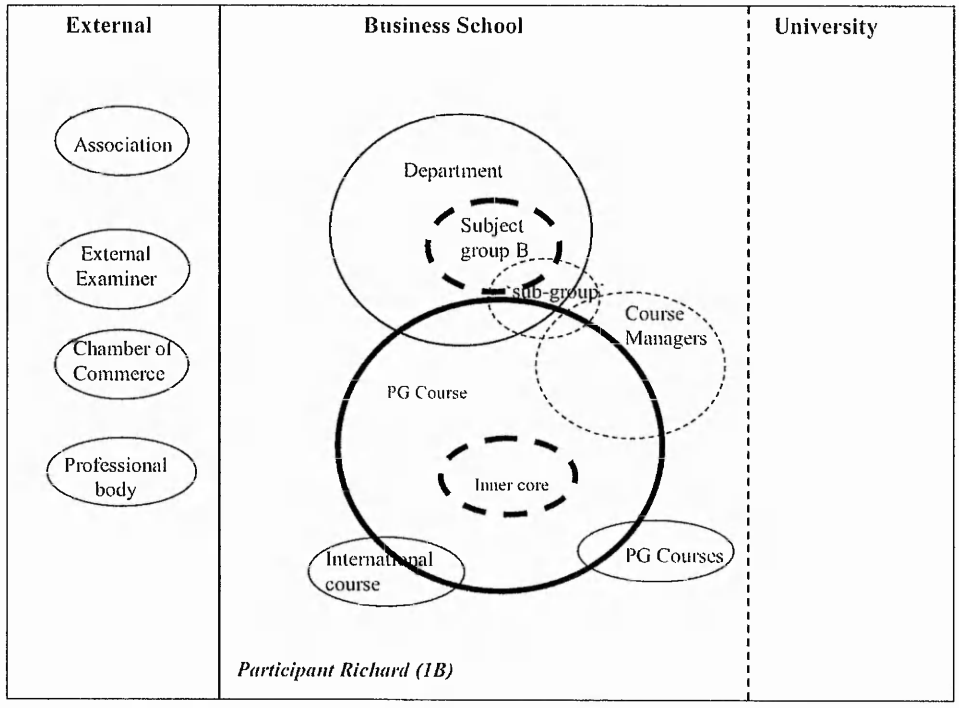
Craig (1B)

Craig's primary identification is with subject group B and this reflects his vocational background before becoming an academic. He places little value in his membership of the department and rarely attends department meetings. Bruce does not interfere in his role as course manager of a generic management course. He is also a member of the postgraduate course managers group and sees this as an important forum for informal knowledge sharing. He has internal networks but interestingly no external networks of any significance. He is fiercely loyal and protective of subject B colleagues stressing that these relationships, particularly in relation to Richard, are based on strong and long lasting friendships. His interviews have produced some of the most interesting and revealing material about intra-group loyalties.



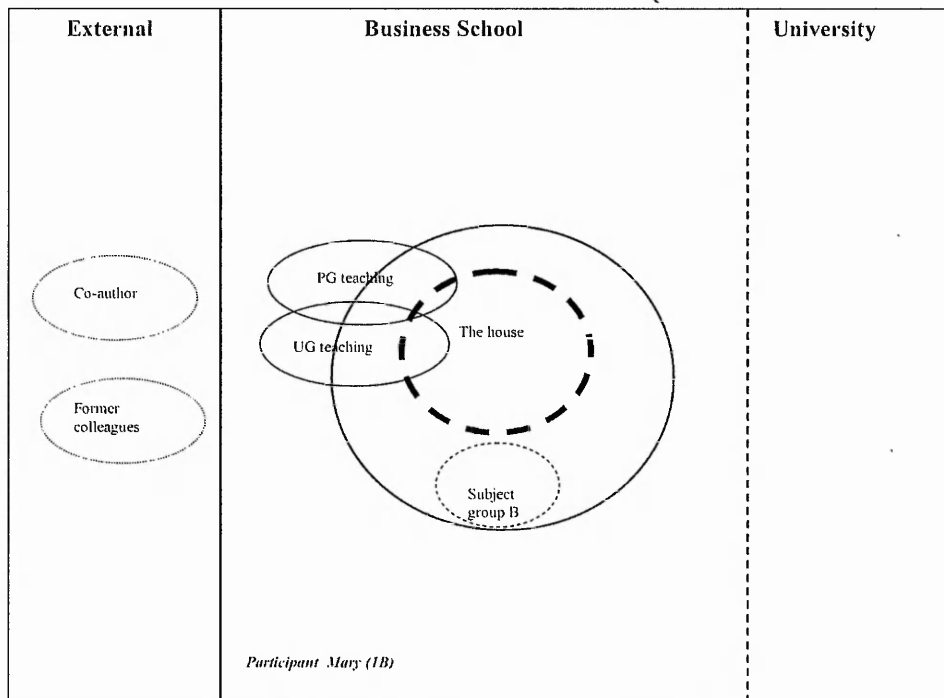
Richard (1B)

Richard is totally dismissive of the department (“it means bugger all”) and draws his primary identity from the postgraduate generalist course that he manages. Although subject group B no longer functions as a cohesive unit he, like Craig, displays strong loyalties to subject B colleagues. He is involved in several informal groups within the business school that help him to carry out his duties. He networks with external official bodies but does not have any social networks. His vocational background and biography have influenced (a) his decision to become the course manager, and (b) how he manages the course in terms of staff and students. Unlike Craig and Kirk he stresses the crucial role of a core team of academic and administrative staff that make the course successful even though the boundaries of this core team will not be found on any organisational chart.



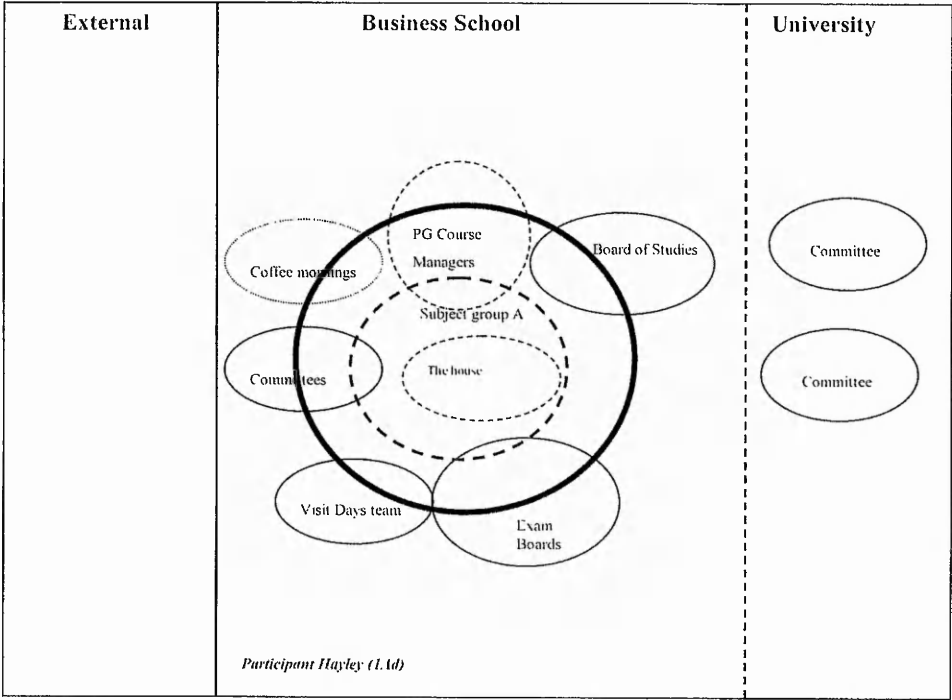
Mary (1B)

Mary is the newcomer to the department but is an experienced academic having worked for over ten years at her previous institution. She is the only participant in case 1 to have published a textbook (which has been, and still is, very successful). Her interview was particularly useful because she was able to make observations about the workings of the house, in particular, without having been immersed in that environment. She has been quick to acknowledge the benefits of working in an environment characterised by so much informal knowledge sharing (and is also dubious about Bruce's relocation plans). The language she uses to describe the house is almost identical to that used by Zoe. She is the only participant, apart from Zoe, to talk explicitly about the gender orientation of the subject group or rather of those who work in the house (all female apart from Bruce): she describes working in the house as "a girly thing". As with Meryl and Zoe she is forthright in her criticisms of the faculty which she describes as having "done sod all" to "help her"; and she says of the dean, "I'm not sure the dean exists. He's possibly the figment of somebody's imagination".



Hayley (1Ad)

Hayley is the only participant in case 1 who has an administrative role. This role is embedded within the department and her office is in the house. Most of her operational duties focus on subject group A rather the department as a whole. Although she claims her primary identification is with the department when she discusses day-to-day issues and incidents she tends to focus on subject group A only, indicating the extent to which the boundaries between the two groups have become blurred. In this respect the way she talks about the department (i.e. actually referring to the subject group) is similar to Joanne's narratives. It is clear that her administrative practice is embedded within the academic practice of that group. She has no external networks and limited involvement in formal university-wide groups (i.e. membership of one committee).



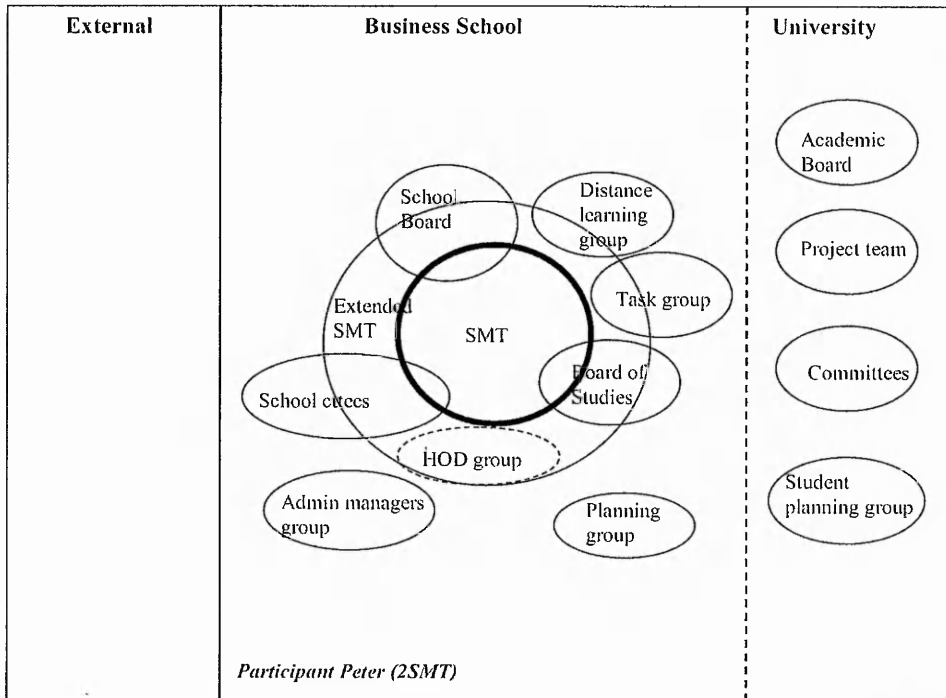
5.1.2 Case 2

Three members of the core SMT are co-located in the same corridor so that it is easy to pop in to each others' offices for informal discussions. The remainder of the corridor is occupied by administrative staff with the nearest academic staff being located on the floor above. Walk along this corridor at any time and there are always people coming and going. Both Tom and Mack tend to leave their office doors open when meeting with colleagues, unless it is a confidential matter. Often people will stand outside their doors waiting for an opportune moment to enter. This is clearly accepted custom and practice although it reminded the author of school pupils waiting for permission to enter the head-master's office. Art is located in a different building nearby and is rarely seen in the above mentioned corridor.

Imagine an organisation that is business-like in its day-to-day workings. There is the background buzz of activity but everything seems ordered and under control. The case university is regarded as a leading new university on the basis of league tables. These, along with media articles about the university, are pinned on notice-boards along the corridor, next to a board listing many of the recent publications of business school staff. There is a tangible sense of 'civic' pride. However, in canteen and corridor conversations it became apparent to the author that many academics in the school would like to see the members of the SMT wandering about and chatting to staff much more (something which is acknowledged by the participants themselves in their interviews).

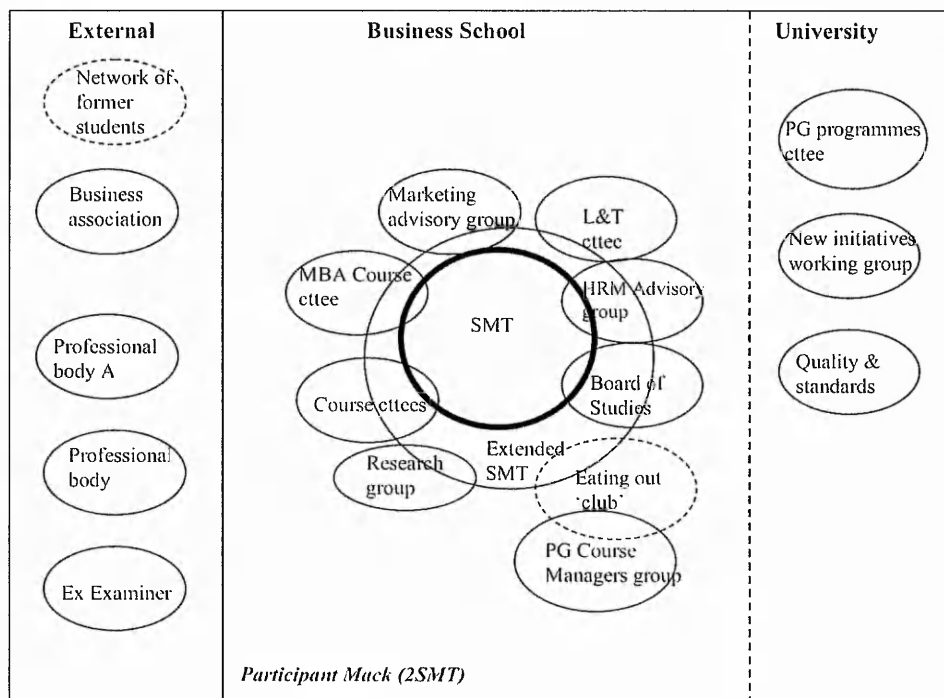
Peter (2SMT)

Peter is the dean and has very good dyadic relationships with each of his three assistant deans. These relationships are based on a mutual trust and respect that is confirmed by the interviews with Tom, Mack and Art. He feels under increasing pressure from the centre of the university and is required to attend more and more university committee meetings, the validity of which he is quick to challenge. It is for this reason he is seriously considering the appointment of a deputy (although no appointment is made during the data collection phase). He is a friendly person who endeavours to promote a people-focused approach to his management of the school. Yet he concedes he also has to be more managerialist in his approach stressing this is a reality that everyone in the business school needs to accept. He is frustrated by the poor communications within the school and has several ideas but has no firm plans for addressing this problem.



