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Information-related negotiations in interdisciplinary collaborative working groups

Marshall Dozier
Abstract

Background

There is a trend to foster collaborative interdisciplinary approaches for projects and for tackling complex problems in areas such as global health. This trend can be seen, for example, in criteria for funding applications. Given the commitment to interdisciplinary working in information-intensive contexts, a more detailed understanding of information practices enacted to create informational resources – including dynamics such as affordances, constraints, barriers and enablers – in interdisciplinary group settings can allow better development of environments and support infrastructures conducive to successful interdisciplinary collaborative working. Discovery, selection, use and sharing of information are activities examined by researchers in the different fields or perspectives of: information literacy, information behaviour, information practices, and knowledge management. Though these various perspectives have distinct contextual or philosophical underpinnings, they do share some areas of interest and the boundaries between them do overlap. However, there is little prior research into the experiences of arriving at shared information practices in interdisciplinary project groups.

Aims

Accordingly, this study explored experiences of collaborative information-handling by people with different disciplinary backgrounds working together on health-related projects, guided by the following research questions:

a. From the perspectives and practices of individual members, what roles does information play in the construction of the group and its activities?

b. How do individuals view the information practices of their disciplinary backgrounds in relation to the collaborative working practices of their
project group? To what extent do the practices shape, or are they shaped by, the context of the project group?

Methodology

I have drawn from the constructivist Grounded Theory approach to analyse and interpret how information practices within the group related (or not) to respondents’ experiences of disciplinary differences, identity, and purpose of the group(s) they worked within.

Methods

Two interdisciplinary project groups in a health-related higher education setting were studied. The principal source of data was a series of individual semi-structured interviews designed to gather data on information-related negotiations within the group. The interviews were centred on project-related artefacts which triggered discussion about information-related interactions within the group as well as links to wider aims and impacts of the projects. Emergent themes and theories were identified as the interview series progressed for exploration in subsequent interviews. On completion of interviews, the whole dataset was scrutinised to further develop, and test for, coherence and robustness of themes and theories.

Key findings

Various forms of negotiations, whether tacit or explicit, were central to the processes these interdisciplinary groups used to create informational resources. The ways information was handled, managed, and negotiated were strongly linked to the pre-stated aims of the projects, the contexts of the working groups, and disciplinary background of participants and intended audience. From participants’ experiences of collaboratively creating informational resources, we can identify several elements that contribute to group coherence and productivity, including motivation, trust, identity, and an underpinning philosophy of the project.
The collaborative creation of informational resources was an intensively iterative process of transformation. The iterations involved negotiations round identifying key messages, structure, and style. The work related to the creation of informational resources entailed learning on the part of group members, including skills related to understanding methods of analysis, learning design, or technical software skills. An important factor contributing to the successful creation of the informational resources was motivation. Shared aims, values and of ways of working were enabling factors for the project groups. There was a strong association between the informational resources and the epistemological perspectives of the project members and their intended audiences. Analysis of the interview transcripts revealed how aspects of identity played out in the work of creating these informational resources. These aspects were largely linked to discipline, but also to individuals’ roles within the project groups.

Key implications for practice

Collaborative creation of informational resources by interdisciplinary groups is a time- and negotiation-intensive process, and motivation and trust can be key facilitators of the effort individuals need to invest in arriving at shared information practices toward completing projects. Organisations wishing to foster information-intensive interdisciplinary collaborations should consider enablers such as alignment of project aims with participants’ values, working contexts and disciplinary perspectives.
Lay Summary

This thesis reports on a qualitative study of experiences of people who collaborate to create informational resources. The study participants were part of two interdisciplinary project groups. Analysis of these experiences has highlighted several elements that can contribute to group coherence and productivity, including motivation, trust, identity, and an underpinning philosophy of a project.

The collaborative creation of informational resources was an intensively iterative process of transformation. The iterations involved negotiations around identifying key messages, structure, and style. The work related to the creation of informational resources entailed learning on the part of group members, including skills related to understanding methods of analysis, learning design, or technical software skills. An important factor contributing to the successful creation of the informational resources was motivation. Shared aims, values and ways of working were enabling factors for the project groups.

Collaborative creation of informational resources by interdisciplinary groups is a time- and negotiation-intensive process, and motivation and trust can be key facilitators of the effort individuals need to invest in arriving at shared information practices toward completing projects. Organisations wishing to foster information-intensive interdisciplinary collaborations should consider enablers such as alignment of project aims with participants’ values, working contexts and disciplinary perspectives.
Contents

Abstract .................................................................................................................................................. i
Lay Summary ........................................................................................................................................ iv
Acknowledgements ........................................................................................................................... ix

Chapter 1: Introduction ....................................................................................................................... 1
  1.1 Topic and focus ......................................................................................................................... 1
  1.2 Motivations for this study ....................................................................................................... 1
  1.3 Data collection strategy ......................................................................................................... 2
  1.4 Study setting ........................................................................................................................... 3
  1.5 Study participants’ descriptions ............................................................................................ 3
    1.5.1 Research group ............................................................................................................. 3
    1.5.2 Teaching group ............................................................................................................ 5
  1.6 Structure of thesis ................................................................................................................... 6

Chapter 2: Literature review ............................................................................................................... 7
  2.1 Introduction ........................................................................................................................... 7
  2.2 What is information? ............................................................................................................. 7
    2.2.1 Data, information, and knowledge .............................................................................. 8
  2.3 Information behaviour, information literacy, and information practices ... 9
    2.3.1 Information behaviour .................................................................................................. 10
    2.3.2 Information literacy ...................................................................................................... 12
    2.3.3 Information practices ................................................................................................... 13
    2.3.4 Information creation .................................................................................................... 15
  2.4 Knowledge creation ............................................................................................................... 16
  2.5 Communities of practice ....................................................................................................... 19
    2.5.1 Productive boundaries ................................................................................................. 19
  2.6 Discipline, disciplinarity, and working-groups of multiple disciplines ...... 21
    2.6.1 What is a discipline? .................................................................................................... 21
    2.6.2 Multidisciplinary, interdisciplinary, transdisciplinary ................................................. 22
    2.6.3 Disciplines and health professions ............................................................................ 24
  2.7 Summary ................................................................................................................................ 25

Chapter 3: Methodology and methods .............................................................................................. 27
3.1 Methodological approach ................................................................. 28
  3.1.1 Validity ......................................................................................... 29
  3.1.2 Ethical considerations ............................................................... 31
3.2 Methods .......................................................................................... 33
  3.2.1 Summary workflow of study methods ...................................... 33
  3.2.2 Selection of study groups ......................................................... 36
  3.2.3 Phase 1 interviews ..................................................................... 37
  3.2.4 Phase 2 interviews aims and design ....................................... 38
  3.2.5 Artefacts as interview sources .................................................. 42
  3.2.6 Interviews – Equipment and transcription ............................ 44
  3.2.7 Analysis .................................................................................... 48
  3.2.8 Illustration of the identification of a theme for analysis ......... 49
  3.2.9 Reflections on methods ........................................................... 52
3.3 Conclusion ....................................................................................... 57

Chapter 4: Findings ............................................................................. 58
4.1 Introduction ..................................................................................... 58
4.2 Locations and types of information-related negotiations .............. 58
  4.2.1 Workflows and artefacts ........................................................... 59
  4.2.2 Types of information-related negotiations ............................ 65
  4.2.3 Summary points: locations and types of negotiations ........... 80
4.3 Transformation ................................................................................. 81
  4.3.1 Experiences of transforming data into a structure ................. 81
  4.3.2 Experiences of selecting, establishing and affirming key perspectives 85
  4.3.3 Experiences of creating finished objects ............................... 90
4.4 Learning .......................................................................................... 95
  4.4.1 New methods or skills ............................................................. 96
  4.4.2 Adapting project methods ....................................................... 100
  4.4.3 Substantive new knowledge ................................................... 105
  4.4.4 Reification and participation .................................................. 107
  4.4.5 Learning outside the groups ................................................... 112
4.5 Motivation ....................................................................................... 114
4.5.1 Importance of change .................................................. 114
4.5.2 Personal motivations .................................................... 117
4.6 Trust .............................................................................. 119
  4.6.1 "Shared values, shared ways of working" ......................... 119
  4.6.2 Perceived power balance .............................................. 123
4.7 Disciplinarity .................................................................. 129
  4.7.1 Disciplinary composition .............................................. 129
  4.7.2 Disciplinary development ............................................ 132
  4.7.3 Perceptions of discipline ............................................ 136
4.8 Identity ......................................................................... 139
  4.8.1 Individual identity ..................................................... 139
  4.8.2 Group identity ........................................................... 143

Chapter 5: Discussion and Conclusions .................................... 146
5.1 Experiential themes .......................................................... 146
  5.1.1 Transformation ......................................................... 147
  5.1.2 Learning ..................................................................... 151
  5.1.3 Motivation ................................................................... 153
  5.1.4 Trust ........................................................................... 153
  5.1.5 Disciplinarity .............................................................. 155
  5.1.6 Identity ...................................................................... 156
5.2 Key findings ...................................................................... 158
  5.2.1 Transformation ......................................................... 158
  5.2.2 Learning ..................................................................... 158
  5.2.3 Motivation ................................................................... 158
  5.2.4 Trust ........................................................................... 159
  5.2.5 Disciplinarity .............................................................. 159
  5.2.6 Identity ...................................................................... 160
5.3 Limitations ....................................................................... 161
  5.3.1 Recall of past events ................................................... 161
  5.3.2 Sampling ..................................................................... 161
5.4 Contributions ..................................................................... 163
  5.4.1 Creation of informational resources ............................... 163
5.4.2 Negotiation .................................................................................. 163
5.4.3 Trust .......................................................................................... 163
5.5 Future directions for research and practice .................................. 164
5.5.1 Experiences and practices of creating ........................................ 164
5.5.2 Immersive methods .................................................................... 164
5.5.3 Systems and tools ....................................................................... 165

Chapter 6: Appendices ...................................................................... 173
Appendix 1: Interview schedules ....................................................... 173
Appendix 2: Phase 1 interview note sample ....................................... 175
Appendix 3: Project description and pre-interview notes sent to interviewees. 176
Appendix 4: Sample interview transcript with coding ........................ 177
Appendix 5: Sample post-interview memo ......................................... 181
Appendix 6: Codes and themes .......................................................... 182
Appendix 7: Post-interview memo and concepts linked to negotiation ....... 185
Appendix 8: Memo: early emerging themes ....................................... 186
Appendix 9: Diagram of negotiation types and links to broader themes ........ 187
Appendix 10: Note: early development of Trust theme ....................... 188

List of Figures

Figure 2.1 Portrayal of a continuum of disciplinary interactions (Jensenius, 2012) . 22
Figure 3.1 Diagram of study workflow ................................................ 36
Figure 3.2 Research Group interview phases diagram ............................ 39
Figure 3.3 Teaching Group members interview phases diagram ............... 39
Figure 3.4 Interview extract illustrating reminders of non-verbal interactions .... 46
Figure 3.5 Interview extract illustrating non-verbal actions during selection of artefacts ................................................................. 47
Figure 3.6 Interview transcript extract showing layout and coding ............ 48
Figure 4.1 Teaching group: indicative workflow for case creation ............. 60
Figure 4.2 Research group: indicative workflow for article creation ............ 62
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Chapter 1: Introduction

1.1 Topic and focus

In this study, I have examined the experiences of people engaged in shared work with data and information as part of multidisciplinary collaborative group projects. This study looks at the domain of information practices and in the context of multidisciplinary work. The research questions are:

a. From the perspectives and practices of individual members, what roles does information play in the construction of the group and its activities?

b. How do individuals view the information practices of their disciplinary backgrounds in relation to the collaborative working practices of their project group? To what extent do the practices shape, or are they shaped by, the context of the project group?

1.2 Motivations for this study

In my work as an academic librarian, I work with students, researchers, academic staff and administrators who try to find, understand, keep track of, create and communicate all kinds of information and data. I am fascinated by how people conceive of relevance and quality in information and data, and how they organise and assimilate the information they use. Even at academic institutions, as organisations centred on learning and teaching, these activities are often not explicitly discussed, taught, or modelled – they are often tacit and somewhat mysterious to a non-expert. Part of my motivation for this study is to make tacit information-related practices better understood.

As a librarian, I am based in a central support unit rather than within an academic unit. My own academic background and prior research experience is in history. The subject area that I support, and the subject area of the participants of this study, is
medicine and healthcare. Another part of my motivation for this study is a
professional one: I would like to better understand how teachers and researchers in
medicine and healthcare work with data and information, so that I can better
support that work.

1.3 Data collection strategy
To address my research aims, I wanted to gain insight into what people do with
information in an academic setting – their practices – and into those individuals’
experiences of, and rationales for, those practices. I was curious to know whether
disciplinary background plays a role in those practices or experiences. And, because
the academic institution that is the setting of this study has been strategically
developing and promoting multidisciplinary projects and organisational units, I
wished to carry out this research with people involved in multidisciplinary projects.

These research aims require a qualitative approach to data generation and analysis,
as I wanted to understand “how things work in particular contexts” (Mason, 2002,
p. 1) from the points of view of the participants themselves.

My investigation of potentially productive sites for my research led me to a
multidisciplinary organisational unit within a Russell Group university. I approached
the director of this unit, and after discussion of research aims, she recommended
working with three multidisciplinary project groups linked to her unit, each
providing me with a desired contrasting focus of activity. The director facilitated
introductions to a key informant within each group. In initial discussions with each
key informant, we were jointly able to identify projects and people who would be
suitable candidates for study. One of the three initially identified groups was not
able to commit the time needed to participate in this study, so I proceeded with
two groups. The key informants of those two groups then facilitated introductions
to project group members.
1.4 Study setting
This study took place in a higher education institution, and involved two different
groups, each carrying out projects to create informational resources. Most of the
participants were based within this single institution, though a small number were
based at partner institutions. The work of all participants was in one way or another
related to healthcare: researching healthcare, teaching healthcare professionals, or
supporting either of those activities. In order to maintain anonymity, I am not using
the two groups’ real names: I will call them the Research group and the Teaching
group. The following descriptions of each group are intended to provide
background for context and setting of this study. More detail about the study
participants is presented in the methods sections of Chapter 3. Throughout, very
specific details that could lead to identification have been left out.

1.5 Study participants’ descriptions
1.5.1 Research group
The work of this group was research into patient needs and quality of care provision
within a particular area of healthcare services. The aims of the group had been
developed and refined over time as understanding of care needs in the area
emerged. At the time of this study, the group’s explicitly stated aim was to influence
and improve provision of care in the area.

The group had approximately 20 members, though through collaborations with
others at the host institution and external colleagues, the number of people linked
to the group’s work was greater. The group was led by a professor with a clinical
and academic background, and included other academic staff, PhD students, and
post-doctoral researchers. Many members of the group had a part-time role within
the Research group, and also worked as academic teachers or healthcare
professionals. The professional or academic backgrounds of the group members
ranged from primary and secondary care doctors, nurses, psychologists and social
science or humanities.
At the time of this study, the group had been in existence for approximately 15 years, gradually growing in size: efforts were made to try to retain post-docs or doctoral students on sequential projects, though this was dependent on successful bids for funding.