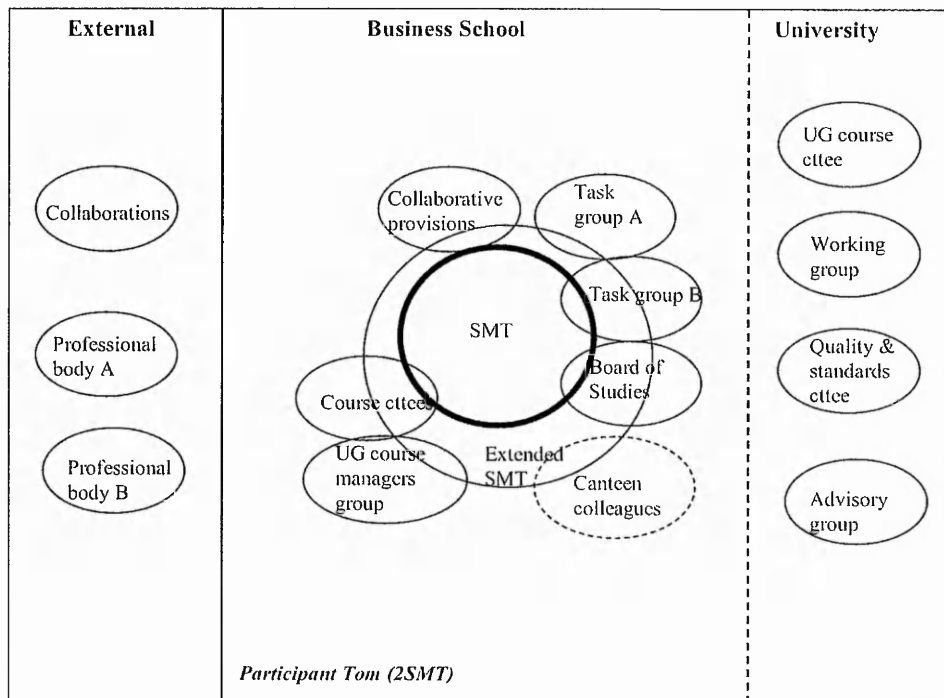
Mack (2SMT)

Mack does not regard Art as a proper member of the senior management team. His office is next door to Tom's but they have very little informal contact. He prefers to liaise directly with Peter (with whom he is good friends – they often play golf together) or wait until the weekly meetings. The author developed a real sense that there was a strong personal dislike of Tom. He recognises the importance of informal structures and processes but from a particular perspective: as a means to receiving information and/or confirming attitudes of staff to particular issues. This is very much a one way process and there is little evidence of him giving rather than receiving. His willingness to formally chair the previously informal postgraduate course managers group betrays a lack of understanding of the benefits to be gained from informal groups.



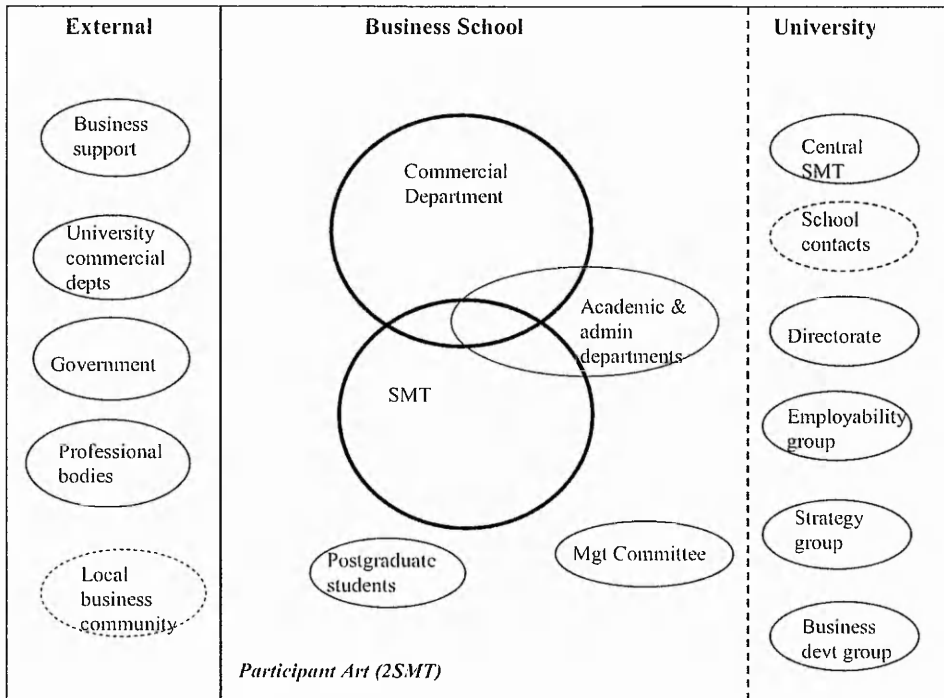
Tom (2SMT)

Tom appears to dislike Mack and what he sees as a Machiavellian style to management. He liaises on a daily basis with Peter rather than with Mack. Like Mack he does not view Art as a proper member of the senior management team. He stresses the need for order and systems but also recognises the role of informal structures and processes. Unlike Mack he sees these as important opportunities to chat to staff and makes a point of always having something to say to anyone he meets in the corridor. Unlike Mack and Peter he regularly lunches in the canteen to chat to staff informally. The author sensed that he would welcome an opportunity to impose some order on Mack's areas of responsibilities and outside the interviews conceded that he would be very interested in the deputy role that Peter was thinking about.



Art (2SMT)

Art's outlook is markedly different to that of Mack and Tom. Because of his biography (entrepreneurial) his primary interest lay in developing the business school's commercial interests. He has extensive external networks which are a mix of the formal and social. He admits that he and Mack do not get on and regards his colleague as Machiavellian. Because he is highly people-focused himself he dislikes a particular trait in Mack: his tendency to be "dictatorial". He regards Tom as being "too pedantic" but feels they now get on better than they used to. He has a huge amount of respect for Peter. He recognises and within his own commercial team, encourages informal processes. He articulated several examples of how formal and informal structures and processes are inter-related.



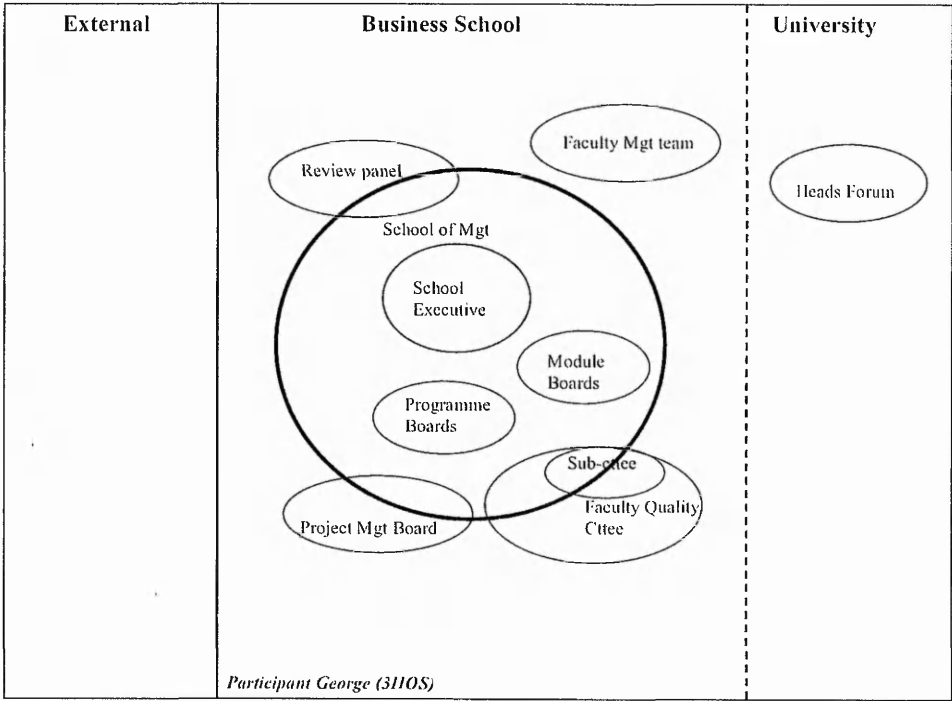
5.1.3 Case 3

The first set of interviews were carried out when participants were located in a 19th century building on one of the university's several campuses. Imagine entering a building with wide and high-ceilinged corridors accessed via grand stairways. But also imagine these being complemented by narrow stairways and a rabbit-warren of smaller corridors. What will strike you first is that doors remained closed: doors to corridors and doors to offices. Staff from the same department may be located in the same corridor or in neighbouring corridors but there is no sense of regular interaction apart from the cliques and sub-groups that have emerged over time. There is no staff common room and the canteen provides the only social space on the campus (but not all participants use it). Talk to some of the staff and you develop a sense that some individuals feel isolated from their colleagues.

After the relocation to a bright modernist structure the same patterns of behaviour continue: doors remain closed and the sense of isolation felt by some individuals continues. Some participants hope this will change but it is difficult to share their hope and aspirations. There are over eighty staff in the case's school of management and all of them report directly to the same line manager. You shake your head and wonder how it is possible to manage directly so many individuals, groups and cliques when so much time is spent in meetings. Meetings are a cultural symbol in this place. The new canteen is nicer but still there is no staff common room. There are social spaces in the lobby area but these have been designed for staff-student or student only interaction (as well as for visitors).

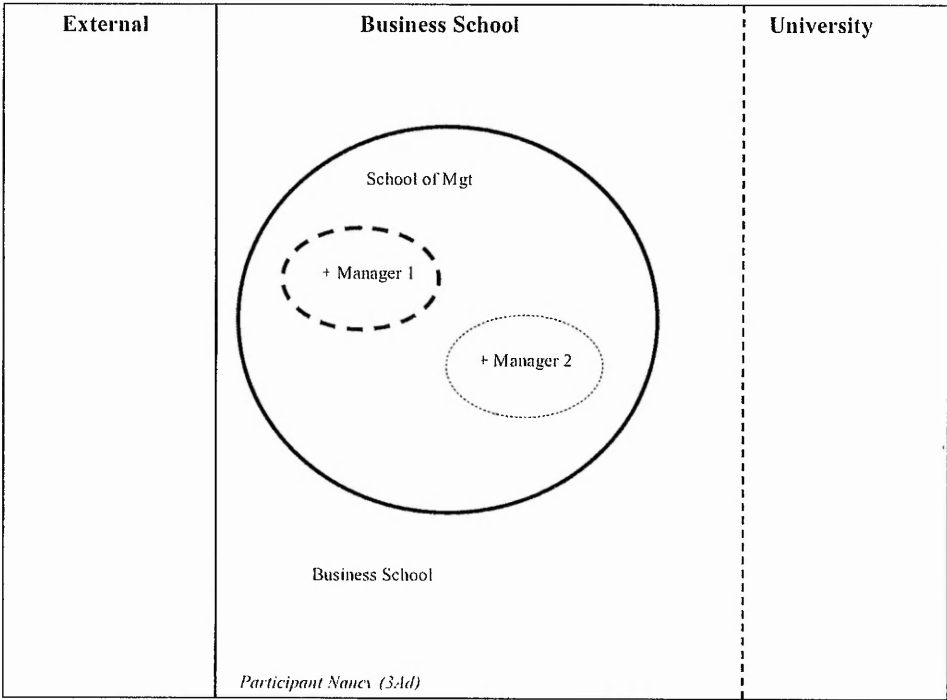
George (3HOS)

George's identifies primarily with the school of management, reflecting his management role. His workload is dominated by committees although he questions the relevance of many of these. He is open in his answers and there is a real sense that he is frustrated by university bureaucracy. On a few occasions he declines to give a verbal answer, instead shrugging his shoulders to communicate his unarticulated feelings. He is critical of the decision to close down staff common rooms and recognises the benefits of informal structures and processes. Sometimes it can take him nearly an hour to walk from reception to his office because so many people stop him to discuss an issue. This has become custom and practice because so much of his time is spent attending committee meetings. He is conscious of management's exploitation of staff goodwill and is concerned about how sustainable this approach is. He describes the university as "vanilla".