In studying this group, I focused on two closely-related projects to publish two journal articles. These articles were produced by a subset of the group members: 12 were involved in the first article, and six of those members went on to write the second article. The work on the second article was begun after the first was completed. I interviewed six group members, all of whom were involved with the first article, and five of whom were involved with the second.

The work on the journal articles was different from other work carried out by the members of the group: the articles brought together several separate pieces of prior research and presented an aggregated set of findings through a narrative analysis framework. These journal article projects were a new venture for the group members because the articles not only retrospectively brought together prior individual studies, but also involved group members in a much more widely and deeply collaborative effort.

The group members had different roles in writing the articles: one person led each article project (a different lead for each) as well as contributing to data analysis and leading on drafting; some contributed analyses of primary data from studies they had led on, as well as participating in the secondary analysis and drafting; others focused on drafting revisions.

The duration of the two consecutive projects was about three years: for the first article there was a two-year period between starting the analysis and achieving publication, and the second article was completed within one year. The interviews took place just after the first was published, and during the process of writing and just after completion of the second article.
1.5.2 Teaching group

This group was part of a broader collaboration between two medical schools – one in the home academic institution and one in another academic institution and teaching hospital located in a low-income country. The aims of the broader collaboration, over several sequential projects lasting approximately nine years, had been: to support an increase in the number of health professionals in the low-income country by collaboratively creating online learning resources (such as virtual patient cases); to provide related capacity-building support (such as computing and learning design skills training); to increase awareness of principles and practice of teaching and learning to enhance the experience of medical education; to enable healthcare workers in the country to gain further qualifications by distance learning. At the time of this study, three projects had been completed, and a fourth project was in its final stages.

In studying this group, I focused on a particular piece of work within that fourth project to develop case-based learning materials. These were clinical cases developed into learning resources for clinical trainees and intended to be re-usable within a range of learning and teaching activities. As learning resources, the cases were designed to be highly relevant to the healthcare systems and facilities in the low-income country, and to provide excellent learning and revision opportunities for students and trainees, while releasing clinicians from routine teaching so that they could focus on higher-level teaching and clinical demands.

The composition of this group was less well-defined, and somewhat fluid, since part of the project mission was to recruit increasing numbers of local clinicians and clinical trainees. The collaborators involved in creating the online clinical cases included an elearning developer (with IT background), an IT professional, academic teachers, teachers with a clinical background, clinicians who did some teaching, and trainee clinicians who sometimes contributed ideas for learning cases. There were three core members very intensively involved in the creation of cases (the elearning developer, IT professional, and one consultant clinician based at the teaching hospital).
hospital), and two members involved at a more advisory or steering level (the overall project leader and a consultant clinician from the home academic instution). These five people were interviewed for this study. There were approximately five other clinicians and clinical trainees more peripherally involved in the creation of cases, and others with more strategic oversight, including a project director based at the Teaching Hospital. Even more peripheral were the larger numbers of clinical and teaching staff who attended project workshops but did not contribute directly to the creation of learning cases.

1.6 Structure of thesis

In this thesis, I report on the study in four chapters following this introduction.

In Chapter 2, a literature review provides: context for this study, including prior work in the area of information behaviour and multidisciplinary collaboration; existing frameworks and concepts that have influenced my approach and thinking; as well as definitions of key concepts that equip the reader in preparation for the chapters that follow.

In Chapter 3, I set out my methodological approach and methods, with the aim of being as transparent as possible so that the reader has a good understanding of my underlying assumptions, approaches to design, and mechanics of implementation in this study.

Chapter 4 presents findings from my participant interviews, including the artefacts selected as key objects to give insight to the groups’ activities, and the workflows used by each group to create the journal articles or teaching cases to map out the locations and types of information-related negotiations.

In Chapter 5, I present a discussion of the findings and a conclusion section with a summary of key contributions, a reflection on limitations of this study, and points for future research.
Chapter 2: Literature review

2.1 Introduction

In this literature review chapter, I set out the approaches and foci of prior work in this field which have influenced my thinking in producing this thesis. To contextualise what follows in the body of this thesis, I touch on key concept areas that informed my approaches to design and analysis including debates: around the definitions of information; around the orientations of research into the use of information; the nature of disciplines; and characteristics of groups made up of multiple disciplines. I position this study within the field of information practices research, though within this chapter I will also argue that the different orientations of research into the use of information are simultaneously overlapping but with at least one area that is somewhat neglected across the various orientations: practices round the creation of informational resources.

2.2 What is information?

In this thesis, I use the term "information" as a convenient catch-all to encompass the wide variety of artefacts that are discussed with my study participants – these include research data, graphical or text notes, logs of activity, or published outputs created and used by the participants as part of their activities.

From the perspective of the field of information science, the various artefacts included in this study would typically fall into the categories of data and information. In information studies there has been a preoccupation with the definitions of, distinctions between, and hierarchy of relationships between data, information, and knowledge (and even “wisdom”). (Ackoff, 1989) Even within the field of information science, definitions of these terms are contested (Frické, 2009; Zins, 2007). Since one of the key points of variation in definition is of particular interest to this project, in this section I will briefly explore key features of the definitions and point to how the debate over definitions creates a useful lens of analysis that sheds light on the research questions.
2.2.1 Data, information, and knowledge

Zins (2007), through a Delphi study with a panel of 45 scholars of information science, very helpfully presents a more diverse set of views on these definitions. Data are generally defined as the most basic units that can be captured in the study of phenomena. Definitions vary from notions of measurable fact to “dynamic objects of cultural experience” (Herold in Zins, 2007, p. 484), and are well-captured by Hjorland as “domain specific and theory-laden. At the most general level what is seen as data is depending of the epistemological view that one subscribes to.” (Hjorland in Zins, 2007, p. 484)

Information is generally compared to data as something which contains meaning, whereas data themselves do not carry meaning and need interpretation: it may be “organized data” (Dragulanescu in Zins, 2007, p. 482), “the aggregation of data to make coherent observations about the world” (Hersh in Zins, 2007, p. 484) or the “assessment or interpretation of data” though “Information does not inherently mean empirical or first hand analysis of data. It also does not guarantee correct interpretation of data although that is expected.” (Haythornthwaite in Zins, 2007, p. 483) Within information behaviour research, Bates points out that “the term is generally assumed to cover all instances where people interact with their environment in any such way that leaves some impression on them — that is, adds or changes their knowledge store.” (Bates, 2010) In this study I have used the phrase informational resources as a general term to describe what the two study groups were creating because the groups' objectives in creating the resources were fundamentally to leave an impression on the intended audiences through learning or influence of ideas prompted by the interacting with the articles and learning cases created by the groups.

Buckland proposes a conceptualisation of information-as-thing:

The term “information” is also used attributively for objects, such as data and documents, that are referred to as “information” because they are regarded as being
Buckland tests the boundaries of the definition of informational resources by discussing what could be classed as a document, exploring attributes such as primary, secondary, and derived. Buckland proposes that the quality of “being information is situational” (Buckland, 1991, p. 356) whereby in certain circumstances, a naturally occurring “object” may be considered information (such as a tree).

Buckland’s review of others’ positions in the debate leads me to think that what matters is the act of selection – what a naturalist proposes as a source of information may be at odds with what a statistician accepts as one. If something is selected by a person as a source of information, then that selection is enough to invest the "object" with an informational attribute. In collaborative working, this becomes of especial interest when the collaborators may hold different views on what is eligible as information. Buckland describes the idea of “information by consensus” (1991, p. 357): there is judgment and agreement about whether a something is valid as an informational resource. This is of particular interest because one area explored in this study is whether and how decisions round selection or creation were manifested in the experiences of my study participants. In this thesis I will adopt the approach proposed by Buckland (1991) when he categorises "information-as-thing" to be inclusive of a variety of items that are informational from the perspective of their users.

2.3 Information behaviour, information literacy, and information practices

This study is about the way individuals in a group create, use, exchange and disseminate information as part of their activities, and my aim is to understand the motivations for, and experiences of, those shared acts of creating, using, exchanging and disseminating information. From my perspective as a librarian, this
Information-related negotiations in interdisciplinary collaborative working groups

study sits within the areas of information behaviour and information practices. However, the scope of work in information behaviour and information practices has not tended to include all of the activities I have just listed. In this section I will set out current definitions, summarise important angles of prior research in these areas, and argue for greater focus on the neglected aspect of information creation within information behaviour and information practice research.

2.3.1 Information behaviour

Wilson (1999, p. 249) defined information behaviour as “those activities a person may engage in when identifying his or her own needs for information, searching for such information in any way, and using or transferring that information.” It is notable that in this highly-cited definition, the “person” is framed as a consumer of information. A decade later, Bates (2010, p. 2381) wrote:

“Information behaviour” is the currently preferred term used to describe the many ways in which human beings interact with information, in particular, the ways in which people seek and utilize information. Information behavior is also the term of art used in library and information science to refer to a sub-discipline that engages in a wide range of types of research conducted in order to understand the human relationship to information.

Linked to the first part of Bates’ definition, information behaviour is very frequently used synonymously with the term information seeking behaviour. The fourth (2016) edition of Looking for information: a survey of research on information seeking, needs, and behavior, by Case and Given, continues this usage by setting out the scope of information behaviour as “active information seeking, unintentional or serendipitous activities, information avoidance, and other phenomena that focus on people and the contexts in which they use information.” Case and Given also frequently refer to seeking or the seeker as the context and subject of the research they summarise. Fidel points out that studies of human information behaviour have been grounded in the positivist tradition, and proposes the term human information interaction with the argument that “interaction reflects the dynamic
nature of the relationships between people and information” (Fidel, 2012, p. 20) and that it is more inclusive of different epistemological traditions. On the surface, the term is appealing to me, considering that I am looking at how groups work with and create informational resources. The focus of Fidel’s work on human information interaction is on activities related to seeking, selecting and representing information, as well as on systems of information retrieval.

Beyond information needs, seeking and organisation, Ford (2015) defines aspects of information behaviour related to selection, use, and sharing that also have a bearing on this thesis: assessing suitability; using and integrating information in a way that builds on the user’s knowledge.

The second part of Bates’ definition above describes a “sub-discipline that engages in a wide range of types of research conducted in order to understand the human relationship to information” (2010) and it is within this sub-discipline that the work of this thesis may be located. Influential work in this area goes under the surface of observable activities to examine less visible processes – for example, affective or emotional aspects of making sense of new information (Kuhlthau, 1988; Nahl & Bilal, 2007) and motivations behind individuals' information practices (Heinström, 2005).

The texts by Case and Given, Fidel, and Ford, are oriented toward an audience of students of library and information science and appear to be addressing concerns of services and systems design and delivery to support people to find the information required for a wide range of activities. While this is unarguably a valuable and essential role for libraries and information services in any sector, it implies that the boundaries of interest, awareness, or competence of library and information specialists should not extend into the processes, experiences or motivations of people as they create informational resources. I see this as a limitation, and is one of reasons behind my interest in the experiences of creating informational resources in this study.
2.3.2 Information literacy

I position information behaviour as distinct from information literacy: that latter term and its general use (ACRL, 2015; Bundy, 2004; SCONUL, 2011) have a focus on competence frameworks within educational contexts and an approach to the use of information that is prescriptive rather than descriptive.

However, this distinction is not universal and there is work that expands the scope of information literacy. In particular, Johnston and Webber have provided a wider, influential definition, “Information literacy is the adoption of appropriate information behaviour to obtain, through whatever channel or medium, information well fitted to information needs, together with critical awareness of the importance of wise and ethical use of information in society.” (Johnston & Webber, 2003, p. 336) In their application of this definition and in later work (Johnston & Webber, 2006), they take information literacy out of educational or library contexts, and propose that it is a “soft discipline” that can support people to become active citizens in the information society.

Another exception to usage of information literacy as part of competence-based frameworks is research into information “practice”. For example, Sundin and Francke examine “information literacy as a practice” (Sundin & Francke, 2009) when researching students’ perceptions of credibility of information sources. What they mean by “practice” is discussed in the following section. Similarly, Lloyd argued for a re-definition of information literacy as a “complex sociocultural process that acts as a catalyst in the construction of meaningful frameworks which inform workplace practice”. (Lloyd, 2007, p. 4) This re-casting of information literacy as a “process” pushes even further away from the learning-outcomes and competences of the information literacy standards used in education, and moves into the realm of researching and describing information practices.

I am conscious that my own training and professional background is heavily influenced by concepts of information literacy, and this may cause me to use it as a
lens or frame in spheres of activity where others would argue that it is less relevant, but I think that there are core aspects of information literacy frameworks that are relevant to negotiated information practices: the reflexive ability to notice information-related problems or knowledge gaps; the ability to observe critically the nature and attributes of the data or information at hand; and the skills and aptitudes to adapt practices as needed. As Ford argued, "information literacy […] may be defined essentially as the deployment of appropriate and effective information behaviour." (2015, p. 34)

2.3.3 Information practices
There is an increasing body of research on information practices which has grown out of (and in parallel to) research on information behaviour. (Savolainen, 2007) “Practice theory,” as described by Schatzki, is not a single theoretical approach to understanding human activity, but rather a really diverse set of disciplinary approaches “joined in the belief that such phenomena as knowledge, meaning, human activity, science, power, language, social institutions, and historical transformation occur within and are aspects or components of the field of practices”. (2001, p. 2) Pertinent to the study presented in this thesis, Schatzki states, “A central core, moreover, of practice theorists conceives of practices as embodied, materially mediated arrays of human activity centrally organized around shared practical understanding.” As an illustration of what embodied and materially mediated mean in the context of information practices, Cox (2012b) draws on a study of how family photograph collections can be a locus of framing and reframing family histories: the photographs are objects (material) that embody meaning for the family members who in looking over the photographs share family stories, memories and interpretations of the photographs. The stories and interpretations can change depending on which family members are looking at the photos, and over time. These aspects of practice theory are important to the research questions identified in section 1.1.
The concept of information practices is intended to incorporate the theory that the ways we interact with information are not innate and are not developed in isolation. Savolainen frames information practices as "socially and culturally established ways to identify, seek, use and share the information available in various sources such television, newspapers, and the internet." (Savolainen, 2008, pp. 2-3) For example, Sundin and Francke (2009) draw on Vygotsky (1978) and socio-cultural theory to highlight the interplay of the intellectual and material in arguing that we create and interpret information as social acts; also, we shape information which in turn shapes and reshapes our behaviours and activities. The notion of embedded information practices discussed by Savolainen, who observed, "people seldom think of collecting, processing, or using information as something separate from the task or problem at hand. Information practices are embedded in everyday contexts; in addition, their self-evident nature make these practices 'invisible' and difficult to see in greater detail." (Savolainen, 2008, p. 3)

Sundin and Francke (2009), and Cox (2012a), also draw on Wenger (1998) in highlighting that information practices are constructed and situated within communities, and that practices have different meanings in different communities. Extending this constructionist approach, Tuominen and colleagues (2005) are among researchers advocating we look at information practices as sociotechnical practices: the technologies that we create and develop for any information-related activity are not "neutral" and have an interactive relationship with our information practices. One can see an overlap here with the sociomaterial perspective on learning as described by Fenwick (Fenwick, 2010; Fenwick, Nerland, & Jensen, 2012), who includes technologies as one of the materials that we interact with in our working and learning lives, and argues that consideration of tools in the material context of learning and work practices “can help reveal the dynamics that are actually constituting what comprises everyday life.” (2010 p105) The sociomaterial perspective is also reflected in Schatzki’s characterisation of practices as "embodied, materially mediated" activities.
2.3.4 Information creation
The concepts of information practices and information behaviour have influenced my thinking in this study; the very formulation of the research questions arose out of my prior interest in these areas, and can be seen in my aims to know how (and whether) project group members were experiencing any development of shared information practices and norms. However, as can be seen also in Savolainen’s definition of information practices in the previous section, the focus is typically on finding, using and sharing, and I see a gap in attention on creation of information.