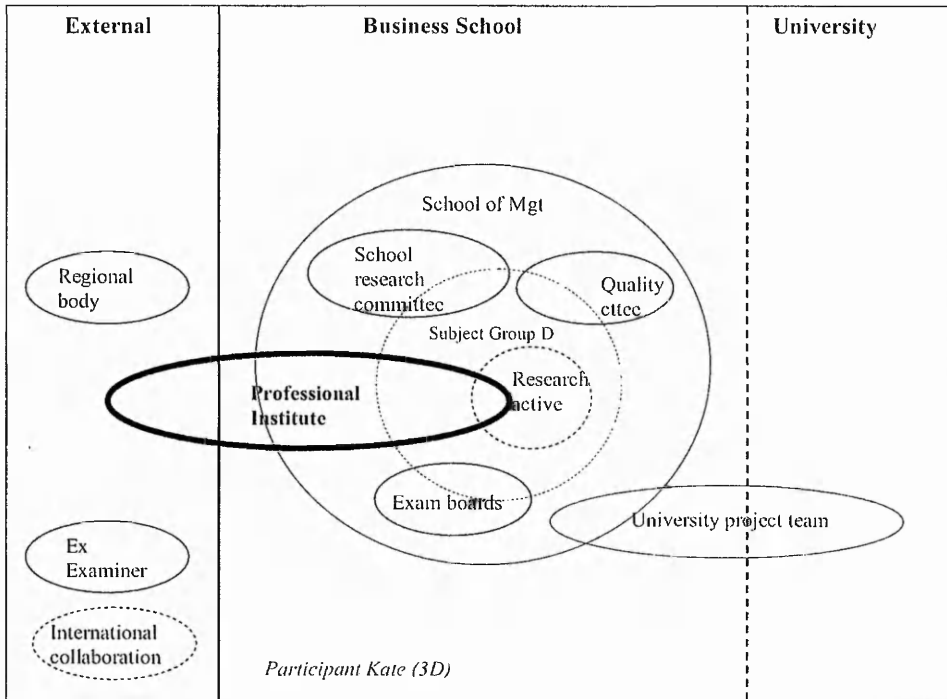
Nancy (3Ad)

Nancy's work revolves around controlling George's diary and she is concerned about the pressure he is under. She tries to control access to him so that he can complete tasks in between meetings. She is interviewed before the relocation and is worried about the planned move. The intention is to create a large open-plan administrative office and instead of being next door to George she will be located in a different part of the building. She is worried that she will no longer be able to protect George. Consequently, she is very critical of senior management. She comes across as a very direct and honest individual describing the university as "it's a mess".



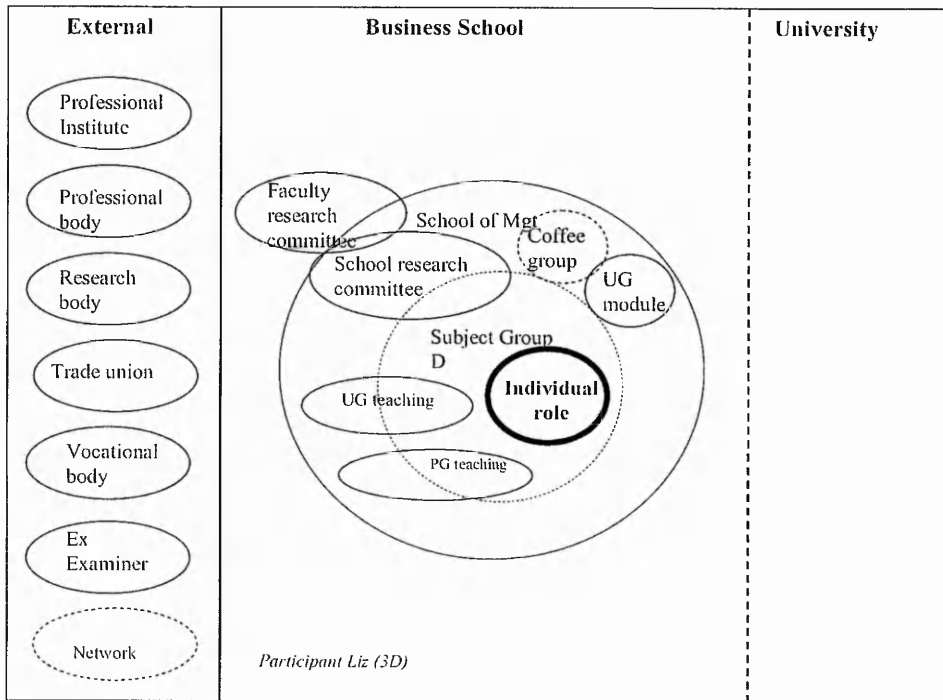
Kate (3D)

Although Kate tends to work in a clique with two other subject D colleagues (both interviewed in this study) her primary identity is with her professional occupation. This is because she is research focused and heavily influenced by her professional institute, also reflecting her vocational background. She talks openly about the tensions and conflicts within the subject group that revolve around a divide between those who teach and those who are research active. She explains that the nearest colleagues in her subject group are “through two doors”, emphasising the physical hurdles that are perceived to exist.



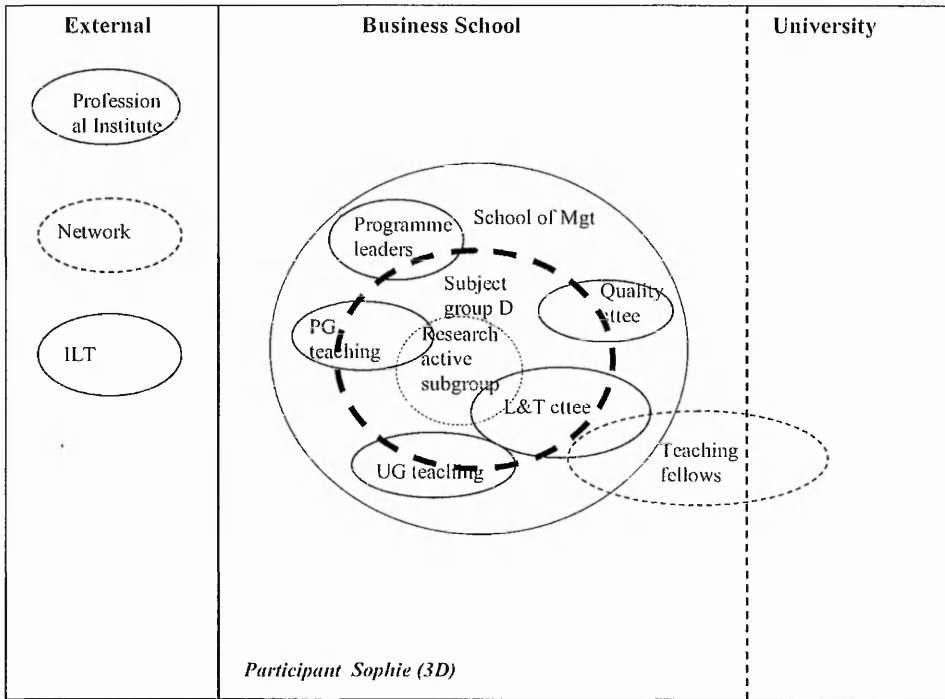
Liz (3D)

Liz is open in the interview about her frustrations over a perceived lack of appreciation of her work by colleagues and management and admits that she is on the brink of looking for a new job because of the tensions and conflicts within subject group D. She has worked in case 3 for five years but is still ignored by some of her subject colleagues. The two colleagues with whom she has regular chats over coffee are from a different subject group but are based in the same corridor. She views many of the committees she has to attend as “pointless” although she does admit she has a great deal of freedom and autonomy in her present role and that this is the redeeming feature of working in case 3. From some of her comments it does appear that she is status-driven and it is her reader role within the subject group rather than the subject group itself that is her primary source of identity.



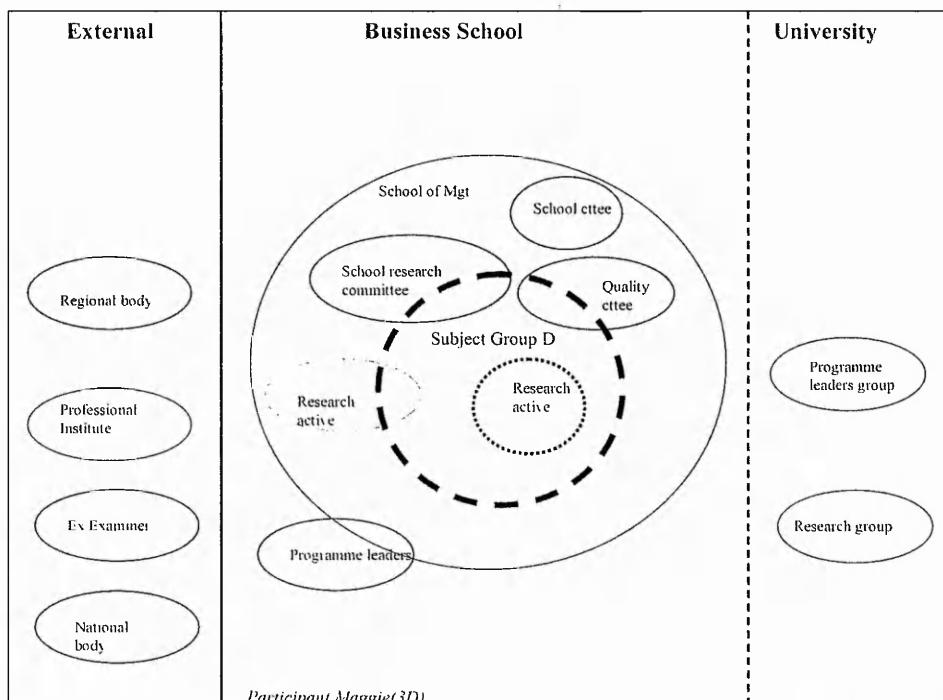
Sophie (3D)

Sophie likes variety in her work and this is why she is a teaching fellow as well as being research active. She is an active external and internal networker and acts as a conduit for information about what is happening elsewhere in the university. She works closely with two other subject D colleagues in particular (research is the focus). It was evident from the interview that she is a highly perceptive individual commenting on a range of tensions within the school (e.g. teaching/research, academic/administrative divides). As with several other participants she is required to attend a range of formal committees. Sophie's primary identification is jointly with her subject group (because of her research interests) and the teaching fellows network (because of her interest in teaching and learning).



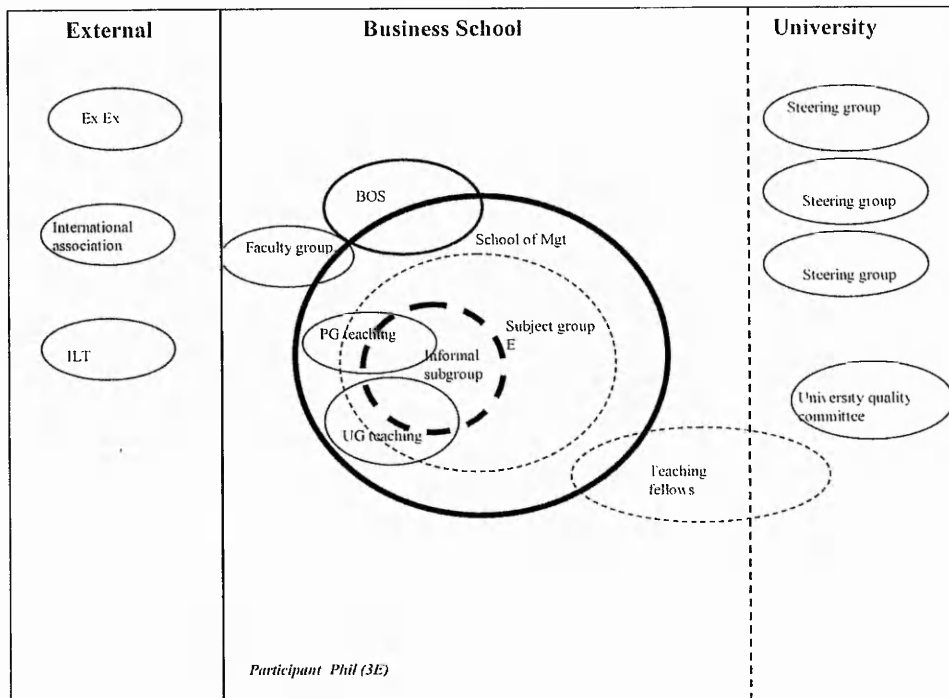
Maggie (3D)

Prior to the most recent restructuring Maggie had been in a management role and is struggling to come to terms with her current situation. She talks about role ambiguity at some length in her interview. Much of what she says is expressed in negative terms leading to comments in the author's research diary that include: bitterness; frustration; and, exasperation. She is keen to point out a range of problems and tensions within the subject group and the wider faculty and believes that informal structures and processes are being stifled by overly bureaucratic formal structures and processes. She gives the impression of liking to be seen in a brokering role; although the divisions she talks about suggest her attempts at brokering have had little effect.



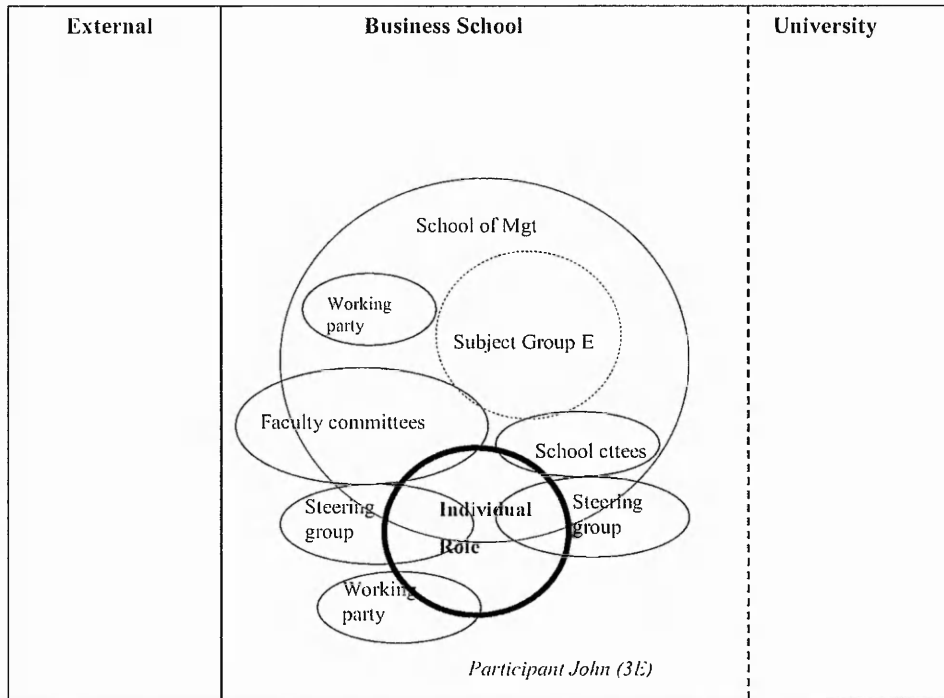
Phil (3E)

Phil's primary source of identity is a small informal group within his subject group ("we tend to be a sub-group because we are the ones that will get things done") although he also identifies strongly with the teaching fellows network. He is critical of management because of their poor communication skills systems; and so, like Sophie, uses his attendance at formal committees to compensate, acting as a conduit for his colleagues in the sub-group. He believes that too many teaching teams within the faculty have stagnated and are need of an injection of fresh ideas and approaches.



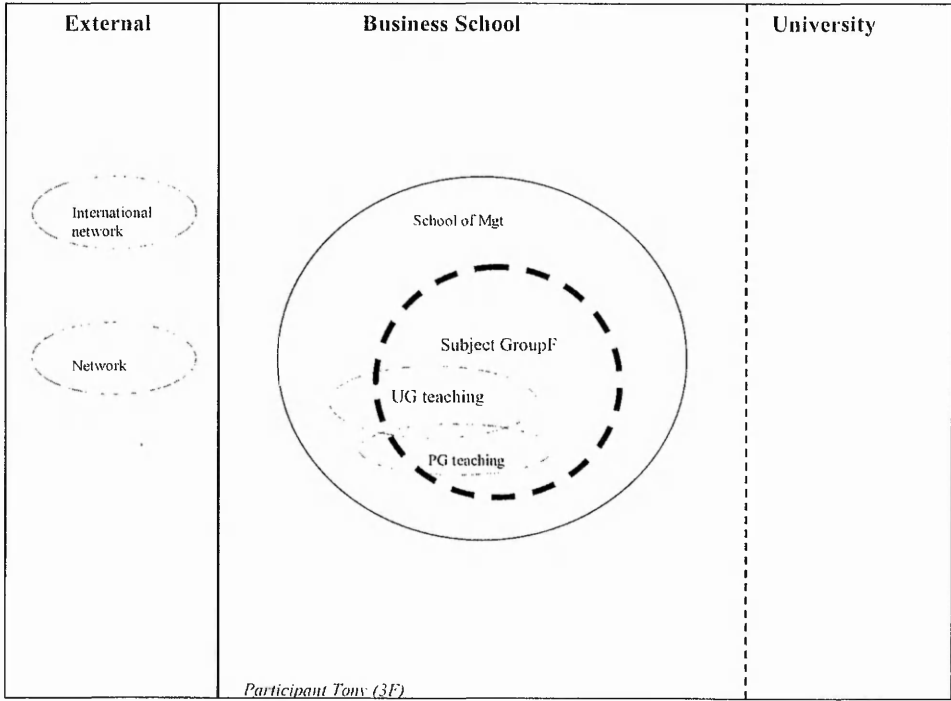
John (3E)

John is technically a member of subject group E but works in a specialist role that is detached from that group. It is from that specialist role that he draws his primary identity. He criticises the university for the lack of a community ethos yet, for whatever reasons there is a real sense that he enjoys the isolation his present role offers him. He attends a wide range of formal group and committee meetings but has no informal social networks internally or externally and does not appear to be a member of any informal sub-groups (apart from a colleague with whom he has lunch on an irregular basis).



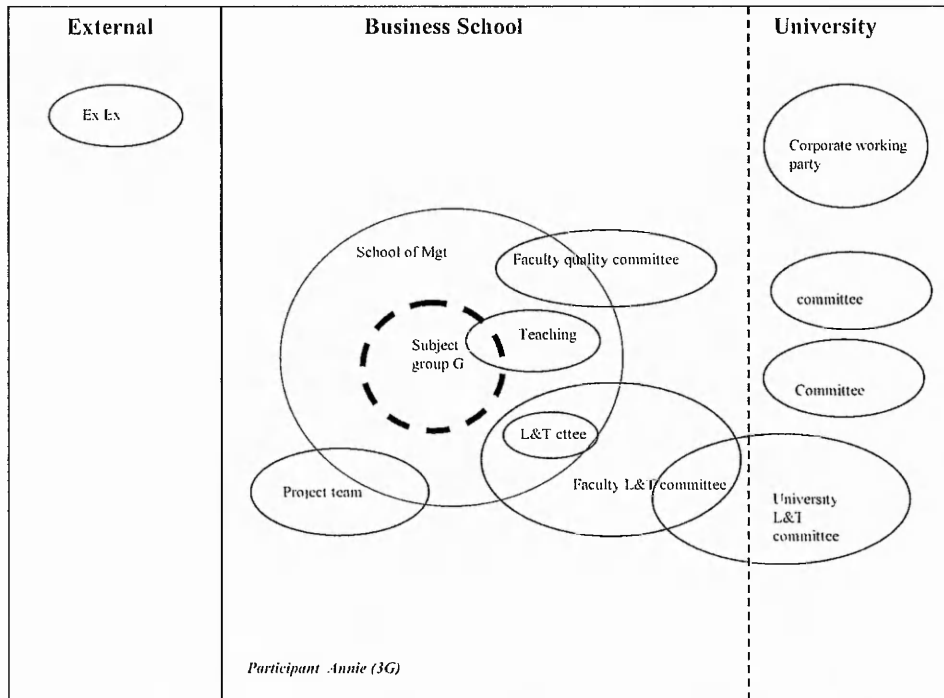
Tony (3F)

Tony's primary source of identity is subject group F which he talks about in positive, friendly terms. He clearly likes working with his subject group colleagues and his comments suggest that it is a real community of academics. He talks at length about the group's socialisation processes. He has informal social networks externally which reflect his interest in research but he does not network internally beyond the boundaries of the school of management. The influence of his biography (e.g. legal practice) is evident in how he describes certain aspects of the university (e.g. his definition of the university is couched in legal terms). He is very student focused and strongly motivated to offer a good learning experience for students.



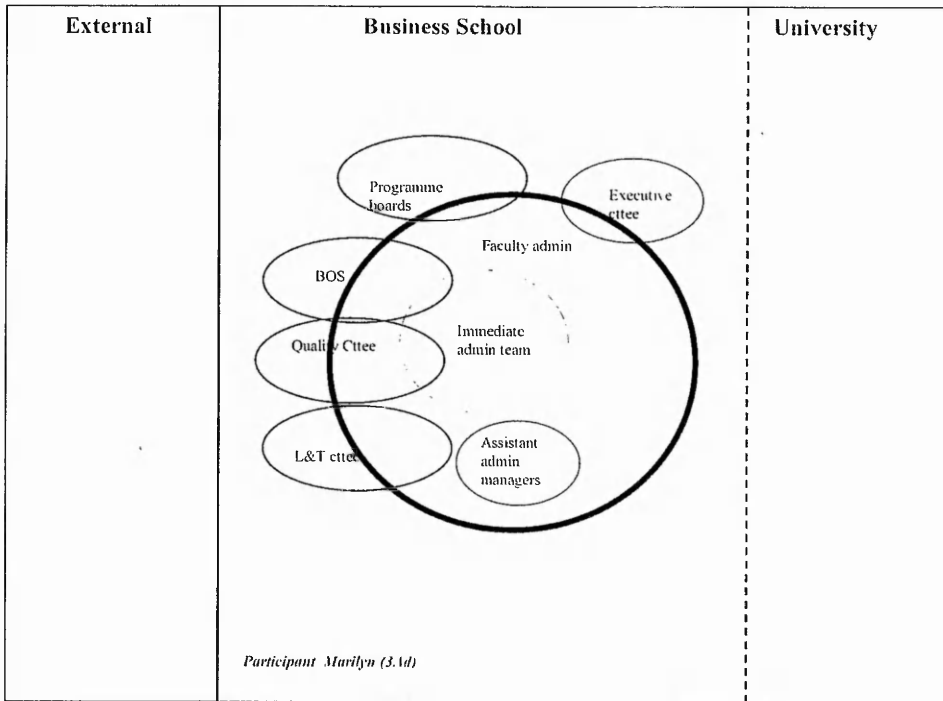
Annie (3G)

Annie identifies primarily with the teaching fellows network and is clearly proud to be one of a handful of senior teaching fellows. She only started to talk about her subject group when prompted to do so by the author. She enjoys being involved in formal and informal fora that provide “a way of sharing ideas around the schools and faculty”. She believes that more informal structures and processes are needed. Interestingly she is the only participant to claim allegiance to the university rather than the school of management or business faculty (and in this is influenced by what she sees as poorly handled restructurings by faculty management in the past). She networks internally but apart from an external examiner role has no external social networks.



Marilyn (3Ad)

Marilyn identifies primarily with the faculty rather than the school of management although her administrative role is school focused. She has a narrow range of responsibilities that have enabled her to develop an expertise in certain administrative systems. She has a good understanding of who knows what in the faculty; but concedes the context-specific and non-transferability of this knowledge. She has no formal or in formal networks, internal or external. Her interview offers some useful insights into the academic/administration division as well as the conflict between research and teaching oriented academic staff. She demonstrates empathy and understanding about the latter (explaining why some staff feel a lack of equity).



2. Codes

2.1 Type of knowledge (T codes)

2.2 Knowledge formation processes (K codes)

2.3 Learning processes (L codes)

Table A2.1: Types of knowledge (T)		
T1	Individual practical knowledge (personal)	Embodied knowledge that is action-oriented (often referred to as personal tacit knowledge or know-how). Manifests as participant expertise (skills and abilities that develop over time through experience). Normally subjective and automatic, there is an instinctive and intuitive quality to practical knowledge that makes it difficult to articulate. E.g. Jilly (1A): Although I have to be empathic, I also have to be quite hard hearted, or had to be quite hard hearted. Umm, and to realise that the students do try to pull the wool over your eyes on a number of occasions and there are people who are terribly lazy, who don't get on with it. And to be quite judgemental about whether their excuse on this occasion is true or not. So, that's a skill that's very difficult to teach, it's a kind of gut reaction and experience tells you an awful lot about the way that somebody is behaving.
T2	Group practical knowledge (where the informal group or social network lies predominantly within the faculty's formal and informal structures, processes and routines)	Knowledge that is socially constructed as a result of the social interaction between two or more individuals, typically within an academic community or social network located within the case business school. Draws upon participants' practical knowledge (in tandem with their propositional knowledge). Involves being aware of who you need to talk to within an academic community (transactive memory). Usually referred to as collective knowledge that is embedded in social relationships typically found in informal groups and networks located within the organisation. Often referred to as tacit knowledge or know-how that is 'sticky'. This form of knowledge, in particular, is pivotal to the practice of being an academic teacher, academic researcher, academic manager or administrator. E.g. Joanne (1A): Some people are good on certain things, so you go to them and you ask them. I mean, you say, people come to me for advice, yes, and I unhesitatingly go to other people for advice, because there's a pool of experience and knowledge which is really quite formidable...There's more knowledge flying around here or residual, or latent, or whatever.
T3	Organisation practical knowledge (where the informal group or social network lies predominantly outside the faculty and within the organisation's formal and informal structures, processes and routines)	Knowledge that is socially constructed as a result of the social interaction between two or more individuals, typically within an academic community or social network predominantly located within the wider university. Draws upon participants' practical knowledge (in tandem with their propositional knowledge). Involves being aware of who you need to talk to within an academic community (transactive memory). Usually referred to as collective knowledge that is embedded in social relationships typically found in informal groups and networks located within the organisation. Often referred to as tacit knowledge or know-how that is 'sticky'. E.g. Zoe (1A): There is a sort of core of us [on this university-wide group] who, umm, ...have attended meetings regularly and it gives you a fascinating insight into research in the other schools...and different approaches and methodologies. I mean, what people do in education and what people do in, in [other faculties] is so very different from what we do. I think its absolutely fascinating.
T4	Individual propositional knowledge (codifiable)	Knowledge about something held by a participant; in particular knowledge of the subject for teaching and/or research practice, and