“Information creation” was identified as a component of workplace information practice by the European Network for Work Information (Widén, Steinerová, & Voisey, 2014) but there is not a clear definition in the working group report of what is meant by information creation. They mention knowledge creation (see next section of this chapter, but that is by way of referencing a wider process. With rare exceptions (as examples see McKenzie & Davies, 2012; Shinichiro, Korenaga, & Tomomi Shigeyoshi, 2015; Trace, 2007, 2008) the majority of work described as research into information behaviour or information practice limits its scope to activities related to finding and using information, and not the activities or experiences related to creating or generating new data or information.

I speculate that this limitation of scope can be attributed to the type of information-related activities that practising librarians see most of first-hand: people looking for information. In Library and Information Science (LIS) there has also been a great deal of research and development work in the design and implementation of effective information-retrieval systems (see e.g. Reddy & Jansen, 2008) – and the focus on information-seeking makes sense in the context of information-retrieval systems analysis.

This limitation in scope may be seen in key works that summarise work in the fields of information behaviour and information practice.
In the preface to their landmark handbook, *Theories of information behavior*, Fisher, Erdelez and McKechnie (2005) explicitly contrast their conceptualisation of “information behavior as including how people need, seek, manage, give and use information in different contexts” with the narrower scope of information-seeking used by some in the field. However, even the definition used by Fisher and colleagues is rather narrow in my view: it is missing aspects of data generation and information creation. Tellingly, also, in the first chapter to *Theories of information behavior*, Bates finishes a comprehensive survey of ontologies and methodologies used in library and information science research with the sentence, “The object of this chapter has been to introduce the concepts of metatheory, theory and model, and distinguish them for the purposes of doing research in information seeking” [my italics]. (Bates, 2005) This orienting objective by Bates underlines the main focus of activity in information behaviour research.

In a review of research into information practice, Savolainen observes that the approach is notable for “the emphasis placed on the role of contextual factors of information seeking, use, and sharing.” (2007, p. 121) And, in his own research, he defines information practice as “a set of socially and culturally established ways to identify, seek, use and share the information available in various sources such as television, newspapers and the Internet” (Savolainen, 2008, pp. 2-3)

Although definitions of information behaviour and information practice do not necessarily exclude research into information creation, this is a neglected area and our understanding of practices in this area can usefully be expanded. The study presented in this thesis makes a contribution to work in information behaviour and information practices by reporting on the experiences of creating informational resources.

### 2.4 Knowledge creation

The study of *knowledge creation* has been one aspect of study in the broader area of *knowledge management* within organisations. Knowledge management has
Information-related negotiations in interdisciplinary collaborative working groups

tended overall to focus on topics like tacit or explicit knowledge, on knowledge sharing between individuals or teams within the corporate sector, and on how cultures within businesses affect knowledge sharing, innovation, efficiency and organisational learning as they all relate to the businesses' strategic or economic objectives. Essentially, knowledge creation in this context is relates to exchange of ideas, sharing and integration of information at individual and collective levels, rather than dwelling on the creation of new informational resources. Research on knowledge creation and sharing includes, for example: work to identify factors that support creativity and innovation in automobile manufacturing (Auernhammer & Hall, 2013); addressing employees' ignorance as a strategy to increase intellectual capital (Israilidis, Siachou, Cooke, & Lock, 2015); and knowledge-sharing in heterogenous teams to support innovation (Nissen, Evald, & Clarke, 2014).

A key contributor to theory round knowledge creation is Nonaka (2015; 2006), whose work has developed thinking and ideas on organisational attributes that enable or hinder knowledge creation within organisations: “Organizational knowledge creation is defined as the process of making available and amplifying knowledge created by individuals as well as crystallizing and connecting it to an organization's knowledge system”. (2006, p. 1170) The study reported in this thesis focuses on the experiences of individuals working together to create new informational resources with specific audiences in mind, which I see as a distinct endeavour from organisational learning. However, there are aspects of organisational knowledge creation that do have a bearing my work. Firstly, the project of the Teaching group is a single component of a much larger inter-institutional collaboration with objectives to influence and develop teaching and learning expertise and practices. Secondly, organisational-level enablers or barriers to knowledge creation may also be evident within smaller working groups, even if the work of those groups is not directly linked to learning objectives of their own broader organisational (i.e. the audiences of the Research group in my study are external practitioners within the field and policy makers).
Information-related negotiations in interdisciplinary collaborative working groups

In a comprehensive review literature on “enabling contexts in knowledge organisations” Choo and Alvarenga Neto (Choo & de Alvarenga Neto, 2010) identified four thematic areas, two of which are particularly relevant to my research objectives round individuals’ experiences of creating informational resources within collaborative interdisciplinary groups:

- **Social/behavioral: social relationships and interactions**, which includes subthemes such as mutual trust, autonomy, tolerance and empathy
- **Cognitive/epistemic: epistemic diversity and common knowledge**, which includes subthemes such as exposure to new ideas and diversity of perspective in groups

So, while the context of knowledge creation and objectives of fostering organisational learning within the area of knowledge management are distinct from the contexts and work of my project groups, there are related conceptual angles that can provide useful insights to the experiences of the individuals in my small project groups.

This thesis is not unique in combining elements of knowledge management with information behaviour: Widén and Hansen (2012) produced a review designed to “bridge” work in knowledge management, or information culture, with information behaviour, with the purpose of giving attention to collaborative information practices within knowledge organisations, and arguing for the value of bringing together the distinct and what they represent as disconnected angles of perspective. The activities mostly covered by Widén and Hansen, though, are to do with information seeking and information sharing, with little focus on collaborative creation of new informational material. The work of this thesis contributes to the bridging of research domains and extends the bridging with the focus on information-creation activities.
2.5 Communities of practice

One striking thing about the multidisciplinary organisational unit from which the groups I have studied were drawn was an explicitly stated aim - published on its website - to foster and develop networks and communities of practice. The concept of communities of practice was coined by Lave and Wenger (1991) and expanded upon by Wenger (1998) to describe emergent groups which come to have shared understandings and practices in their particular learning or professional contexts, contributing also to a sense of group identity. Informal learning, situated learning, (i.e. learning in the context of practice), and the enabling of people new to the group to engage with and learn the practices of the group, are key features of communities of practice.

This thesis focuses on related information-related practices, and sets out to understand whether individuals change their practices in working as part of a multidisciplinary project group, and whether these information practices contribute to the forming of group identity. It is probably not useful to think of the larger multidisciplinary organisational unit as a single large group that is forming into one community of practice under some manner of giant centripetal influence; I posit instead that it is more productive to think of it as a set of overlapping communities and networks made up of individuals with strong connections to groupings and organisations outside the unit and the University. Extrapolating from Anderson and McCune’s (2013) discussion of the concept of communities of practice in the undergraduate learning context, it may be helpful to think of individuals following quite different trajectories, depending on their prior experiences, current work and targets for the future. Anderson and McCune also discuss fostering transition spaces, “spaces in-between,” which give space for translation, interpretation and new meanings and shared understandings to be developed as students grapple with the new knowledge and conventions of the disciplines they are studying.

2.5.1 Productive boundaries
Information-related negotiations in interdisciplinary collaborative working groups

Part of the reason I am interested in exploring multidisciplinary negotiation of information practices is that the touching boundaries of disciplines, from which “spaces in-between” can emerge, seem like productive phenomena to observe. Whitchurch described a fluid “third space” that may be created outside an academic organisation’s formal organisational structure – occupation of the “third space” may involve overlapping professional or role boundaries, or staff may display “disregard for boundaries” (2008, p. 383) and move into boundary spaces to work in areas such as widening access or knowledge exchange. Star and Griesemer developed the concept of “boundary objects” in their study of a heterogeneous group of people working together to create a museum – “amateurs, professionals, animals, bureaucrats and ‘mercenaries’ [who] succeeded in crafting a coherent problem-solving exercise”. (Star & Griesemer, 1989 p. 392) The boundary objects were things like concepts, maps, field notes, specimens and protocols, which were created, annotated and organised in ways that could translate well between the different actors, without confusion or loss of meaning or data. They are “scientific objects which both inhabit several intersecting social worlds... and satisfy the informational requirements of each of them.” (Star & Griesemer, 1989 p. 393) The shared practices and meanings developed in and associated with these objects mesh well with the notion of the development of a community of practice, situated in a particular context, but can equally allow distinct communities to intersect productively.

Wenger also draws on the idea of boundary objects in discussing communities of practice, and argues that a boundary object, which can also be a shared physical space, can support interconnection between communities as “a nexus of perspectives, and on various occasions can provide a form of coordination among these perspectives”. (1998, p. 105) Wenger identifies a number of other activities that can occur at boundaries, including “brokering” which involves processes of translation, coordination, and alignment between perspectives” (1998, p. 109)
2.6 Disciplines, disciplinarity, and working-groups of multiple disciplines

One aim of this study is to find whether difference in discipline is a factor in shaping the information-related operations of each group. To support the discussion of findings in relation to participants’ views on disciplinary interactions in Chapter 4, I present here a summary of the terminology used in the area.

2.6.1 What is a discipline?

Under the entry section headed, “Senses relating to training, instruction, or method,” the Oxford English Dictionary defines discipline as “A branch of learning or knowledge; a field of study or expertise; a subject. Now also: a subcategory or element of a particular subject or field.” The term discipline in English has a mixed origin in Old French and in Latin and was associated with the variety of usages recognisable today, from “punishment” or religious “chastisement” to the imposition of “rules” or “orderly conduct” as well as “teaching, instruction, training, branch of study, philosophical school.”

Disciplines as fields of enquiry began to take form in the eighteenth century with efforts to capture all knowledge in comprehensive texts. Stichweh (2008) describes a transformation of scientific disciplines from efforts to capture and classify knowledge into simplistic divisions that no longer served to provide meaningful frameworks for what was being recorded, to enquiry-based work, where distinctions between disciplines could be made by the types of research questions being addressed.

In reviewing research on the “nature of a discipline” in academic contexts, Becher and Trowler point out that “discipline” is difficult to define and is an abstraction of the ways that universities organise themselves into various domains of knowledge, diversifying or disappearing as specialisms grow or merge or decline, each with its history, politics, and ways of communicating. (Becher & Trowler, 2001, p. 41) In later work, Trowler employs a social practice theory approach: “Disciplines are
enacted as social practices are performed and as micropolitics are played out:
teaching; research; conference attendance; departmental meetings; collaborative
writing...” (Trowler, 2012a, p. 34) He also cautions against a simplistic essentialism
that assumes a “deterministic relation between the causal power of knowledge and
a range of social practices.” (Trowler, 2012b, p. 18)

2.6.2 Multidisciplinary, interdisciplinary, transdisciplinary

This section sets out definitions of descriptive terms that aim to capture the various
ways in which individuals of different backgrounds work together on a shared
project or task. The groups studied in this thesis consist of individuals with different
disciplinary or professional backgrounds and roles. Groups of people with different
disciplinary backgrounds are categorised in literature according to how the
members operate in relation to the goals of the group, and in relation to one
another’s specialisms.

The precise definitions of these categories of multidisciplinarity, interdisciplinarity
and transdisciplinarity are contested (Huutoniemi, Klein, Bruun, & Hukkinen, 2010;
because “they try to grasp points along a fluid, multidimensional continuum”
(referring to Blackwell’s approach (Blackwell, 1954) to defining the attributes of
multidisciplinary teams).

![Figure 2.1 Portrayal of a continuum of disciplinary interactions (Jensenius, 2012)](image)

The continuum is presented in a format such as Figure 2.1, in which the descriptive
categories are presented as sitting on a scale, at one end of which individuals are
Information-related negotiations in interdisciplinary collaborative working groups

working alone or within a single discipline. Near this end of the continuum, groups are portrayed as formed of relatively independent partners bringing their disciplinary expertise to the project as autonomous participants, apparently unaffected, unmodulated, by the other project partners. At the other end of the scale, the work of the individuals is portrayed as deeply integrated in ways that dissolve disciplinary boundaries. The arrows in Jensenius’ diagram imply a cyclical, directional flow but it may not be the case that a group fitting one category evolves to fit into the next more integrated category.

While acknowledging that the typology and attributes of groups made up of multiple disciplines are contested, working definitions are needed for the purposes of this thesis. Accordingly, the following definitions will be used:

Multidisciplinary: a multidisciplinary group “involves several disciplines who each provide a different perspective on a problem or issue”. (Stember, 1991, p. 4) Stember illustrates this definition with examples of a course of study taught by experts in different disciplines, in which the students “integrate the often diverse ideas”. In the context of a project group, this definition can be extended to include outputs that contain contributions from each discipline. The initial approach to creation of elearning cases by the Teaching group may be a good example of this type of work: experts in clinical conditions, pedagogy, and IT applications contributed to the content, design and format of the elearning cases, respectively, each staying within their disciplinary roles within the group.

Interdisciplinary: an interdisciplinary group “integrates separate bodies of specialized data, methods, tools, concepts, or theories, in order to create a synthetic view or common understanding of a complex issue or problem”. (Huutoniemi et al., 2010, p. 83) This definition broadly describes the make-up of the Research group, as it was made up of clinicians and social scientists who worked to reconcile qualitative methods and findings with a field generally based on a
positivist world-view, in order to bring a broader and deeper understanding of patient experiences and needs.

Transdisciplinary: while acknowledging that it is an emergent, heterogeneous and diverse set of practices and processes tackling complex real-world problems, the Institute for Social-Ecological Research (ISER) stipulated that “an essential characteristic of transdisciplinary research is the integration of knowledge from several disciplines or specializations and from the field of practical action that the research is related to.” (Bergmann et al., 2005, p. 16) It is striking to me that the ISER criteria also indicate that the methods or approaches chosen must be context-sensitive and may need to be developed. Information-related processes within transdisciplinary groups are likely to be highly relevant to a study of collaborative working groups.

2.6.3 Disciplines and health professions
The two project groups I have studied are based in healthcare contexts, even if not all the participants are healthcare professionals delivering care. This context is important to bear in mind when considering the meaning of “discipline” or the perception of working within one. In the health professions, disciplinary differences are bound up with differences in professional roles and specialisms. In the past few decades efforts have been made toward overcoming boundaries between researchers and practitioners, and between practitioners of different professions or specialisms.