	knowledge that is held by an individual)	working knowledge of policies, rules and procedures. This knowledge is codified in a range of artefacts including: teaching materials, research bids and papers, reports and emails. Often referred to as personal know-what or explicit knowledge. E.g. Joanne (1A): One of the chaps is giving a research seminar fairly soon because he's got so much knowledge and I, flattery, flattery will get you every where. Well he has, he's got a vast amount of knowledge and I think he would, he loves to talk about it, so he's going to talk about it. E.g. Maggie (3D): there is a mentoring programme in the university.
T5	Group propositional knowledge (encoded knowledge that is located primarily within the faculty)	Knowledge about something or someone held by participants within a group or network within the business school context. Such knowledge is utilised and developed by those participants as a result of collaborative activities within the same group or network. In particular knowledge of the subject for teaching and/or research practice, and working knowledge of policies, rules and procedures. This knowledge is codified in jointly produced teaching materials, joint research bids and papers, joint reports and group emails, and in minutes of group activities. Also includes strategies, policies, procedures and correspondence codified at faculty level (e.g. business school HR strategy and policy; business school research strategy and policy). Can be referred to as group know-what or explicit knowledge. E.g. Richard (1B): In fact what became apparent was that every module is run in a different way and they are doing different things, and that was useful. We also identified quite a few areas for potential integration between different modules. E.g. Marilyn (3Ad): everyone knows who I am and knows that I do timetables.
T6	Organisation propositional knowledge (encoded knowledge that is located primarily within the organisation)	Knowledge about something or someone held by participants within a group or network within the wider university context. Such knowledge is utilised and developed by those participants as a result of collaborative activities within the same group or network. In particular knowledge of the subject for teaching and/or research practice, and working knowledge of policies, rules and procedures. This knowledge is codified in jointly produced teaching materials, joint research bids and papers, joint reports and group emails, and in minutes of group activities. Also includes strategies, policies, procedures and correspondence codified at university level (e.g. university student appeals policy and procedures; university recruitment and selection procedures; minutes of academic board meetings). Can be referred to as group know-what or explicit knowledge. E.g. university student appeals policy and procedures; university recruitment and selection procedures; minutes of academic board meetings). Kirk (1A): We had a change of title last year which is quite fascinating because I'd never had it written on paper, it just kind of happened. We're now called course directors and you can read anything into the change from course manager to director
T7	Group practical knowledge (where the informal group or social network lies predominantly outside the	Knowledge that is socially constructed as a result of the social interaction between two or more individuals, typically within an academic community or social network that is located predominantly outside the university. Draws upon participants' practical knowledge (in tandem with their propositional

	organisation's formal and informal structures, processes and routines)	knowledge). Involves being aware of who you need to talk to within an academic community (transactive memory). Usually referred to as collective knowledge that is embedded in social relationships typically found in informal groups and networks located within the organisation. Often referred to as tacit knowledge or know-how that is 'sticky'. E.g. Art (2SMT): I have the external networks...that I cultivate all the time and that, that brings in this extra dimension to, to, to the business school and to, to the senior management team, which I think is important.
T8	Group propositional knowledge (encoded knowledge that is located primarily within the public domain)	Knowledge about something or someone held by participants within a group or network located predominantly outside the university. Such knowledge is utilised and developed by those participants as a result of collaborative activities within the same group or network; in particular knowledge of the subject for research practice. This knowledge is codified in jointly produced conference papers and journal articles. Also includes external publications (e.g. books, journals, magazines, internet etc). Can be referred to as group know-what or explicit knowledge. E.g. Kate (3D): the creation of a database where academics put information about who they are and their publications, and it allows them to connect with other academics.

Table A2.2: a taxonomy of knowledge formation processes		
K1	K1	<p>Knowledge acquisition by an individual (know-what or know-how not specified)</p> <p>K1.1: acquisition of know-what (e.g. reading texts)</p> <p>K1.2: acquisition of know-how (e.g. practising teaching skills)</p> <p>Bobby (1A): Read the trade press rather than the academic press and you find out what's worrying people, what's concerning people, what the flavour of the month is, and so, so far as I can I'll, I'll go to, not academic conferences but business symposiums and that sort of thing and find out what the issues are and just talk to people.</p> <p>George (3HOS): Go into a classroom, nobody can get to you, and it keeps you in contact. Plus you get a better understanding of what's involved in all the marking...so you begin to appreciate some of the workload that goes on behind it</p>
K2	K2	<p>Knowledge generation by an individual (personal knowledge)</p> <p>K2.1: adaptation & experimentation; learning from mistakes</p> <p>K2.2: Codifying knowledge for research (e.g. research bids, conference papers, articles, books and book chapters)</p> <p>K2.3: codifying knowledge for teaching (e.g. lecture slides, module guides)</p> <p>K2.4: a specific example of self-awareness being demonstrated/articulated</p> <p>Richard (1B): The first thing that I had to do when I got there was redesign the MBA. It hadn't been done for a few years, and with that redesign I think I bought a vision to the MBA, a vision of quality. I wrote it out...I do feel I brought that team a vision of what we are trying to achieve and a unified vision...and everyone agreed that it was the right route and we went down it.</p> <p>George (3HOS): when you do use case studies like [company X] and things like that, you can provide some of the background information to the students that is not always there.</p> <p>Liz (3D): the issue of conflict...isn't addressed as far as I can see in the modules at the moment.</p>
K3		<p>Formal collaboration (knowledge sharing) within a formal context between individuals who are not members of the same group, community or network (e.g. cross-functional group, project or committee)</p> <p>Bruce (1HOD): Its been a very ad hoc process in the past... and what we've said, if we did it more systematically in the future, umm, about now, what's going to happen is I'm going to get figures on how much the budget is going to be for next year. We marry that up with a set of school objectives that we've written as a group and then if that's all approved we turn it over to [Mike] who then goes way and spends the money and, umm, does what he, he does at the moment... We</p>

			<p>turn that into a strategy, so I suppose the synthesis of all that work is done by the core group... so the core group, as experts, chew over what, what's been written and then put it back to senior management team and, if they approve it, then fine, we go ahead with it.</p> <p>Phil (3E): university steering groups, committees throughout the university, working with other faculties, looking at developing new programmes, different ways and means of delivering programmes to new students as well as all sorts of activity within the school itself.</p>
K4		<p>Formal collaboration (knowledge sharing) within a formal context between individuals who are members of the same formal group or community or network (e.g. department meeting; project team meetings)</p>	<p>Jilly (1A): We're both interested in that area, umm, and, again we do different things within the roles. She's very good at writing, I'm very good at digging up stuff that will support what we're saying</p> <p>Peter (2SMT): its amazing now the sorts of things getting picked up and being discussed now at SMT meetings...it's a good thing.</p> <p>Art (2SMT): SMT is where the strategy for running the business school is formulated.</p>
K5		<p>Knowledge diffusion (informal knowledge sharing) between individuals in the same community or network (e.g. at the coffee machine/in the corridor/ on the landing in the house/in the canteen).</p>	<p>Bobby (1A): Its, yes, it's the coffee room you get in companies. Its, it's the resource centre here because most of us, I find, don't have time for coffees, or if we do, you know, we're zipping off. We never really have more than about four or five minutes to get..., then we're scampering off somewhere else. So the resource centre's quite good and, of course, then you're focused, you're focused on business and work and information, and you can tap into other conversations. I think its very useful...I spend a lot of time there.</p>
K6		<p>Informal collaboration between individuals in the same community or network - purpose specific discussion.</p>	<p>Zoe (1A): So, umm, we're talking about, you know, what to teach and how to teach it. Umm, and trying out different things. I mean there's an enormous amount of...a, a really supportive team, I mean lots, you know, you get e-mails, people e-mail you their lecture notes and their seminar, or I'll teach that session for you if you like, and all that sort of thing. So, umm, enormously helpful and sharing of approaches and sharing of knowledge. Umm, and that... umm, ... and we've written conference papers and we're now turning a conference paper into a, umm, ...journal article, we hope for 'Management Learning'.</p>
K7	K7	<p>Knowledge transfer - across the organisation</p>	<p>Meryl (1A): We'll probably do a presentation to the school of business in one of the</p>

		<p>or between organisations</p> <p>K7.1: Informal knowledge transfer (e.g. chatting informally at a conference)</p> <p>K7.2: Formal knowledge sharing (e.g. minutes; presenting a paper; delivering a research seminar; working as a consultant)</p> <p>K7.3: Informally through membership of professional institutes and other bodies; through external examiner role</p>	<p>research forums at, probably, the end of this term, the end of the sort of first year looking at this and no doubt we'll do some stuff next year. And we've already done two conferences, external to the business school, and explained to the university, umm, so its, its an ongoing, and, increasingly we'd like to do more collaborative, even across different schools.</p> <p>George (3HOS): speaking to colleagues elsewhere they are finding a similar pattern and most of them are concerned about a 2.2 or a 2.1.</p>
K8	K8	<p>Information exchange in a group context</p> <p>K8.1: Formal contexts (e.g. department meeting)</p> <p>K8.2: Informal contexts (e.g. discussion in an office)</p>	<p>Bruce (1HOD): Umm, I'm just a conduit of information I think and it seems to me that this is the best expression of that information being channelled back to department members.</p> <p>Mack (2SMT): I use it as an information giving session...I give out information from the university through that forum.</p>
K9		<p>Information exchange by one individual to another individual</p>	<p>Richard (1B): Now in the case of [Susan] I tend to keep her reasonably well informed. Almost to the extent that if I know that my boss has got some proposal, I will say to her, just to let you know, [Alec] is likely to come and put this teaser, just to give you time to think about it; and I just wanted to find out what your view is because I can support or not accordingly</p>
K10		<p>Informal knowledge sharing between two individuals in a specific relationship (e.g. coach-learner)</p>	<p>Mary (1B): Within twenty four hours of starting here I was giving a colleague a one-to-one seminar on how to do a PhD.</p>

Table A2.3: A taxonomy of Learning processes			
L1		Experiential learning (learning by doing)	Zoe (1A): Well, it's a lot of learning by doing here...because you're sort of thrown in, you know.
L2		Knowing what (also who/where)	<p>Craig (1B): I love teaching on the MBA. I love leading the [subject B] module. I really love working with the students, it forces me to keep up to speed with developments and marketing academically. It challenges me to keep on top of my subject area. It is very, very important to me. It is the last bit of teaching that I would ever think giving up.</p> <p>George (3HOS): numbers have declined year on year and it has now stabilised but a much lower level.</p> <p>Maggie (3D): I've had people phoning me up and saying, 'Maggie] I'm interested in finding out about this and I've been told that you are the person that knows. Can you help me?'</p>
L3		Knowing how	Bruce (1HOD): It's actually taught me a lot practically which I knew about in theory before.
L4		Problem solving	Zoe (1A): But, I mean people are often, you, you have a problem with teaching, teaching and learning, umm, you'll often find that other people have had similar problems and propose, help you with solutions and things...I drop in on [Jilly] or so and so, and say, I'm trying to do this. Or you stand upstairs and you, you're drinking coffee and say, I've got this real problem, and then four or five people come out of their rooms bearing you bits of paper.
L5		Reflective practice	Joanne (1A): I do reflect upon things. I think that's the only way you can survive, err, yes I do, quite often, again on the bike. I find that, that a useful, literally, mechanism for resolving the, err, hiccups, or the difficulties that may have occurred during the day and perhaps on the way, devising strategies for dealing

			with them
L6		<p>Situated learning - learning through social participation/shared practice (learning from colleagues)</p> <p>L6.1: Specific example of situated practice</p> <p>L6.2: Sharing information</p> <p>L6.3: One-to-one collaboration</p> <p>L6.4: Sharing expertise</p> <p>L6.5: Discussing a specific issue</p>	<p>Kate (3D): If we are going to ask students to reflect on their experiences I should know a little bit more about this process of reflection. And I thought I was quite good at that. I assumed that, yes I'm a reflector. But when I got involved in a research project with [James Milken] I realised there was a lot more to it and that began to help me develop my own approaches to teaching and learning...[James Milken] has had a huge influence on my own approach and thinking.</p> <p>Maggie (3D): I've had a lot of...a lot of assistance, I would say, and encouragement and help from individuals in that group, particularly [James] and [Jock], in terms of developing my subject expertise.</p>
L7		<p>Giving or receiving information to others</p> <p>L7.1: giving information to others</p> <p>L7.2: receiving information from someone else</p>	<p>Phil (3E): anytime that someone is interested [in the teaching fellowship scheme] I certainly talk highly of it and the value it has given me...and I have given presentations on it and its worth.</p>
L8		<p>Cognitive (e.g. reading, listening, writing)</p>	<p>Bobby (1A): I tend to read the trade press a great deal</p>

3. Case study data tables

3.1 case 1

3.2 case 2

3.3 case 3

A3.1 Case 1 data tables

1. Types of knowledge (T) (case 1)

	T1	T2	T3	T7	Total Tacit	T4	T5	T6	T8	Total Explicit
All interviews	70 (14.6%)	225 (47.0%)	17 (3.5%)	27 (5.7%)	339 (70.8%)	57 (11.9%)	56 (11.7%)	10 (2.1%)	17 (3.5%)	140 (29.2%)
University	1	0	4	0	5 (55.6%)	2	0	2	0	4 (44.4%)
Business School	4	38	0	0	42 (58.3%)	5	24	1	0	30 (41.7%)
Department	17	50	2	1	70 (68.0%)	16	10	2	5	33 (32.0%)
Subject A	23	22	0	1	46 (68.7%)	12	3	1	5	21 (31.3%)
The House	4	43	0	0	47 (92.2%)	4	0	0	0	4 (7.8%)
Research active in House	3	17	0	0	20 (66.7%)	1	9	0	0	10 (33.3%)
House total	7 (8.6%)	60 (74.1%)	0	0	67 (82.7%)	5 (6.2%)	9 (11.1%)	0	0	14 (17.3%)
Subject A total	30 (20.3%)	82 (55.4%)	0 (0.0%)	1 (0.7%)	113 (76.4%)	17 (11.4%)	12 (8.1%)	1 (0.7%)	5 (3.4%)	35 (23.6%)
Subject B	2	10	0	0	12 (80.0%)	1	2	0	0	3 (20.0%)
External networks	1	1	3	23	28 (71.8%)	3	0	1	7	11 (28.2%)
Internal networks	1	13	8	0	22 (81.5%)	0	4	1	0	5 (18.5%)
Networks total	2	14	11	23	50 (75.8%)	3	4	2	7	16 (24.2%)
PG teaching	12	17	0	2	31 (68.9%)	11	3	0	0	14 (31.1%)
UG teaching	1	2	0	0	3	2	0	0	0	2
Teaching total	13	19	0	2	34 (68.0%)	13	3	0	0	16 (32.0%)
Course Managers	1	12	0	0	13 (81.2%)	0	1	2	0	3 (18.8%)

2. Knowledge formation processes (K) (case 1)

	K1	K2	K3	K4	K5	K6	K7	K8	K9	K10
All interviews	74 (15.3%)	93 (19.2%)	41 (8.5%)	46 (9.5%)	65 (13.4%)	53 (11.0%)	42 (8.7%)	49 (10.1%)	10 (2.0%)	11 (2.3%)
University	1	0	0	0	0	0	6	1	0	0
Business School	8 (10.5%)	15 (19.7%)	27 (35.6%)	0	3 (3.9%)	5 (6.6%)	3 (3.9%)	13 (17.1%)	2 (2.6%)	0
Department	16 (13.6%)	25 (21.2%)	1 (0.8%)	19 (16.1%)	4 (3.4%)	10 (8.5%)	11 (9.3%)	21 (17.8%)	3 (2.5%)	8 (6.8%)
Subject A	31 (33.0%)	23 (24.5%)	2 (2.1%)	8 (8.5%)	5 (5.3%)	11 (11.7%)	4 (4.3%)	3 (3.2%)	5 (5.3%)	2 (2.1%)
The House	2	4	0	0	44	1	0	3	0	0
Research active in House	0	1	0	11	3	10	0	0	0	0
House total	2 (2.5%)	5 (6.4%)	0 (0.0%)	11 (13.9%)	47 (59.5%)	11 (13.9%)	0 (0.0%)	3 (3.8%)	0 (0.0%)	0 (0.0%)
Subject A total	33 (19.0%)	28 (16.2%)	2 (1.2%)	19 (11.0%)	52 (30.0%)	22 (12.7%)	4 (2.3%)	6 (3.5%)	5 (2.9%)	2 (1.2%)
Subject B	2	4	0	1	2	3	4	0	0	0
External networks	4	5	2	0	0	3	13	1	0	0
Internal networks	0	1	0	0	1	3	0	0	0	0
Networks total	4 (12.1%)	6 (18.2%)	2 (6.0%)	0 (0.0%)	1 (3.0%)	6 (18.2%)	13 (39.4%)	1 (3.0%)	0 (0.0%)	0 (0.0%)
PG teaching	9	14	1	5	0	2	0	5	0	1
UG teaching	0	1	0	2	0	0	1	0	0	0
Teaching total	9 (25.0%)	15 (41.6%)	1 (2.8%)	7 (19.4%)	0	2 (5.6%)	1 (2.8%)	0	0	1 (2.8%)
Course Managers	1	0	8	0	3	5	0	2	0	0

3. Knowledge repositories (R) (case 1)

	R3 Individual	R1	R2	R6	Total Codified	R4	R5	Total Embedded
All interviews	148 (42.8%)	13 (3.8%)	74 (21.3%)	38 (11.0%)	125 (36.1%)	13 (3.8%)	60 (17.3%)	73 (21.1%)
University	1	1	2	0	3	0	0	0
Business School	13 (22.4%)	1	28 (48.3%)	4	33 (56.9%)	2	10 (17.2%)	12 (20.7%)
Department	47	0	21	10	31	1	13	14
Subject A	45 (66.2%)	6	3	5	14 (20.6%)	0	9	9 (13.2%)
The House	6	0	2	0	2	0	15	15
Research active in House	5	0	2	11	13	2	7	9
House total	11 (22.0%)	0	4	11 (22.0%)	15 (30.0%)	2	22 (44.0%)	24 (48.0%)
Subject A total	56 (47.5%)	6	7	16 (13.6%)	29 (24.5%)	2	31 (26.3%)	33 (28.0%)
Subject B	10	1	3	0	4	0	1	1
External networks	5	1	0	8	9	4	0	5
Internal networks	0	0	2	0	2	4	0	4
Networks total	5 (20.0%)	1	2	8 (32.0%)	11 (44.0%)	8 (32.0%)	0	9 (36.0%)
PG teaching	13	3	8	0	11	0	1	1
UG teaching	1	0	3	0	3	0	0	0
Teaching total	14 (48.3%)	3	11 (37.9%)	0	14 (48.3%)	0	1	1 (3.4%)
Course Managers	2	0	0	0	0	0	4	4

4. Learning processes (L) (case 1)

	L1	L2	L3	L4	L5	L6	L7	L8
All interviews	25 (5.7%)	60 (13.6%)	30 (6.8%)	27 (6.1%)	8 (1.8%)	197 (44.8%)	69 (15.7%)	24 (5.5%)
University	0	0	0	0	0	1	2	
Business School	3	4	2	5	1	26	12	3
Department	4	18	10	2	3	45	33	8
Subject A	11	19	11	3	2	25	6	8
The House	1	4	1	4	1	31	1	1
Research active in House	0	0	1	0	0	22	1	0
House total	1	4	2	4	1	53	2	1
Subject A total	12 (7.8%)	23 (15.0%)	13 (8.5%)	7 (4.6%)	3 (2.0%)	78 (51.0%)	8 (5.2%)	9 (5.9%)
Subject B	1	1	1	6	0	5	28	1
External networks	0	2	1	1	0	14	6	2
Internal networks	0	3	0	0	0	3	1	0
Networks total	1 (1.5%)	6 (7.9%)	2 (2.6%)	7 (9.2%)	0	22 (28.9%)	35 (46.0%)	3 (3.9%)
PG teaching	4	8	2	2	0	8	4	1
UG teaching	1	0	0	0	0	3	0	0
Teaching total	5 (15.2%)	8 (24.2%)	2 (6.0%)	2 (6.0%)	0	11 (33.3%)	4 (12.1%)	1 (3.2%)
Course Managers	0	1	1	4	1	14	1	0

Table 5: Repositories of knowledge versus knowledge formation processes (case 1)

	R1	R2	R3	R4	R5	R6
K1	5	2	59	2		1
K2	5	5	46	3	4	10
K3		5	2		2	5
K4		12	1		3	12
K5				1	19	
K6		3	9	5	25	4
K7	2	5	6	3		10
K8		25	3		1	
K9		1	7	1	2	1
K10		3	3			

Table 6: Learning processes versus knowledge formation processes (case 1)

	L1	L2	L3	L4	L5	L6	L7	L8
K1	11	33	8	2		4	2	8
K2	7	22	15	4	3	2	2	6
K3				3		20	3	
K4						36	1	
K5				3		44		<i>1</i>
K6	<i>1</i>	<i>1</i>		5		50	5	
K7		<i>1</i>		1		7	12	<i>1</i>
K8						2	37	
K9		<i>1</i>		1		5	4	
K10						8	1	

Key:

Bold = evidence of psychological theory only

Italics = evidence of social cognitive learning

Normal = evidence of sociological (situated) theory only (although psychological can be inferred)

A3.2 Case 2 data tables

1. Types of knowledge (T) (case 2)

	T1	T2	T3	T7	Total Tacit	T4	T5	T6	T8	Total Explicit
All interviews	5 (3.8%)	77 (57.9%)	8 (6.0%)	8 (6.0%)	98 (73.7%)	17 (12.8%)	16 (12.0%)	1 (0.8%)	1 (0.8%)	35 (26.3%)
University	0	0	0	0	0	0	0	0	0	0
Business School	2	0	0	0	2 (40.0%)	1	2	0	0	3 (60.0%)
SMT informal	1	19	1	0	21 (100.0%)	0	0	0	0	0
SMT	2	25	0	1	28 (59.6%)	12	7	0	0	19 (40.4%)
Extended SMT	0	5	0	0	5 (62.5%)	1	2	0	0	3 (37.5%)
SMT total	3	49	1	1	54 (71.1%)	13	9	0	0	22 (28.9%)
External networks	0		0	5	5 (83.3%)	0	0	0	1	1 (16.7%)
Internal networks	0	5	6	1	12 (100.0%)	0	0	0	0	0
Networks total	0	5	6	6	17 (94.4%)	0	0	0	1	1 (5.6%)
Commercial team	0	11	0	1	12 (70.6%)	2	2	1	0	5 (29.4%)
Business School formal groups	0	7	0	0	7 (63.6%)	1	3	0	0	4 (36.4%)
University formal groups	0	0	0	0	0	0	0	0	0	0
Formal groups total	0	18	0	1	19 (67.9%)	3	5	1	0	9 (32.1%)
Teaching & Research	0	5	1	0	6 (100.0%)	0	0	0	0	0

2. Knowledge formation processes (K) (case 2)

	K1	K2	K3	K4	K5	K6	K7	K8	K9	K10
All interviews	9 (6.5%)	15 (10.8%)	21 (15.1%)	20 (14.4%)	20 (14.4%)	14 (10.1%)	14 (10.1%)	25 (18.0%)	1 (0.7%)	0 (0.0%)
University										
Business School	2	1	0	0	0	0	0	2	0	0
SMT informal	1	1	0	0	8	3	0	5	1	0
SMT	5	8	3	18	1	2	2	9	0	0
Extended SMT	0	0	8		0	0	1	3	0	0
SMT total	6 (7.6%)	9 (11.4%)	11 (13.9%)	18 (22.8%)	9 (11.4%)	5 (6.3%)	3 (3.8%)	17 (21.4%)	1 (1.4%)	0
External networks	0	0	0	0	2	1	4	0	0	0
Internal networks	0	0	0	0	6	2	3	1	0	0
Networks total	0	0	0	0	8 (42.1%)	3 (15.8%)	7 (36.8%)	1 (5.3%)	0	0
Commercial team	1	3	1	2	3	4	2	1	0	0
Business School formal groups	0	0	5	0	0	0	1	4	0	0
University formal groups	0	0	0	0	0	0	0	0	0	0
Formal groups total	1	3	6	2	3	4	3	5	0	0
Teaching & Research	0	2	4	0	0	2	1	0	0	0

3. Knowledge repositories (R) (case 2)

	R3 Individual	R1	R2	R6	Total Codified	R4	R5	Total Embedded
All interviews	24 (32.4%)	0 (0.0%)	25 (33.8%)	3 (4.0%)	28 (37.8%)	7 (9.5%)	15 (20.2%)	22 (29.7%)
University	0	0	0	0	0	0	0	0
Business School	2	0	2	0	2	0	1	1
SMT informal	5	0	0	1	1	0	1	1
SMT	13	0	11	0	11	0	8	8
Extended SMT	0	0	4	0	4	0	0	0
SMT Total	18 (40.1%)	0	15	1	16 (36.4%)	0	9	10 (23.5%)
External networks	1	0	0	0	0	4	1	5
Internal networks	0	0	0	1	1	3	0	3
Networks total	1	0	0	1	1	7	1	8
Commercial team	1	0	2	1	3	0	2	2
Business School formal groups	1	0	4	0	4	0	1	1
University formal groups	0	0	0	0	0	0	0	0
Formal groups total	0	0	6	1	7	0	3	3
Teaching & Research	1	0	2	0	2	0	1	1

4. Learning processes (L) (case 2)

	L1	L2	L3	L4	L5	L6	L7	L8
All interviews	2 (1.4%)	7 (4.7%)	6 (4.0%)	21 (14.2%)	3 (2.0%)	75 (50.7%)	32 (21.6%)	2 (1.4%)
University	0	0	0	0	0	0	0	0
Business School	0	0	0	0	0	6	0	0
SMT informal	0	1	1	1	0	14	8	2
SMT	2	5	3	14	3	19	11	0
Extended SMT	0	0	0	0	0	9	2	0
SMT Total	2 (2.0%)	6 (5.9%)	4 (4.0%)	15 (14.9%)	3 (3.0%)	48 (47.5%)	21 (20.8%)	2 (2.0%)
External networks	0	0	0	0	0	5	1	0
Internal networks	0	0	0	3	0	7	3	0
Networks total	0	0	0	3	0	12	4	0
Commercial team	0	0	2	0	0	8	0	0
Business School formal groups	0	1	0	2	0	1	6	0
University formal groups	0	0	0	0	0	0	0	0
Formal groups total	0	1	2	2	0	9	6	0
Teaching & Research	0	0	0	1	0	6	0	0

Table 5: Repositories of knowledge versus knowledge formation processes (case 2)

	R1	R2	R3	R4	R5	R6
K1			7		1	
K2		1	7		1	
K3		10			2	1
K4		2			1	
K5			1	4	3	
K6					2	
K7		1	1	3	1	
K8		6	4			
K9						
K10						

Table 6: Learning processes versus knowledge formation processes (case 2)

	L1	L2	L3	L4	L5	L6	L7	L8
K1	2	1	3			3		
K2		2	4	3	1	2		1
K3				2		14	1	
K4				2	2	13	1	
K5		<i>1</i>		1		11	1	
K6				2		9		
K7				1		6	2	
K8				1		11	15	
K9							1	
K10								

Key:

Bold = evidence of psychological theory only

Italics = evidence of social cognitive learning

Normal = evidence of sociological (situated) theory only (although psychological can be inferred)