In the 1990s, Crabtree (1994) used the metaphor of needing to speak through the barricade of a fortified settlement in portraying the distance between the researchers and practitioners with ostensibly shared interests in improving the quality of services in primary care, and he called for transdisciplinary research to better coordinate different and sometimes conflicting agendas. Crabtree’s work in this area has continued over three decades, and although his metaphors show considerable positive change (“a useful metaphor is to think of a [clinical] practice
like a jazz combo, which encourages cognitive diversity among staff and constantly leverages this diversity to foster learning, emergence, and innovation” (Crabtree et al., 2011, p. S33), he cites ingrained hierarchies and challenges of interprofessional communication as real barriers to effecting improvements in care.

For decades (Mitchell et al., 2006), interprofessional education programmes to bring students and practitioners of different professions together have been created as a measure to lower barriers and improve communication between professions in healthcare. Recent systematic reviews on interprofessional education shows its very wide application in different settings and specialisms (Best & Williams, 2019; Brack & Shields, 2019; Kossioni, Marchini, & Childs, 2018; Marcussen, Norgaard, & Arnfred, 2019; Shrader, Farland, Danielson, Sicat, & Umland, 2017), but their findings also indicate modest impact, generally low quality of evidence, or indeed a lack of research.

2.7 Summary

Within information science, there is much discussion of the differences between data, information, knowledge, and even wisdom. I have provided a discussion of these definitional differences in order to establish the nature of what collaborative working groups in an academic organisation are working with. However, I argue that distinctions between what is data or information are not so important to my research objectives. What is likely to be of more interest in a study of collaborative working groups made up of different disciplines, are any differences in perspective of what data or information is relevant or appropriate to the work of the groups.

My approach to this study has been influenced by perspectives on information literacy, information behaviour and information practices. The boundaries and definitions of these three approaches to how people use information vary and overlap. While work in information literacy tends to prescribe good practice, work in information behaviour and information practices tends to describe how people
Information-related negotiations in interdisciplinary collaborative working groups

engage (or disengage) with information in learning, work, or everyday life. Knowledge management, with its focus on knowledge sharing and organisational learning, is another closely related area.

Because a key aspect of my research objectives is the mix of disciplines within collaborative working groups, I have provided an overview of common (though contested) classifications of how people of different disciplines work together in relation to disciplinary identity or grounding. In setting out on this study, I was not sure which of these classifications I would find, but I anticipated that disciplinary perspective would be a factor in individual experiences of working with information along with other people of different disciplines.

In this literature review I have outlined definitions of core concepts and presented the disciplinary perspectives that have influenced my approach to this thesis. I have attempted to draw links between prior work and this thesis, in order to provide context and a measure of rationale for the work I present here. I have argued in this chapter that within the fields of information literacy, behaviour, practices or of knowledge management, the main foci have been on practices round finding or using existing information resources and there is little work on practices in creation of information resources. The study I present here is a contribution toward addressing the lack of work on information practices in the creation of information resources, by examining the experiences of individuals collaborating in groups to create learning resources for healthcare students, or empirically-based journal articles intended to influence improvements in healthcare provision. I have also touched on some concepts in prior literature that contributed to my thinking of design and methods. In the next chapter I move on to present methodological approaches, methods and the actual implementation of my data gathering and analysis.
Chapter 3: Methodology and methods

This study is qualitative in nature, and the majority of data I present here were generated through semi-structured individual interviews with members of two groups working on collaborative projects to create informational resources.

I here repeat the research questions to examine them in relation to the methodological approach and methods used:

a. From the perspectives and practices of individual members, what roles does information play in the construction of the group and its activities?

b. How do individuals view the information practices of their disciplinary backgrounds in relation to the collaborative working practices of their project group? To what extent do the practices shape, or are they shaped by, the context of the project group?

The first question focuses on individuals’ practices in using, sharing and collaborating with information as part of their project work – this involved getting detailed data on what they do, as well as how and why. In addition, respondents' notions of the identity and purpose of the group they worked within were explored, as well as the respondents' views of their information practices in relation to the group. The second question explores comparison of participants’ work within and outwith the project group, allowing the particular practices of the project group to be brought into sharper relief. The data generated in examining these questions contributed toward theorising about how collaboration on, and sharing of, informational resources within the group relate (or not) to the development of shared information practices.
3.1 Methodological approach

I have taken an interpretivist approach in this study. In investigating individuals’ experiences and perceptions of information handling and knowledge creation within their collaborative groups, the analysis depends on any meanings and constructs attributed by those individuals. Also, as a researcher, I must recognise that my own background and conceptual approaches have influenced how I formulated the research questions and meanings I attribute to the data.

I have drawn on the constructivist grounded theory approach in this study. Grounded theory was initially developed by Glaser and Strauss (1967) as a method to be used to generate theories strongly “grounded” in qualitative data. Grounded theory methods have evolved and diversified since Glaser and Strauss’s early work, which has been criticised as having positivist assumptions and for “clinging to an outdated modernist epistemology”. (Charmaz, 2006, p. 13) In contrast with Glaser and Strauss’s original approach, a constructivist grounded theory approach, with its underlying assumption that data are “constructed” (Charmaz & Bryant, 2011), has clear alignment with an interpretivist epistemological stance. According to Charmaz, the “constructivist [grounded theory] approach places priority on the phenomena of study and sees both data and analysis as created from shared experiences and relationships with participants and other sources of data”. (Charmaz, 2006 p130) In terms of findings, Charmaz and Bryant further clarify that the constructivist approach has a primary aim of understanding “difference and variation” rather than attempting to generalise findings to identify “patterns in social life and create abstract generalizations”. (2011 p293)

There is congruence between the research aims described above (of understanding what the respondents’ information practices are, as well as how and why they are performed, and ideas of group identity and purpose) with constructivist grounded theory as described by Charmaz in that “constructivists study how - and sometimes why - participants construct meanings and actions in specific situations”. (2006 p130) Charmaz and Bryant identify a further attribute that aligns well with the
exploration of how individual practices may relate to communities of practice: “constructivists aim to discern how participants' meanings and actions may be connected to larger social structures and discourses of which they may be unaware”. (2011 p293)

The findings of this single project cannot attempt to provide a complete and generalizable picture of a wide range of experiences of working with information in groups made up of people from different disciplinary backgrounds; rather, the findings give insight into practices and experiences of academic collaborators in health-related fields, working together to produce research outputs and teaching resources. In an academic context with strategic aims of interdisciplinary collaboration, and with greater priority given to funding collaborative research proposals, there is value in gaining a more holistic understanding of information practices and experiences in collaborative working in an academic setting. While respecting confidentiality, I hope the level of detail about the study groups, their settings, and their projects will give the reader a sense of how transferable any findings may be.

### 3.1.1 Validity

A grounded theory approach involves “constant comparative methods” of examining data with data, emerging themes and theories with data, and theories with theories. So, in addressing questions of validity and rigour, including principally the question of whether interpretations are supported in the data, visiting and revisiting the data in relation to emerging themes and theories is a part of the grounded theory approach. However, it is not enough simply to state that these methods have been employed.

I have focussed on a few points from a guide produced for qualitative researchers in healthcare settings by Lacey and Luff (2007 p27) that are particularly apposite for this study:
Information-related negotiations in interdisciplinary collaborative working groups

- exposition of the impact of the research design and approach to analysis;
- ensuring examination and representation of variant or conflicting views;
- ensuring full and “systematic” use of the data, not selective use, in supporting discussion of findings.

Not all of the measures Lacey and Luff suggest for ensuring validity were workable in this study. For example, they also identify “respondent validation” as a way of demonstrating rigour. It is necessary to recognise that the analysis produced in this thesis may be theoretically valid, but not terribly meaningful or useful to the participants of this study. Maxwell (1992) identifies “descriptive validity” as a fundamental level of validity – this is the ensuring that accounts of interviews and observations are accurate: for example, an accurate account of who said what, and what was said, as supported by data in an audio recording. Maxwell also identifies “theoretical validity” which “goes beyond concrete description and interpretation and explicitly addresses the theoretical constructions that the researcher brings to, or develops from, the study”. (1992 p291)

Lacey and Luff pointed to inter-rater reliability as a method of ensuring validity, but although interpretations were tested in discussions with my supervisor, there was not another researcher involved at that level in this project. This measure may also be problematic in a constructivist grounded theory approach: Charmaz argues that since in the act of coding the researcher draws on his or her own “interests, standpoints, and relative and changing positions during data collection and analysis” then “inter-coder reliability does not make sense but a test of the robustness and usefulness of codes through comparative analysis does”. (Charmaz & Bryant, 2011 p304)

Transparent exposition of links between data and interpretation go some way toward enabling the evaluation of what Mishler calls the “trustworthiness” of
Information-related negotiations in interdisciplinary collaborative working groups

reported qualitative research. Mishler (1990 p438) argues for exposing the bases of patterns identified by the researcher, the analytical “structures” that are presented in findings, to the extent that the reader “is given sufficient information to make a judgement of their trustworthiness” – even if the reader does not agree with the findings. Alongside Lacey and Luff’s points, I have used these three test questions posed by Mishler in reporting findings:

- What are the warrants for my claims?
- Could other investigators make a reasonable judgement of their adequacy?
- Would they be able to determine how my findings and interpretations were “produced” and, on that basis, decide whether they were trustworthy enough to be relied upon for their own work? (1990 p429)

3.1.2 Ethical considerations

I adhered to ethical guidelines from the British Educational Research Association (BERA) (2011). This section describes how I addressed responsibilities to participants.

I sent each participant a description of the project (Appendix 3) and a consent form prior to interview, so that they could think about whether they wished to participate; they were also given the option of withdrawing from the study at any time. I did not ask participants to share any sensitive information about themselves, and I also guided them not to share any project artefacts that could contain sensitive data or be considered confidential until publication or completion.

To ensure Phase 2 participants knew what to expect during the interview and, pragmatically, to allow them time to think about some of the questions, I sent the semi-structured interview question sets in advance (see Appendix 1). Of course, this also had the benefit of making participants more fully informed of this research and its methods. I began each interview meeting with a short description of my research
Information-related negotiations in interdisciplinary collaborative working groups

project, and asked participants if they had any questions or concerns before going further. In one interview, the participant did express a feeling of risk in discussing how she carried out her work, in case it would be discovered that she did things incorrectly. We spent a few minutes discussing her concern, after which she reiterated her willingness to participate.

Any names used in this thesis are pseudonyms, and minor details have been changed to allow anonymity of individuals.

I tried to be sensitive to any topics that could cause disruption within the groups. Although I was very interested when learning about differences in point of view, I took care to explore within-group negotiations in a way that would not exacerbate any potential disagreements on how things should have been done.

Through my role as a librarian supporting the school of medicine, I had met or even worked with some of the participants prior to this project. For a few, I think that I had become a trusted person, if not an actual “insider” to their groups. These close links were influential in gaining access to interviews for this project. However, both organisationally and in professional background, I am an “outsider” and one concern I had was to ensure that participants were able to set aside my role as a particular type of “outsider”: the librarian. Dwyer and Buckle (2009) identify “the space in between” the insider and outsider positions, consider that neither position is fully achievable, or even desirable, and propose that it is most productive to acknowledge and even draw on the tensions and complexities of the researcher’s position somewhere in the middle of the two extremes in order to add value and insight to research findings. I was persuaded by this argument and tried to enact that in-between position with interviewees by acknowledging roles as part of introducing myself and my approach to the research project.

My studies are partly funded by my employer, Information Services within the University. Even if this funding body could be perceived to have a potential conflict

Methodology and methods

32
of interest in the outcomes of this study, there has been no input or involvement from my employer in any part of this study.

3.2 **Methods**

3.2.1 **Summary workflow of study methods**

I this section I provide a short summary overview of the workflow for this study to clarify sequence, timing and links between the different phases and elements of methods. The main components of the workflow are also presented in figure 3.1 to better illustrate elements that I handled in parallel.

3.2.1.1 **Identification of study groups**

After initial formulation of the study and scoping for potential subjects, I approached the director of an organisational unit which contained collaborative interdisciplinary groups. This discussion led to the identification of a few collaborative groups and a key contact for each group. (see section 3.2.2 for more detail).

3.2.1.2 **Initial literature review**

I my initial reviewing of literature to support the project objectives, I focused largely on information behaviour, communities of practice, and disciplinary differences in academic research practices.

3.2.1.3 **Preparation of Interview schedules**

I drafted and refined interview schedules for key contacts in phase 1 and study participants in phase 2 (see Appendix 1 for interview schedules) through iterations taking into account my broad objectives (phase 1) and data needed to address my research questions (phase 2).

3.2.1.4 **Phase 1 interviews**

I carried out initial exploratory interviews with a key contact for three different interdisciplinary groups, to identify suitable projects to focus on for this study, and initial interviewees to approach for more detailed interviews on the particular projects (phase 2 interviews). Subsequently, one project group became unavailable,
so I proceeded with phase 2 interviews for two groups only. Phase 1 interviews were not transcribed, coded or analysed along with phase 2 interviews. However, phase 1 interviews did provide important background information about each project group and, in the case of the Teaching group I was able to formulate an early conceptualisation of the group’s workflow (see Appendix 2).

3.2.1.5  **Participant selection for phase 2 interviews**

Participants for phase 2 interviews were mostly identified in phase 1 interviews, but a few participants were identified during early phase 2 interviews as areas for further exploration emerged.

3.2.1.6  **Phase 2 interviews**

I carried out individual interviews with project group participants in a sequence over a period of 10 months (see Table 3.1).

3.2.1.7  **Coding of interview transcripts**

Transcription and coding followed each interview, so interviews, transcription and coding processes happened iteratively and in parallel (for sample extract and transcript with coding see Figure 3.2 and Appendix 4).

3.2.1.8  **Use of memos and notes**

Following interviews and as part of iterative coding, I used memos and notes to record impressions and developing ideas. Appendix 5 is a post-interview memo for the interview transcript in Appendix 4, and also shows how certain points were followed up in subsequent interviews for further exploration and annotations to the memo. Appendices 7 and 8 are also memos included to illustrate reflective notes on research methods and development of themes.

3.2.1.9  **Identification of themes**

The broad themes of participants experiences emerged from initial responsive coding, and through iterative readings of transcripts and building on memos and notes. I further explored and tested emergent ideas and themes in subsequent interviews. Section 3.2.7 provides an illustration of theme development using Trust
as an example, and Appendix 10 is an example early working up of notes testing and developing this theme in relation to interview data.

3.2.1.10 **Negotiation as character of interactions**
Negotiations as a way of characterising the participants' interactions, and as a lens for their experiences, emerged from initial coding after three Phase 2 interviews. Following the interview with the Research group project lead, I noted in a memo (Appendix 7) several phrases she used to express the tensions and ways of being able to arrive at a collectively created journal article written in a style acceptable to the intended audience. In a later memo (Appendix 8) reflecting on that interview and the previous one with another member of the Research group, I noted “compromise” as a potential theme.

3.2.1.11 **Workflow diagrams**
As part of writing up, I developed workflow diagrams as a means of clarifying the main steps or stages of the groups’ processes for creating their informational resources. The Teaching group workflow diagram was refined from a sketch I made in notes during the phase 1 interview; the Research group workflow diagram incorporates elements of a text workflow description developed by that group at the request of a peer reviewer and shared with me as an artefact during interview.