A3.3 Case 3 data tables

1. Types of knowledge (T) (case 3)

	T1	T2	T3	T7	Total Tacit	T4	T5	T6	T8	Total Explicit
All interviews	18 (7.0%)	105 (40.6%)	26 (10.0%)	34 (13.1%)	183 (70.7%)	18 (7.0%)	32 (12.3%)	21 (8.1%)	5 (1.9%)	76 (29.3%)
University	0	0	11	0	11 (36.7%)	0	2	17	0	19 (63.3%)
Business Faculty	0	9	0	0	9 (81.8%)	0	2	0	0	2 (18.2%)
Formal committees	0	0	0	0	0	0	0	0	0	0
UG teaching	2	11	0	0	13 (81.2%)	0	3	0	0	3 (18.8%)
School of Mgt	2	30	1	0	33 (68.8%)	1	12	2	0	15 (31.2%)
Dept D	6	36	0	2	44 (78.6%)	4	7	0	1	12 (21.4%)
Dept E	1	5	0	0	6 (66.7%)	2	1	0	0	3 (33.3%)
Dept F	3	8	1	0	12 (66.7%)	4	2	0	0	6 (33.3%)
Dept G	2	1	0	0	3 (75%)	1	0	0	0	1 (25%)
School of Mgt total	14 (10.4%)	80 (59.2%)	2 (1.5%)	2 (1.5%)	98 (72.6%)	12 (8.9%)	22 (16.3%)	2 (1.5%)	1 (0.7%)	37 (27.4%)
Teaching Fellows	1	3	12	1	17 (68.0%)	4	2	2	0	8 (32.0%)
External networks	1	2	1	31	35 (83.3%)	2	1	0	4	7 (16.7%)
Networks total	2 (3.0%)	5 (7.5%)	13 (19.4%)	32 (47.7%)	52 (77.6%)	6 (9.0%)	3 (4.5%)	2 (3.0%)	4 (5.9%)	15 (22.4%)

2. Knowledge formation processes (K) (case 3)

2.1 Knowledge formation processes by group/network

	K1	K2	K3	K4	K5	K6	K7	K8	K9	K10
All interviews	35 (11.1%)	56 (17.7%)	42 (13.3%)	24 (7.6%)	43 (13.6%)	34 (10.8%)	45 (14.2%)	24 (7.6%)	9 (2.8%)	4 (1.3%)
University	2	1	4	0	5	0	12	2	0	0
Business Faculty	0	2	8	1	0	2	4	2	0	1
Formal committees	0	0	2	0	0	0	1	5	0	0
UG teaching	2	8	2	0	0	6	0	0	1	0
School of Mgt	10 (12.3%)	13 (16.0%)	10 (12.3%)	3 (3.7%)	19 (23.4%)	7 (8.6%)	8 (9.9%)	8 (9.9%)	2 (2.5%)	1 (1.4%)
Dept D	8	12	0	20	5	6	4	0	2	0
Dept E	1	2	0	0	1	2	0	1	0	0
Dept F	3	5	0	0	3	2	0	3	0	0
Dept G	0	2	0	0	0	0	0	0	0	0
Depts Total	12 (14.6%)	21 (25.6%)	0	20 (24.4%)	9 (11.0)	10 (12.2%)	4 (4.9%)	4 (4.9%)	2 (2.4%)	0
School of Mgt total	22 (13.5%)	34 (20.9%)	10 (6.1%)	23 (14.1%)	28 (17.2%)	17 (10.4%)	12 (7.4%)	12 (7.4%)	4 (2.4%)	1 (0.6%)
Teaching Fellows	1	3	8	0	3	4	4	2	4	0
External networks	8	8	8	0	7	5	12	1	0	2
Networks total	9 (11.2%)	11 (13.8%)	16 (20.0%)	0	10 (12.5%)	9 (11.2%)	16 (20.0%)	3 (3.8%)	4 (5.0%)	2 (2.5%)

3. Knowledge repositories (R) (case 3)

	R3 Individual	R1	R2	R6	Total Codified	R4	R5	Total Embedded
All interviews	64 (40.5%)	5 (3.2%)	56 (35.4%)	8 (5.1%)	69 (43.7%)	6 (3.8%)	19 (12.0%)	25 (15.8%)
University	5	0	16	0	16	0	0	0
Business Faculty	6	0	1	0	1	0	0	0
Formal Committees	2	0	0	0	0	0	0	0
UG teaching	4	0	3	0	3	0	1	1
School of Mgt	15	2	10	0	12	1	9	10
Dept D	8	1	12	4	17	0	5	5
Dept E	1	0	2	0	2	0	1	1
Dept F	5	0	3	0	3	0	0	0
Dept G	1	0	0	1	1	0	0	0
School of Mgt total	30 (37.0%)	3 (3.7%)	27 (33.3%)	5 (6.2%)	35 (43.2%)	1 (1.2%)	15 (18.5%)	16 (19.7%)
Teaching Fellows	9	0	7	0	7	1	1	2
External networks	8	2	2	3	7	4	2	6
Networks total	17 (43.6%)	2 (5.1%)	9 (23.1%)	3 (7.7%)	14 (35.9%)	5 (12.8%)	3 (7.7%)	8 (20.5%)

4. Learning processes (L) (case 3)

4.1 Learning processes by group/network

	L1	L2	L3	L4	L5	L6	L7	L8
All interviews	8 (2.8%)	27 (9.6%)	10 (3.6%)	39 (13.9%)	12 (4.3%)	120 (42.7%)	58 (20.6%)	7 (2.5%)
University	0	2	0	0	0	8	7	1
Business Faculty	0	0	0	2	1	12	4	0
Formal committees	0	0	0	2	0	1	4	0
UG teaching	0	2	1	1	0	9	0	0
School of Mgt	2	4	1	10	1	29	8	2
Dept D	5	6	3	11	5	20	8	3
Dept E	0	1	1	4	0	3	1	0
Dept F	1	4	1	3	0	3	6	0
Dept G	0	1	1		4	1	1	0
School of Mgt total	8 (5.2%)	16 (10.4%)	7 (4.5%)	28 (18.2%)	10 (6.5%)	56 (36.4%)	24 (15.6%)	5 (3.2%)
Teaching Fellows	0	3	0	3	1	12	9	0
External networks	0	4	2	3	0	22	10	1
Networks total	0	7	2	6	1	34	19	1

Table 5: Repositories of knowledge versus knowledge formation processes (case 3)

	R1	R2	R3	R4	R5	R6
K1		3	26		2	
K2		7	12			5
K3		8	8			1
K4		9	1			
K5		1	6	4	1	
K6		4	5	2	1	
K7	3	10	8	1		2
K8		6	3			
K9			6	1	1	
K10			1			

Table 11: Learning processes versus knowledge formation processes (case 3)

	L1	L2	L3	L4	L5	L6	L7	L8
K1	7	5	5	2	1	7	4	1
K2	1	9	5	7	4	4	6	5
K3		<i>1</i>		6		32	1	
K4				7		15		
K5		3		1		21	5	
K6		<i>1</i>	<i>1</i>	3		24	2	
K7		2		3		10	14	
K8						5	14	
K9		3	<i>1</i>			4	6	
K10						2	1	

Key:

Bold = evidence of psychological theory only

Italics = evidence of social cognitive learning

Normal = evidence of sociological (situated learning) theory only (although psychological can be inferred)

4. Facilitators and barriers of knowledge sharing

Table A4.1: Knowledge sharing: barriers and facilitators

(Number of participants citing the same or similar factor shown in brackets)

Barriers	Case 1	Case 2	Case 3
Lack of shared social spaces			Lack of shared social spaces, no where for staff to 'mingle' (3) Closure of the staff common room and/or staff canteen (5) Management engineering (campus relocation) (3) Badly designed office accommodation (1) Single office occupancy (1)
Lack of geographical and spatial proximity – accessibility - to colleagues	Relationships influenced by lack of proximity (1) Waning of group ties as group members disperse across campus in new roles (2) Psychological detachment from group (1); school has grown too big so you don't know who everyone is (1) Peripheral membership of group (4) Faculty management are too remote and have a low profile (1) A lot of the problems are physical and geographical (1)	Peripheral membership of group (4) May work well for SMT members but not for their individual direct reports who are located elsewhere (1)	Split-sites (4) Putting all the admin in a single open plan office rather than leaving them integrated with academic staff (1)
Poor relationships	Intra-group conflict: divisions as a result of peripheral membership (5) Inter-group conflict (paradigmatic): division between UG and PG teaching communities (2)	Intra-group conflict: interpersonal tensions within SMT (3) Inter-group conflict (paradigmatic): division between UG and PG communities (1) People in the business school generally are happy to exchange knowledge if asked but will not do it voluntarily (1) – lack of school-wide tacit reciprocity (1)	Intra-group conflict: conflict between research-active staff and teaching only staff (4) No one in the subject group who teaches my specialism has ever asked me what I do (1) Inter-group conflict (paradigmatic): division between research and teaching

		Centralisation vs autonomy (1)	only staff (3) Inter-group divisions (1) Tensions between administrative and academic communities (5) Lack of trust (1)
Structural and procedural (bureaucratic) barriers	Being constrained by formal frameworks (1); not being able to discuss some issues at formal meetings that students attend (1); getting bogged down by procedures (1) Formal meetings go on forever – everyone has to have a say even if its not relevant (1) Being flooded with information through formal channels (1) Work overload and time pressures (3) Its becoming more difficult to work around the system (1) PG modules are atomised (1)	Time constrained nature of committee meetings (2) Lack of time generally (1) Poor communications (1) We are over bureaucratic (1); we are in danger of becoming too formal (1); ineffective formal committees (1) Disparate nature of university (1)	Poor structural design: ‘cobbled together’ (1) Demands of the job – lack of time and work overload (3) Bureaucracy, things are slowed down (2) Poor communications and being ‘kept in the dark’ (4)
Inertia	Apathy, complacency, (4) Resistance to change (1)	Complacency (1) Risk averse (1)	Apathy and disinterest (3) Staff set in their ways (1) Risk averse (4)
Knowledge hoarding (intentional)	People having their own agendas (1)	Opting out of team teaching (2)	Colleagues who do not share (2)
Silo effect	Inward focus: a belief that their group is unique (implications of social identity) (2) Having lunch with subject group colleagues only (1) People are getting	‘Silo thinking’ is the core problem in the business school (1) Department meetings happen in isolation and involve very closed types of discussion (1)	Inward focus: a belief that their group is unique (implications of social identity) (2) Lunching in canteen with immediate colleagues only (3)

	<p>entrenched (1)</p> <p>Becoming too incestuous (1); everyone having the same views (1)</p> <p>Clique mentality (1)</p> <p>Lack of awareness of other departments in the school (1)</p>	<p>Clique mentality (1)</p> <p>Departments are insular (1)</p> <p>Departments breakdown into smaller units that cluster around a particular issue (1)</p> <p>The 'community of lunch in the refectory' is exclusive (1)</p>	<p>Always teaching with the same people (1)</p> <p>Lack of connections between groups (1)</p> <p>Lack of fuzzy boundaries (1)</p>
Facilitators	Case 1	Case 2	Case 3
Shared physical space (geographical and spatial proximity – accessibility to colleagues)	<p>Relationships are heavily influenced by proximity (3); being co-located (2)</p> <p>Knowledge sharing just happens spontaneously in the house (1)</p> <p>Having shared social spaces (e.g. canteen) (1)</p> <p>Being able to chat informally throughout the day (2)</p>	<p>Having a smaller business school so that you know everyone better (1)</p> <p>Being co-located (2)</p> <p>Works well for SMT members (1)</p>	<p>Working on same site/co-location (2)</p> <p>Working in the same corridor (1)</p> <p>Having shared social spaces (2) such as a canteen (2) and staff common room (4)</p> <p>Knowing who people are and what they do (1)</p>
Face-to-face contact	<p>Being able to link up with people you want to talk to at the school's weekly coffee morning (1)</p> <p>Informal conversations take place in the canteen (1)</p> <p>Making the effort to go and see someone rather than using email (1)</p> <p>Networking at conferences (2)</p> <p>People prefer being told things in person (1)</p> <p>The advantage of working together in the house (5)</p>	<p>Being seen around the campus (1)</p> <p>There is nothing like face-to-face communication (1)</p> <p>Being able to see each other (SMT) easily (3)</p> <p>Being able to pop in and see people informally (1)</p> <p>By enlarging the size of the SMT you can talk directly to more managers and encourage them to express their views (1)</p>	<p>Grapevine (1)</p> <p>Bumping into people in the corridor (1)</p> <p>Having coffee and/or lunch together (4)</p> <p>Creating social spaces and working near each other for face-to-face contact (3)</p> <p>Making external connections through conferences (1)</p>
Strong ties 1: Relationships	<p>People contribute willingly because discussions are informal – they can say what they like (1)</p> <p>Having very good, supportive colleagues (2)</p>	<p>A characteristic of the canteen (1)</p>	<p>Having shared values (1)</p>

	<p>Making connections with people across the university (1)</p> <p>Having a 'spider's web' of connections (1)</p> <p>Making an effort to sustain relationships (1)</p> <p>The house is a close-knit community (1)</p>		
Strong ties 2: Friendships	<p>Informal discussions take place socially as well as at work (1)</p> <p>Some colleagues elsewhere in the university are friends who can be trusted (1)</p> <p>Being friends with immediate colleagues (1)</p> <p>Working together for a great many years (1); having friends in the group – being good friends – I have got good friends in that group (1); colleagues make me feel good about myself (1)</p>		Always having coffee together and bringing birthday cakes (1)
Strong ties 3: Goodwill and inclusiveness	<p>There's a lot of goodwill in the subject group (1)</p> <p>Willingness to learn from mistakes (1)</p> <p>Sharing knowledge relies on goodwill (1)</p>	Fostering and valuing goodwill (1)	Sustaining goodwill (1)
Strong ties 4: shared interest/focus	<p>Sharing practical experiences (1)</p> <p>Colleagues are happy to talk informally about issues, listen to you and try out new ideas (1)</p> <p>All having the same views (1)</p> <p>Creates synergies within the group (1)</p>	<p>Working closely with colleagues in an informal way (1)</p> <p>Teaching teams are an important vehicle for the sharing of practice (1)</p> <p>Working collaboratively on research (1)</p>	<p>Shared interests, having a common focus (3)</p> <p>Creating synergies through bringing people together with shared interests (1)</p> <p>Teaching with different people across a range of modules (1)</p> <p>Team teaching (1)</p> <p>Research collaborations (3)</p> <p>Putting an effort into</p>

			getting to know people in order to understand what research they are interested in (1)
Strong ties 5: psychological convergence/shared psychological space	Trusting your colleagues (5) Being open and frank (1)		Working with like-minded people (1) Creating fuzzy boundaries (1)