3.2.1.12 **Review and testing of core themes**
Once all phase 2 interviews were completed, I reviewed the transcripts to test whether each theme was supported by the data.

3.2.1.13 **Ongoing literature review**
In parallel with identification, review and testing of themes, writing up, and during revisions, I continued to review literature toward clarifying and developing themes and arguments.
Figure 3.1 Diagram of study workflow

3.2.2 Selection of study groups

The study groups were selected in consultation with the director of an organisation within the university. I had initially identified the groups when scoping the activities within the organisation, noting with interest that the groups were identified as “communities of practice” on the organisation’s website. After discussion with the director, two groups were chosen because of a few key attributes: the members of
the groups have different disciplinary backgrounds; the work of the groups is intensively information-based; the outputs of the groups require collaborative effort between members. The two groups (first introduced in section 1.5) were in the same broad subject area of the university, but had no overlap with one another. One group was primarily engaged in research activities, and one primarily engaged in teaching activities.

**3.2.3 Phase 1 interviews**

The initial interviews were of one key informant for each of the two project groups: these interviews covered each group’s organisational structure and its members. They were important firstly in establishing a focus on what would be a particularly informative subset of each group’s work that could be the focus of subsequent (Phase 2) interviews with group members, and secondly in identifying the key people in each group for those subsequent interviews. To some extent, the Phase 2 interviews also led to identification of further participants, to allow me to explore a particular perspective or follow up on and test concepts and theories emerging from earlier interviews, in line with the theoretical sampling methods of the grounded theory approach.

During Phase 1 interviews with a key informant for each group, we agreed on a particular project to focus on. Each group had existed for some time, (one for approximately 15 years, one for approximately eight years), and had had several concurrent or sequential projects running. The selection of specific projects allowed Phase 2 interviews to be grounded in concrete examples and trigger detailed discussion about the information-related activities related to the collaborative creation of learning cases (Teaching group) and journal articles (Research group). The selection of a particular project also meant that not all of the groups’ members were involved in this study: not all members of the wider groups participated in the selected projects. The individuals approached for interview, and the sequence of interviews, were largely determined by suggestions made in the initial key informant interviews.
3.2.4 Phase 2 interviews aims and design

The principal source of data was individual semi-structured interviews, mostly conducted face-to-face but also via Skype with a few participants located remotely. I conducted the Phase 2 interviews in a series over an eleven-month period. All interviews except one were conducted in a single meeting; with one online interviewee, a combination of technical issues and time-constraint on the occasion of the original meeting prevented us from completing the interview, so we arranged a follow-up meeting. I created a broad question schedule as a framework to ensure broadly similar and comparable data were gathered from each participant. (See Appendix 1 for interview schedules.)

Consonant with grounded theory, during the period of conducting interviews, subsequent participants sometimes suggested a person to approach to get more information about a certain aspect of the project. Figures 3.2 and 3.3 are intended to show which interviews were prompted by phase 1 meetings or phase 2 interviews. Not all suggested people were available for interview, so in a small number of cases, I sought alternative participants to try to get the various perspectives needed for a well-rounded representation of disciplines or roles within each group. The focus on short-lived projects bringing together people who had not collaborated in these ways before was beneficial to my research objectives in order to foreground individual experiences of arriving at shared ways of working. However, this project-oriented approach also meant that the number of people directly involved was relatively small, leading to a small sample size for this study: I needed to focus on individuals who were directly involved in the co-creation of the information resources. Members of the wider research and teaching groups would not have been able to share experiences of creating these resources, so expanding the sample within the wider groups would not have been productive.
Information-related negotiations in interdisciplinary collaborative working groups

Figure 3.2 Research Group interview phases diagram

Figure 3.3 Teaching Group members interview phases diagram
During Phase 2, a total of 11 participants were interviewed – six from the Research group, and five from the Teaching group – over a period of eleven months. Table 3.1 provides a breakdown of interview sequence, participant roles and disciplinary background.

<table>
<thead>
<tr>
<th>Interview</th>
<th>date</th>
<th>length</th>
<th>Group</th>
<th>Role in group</th>
<th>Disciplinary background</th>
<th>Pseudonym</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>May 2015</td>
<td>55 mins</td>
<td>Teaching</td>
<td>Elearning development, IT support</td>
<td>Information technology</td>
<td>Ben</td>
</tr>
<tr>
<td>2</td>
<td>Jul 2015</td>
<td>75 mins</td>
<td>Research</td>
<td>Researcher</td>
<td>Psychology</td>
<td>Annabelle</td>
</tr>
<tr>
<td>3</td>
<td>Jul 2015</td>
<td>63 mins</td>
<td>Research</td>
<td>senior researcher in group; project lead for first article</td>
<td>Social science, arts</td>
<td>Brenda</td>
</tr>
<tr>
<td>4</td>
<td>Aug &amp; Dec 2015</td>
<td>95 mins total</td>
<td>Teaching</td>
<td>IT support, elearning development</td>
<td>Information technology</td>
<td>Charles</td>
</tr>
<tr>
<td>5</td>
<td>Dec 2015</td>
<td>52 mins</td>
<td>Research</td>
<td>Researcher</td>
<td>Psychology</td>
<td>Catriona</td>
</tr>
<tr>
<td>6</td>
<td>Dec 2015</td>
<td>67 mins</td>
<td>Teaching</td>
<td>clinician, teacher</td>
<td>Medicine</td>
<td>Denise</td>
</tr>
<tr>
<td>7</td>
<td>Jan 2016</td>
<td>93 mins</td>
<td>Research</td>
<td>Researcher</td>
<td>Nursing</td>
<td>Fiona</td>
</tr>
<tr>
<td>8</td>
<td>Jan 2016</td>
<td>88 mins</td>
<td>Research</td>
<td>Researcher; project lead for second article</td>
<td>Nursing &amp; psychology</td>
<td>Gillian</td>
</tr>
<tr>
<td>9</td>
<td>Feb 2016</td>
<td>65 mins</td>
<td>Teaching</td>
<td>clinician, pedagogical support</td>
<td>Medicine</td>
<td>Derek</td>
</tr>
<tr>
<td>10</td>
<td>Feb 2016</td>
<td>80 mins</td>
<td>Research</td>
<td>co-author</td>
<td>Medicine</td>
<td>Helen</td>
</tr>
<tr>
<td>11</td>
<td>Mar 2016</td>
<td>75 mins</td>
<td>Teaching</td>
<td>project lead, pedagogical support</td>
<td>Physiology, learning design</td>
<td>Edward</td>
</tr>
</tbody>
</table>

Table 3.1 Sequence of Phase 2 interviews, with group, roles and disciplinary background of participants

The aims of the interviews were to learn how participants worked with information and resources in their project, and to learn about details of each person’s experiences of creating, designing, using or communicating the information related
Information-related negotiations in interdisciplinary collaborative working groups

to the project. The semi-structured format allowed initial and follow-up questions to explore the following core areas with each interviewee:

- The aims of the project and role of the individual in the project group
- How information, data and resources were managed and shared
- How reports or other types of outputs were created and developed
- Examples of edits or creative stages of collaborative outputs
- Examples of broader changes or developments to practices in the group

The interviews themselves were dynamic: although the interview schedule was used as a broad guide, each interview was flexible enough to allow exploring more deeply particular topics that each participant wanted to highlight or which I wanted to probe. Charmaz uses the expression “intensive interview” (2006 p25) to describe a “directed conversation” in which the interviewee is given space to respond at length if they wish, and in which the interviewer may gently probe for further information, the better to understand the interviewee’s “intentions and meanings,” and in which the “interviewer can shift the conversation and follow hunches”. (2006 p26)

Holstein and Gubrium describe the interview as “an occasion for constructing, not merely discovering or conveying, information” and discuss an interactive process, “a form of interpretive practice involving respondents and interviewers as they articulate their orientations”. (Holstein & Gubrium, 2004, p. 149) I bore in mind this approach in both planning and carrying out the interviews for this project, and I take the position that the interviews, and their products, were a shared endeavour to explore and make meaning, grounded in our different perspectives and backgrounds.

In the intermediate and later interviews, I also asked the participants to reflect on questions or topics that had emerged for me from prior interviews, allowing me to explore concepts more deeply, to “test” emergent themes, and to try to gain different perspectives on the matters I had identified. For example, in the Teaching
Group, one of the interviewees described a teaching case that she recalled leading to wider discussions and possibly changes in practice by hospital staff, and I explored this further with two subsequent interviewees in order to understand the organisational learning impact the cases might have had. Another example is the development of the theme of Trust, which I illustrate in more detail in section 3.2.8 in order to give insight into how the theme emerged from one interview and was developed and shaped by subsequent interviews.

3.2.5 Artefacts as interview sources
This section describes the use of documents related to the groups’ projects as an integral element of the interviews, and sets out a rationale for using artefacts to give insight into informational approaches, processes and negotiations. An ideal design for this study would have included direct observation of the project groups, like the methods used by Latour and Woolgar (1979) in their study of laboratory biologists’ conduct of experiments and creation of research communications. However a more ethnographic or anthropological approach was not possible for this thesis because the majority of the activities I wanted to investigate had already been completed. Instead, I used documents from the projects to prompt recollections and details about the processes each interviewee was involved with.

Prior to meeting, I asked each interviewee to identify, and bring to the interview, three or four different examples of information, data or resources related to the project, (for example, grant proposals, examples of data, logbooks, field notes, publications, etc.), meeting the following criteria:

- Each item should be closely linked with the project – for example, a publicity document about the project, a working tool used by the group to manage the project, data gathered as part of the project, or a publication of the project
- At least two members of the group should have been involved in the creation or use of each item
Each item should not contain confidential information or sensitive data. I will call these items “artefacts” from now on in writing about them, though I generally avoided using that term when discussing them with participants. My use of the term “artefacts” and also of the catch-all term “information” to capture the range of data, media, sources and other materials used and created by the project groups risks simplifying the nature of the artefacts discussed by the participants, so to compensate for that risk, I am careful throughout the following chapters to specify the nature of the artefacts with a bearing on each point of analysis or discussion.

During the interviews, I asked participants to tell me about each artefact: why they chose it as an example, how it was created, who worked on it, how its form and structure were decided or came about. The discussion of the artefacts prompted further discussion about the interactions within the groups – not just information-related – as well as the groups’ wider aims and impacts of the projects. In designing this study, I thought it was possible that I could see or hear about examples of boundary objects, as described by Star and Griesemer (1989), among the working tools used by the project groups; this expectation informed my decision to use artefacts that illustrated for them the experiences of creating informational resources.

In using artefacts as triggers for discussion, I was incorporating aspects of the Critical Incident Technique – not, as it was described by Flanagan (1954), for job analysis and to identify root causes of incidents like accidents, but as it is more commonly used now in qualitative methods as a “qualitative exploratory and investigative tool.” (Butterfield, Borgen, Amundson, & Maglio, 2005, p. 490)

The object of the interviews was to gain an understanding, at a fairly detailed level, of what the group was working on and how they did it, or as Flanagan described, to get a “formulation of a functional description of an activity” (1954, p. 336) and its objectives. The artefacts served as triggers to recall mundane details of what was
done, by whom and how – details that can be easily forgotten with the passage of time. Through the recollection of those details, I aimed to evoke recollection of experiences of those processes.

Artefacts are a way of capturing not just a group’s ways of working, but of gaining insight into disciplinary practices. The artefacts from the Research group were from a project to produce articles; those from the Teaching group were from a project to create clinical cases. Hyland discusses academic publications as “texts [that] embody the social negotiations of disciplinary enquiry, revealing how knowledge is constructed, negotiated and made persuasive.” (Hyland, 2004, p. 3) By extension, the creation of highly structured clinical cases for teaching, (a form of publication), embodies the same elements, and the exploration of the artefacts and processes of creation can give insights to the experiences of those involved. Discussion of artefacts with interviewees is illustrated in the interview extract in Figure 3.5, and the artefacts shared by participants are reported in more detail in Chapter 4 (section 4.2.1.2).

3.2.6 Interviews – Equipment and transcription

As the primary source of data for this study, the importance of the interviews cannot be over-stated. The transcription of the interviews, which in this study were spoken interactions, is necessarily a process of creating written representations of those discussions to facilitate analysis and onward communication of the dialogue that emerged. Kvale argues that “transcripts are impoverished decontextualized renderings of interview conversations.” (Kvale & Flick, 2007, p. 93)

The flow of speech is different from conventional written form; for example, in these interviews, beginnings and ends of sentences were often difficult to identify in extended statements. At times I added punctuation like ellipses, commas or full stops where pauses seemed to me to be a particular type of pause, especially where meaning could be affected on reading the text alone without recourse to the audio recording. (Poland, 2001) I recognise that punctuating in this way is an act of
interpretation on my part, but my aim in doing so was to clarify meaning and give
the written form of the interview a structure that would be better understood by a
reader of the transcript only, allowing for the possibility that any section might form
a quoted extract.

As part of taking a rigorous approach to the interview data, I listened to the audio
recordings even after transcription to revisit the tone, mood, and flow of the
interviews overall. I also revisited the audio recordings of particular statements to
clarify meaning or review bases for my analytical arguments.

I recorded the face-to-face interviews using the in-built Voice Memo application on
an iPhone, which I subsequently exported (using TouchCopy
www.wideanglesoftware.com/touchcopy/) as .mp3 files onto the University’s
secure DataSync server. For the interviews conducted on Skype, I captured the
audio on my laptop using Camtasia, then exported the audio as .mp3 or .wav files
onto the DataSync server. To avoid poor quality recordings or failed recordings, I
tested the equipment and software just before each interview, and ensured there
was adequate storage space on the digital devices. The digital recordings ensured
high-quality capture of the interviews with two exceptions: in one face-to-face
interview the iPhone was too close to the documents being discussed, and the
sound of papers being moved a few times obscured very short sections of dialogue;
in one of the Skype interviews, the internet connection was poor and at times the
interviewee’s input was clipped. During the latter interview itself, I was aware this
was happening, so I made extra effort to check my understanding by repeating
points or asking for clarification of words used.

I transcribed some of the interviews myself, but most were transcribed by a
professional transcription service and I made corrections while listening to the
audio recording. For the interviews I transcribed myself, I used a few different
methods, (as I tried to find one that worked best for me). For two interviews, I
imported the audio files into NVivo (www.qsrinternational.com) and used NVivo’s
transcription mode. Although I liked the idea of having the transcription automatically time-stamped so that I could easily listen to the relevant sections of the audio recording again, I found the process of transcribing within NVivo too awkward, and subsequently I did not use NVivo for other processes, such as coding.

For four other interviews, I used Microsoft Word while listening to the audio on QuickTime (two interviews) or ExpressScribe (two interviews) to play back the audio.

Initially I was careful to transcribe pauses, repetitions, hesitations, non-verbals, laughter or significant intonations. But, since this approach is very time-consuming and since the analysis was not dependent on extremely detailed verbatim linguistic representation, after the first transcription, I changed to a simpler representation of the interviews. I was careful to use the interviewees’ actual words, did not change style or grammar, and indicated some features like hesitations, non-verbals or clarifications, or overlapping talk when I thought they could help to aid meaning or description of relevant physical action. Two examples:

<table>
<thead>
<tr>
<th>MD</th>
<th>It looks as though it's still waiting for...</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brenda</td>
<td>Still waiting for that [we pointed at volume, issue and page number place-holders for the article in press].</td>
</tr>
<tr>
<td>(Brenda 154-157)</td>
<td></td>
</tr>
</tbody>
</table>

**Figure 3.4 Interview extract illustrating reminders of non-verbal interactions**

| MD | ...let's see so what if we start with that one [MD points to template] (mm-hmm) and then we might look at these two [MD points to notes of workshop and first draft of article] (ok, mm-hmm) and that isn't to say I'm not interested in the first (yeah) and last ones (no no that's fine). So yeah, let's start with (mm-hmm) [MD arranges |

Methodology and methods
Information-related negotiations in interdisciplinary collaborative working groups

the documents on the table] lay them out like that (ok)
um...

(Annabelle 121)

Figure 3.5 Interview extract illustrating non-verbal actions during selection of artefacts

For the interviews transcribed by the professional transcription service, I provided password-protected links to the audio files on research data platform provided by the University. The links expired after one week. After receiving the transcripts, I listened to the audio and checked through the text, making corrections, insertions or formatting changes. I asked for verbatim transcriptions for the first few interviews, but since it was distracting and not meaningful to have every “um” faithfully represented, I subsequently asked for more basic plain English transcriptions. While checking for errors, on a very small number of occasions I did insert short phrases that had been elided by the transcriber. The transcriptions were very high quality on the whole, and mostly I found myself making changes in punctuation, for example, removing full-stops marking long pauses where a respondent was mid-statement rather than moving on to a new statement, or adding quotation marks round phrases that were “mimicking” (Poland, 2001, p. 632) to express past thoughts or others’ views – another nuance of verbal tone that could be lost in transcription alone and could lead to misinterpretation.

I copied the transcriptions into Excel spreadsheets, using one column for the transcribed interview text, and the next two columns for initial responses and thematic development and reviewing. I used the row numbers in the Excel sheet as references for quoted extracts for ease of cross-checking. This is illustrated in Figure 3.2 with an extract from the transcript of an interviewee from the Research group, and in Appendix 4 with a larger interview transcript extract from a Teaching group interviewee.

<table>
<thead>
<tr>
<th>Interview</th>
<th>Initial thoughts</th>
<th>reflections and sifting</th>
</tr>
</thead>
</table>

Methodology and methods
Information-related negotiations in interdisciplinary collaborative working groups

<table>
<thead>
<tr>
<th>217</th>
<th>Annabelle</th>
</tr>
</thead>
<tbody>
<tr>
<td>218</td>
<td>Not really, no. Obviously, on a personal level, you want your particular work and your data to have a nice place of prominence and I guess there's a bit of frustration that it only features among a lot of other things, because obviously everyone's very passionate about their own piece of work and you don't want it just mentioned in a few comments; you would want to be able to go into a bit more detail, but that's just the way it goes with papers.</td>
</tr>
</tbody>
</table>

Figure 3.6 Interview transcript extract showing layout and coding

For quotations from transcripts used in this thesis, I have edited pauses, fillers (‘um’), or short repetitions for ease of reading. I have done this with care and effort to avoid any change of meaning or intent on the part of the speaker, and to avoid any quotation out of context. Throughout this thesis, I have also indicated the row numbers from the transcripts when quoting from the interviews.

3.2.7 Analysis

As a first step before analysis, I tried to assimilate the content of each interview by listening to the audio recordings (in addition to listening for transcribing or for correcting transcriptions) in conjunction with reading transcripts.

In the first stage of analysis for each interview, I made responsive annotations to as many aspects of the interviews as possible as a way of trying to read carefully and deeply. In iterative readings of the interviews, I focussed on elements of responses that illustrated how the dynamics round collaborative information handling within each group were described and experienced. The recording of these elements of analysis are illustrated in Figure 3.6.

As they arose, I kept brief memo notes to record questions or strong impressions of potential themes to explore further. Then, to “affirm, check, and refine [the]
developing ideas,” (Charmaz, 1990, p. 1162) I explored these questions and themes in later interviews with the aims of gaining further detail and checking to see if the themes resonated with interviewees. As more interviews were completed, I also reviewed transcripts of prior interviews to check against any newly emergent themes.

Once the interviews were completed and the core themes had been identified, I reviewed all the transcripts to look for any outliers, or evidence from the interviews that showed any of the themes or theories were not supported or were absent.

I periodically reviewed transcripts in their entirety during the analysis and writing. I was checking that themes were well-supported by participants’ statements, and checking that thematic areas I had initially seen as related to one another were indeed linked, and prompting thinking about how those links are evident in the data. In the reviewing process, I opened the annotated and coded transcripts and sometimes listened to the interview recording at the same time, to ensure I was not missing intended meanings that tone or nuance of expression can convey better than a transcription. If needed, I paused the recording to add new annotations, refine or confirm the coding.

I developed the categories of negotiation largely in parallel with the broader themes; it was not always clear whether an emergent concept would develop into a type of negotiation, or into a more abstract theme. A distinguishing factor was level of abstraction: whereas the types of negotiation are more closely descriptive of types of things that happened during the groups’ project workflows, the broader themes are intended to offer explanatory insights to the individuals’ experiences of working on those projects. Each negotiation type is associated with more than one broader theme, and vice versa. Appendix 9 provides a working diagram I developed as an aide memoire to map out the links.

3.2.8 Illustration of the identification of a theme for analysis
An example from the theme of trust illustrates this process of exploration in subsequent interviews. In the following paragraphs, I will describe a process of identifying an emergent theme and exploring the scope, definition, and viability of that theme in prior and subsequent interviews.

As an exact term, “trust” was used by the second interviewee from the Research group, when quoting a piece of advice she was given at the time she was finishing her PhD: “Only ever work with people that you like and trust” (Brenda 781). She also made a link to what, on further analysis, I saw to be a stronger underlying theme of shared values: “for me it is about working with people that I trust and whose values and aims are the same as mine, even if they achieve them in different ways.” As an observation about working with others in the context of a collaborative group containing people with different disciplinary backgrounds, this struck me as an important point in understanding how groups may work well – or not. In a memo about the interview, I noted trust as a concept along with a short quote.

Reflecting further on the notion of trust in relation to the first and second interviews of the Research group, I perceived that trust as a theme could be supported by information handling practices described: from these two interviews it seemed to me that each contributor of data to the group’s paper was the only person to select the data used and have a final say on the key findings or messages to be interpreted from their data. During the third interview from the Research group, I noticed Catriona used the word “custodians” (Catriona 64, 156) in describing the relationship that the interviewee and the other researchers had with their data within the combined project. Catriona seemed surprised when I mentioned noting that no cross-checking of primary data had been made, and observed that each of them would already have established their ability to be robust through the completion of their PhDs.
In exploring this further with two subsequent interviewees, both pointed out that because of supervisory relationships and informal discussions, the group members were familiar with the main findings and features of each primary study, if not with the fine detail of the data. Rather than linked to trust alone, it is probably more accurate to say that any need for cross-checking was obviated by a relative familiarity that each author had with most of the primary studies: Gillian used the expression “interlinked” (Gillian 676): three of the participants had been PhD students concurrently, sharing experiences as they went along, and most of the other authors had been their supervisors or on their PhD steering committees.

Trust was still evident, but in the context of the Research group, it was better paired with a theme of mutual respect, both in reported activities and interviewee statements about how the group operates. While this may be inextricable from the notion of shared values, there did seem clear confidence in one another’s methods, data interpretation and ability to communicate the group’s work. For example, in discussing the process of collaborating, Fiona observed,

I suppose in a way it was probably quite empowering to have that. To be in that position in which we felt like you know, I am the expert on this data set and you know so-and-so is the expert on that one. And we very much took on board what anyone had to say about it. (Fiona 423-426)

It made sense to me to categorise this type of statement under the theme of trust, along with, for example, statements illustrating autonomy given to the more junior members of the research team: these junior members of the team were trusted by the senior members of the team.

To begin with, the concept of trust in my coding had a rather narrow scope: I conceived of it as the ability to count on one’s collaborators to be relied upon and probably supportive in what can be an extremely competitive field of work. As I read further interviews and reflected more on interviewees’ descriptions of processes and interactions, I began to think of trust as broader, to include factors
Information-related negotiations in interdisciplinary collaborative working groups

that could influence a group’s dynamic or culture – such as perceived power. As a concept, Trust then transformed into a helpful way of understanding barriers or enablers to productive collaboration, not just in the Research group but also the Teaching group. Despite this development of Trust from a *descriptive* category label into something more *explicatory*, I think my conceptualisation still has a clear alignment with the initial points made by the interviewee who introduced the word: I think she would recognise it despite the modulation and abstraction.

This approach is open to criticism: it may be said that the thematic categories became self-reinforcing, and that once at least some aspects of the data prompted me to conceptualise them, then as part of cross-checking and comparison, those emergent thematic categories influenced my thinking about the data, or became a sort of lens through which I examined the data. I am not sure how I could have avoided this, other than trying to be cautious and continuing to ask myself Mishler’s questions as outlined above. Appendix 6 provides a list of codes and associated themes and types of negotiation.

3.2.9 **Reflections on methods**

During the process of interviewing, things didn’t always go as I had expected they would. In this section I would like to share two aspects of data gathering interviews that were unexpected, and my approaches to these aspects. I present this section for two reasons: firstly, for the sake of transparency, and secondly to illustrate how adaptations I made were consistent with constructivist grounded theory approaches.

3.2.9.1 **Artefacts**

After the first few interviews, I was more directive in suggesting artefacts than I had originally intended.

Some participants were not sure what to bring, did not have time to choose anything, could not find the items they wanted to bring, or thought of new items during the interview. Where a participant expressed uncertainty prior to the
information-related negotiations in interdisciplinary collaborative working groups

interview, I sent additional guidance with hypothetical examples. For later interviews, when needed as part of purposive exploration of emergent themes, I mentioned specific artefacts that I already knew about and wanted to discuss with a new participant.

I had originally planned to make a comparison between participants of the artefacts brought to each interview, but this became inappropriate for the reasons described above, (i.e. directive suggestions and selections made it so that the interviewees did not independently select their artefacts). I do not see this as a loss to the analysis, because the artefacts were primarily intended as triggers to prompt recall of processes, events and rather mundane details that had occurred some months or years previous to the time of interview. The methods I employed are aligned with a grounded theory approach by allowing me to focus on artefacts with subsequent interviewees where emergent themes and theories could be further explored.

At each interview, there was a short phase of reviewing and agreeing on which artefacts to discuss. I asked the participant to give a brief description of each item, then we would set out a plan of which ones to discuss and in what order. Sometimes the selected artefacts were not quite relevant to the specific project I was focusing on, or sometimes a participant brought more artefacts than there was time to discuss – in these cases we would spend a bit of time selecting together and I would provide a bit more explanation of why particular artefacts were more like what I was looking for. In a couple of cases, interviewees brought no artefacts – fortunately in each case I had already interviewed others in their group and I was able to propose artefacts to discuss. This initial discussion required making a fast decision about which artefacts would be the most fruitful ones to work with. I was also conscious of wanting to be positive and encouraging. For example, where too many or some less relevant materials were brought, I did not want to appear to be negative, saying “this was the wrong thing to bring,” in case it could have a detrimental effect on the interview. Here is an illustration of the selection process during one interview:
Information-related negotiations in interdisciplinary collaborative working groups

MD: what if we start looking at some of the things that you've brought along (mm-hmm) so um do you want to - you expressed some concerns about whether they were suitable or the right sorts of things (yeah) so what if you, I don't know if you want to mention each one first and then we can pick from them?

Annabelle: Yeah, I'll tell you what I have. [Annabelle 100-103] [Annabelle then described each of five items she’d brought along] So I'm not sure which of these... [Annabelle 119]

MD: They're all great, actually, they're all really good. Let's see how we're doing for time, ok... What if we choose, um, I don't know, what if we aim to talk about three or so (ok) um... I'm really interested in the template (mm-hmm) um and then let's see (I've tried to put them in some sequence) (laughing) This is so nice of you, starting yes, Um Not so interested in this one, I think, this the table just for the record, because um, it if I'm right there's less sort of interpretive work (yeah) it's basically descriptive statistics, (yup) really um, and... tables like this are fairly standard (yeah) in studies (yeah) um so I'm looking for things where there was a bit of to-ing and fro-ing (okay) in particular, so one of the reasons I'm interested in the template is that it sounds as though somebody else came up with the template (mm-hmm) and you had to work with it (yeah, yeah) and then other people had to work with what you put into the template (yes, yeah) so that (yeah) that's a really great example of to-ing and fro-ing (okay, mm-hmm). Um... let's see so what if we start with that one [MD points to template] (mm-hmm) and then we might look at these two [MD points to notes of workshop and first draft of article] (ok, mm-hmm) and that isn't to say I'm not interested in the first (yeah) and last ones (no no that's fine). So yeah, let's start with (mm-hmm) [MD arranges the documents on the table] lay them out like that (ok) [Annabelle 121]

In a few cases, participants were not able to find the artefacts they had wished to bring. In these cases, they usually brought an alternative, but similar, artefact and used the alternative as a trigger to discuss points about the lost files. The interviews took place up to two years after the activities being discussed, so rediscovering artefacts took some effort – for example:
I did struggle to find a lot, it goes back a while, um it also straddles as I came to discover when I was looking through all my online stuff, um, that time when we had the change-over in the email system? So it only gives me up to, I think December 2014 or so (ok) and then after that I struggle to retrieve some of the information but I had some files saved and some files in the emails so this is what I could still find that I thought would be relevant [Annabelle 103]

3.2.9.2 “Coda” to interview
In several interviews, I noticed that as part of closing the interview, a final open question or spontaneous comment from me generated a further discussion with profound insights. The interviews were by design semi-structured and I had allowed flexibility and time for exploration of points that emerged during the interview; but I had not expected that the final stages of the interview, (while the recording was still being made), would be particularly productive. Some participants said the interview made them think about things they’d not thought about before, and this prompted them to have some new thoughts about their experience. For example, Brenda from the Research group observed:

... it's just really interesting to talk to you about it because, I don't mean it's been a thoughtless experience but I've never given it any amount of thought, that we work in a group and how we work, and it's perhaps, it's not, it's not got a constitution or written down who does what or who owns what or who can use what, it's just been a, a sort of fluid organic growing thing that's very much rooted I suppose, thinking about it, in the culture of the team and the way that we work and share things and (but it's unspoken) but it's unspoken and unwritten (huh) and it is something about coming to understand that and either accept it or not, I suppose, because I suppose I found it much more, looking back now I found it much more difficult at the beginning when we were writing the first papers than I do now because it's just become normal ... [Brenda 373]

but I see a continuity still with my original interest in people and cultures and experiences and imagining other worlds than how you, you know, how you can translate those for a different audience to use. [Brenda 377]
Another of the group’s researchers, Annabelle, commented:

now that you’re prompting me to think about it, I will probably go away and have a think about it; what of that I could adopt or what learning I could take away from it, because I hadn’t consciously ever spent time thinking about it until now how well this actually worked. [...] a process of working as a group, I think it’s been really positive. So I’ll go away and think about it because I think there’s quite a lot of good learning to be had from it. [Annabelle 328 – 332]

Handing over artefacts at the end of Annabelle’s interview prompted an observation from me about how interviewees were pseudo anonymised in the transcripts of the primary study, in comparison with how they were pseudo anonymised in the article:

Yes, because I made a point in my thesis about giving people names, because you want to tell their stories. I think it helps to empathise; it helps to relate if you have a name; you can imagine a person rather than 'P1' or 'C1'. [Annabelle 345]

This prompted a brief discussion about the difference between how study participants had been pseudo anonymised in the reports of the primary study and how they had been pseudo anonymised in the group project: Annabelle described a “compromise” made (this is discussed in more detail in section 4.3 on transformation).