5. Analysis of trust and mutuality

Tables A5.1 and A5.2: Trust and Mutuality

Trust	Case 1	Case 2	Case 3
<p>Affect-based trust (socially oriented; strong emotional ties; shared values; non-calculative)</p>	<p>Feeling let down by a colleague's decision to migrate to a different subject group (1)</p> <p>Trusting subject group colleagues because they never let you down and vice versa (1)</p> <p>Failing to provide support would be like disassociating themselves from the tribe (1)</p> <p>Trust in colleagues' professionalism and integrity (1); mutual trust in colleagues not letting you down (1); trust in colleagues is 'incredibly' important (1); trust is essential if you want to work effectively with someone (1); trust is important (1); you need to be able to trust your colleagues (1)</p> <p>Subject group members feel able to say what they like to colleagues informally in the house (1)</p> <p>Colleagues who are friends can be trusted (1)</p> <p>There are certain colleagues who I would trust implicitly (1)</p>	<p>Important to the dyadic relationships with Peter (F) (3); trust is very important (1)</p> <p>Building trust in informal relationships so that you can help people (2)</p> <p>Trust is 'absolutely' intrinsic – trust what people are doing and don't 'shaft' anybody (1)</p>	<p>Lack of trust - very little mutual understanding going on in subject group (1)</p> <p>Trust is vital (1)</p>
<p>Cognitive-based trust (deliberating choosing who to trust; calculative)</p>	<p>Trust is important for obtaining or exchanging information (1)</p> <p>Trust determines who I choose to share things with (1)</p> <p>I can work with people I don't trust, I just</p>	<p>Building trust in informal relationships to find out what is going on (1)</p>	

	<p>don't tell them as much (1)</p> <p>I'm reluctant to share information with people who I know will use it as their own (1)</p> <p>There are some colleagues I don't trust implicitly and whose work I have to check carefully (1)</p>		
<p>Impersonal trust (indirect trust in organisation; institutional affiliation)</p>	<p>Colleagues do have a sense of corporate belonging to the school (1)</p> <p><u>Lack of institutional affiliation or identification:</u></p> <p>Not being trusted (e.g. to construct budgets and make autonomous financial decisions) (F) (1)</p> <p>Not being sure what the business school and university stand for (1)</p> <p>I am employed by the business school and not the university (1)</p> <p>You feel as if you are being watched (1)</p> <p>The university is arrogant, possibly complacent (1)</p> <p>Goodwill is being stretched (1); people are starting to withdraw their goodwill (1)</p> <p>Informal conversations are taking on far more credence than official pronouncements (1)</p> <p>There's no formal support for helping you to develop -- its all informal (1)</p> <p>I don't feel part of the</p>	<p>We are 'wedded' to the business school and the university (1)</p>	<p><u>Lack of institutional affiliation or identification:</u></p> <p>Lack of trust because of poor communications within institution (F)(1)</p> <p>Disenchanted (F) (1)</p> <p>Decline in goodwill (F) (1)</p> <p>'Them and us' attitude (F) (1)</p> <p>Senior management detached from reality (1); senior management haven't a clue and are never visible (1); academics are seen as 'whingers' (1)</p>

	<p>school (1)</p> <p>What they give with one hand they do tend to take away with another (1)</p>		
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Key: (F) = Formal context being referred to.

Mutuality	Case 1	Case 2	Case 3
<p>Developing high-care relationships involving active empathy (a willingness to support group colleagues unquestionably)</p>	<p>a keen and healthy interest in other group members activities (2)</p> <p>Talking about personal lives and giving each other advice (1); gossiping together (1)</p> <p>Colleagues in the house are enormously supportive and helpful (1); a very supportive group (2)</p> <p>doing the same for me without even thinking about it (1); never letting anyone down (1); reciprocating the help that's been given to me (1)</p> <p>group members never failing to provide information or support (1); colleagues always offering support before you need to ask for it (1); always willing to chat and listen to you (1); have worked together for a great many years (1); having very close colleagues and friends in the same group (1)</p> <p>there's a lot of goodwill in the group for helping out when things are needed (1)</p> <p>Having good relationships with specific individuals outside the department (1)</p>	<p>Playing golf with the dean (1)</p>	<p>Mutual understanding (1)</p> <p>Having extremely supportive colleagues (F) (1)</p> <p>Knowing and working with the same colleague for a very long time (F) (1)</p> <p>people that you can count on (1)</p> <p>we often have coffee and chat about non-work issues, maybe bring in a birthday cake (1)</p> <p>Talking about teaching issues all the time with people who you get on with (1)</p>

	<p>Socialising with colleagues after work (1)</p> <p>A very supportive subject group (1)</p> <p>Bonding through socialising with subject group colleagues (1); bonding with subject group colleagues (1); the house is a close-knit community (1)</p> <p>We kind of know what people are doing (1)</p> <p>The atmosphere in the house motivates you to do your best (1)</p>		
Having shared values and a common interest/focus	<p>Its about having a 'home' (1)</p> <p>Having an interest in the same specialism for teaching (1)</p> <p>You need colleagues with whom you have close associations (1)</p> <p>New ideas are welcomed (1)</p> <p>The inner core of the course is sub-group who have the same or very similar interests (1)</p> <p>Discussions among research colleagues are more frank and open on informal away-days (1)</p> <p>We all have the same views (1)</p> <p>Collaborating with the same colleagues who share your interests in teaching and research (1)</p>	<p>Thinking about things in the same way in dyadic relationships (F) (1)</p> <p>We share a passion for the business school (F) (1)</p> <p>We see things from a particular perspective (1)</p> <p>Its about working with like-minded colleagues across the business school to create a 'learning community' (1)</p>	<p>Shared values (1)</p> <p>Research brings you together (1)</p> <p>Having a strong interest in teaching and learning (3); being motivated by the same thing (1)</p>
Willingness to share expertise with other group members on an unconditional basis	<p>Providing teaching materials at the 'drop of a hat' (1)</p> <p>Reciprocating help</p>		<p>There is a real sense of shared knowledge (1)</p> <p>Sharing knowledge tends to happen with</p>

	<p>with and advice on teaching and learning (1)</p> <p>Giving freely to others and them reciprocating when you need help (1)</p> <p>Subject group colleagues will always volunteer to help you (1) give advice and share teaching material with you (1)</p> <p>Generosity of colleagues (1)</p> <p>People come to me for advice and I unhesitatingly go to other people for advice (1); people will do things for you (1)</p> <p>Colleagues help you understand how they do things (1); swapping ideas (6)</p>		<p>people who you get on with (1)</p> <p>Working closely together on teaching (1) or research collaborations (3)</p>
<p>A willingness to help group members learn and to learn from them on an unconditional basis</p>	<p>Learning from colleagues in the house (6)</p>	<p>People learn from each other in research collaborations (F) (1)</p>	

Key: (F) = Formal context being referred to.

6. Summary of key findings for each research question

Table A6.1: Summary of key findings

Research question	Key findings
<p>1. What do individuals claim constitutes knowledge?</p>	<p>1. Practical and propositional dimensions of knowledge can be applied to both individuals and groups.</p> <p>2. Practical knowledge embedded in groups which are located within the business school (T2) is the most frequently cited 'type' of knowledge. This illustrates the context-specific nature of such knowledge.</p> <p>3. Working knowledge (e.g. rules, policies, procedures) is identified as being important to both academic and management practice.</p> <p>4. There are relatively few references to knowledge associated with internal (T3, T6) and external (T7, T8) networks.</p> <p>5. Academic practice involves both informal structures and processes whereas management practice relies on informal processes apart from networks</p>
<p>2. What account do individuals give of how knowledge is shared or exchanged within organisations?</p>	<p>1. Ten knowledge formation processes have been identified. Knowledge formation involving social interaction accounts for 65.5%, 82.7% and 71.2% of the total incidences identified in cases 1, 2 and 3 respectively.</p> <p>2. Network memory (R4) and community memory (R5) tend to be associated with informal knowledge sharing processes (K5 and K6).</p> <p>3. There is very limited evidence of knowledge transfer (K7) across and between organisations.</p> <p>4. Knowledge sharing is a characteristic of both formal and informal structures. However, management practice in case 2 is more reliant on formal structures whilst academic practice is reliant on both structures and practices.</p> <p>5. The house stands out as the most significant example of informal knowledge sharing and in particular of knowledge diffusion (K5). This suggests that members of this sub-group work together in a way which is different to other groups in all three cases.</p> <p>6. The levels and mix of knowledge sharing processes are context-specific to each case. Higher levels of information exchange (K8) are associated with formal group meetings in all three cases (but particularly in 1 and 2). The lowest incidences of K8 are associated with informal groups.</p> <p>7. Information exchange (K8) tends to be a characteristic of</p>

	<p>management practice.</p> <p>8. Informal structures and processes emerge where there is a 'formal vacuum' (i.e. a lack of opportunities to share knowledge about specific issues through formal structures and processes).</p> <p>9. Informal knowledge sharing informs formal decision-making (outputs). Without this formal decision-making is 'constraint-bounded' and typified by heuristics.</p> <p>10. Participants exploit social capital to compensate for weaknesses or deficiencies in formal communications</p> <p>11. Informal and formal structures and processes are intertwined in a symbiotic relationship described as <i>informalisation</i> by the author. The significance of this study is that it (a) contributes empirically to an understanding of the relationship between informal and formal structures and processes, and (b) reveals the importance of this to a particular type of organisation: the new university. Preceding analysis of knowledge formation processes highlights the context-specific nature of informalisation.</p> <p>12. Participants tend to focus on routines that are relevant to knowledge sharing within informal structures. This suggests that there is something distinctly different about these informal interactions.</p> <p>13. There is no evidence to support a third-wave approach. Management practices tend to reflect a control or engineering approach.</p> <p>14. Technology has very little impact on the knowledge sharing processes identified in the study.</p>
<p>3. What do individuals claim are the similarities and differences between personal knowledge and shared-knowledge?</p>	<p>15. Social learning theory best characterises academic and management practice The most common learning process identified is situated learning (L6). 78.2% of all learning incidences in the house (case 1) related to situated learning.</p> <p>16. As with knowledge formation processes the data on situated learning (L6) demonstrates the extent to which management practice is much more reliant on formal structures complemented by informal processes whilst academic practice is reliant on both informal structures and processes.</p> <p>17. The analysis of learning processes reveals the context-specific nature of informalisation.</p> <p>18. Boundaries between individual and social learning and between personal knowledge and socially constructed knowledge become blurred in a dynamically entwined relationship.</p>

	<p>19. Learning and knowledge acquisition and generation that may be attributed to the individual remain anchored in social contexts.</p> <p>20. Socially constructed knowledge and distributed cognition provide the foundation for understanding the relationship between the individual, group and organisation.</p>
<p>4. What barriers and facilitators do individuals claim exist in the sharing or exchange of knowledge in organisations?</p>	<p>21. Both barriers and facilitators of knowledge sharing are very similar across all three cases indicating that whilst the precise nature or pattern of informalisation may be context-dependent, the barriers are relatively generic.</p> <p>22. Physical location may provide a context for knowledge sharing however it is the psychological nature of relationships that may or may not lead to such sharing.</p> <p>23. Routines and behavioural cues that underpin knowledge sharing develop over time and tend to be context-specific. Changes in routines and cues can have a negative impact on knowledge sharing processes.</p> <p>24. Knowledge sharing in all three cases is a predominantly face-to-face process.</p> <p>25. Relationship maps provide a visual representation of informalisation from an individual participant's perspective. Each relationship map provides a unique interpretation and can be described as a knowledge <i>fingerprint</i>.</p> <p>26. Each participant has a primary identity which is predominantly the subject group in case 1 and the senior management team in case 2. In case 3 there is more variation in primary identity due to the fragmented nature of intra-group relations in this case.</p> <p>27. New university academic identity is defined in terms of teaching whereas traditional academic identity is defined in terms of research. Managers in all three cases define themselves as academic managers not as academic administrators.</p> <p>28. In cases 1 and 3 there is a lack of identification with the participant's institution. This provides empirical evidence to support the body of literature that links identity formation in universities with social processes within small units.</p> <p>29. Biography and identity are an intertwined and integral aspect of the learning process. This has implications for how participants behave in the workplace which, in turn has implications for knowledge sharing processes.</p>
<p>5. What accounts do individuals give of</p>	<p>30. Relationships in the house in case 1 are characterised by tacit reciprocity which is predicated on affect-based trust and</p>

<p>choosing to share knowledge or not?</p>	<p>high care mutuality and is associated with high levels of knowledge sharing.</p> <p>31. The house satisfies the criteria for being described as a community of practice. There is further evidence to suggest that subject group A represents the boundaries of the community with the house representing the principal focus and locus or core.</p> <p>32. The data support the mediating role of groups proposed in the literature review (i.e. the learning-knowledge exchange); although it had been theorised that higher levels of institutional identification would exist than was identified in the study.</p> <p>33. There was a lack of data to prove or disprove the proposition that knowledge exchange is characterised by power relationships.</p> <p>34. As much of the published material on communities of practice is theoretical and descriptive the data on subject group A provides some timely empirical data.</p>
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