I share these examples for a few reasons. Firstly, this was unexpected to me: I had perhaps naively thought of the interview process as more strictly shaped even by a semi-structured interview schedule. Secondly, after I noticed this early on in the series of interviews, in subsequent interviews I added a final open question like, “Do you have any other thoughts you’d add?” Finally, I think the fact that exchanges such as these occurred demonstrates the approach taken to the interview: the occasion of the interview was more than just data extraction. The questions and discussion in the interview prompted articulation of ideas or experiences that had at least partly not been thought about explicitly by my interviewees. I see this as the
Information-related negotiations in interdisciplinary collaborative working groups

shared process of “construction” and “interpretation” described by Holstein and Gubrium (2004).

3.3 Conclusion
In this study of individuals’ experiences and perceptions of information handling and knowledge creation, I have adopted qualitative methods based on constructivist grounded theory. I studied two collaborative project groups in an academic organisation, one with a teaching focus, and one with a research focus. After initial discussions with a key informant for each group, I conducted a total of 11 semi-structured interviews of individuals across both groups. A key aspect of the interviews was the use of documents or other material, which I characterise as artefacts, to assist interviewees in recalling details of past events and processes. The interviews were conducted in a series, with transcription and initial coding following each interview. In accordance with grounded theory methods, I identified emergent themes during initial coding and explored them in subsequent interviews, as well as revisiting and testing for corroboration in earlier interviews.

In the next chapter, I present the findings from these interviews, including the project workflows, artefacts shared, and an analysis of the individuals’ experiences of creating information resources in collaborative project groups.
Chapter 4: Findings

4.1 Introduction

In this chapter, I present the findings that emerged from my interviews with study participants. In reiteration of my research questions: I will draw on the participants’ comments and experiences to show: how the data and information they were handling interplayed with the constructions of their groups and activities as they created informational resources; how disciplinary backgrounds linked to the activities within the project; and how the context and the information practices of each group appeared to influence one another.

During data analysis, I arrived at a characterisation of the information-related interactions of the group members as negotiations. I had not anticipated this characterisation: it emerged from the data and influenced my subsequent interpretations. As this was such an influential finding for me, I have reflected it in the title of this thesis. To support a discussion of the types negotiations I identified, I will begin with a detailed presentation of the two project groups’ workflows and the artefacts discussed during the interviews in section 4.2.1 and move on to describe the types of negotiation in section 4.2.2.

4.2 Locations and types of information-related negotiations

In this section, I will first describe the workflows of the two project groups and examples of the artefacts discussed with participants. The overall aims of the projects and general activities of the groups were covered in the Chapter 1, and this section clarifies their working processes in more detail. Having described the workflows and artefacts, I move on to discuss the types of information-related negotiations that the participants engage in.

In coding early interviews, as part of establishing the group workflows I identified the processes that the groups went through in creating information resources. The processes were rarely straight-forward or formulaic, and different types of
agreement or adaptations needed to be made in order for the projects to progress. These processes I then clustered thematically into types of negotiation. Those negotiations are located at particular points within the workflows, and I will discuss their locations and nature. This section provides a grounding for the subsequent discussion of themes that emerged from analysis of these negotiation activities.

4.2 Workflows and artefacts

I begin with a discussion of workflows and artefacts in order to provide a clear explanation of the groups’ activities and the types of artefacts that respondents discussed with me.

4.2.1 Workflows

For the Teaching group, the workflow for creating learning cases was not exactly the same for each case. The main area of difference was at the initial stage of creation of each case: some cases grew out of – or were even fully completed during – collective workshops where there was training on design and software tools for creating cases. Some learning cases were initially presented as part of morning meetings where the clinical teams reviewed the management of current or recent patients. Other cases were proposed by clinical teachers who had identified a gap in learning materials and who invented scenarios for learning cases. Despite these variations, Denise, one of the clinical consultants based at the teaching hospital, summarised the typical workflow for the learning cases:

when I work on a specific patient case it’s usually with a registrar or a BSC student and so they kind of write the rough draft and then I oversee it and change it up a little bit and then rely on Edward to help with the educational bit of it and then Charles and Ben in terms of the IT support. [Denise 78]

An indicative workflow is illustrated in figure 4.1.

Once a case was identified, a template for the learning case was used to propose the case. At this early stage the template was not fully completed – the key features
of the patient and condition were outlined, usually by an individual person proposing the case.

As a next stage, the partially completed template was shared with others in the project group. After discussion or feedback, the information gathered in the template was filled out with further details about the case, and learning outcomes for the case were identified. In this stage, there could be several iterations of drafting, discussion and feedback, then re-drafting. Also at this stage, external sources could be consulted in refining the content of the case. The template was saved as a Word document, so for many cases this iterative drafting was in a text-based format.

Figure 4.1 Teaching group: indicative workflow for case creation
Information-related negotiations in interdisciplinary collaborative working groups

Once the content of the case was fairly well-developed, the case was put into a proprietary software tool, Articulate, designed for presenting learning materials in sequential steps with selection options that the user can choose to work through a case making diagnosis or treatment decisions and seeing what the outcome of each decision is.

The case in Articulate was then reviewed for clarity of content, continuity information, flow of logic between steps, and functioning links. This stage could involve editing of the case by various members of the project, and iterative revisions after feedback from more expert members of the group.

Finally, the case was published on an online platform and made available to students via a virtual learning environment.

One feature of this project was changes to the workflow as the project matured: for example, as Denise became more experienced in developing cases, she wrote and developed some cases directly within Articulate rather than starting with proposing a case in the word-processor-based template.

A difference between the Research group and the Teaching group is that the Research group went through their workflow twice only – for each of the two articles. The workflow for each article was not exactly the same. Differences can be attributed to a few factors: the first article was the first time the group tried these methods so there was more discussion and iteration; for the first article, the group was larger and included more primary studies, so more time and iterative revisions were needed to ensure all members had input; for the second article, the timescale was much shorter and had a deadline linked to funding. The funding for the work of the second article also made it possible for one of the researchers to focus on the article and take on a greater role in the initial selection of data and drafting. Finally, the second article was published more swiftly – initially in the form of a report to meet the funding body’s deadline, and finally as an article in the first journal to which it was submitted for publication.
Despite these differences, it is possible to discuss both articles in relation to a shared indicative workflow, illustrated in figure 4.2.

**Figure 4.2 Research group: indicative workflow for article creation**

Each article was started with an analytical framework in mind for analysis of primary data from several studies. Data were then extracted from the primary studies using a template, or “analysis chart,” which was designed to begin to structure the data in a way that allowed synthesis and comparison of the data from the different studies.
After initial extraction of the data, the templates were shared and discussed in a group workshop. From this workshop emerged the first rough draft of the article. The draft was circulated to all the group members for revision including further synthesis, correction, and clarification.

For the first article, there was a second whole-group workshop to agree on how the article should be further developed and refined.

On the basis of that discussion, the article was revised by the project lead and a few of the authors before wider circulation to the whole group for further comment and revision. This phase of revision went through a few iterations of gathering comments and revisions that were integrated by the project lead before circulation again for new comments and revisions.

The first article was submitted for publication several times before it was finally accepted for publication. With each rejection, further revisions were made based on reviewer feedback. The revisions were largely done by the project lead with some input from the group, but with gradually decreasing collective input as the changes became less substantive.

4.2.1.2 Artefacts
The artefacts discussed during the interviews were designed to be triggers for discussion and recollection. Some artefacts were selected by the interviewees, and some were selected by me – either when the participant had not managed to bring their own selections or because I wanted to explore an idea that had emerged from initial analysis of earlier interviews.

During interviews with the Teaching group participants, eight different artefacts were discussed in addition to a few particular learning cases. The most commonly discussed artefacts were: the template for creating learning cases; a shared spreadsheet which was used to record the cases and track their development progress; and learning cases themselves. The template is discussed at several points
Information-related negotiations in interdisciplinary collaborative working groups

in the following sections: in detail in section 4.2.2.6.1, but importantly also in 4.2.2.5 (Selection as a negotiation type) and 4.3 (Transformation as a broader theme). It was instrumental in guiding the creation of learning cases, especially for project participants who were new to such work. The spreadsheet with the list of cases was used by interviewees in a few ways: to give an overview of the topics of cases, to indicate the number of cases developed, and to illustrate one of the tools used by the group to coordinate their activities. The cases chosen by the interviewees seemed to be ones that illustrated memorable experiences or particular points that the interviewee wanted to make. The other artefacts were used, or referred to, during the interviews to give me an overview of the project (e.g. the grant proposal or project website) or to illustrate particular data the group needed to report, such as use statistics for the virtual learning environment.

For the Research group, the most commonly discussed artefacts were the template for data gathering, either empty or completed, and draft or final versions of the articles.

The template, or “analysis chart” as it was described by a couple of the participants, shaped the approach to the papers, influenced the selection of data, and shaped the interpretation of data.

The article versions illustrated the processes and outcomes of the work. Points about revisions, writing style, and operations for managing the collective writing process were made when discussing the article drafts.

Other artefacts discussed with this group include notes of the workshops; a table summary of all the primary studies and their participant numbers; example extracts of data from the primary studies; slides from presentations made by members of the group about the study; a flow diagram showing the stages for developing the first article, which had been created in response to feedback from a peer reviewer.
In some cases, an interviewee mentioned that they had difficulty choosing what to bring, or finding what they thought would be a good item to illustrate their project; also in some cases, an interviewee brought an alternative artefact because the one they had wanted to bring could not be accessed or found.

### 4.2.2 Types of information-related negotiations

In the workflows of each group, there are key locations and types of information-related negotiations. In this section, I draw out the features of those locations and types. As I mentioned earlier, one difference between the two groups studied is that the Teaching group repeated the workflow for each case created—approximately 24 times—whereas the Research group completed the workflow once for each of the two articles discussed in this study. However, the two article projects were “one-offs” in comparison with the work of the Teaching group and its repeated cycle. The workflows were employed by both groups slightly differently over time, as participants became more expert in the methods and tools being used. These changes are addressed in more detail in the sections below on Learning (4.4) and Disciplinarity (4.7), where I discuss development of disciplinary roles and adaptations of the projects’ methods.

What follows is a discussion of the types of negotiations happening during the project workflows. Some of the activities could fit into more than one negotiation type, but for the purposes of clarity I have separated them out into these broad types as useful lenses through which to explore the nature of the negotiations. The order in which I discuss the types of negotiation is largely following the overall workflow processes, starting with orientation to the work of the project, for example; however within the iterative workflows the negotiations did not all occur in a clean sequential manner.

#### 4.2.2.1 Orientation

Orientation of the group members towards project aims and approaches mostly took place at workshops. The workshops were collective events. Members of both...
project groups used the term “workshop” to describe these events, but the aims and contents of the workshops held by each project group were distinct. Despite these differences, the workshops of both projects shared some abstract features: orientation or training, practice, working on the project outputs, consensus-building, and protected time.

For the Teaching group, the workshops were held when the project members from the UK partner institution were visiting the Teaching Hospital. These happened approximately twice a year. The workshops were used for introducing staff at the Teaching Hospital to the project aims, to try to generate interest in the project and recruit more active participants, to demonstrate systems or examples of completed work, to give training in learning design or software tools, and also as protected time to work on creation of learning resources in a concentrated time with support and guidance at hand. The workshops thus served multiple purposes, and acted as periodic reminders to the busy staff of the Teaching Hospital of the project and its aims, and to introduce new people to the project in the context of high staff turnover. The workshops also served to maintain momentum, as visits of the project team were important in building and maintaining the network of locally-based senior clinicians necessary to gain support for the project, and to remind staff to complete work that had been started at a previous workshop.

For the Research group, the workshops were held at the start for both article projects during the data selection phase, and for the first article, another workshop during the analysis phase was held. The workshops brought almost all the project participants together to the same room at the same time, so were an effective way of allowing participative and inclusive dialogue. The initial workshops for the Research group were used for orienting the participants to the project aims and methods, as well as some early analysis. The second workshop was mostly used for analysis and refining the key messages that the authors wanted to make appear clearly in the first article.
The group leaders presented theoretical approaches and conceptual frameworks that underpinned the work on the article, and each of the contributing researchers presented relevant aspects of their data and findings.

Then we met as a group and had a workshop and these are the notes, the meeting notes, very comprehensive as you can see. First of all, Brenda [the project leader] talked us through the background to the paper, what the thinking was in terms of looking at narratives, the literature that is out there around looking at narratives at the moment [Annabelle 119]

We basically each talked about our individual studies, our individual studies and our thoughts on the sort of specifics, and then we basically looked at how can we start pulling this together. [Annabelle 119]

In this way, the workshop served to orient and direct the group along theoretical lines, and to orient and familiarise everyone with the various primary studies included in the analysis.

Orientation in the context of these two projects was a type of negotiation because new approaches were being introduced, and the success of each project depended on acceptance of new ideas, motivation to undertake additional work, and possible changes to existing patterns of work.

4.2.2.2 Consensus-building

Consensus-building was visible at several points in the workflows.

For both groups, the workshops were key points for establishing shared understanding and agreeing on ways forward – the negotiations here were around scope, aims, and approach.

In the Teaching group, consensus-building is also visible in the selection of topics for learning cases, in the selection and refinement of learning outcomes for each case, and in the completion of informational content of each case.
In the Research group, consensus-building was also evident during the workshops as part of agreeing on interpretation and emergent themes. In addition, consensus was an aim during collaborative drafting when the iterations of the papers were circulated among the group to seek comments and amendments to ensure everyone thought the text adequately represented the points that needed to be made.

4.2.2.3 Development of skills
Negotiation around the acquisition of new skills requisite for the project was more apparent with the Teaching group. The aims of the elearning cases project required group members based in the teaching hospital to learn new skills and to change some of their teaching practices. In a context where the group members were required to learn new skills, had very little time available, and had clinical priorities, it was a challenge to persuade potential participants to set aside time to learn the new skills and to keep using them. The new skills included learning to use new software and learning pedagogical approaches. In addition, the new pedagogical approaches were likely to be different from the teaching techniques that the participants had experienced themselves.

4.2.2.4 Revisions
For the Teaching group, revision of the cases was done to increase the amount of detail provided, to develop relevant learning outcomes, and to create a coherent flow though the case. Checking for flow through a case involved careful testing for function and logic of links within the software tool used, and for the steps for the learner working through the stages of the case.

During revisions, the content of the cases was adjusted so as to be relevant to the local healthcare environment:

the case is written and then someone has to decide whether or not the approach is right, the differential diagnosis is right and whether the explanation for why this was the right treatment is reasonable in the local context [Derek 266]
Revisions also involved augmenting and adding detail to the cases, including the addition of multimedia or points from clinical guidelines or journal articles. Revisions were done by different people involved with each case, and the revision process could be quite iterative: “we had a lot of back and forth e-mail exchanges as well as in person meetings about trying to come up with different learning objectives and include them within the case.” [Denise 114]

For the Research group, revisions entailed forming and developing the main arguments and key findings across several different primary studies in a very concise document, while not losing sight of important differences found in data. The initial drafts came out of whole-group workshops where the data extracted for the articles was discussed:

So this is a copy of the meeting notes that we got sent afterwards, and then it started to sort of take shape. This is something we got sent which starts to pull it all together, a sort of rough skeleton of the final paper, a little bit of narrative around the background, and suggestions of the kind of theory that was to go in it, and then methods, results, and then pulling in the individual information that the different researchers had provided, and grouping them [Annabelle 119]

The articles were then revised iteratively by circulating versions by email among the group members. During this process, a great deal of attention was given to wording, “because,” as one of the researchers put it, “the nuances of it were quite difficult to tease apart, the wrong words in the wrong place could completely change the meaning.” [Gillian 192]

4.2.2.5 Selection

Selection work was mostly located at the start of the project workflows, where several choices were made to set the parameters of what information was relevant to the projects. Where selection decisions were revisited or refined at later locations in the workflow, such as in the selection of learning outcomes for cases, they were an active confirmation of the underlying aims of the projects.
For the Teaching group, not all of the cases proposed at the start of the workflow were thought to be the most useful learning topics. As Denise, one of the consultant physicians at the teaching hospital, observed, some of the cases proposed by local clinicians were “very unusual cases, which sometimes was a bit challenging because they were so weird and wonderful that I just felt that nobody else is ever going to see a patient quite like this” [Denise 101, (113)]. Derek, one of the UK-based consultant physicians, echoed this issue: “the people on the ground find it very difficult to think that you’d be interested in producing a case around something that they deal in three times a day.” [Derek 234] It may be that the expert clinicians had forgotten what it is like to be a new clinician, so very common cases were not seen as interesting for learning.

Because the learning resources were aimed at early career medical trainees, the project leaders wanted to create a collection of case topics mostly on more common conditions that would be expected to occur frequently in clinical practice. Derek observed,

I think there’s almost an unlimited number of cases that you would want and in a way you want them to not completely in proportion reflect the … so that where it’s a common thing you want more of those. But on the other hand you want the rare things to be made a little bit more common than they would be otherwise you’ll never get to them, you’ll never do enough work through enough cases to encounter them. Yes interesting, it’s an interesting. So important things to be aware of you want to be slightly overrepresented, but it’s the tendency of the case writers to want to produce the rare ones more than that and not produce enough of the ordinary ones. [Derek 362]

This situation of needing to steer the decisions on case topics was described as “a bit challenging” [Denise 102] by Denise, strongly indicating that a process of common understanding needed to be constructed.
The selection of learning outcomes for each case entailed another set of negotiations, located in the workflow at the point of revising the initial case details put into the template.

...we would develop a patient case more along the lines of physical exam, for example, if they had interesting physical exam findings. So to give you an example we did a case of congenital syphilis which has loads of really interesting physical exam findings. So everything from the eyes, the ears, the heart, the lungs, I mean any part of the body can be involved in that and so the focus of that case was really on physical exam and so that particular patient case most of it was about physical exam findings. Whereas everybody knows you give penicillin to treat it, and so that I think was just one slide in the patient case. [Denise 226]

The selection of learning outcomes and design of learning pathways within a case required bringing together expertise of the clinical issue, knowledge of local context, and understanding of curricular and learning needs. Achieving good quality learning cases required collaboration and input from group members with different roles and expertise.

Turning to the Research group, selection was also an important element of creating the journal articles. It may even be said that selection happened before the idea of writing the article emerged, in the formulation of the research questions of the primary studies whose data were included in the secondary analyses. These studies had been carried out over the previous 15 years, linked to the broader aims and background of the Research group: “creating a baseline of non-malignant disease and what is the status of support and care in each of these conditions.” [Annabelle 35] The Research group did have other projects, though, and the primary studies included in these articles were selected from the group’s projects because they had been carried out using similar methods, on similar healthcare issues, and had comparable data sets.
Information-related negotiations in interdisciplinary collaborative working groups

The selection of relevant data was delegated to the leads of the various primary studies included in the project. The parameters for selection were established in advance of the agreed approach to the project, and then supported by: the use of a template (see below); the research methods employed in the primary studies; and the methodological approaches used, which were broadly similar across all the primary studies.

This process of delegated selection allowed autonomy on the part of the individual contributors, though this was within the bounds of the established approach and methods. The enabling context of this delegated selection process is further discussed later within the theme of Trust (section 4.6).

4.2.2.6 Shaping ideas
Another type of negotiation was on what information should be included in the materials being created, how it should be presented, and which main points, such as key learning outcomes or key arguments or findings, should be emphasised. Ideas were shaped by the use of templates for data structuring, and through collaborative, iterative, revisions.

4.2.2.6.1 Templates
Templates were used by both project groups as tools for gathering the data to be included in the project outputs (i.e. the Research group’s journal articles, or the Teaching group’s various learning cases). The templates were created by the group leads, and were strongly aligned to the projects’ aims, and to the projects’ contexts.

For the learning cases, created by the Teaching group, the templates were designed to capture the typical patient data used in recording clinical cases. These data are routinely gathered in clinical practice, and would be a familiar approach to the students and clinicians proposing cases. Denise, a paediatric consultant at the Teaching Hospital commented, “So just within medicine that’s kind of always the way we would present a patient or we would talk about a patient in that standard order.” [Denise 222]
Where the templates differ from typical case histories or reports is in the designing in of a learning path and selected data to get the learner actively thinking about the case. For this, the template was not restrictive, as Denise noted, “...there was quite a bit of flexibility in the template in terms of where to go and adapting it for each clinical scenario.” [Denise 94] The templates were considered instrumental in helping clinicians to re-think the structuring of information in a way designed for teaching and learning. Denise observed, “...I think sometimes it was quite hard for them [junior clinicians] to make that transition between being a doctor on the ward to being a doctor on the ward and being a teacher for others.” [Denise 98]

For the Research group, a template was used to select data from each of the primary studies used in this secondary analysis, and to elicit an initial interpretative summary of the data by the researcher. Some of the researchers called it a “chart” or “analysis chart” rather than template. The template sections were aligned with the thesis of the journal article, which was to discuss patient and carer experiences using a narrative approach to understanding beginnings, middles and ends of patients’ conditions.

In order to complete the template, the researchers involved with each of the primary studies were asked to go through our quotes, our data, and to see if we could find some good exemplars of... people’s experiences round the beginning of their condition, middle and the end and also describe separately in a bit more detail... what our data say about how people experienced beginning of the disease, everyday life as they went through it, and both how they came towards the end [... so this is the sort of narrative and then some illustrative quotes. So she sent us this, and this [is] what we sent in to her. [Annabelle 119]

The information required by the template was also consonant with the design of the primary studies and the data they gathered. The primary studies had gathered qualitative data and employed narrative analyses, albeit with other angles of
Information-related negotiations in interdisciplinary collaborative working groups

analysis. In other words, the research question of the journal article had not already been addressed in the extant outputs of the primary studies.

4.2.2.7 Analysis

I use the term analysis even for the work of the Teaching group because in creating the learning cases, it was necessary to appraise key features of cases and create paths for diagnosis and treatment that did not necessarily follow published clinical guidelines. The synthesis of evidence to support best practice involved interpretation for the context of the teaching hospital, where healthcare infrastructure was very different from the contexts for which most clinical guidelines were designed:

what’s interesting is we actually don’t always follow the guidelines here and that’s just because of our resources and the particular context. So the discussion was really about these are the guidelines, this is what is recommended where they have a lot more money and time, but we might need to adapt this for the patient and then talking about where we go from there. So that’s what the discussion focused on. [Denise 162]

For the Research group, analysis was initiated in extracts and summaries added to the template by individual researchers, but synthesis and interpretation of data across the studies happened during workshops and the iterative revision process. Gillian, who led on writing the second article, observed that the significant findings and main argument of the paper emerged from workshop discussions: “So that was something that came out really with discussion. It would’ve been hard to pick that out I think just from looking at the analysis.” [Gillian 188] (Gillian used the word “analysis” in that comment to refer to the initial compilation of data from the primary studies.)

Revisions were largely handled by email, but there were also some face-to-face discussions between group members who shared an office – Gillian recalled an
Information-related negotiations in interdisciplinary collaborative working groups

illustrative experience of discussing comments that had been added during emailed iterations:

So I’ve said, yes, I’ve got something here about pain and symptom control and Anabelle said, ‘This was definitely not the case in liver patients’. So I’ve got this back and I’ve sat across the desk and said, ‘What do you mean?’ and we sat and chatted about it and worked it out and then I’ve written this up in more full detail and again incorporated what Anabelle has told me, highlighted and said, ‘Anabelle will you check that this fits?’ So anything that there was any level of disparity about I always highlighted and left a comment to say, ‘Please check this, are you sure, are you happy with me saying this?’ [Gillian 217]

These negotiations round analysis and exposition of important differences in the data required checking and re-checking to ensure points were not lost or misrepresented in revisions. These experiences are discussed in more detail later in the sections on Transformation (4.3) and Trust (4.6).

4.2.2.8 Structure and style

The elearning cases and the journal articles were carefully created to have particular structures and styles designed to be suited to the readership that each group had in mind.

For the Teaching group, the creation of an elearning case that flowed well and that provided just the right amount of information and cues for the learner entailed adopting instructional design to present the information with appropriate structure and style. Structure and style were an area of negotiation because although the cases were heavily modeled on typical approaches to presenting case histories, a learning case is intrinsically a different type of informational object with a different function, and designed with a learner and learning path in mind.

For the Research group, the structure of the journal articles as informational resources was less an area of negotiation than the style of language used in the text. The crux of the negotiations was a change from a social sciences style of

Findings 75
Information-related negotiations in interdisciplinary collaborative working groups

discourse to a style more acceptable to a clinical medicine readership. One of the authors described this as a process of “translation”:

...to get down on paper the ideas that I have in my head, then has to be kind of translated by the likes of Adam and Faisal and Ishbel, who are medics, and Helen, into medic-speak... but in a way that doesn't lose what I, we, think is the essence of the thing. [Brenda 217]

The need for “translation” was not negotiated: it was recognised by the members of the Research group as essential in order to be able to reach their intended readers. The negotiations were round not losing “the essence of the thing” – that is, the key messages and nuances of findings. There were also negotiations round stylistic elements such as the formulation of title and the conventions of pseudo anonymising research participants.

4.2.2.9 Group working processes

There were some negotiations round how each group organised participation and records to keep track of development of the learning cases and journal articles. What I am highlighting here is that some workflow processes were established from the start, some were modified over time, and some emerged as the groups developed expertise or found processes that worked better. Some processes were explicitly discussed, whereas some were tacitly adopted.

For the Teaching group, a shared web-based record of cases and stage of progress for each one was used to collate data on project outputs and to allow the project leaders to follow up on the development phase of each case to try to ensure successful completion and publication. However, the shared record was not always updated as originally conceived, which led to some additional follow-up work being required.

The people involved in the creation of cases was also rather dependent on the topic of the cases – specialists could be asked to contribute to a particular case because of its topic, but not really be involved more deeply in the project.
various experts to give their time was an act of negotiation itself, but for the core team, this also meant keeping track of a fluid group of contributors to the project.

For the Research group, the processes for collaborative drafting and revising the articles was a challenge because of the number of collaborators. Annabelle, one of the contributing researchers, observed that drafts and revisions were sent back to the whole group, which was quite tricky in itself because there were so many people involved that would put comments on and your track changes and inevitably somebody would have already commented on a separate copy, so poor Brenda must have ended up with multiple versions of the paper in the end and having to pull everyone’s comments together. [Annabelle 278]

So, although there was group discussion on theoretical and methodological approaches, there appears to have been less explicit planning or discussion about workflow processes or version control. Participants were certainly aware of the potential for confusion with multiple versions, and the work involved for the lead author in reconciling edits and comments from multiple versions into a new draft, and this awareness led to some adaptations to process, which are discussed in more detail in the section on Learning in this chapter. The processes adopted by the group also indicate a group culture and approach of inclusivity, which I will examine further in the section on Trust.

The tools used to support the working processes were ones that members of the project teams introduced to the others (the editable web-based record of cases for the Teaching group), or were tools the group members were already familiar with (like sharing versions of a document in Word, circulated by email as done in the Research group).
4.2.2.10 Making time

For participants of both groups, lack of time to work on the projects was a factor to manage. I see this as a location of negotiation because pressure of time affected both levels of involvement and workflow processes.

For the Teaching group, it was necessary to involve clinical teachers who were also dealing with demanding clinical workloads. Immediate care of patients was a higher priority than investing time in creating learning resources. In addition, those resources were linked to pedagogical approaches that were not yet really tried, tested or embedded in the local teaching hospital. Most clinicians had experienced and used lecture-based teaching. These factors meant that the core project team needed to persuade senior clinicians and administrators of the project’s value so that junior colleagues could be encouraged to participate. The project team needed to identify and establish links with those senior colleagues and also to maintain those links. This was an additional challenge because of high turn-over of senior staff: new relationships needed to be established throughout the project.

In developing the learning cases, the information necessary to ensure relevance needed to be negotiated because the senior clinicians had very little time available – this also meant that project team tried to establish workflows that fitted well with existing activities and practice:

… just the reality on the ground of how you get the very valuable local expert time and how you use it most productively. So for instance a very productive model was to get a case that had been presented at a morning meeting there, maybe by a student, maybe by a doctor. [...] So they’ve already got a few slides and a bit written down about a case and you embellish it a bit and then you write a little bit more material around this and then you get an expert to read it which would be Denise [Derek 144-148].

Workshops, run during the regular bi-annual visits by the UK-based project member to the Teaching hospital, were designed to achieve some protected time with local clinicians. Sometimes, elearning cases were even completed during the workshops –
but at the least, they helped with initial development of new elearning cases. Workshops were largely designed for orientation and skills development, but the time set aside for workshops appears to have made some development of these new cases possible. [Ben 165]

The project team also tried to negotiate the giving of time by offering financial incentives: students who submitted cases to be turned into elearning cases would get a payment.

Moving to the Research group, time was a matter for negotiation because on the whole, the articles were produced on top of existing workloads. Some of the participants also had jobs in other organisations, and lived in other cities, making access to these colleagues’ time even more of a challenge. One of the researchers, Fiona, commented on pressures of time when describing work on the first article:

> Doing a piece of work like this is challenging because Brenda is not solely funded to do this. She was leading it; it was her paper. She was going to be the first author. She was leading it within the scope of her job, but it’s not sole time dedicated to doing something like this. She’s not getting paid to do something like this, and that’s quite difficult. Also, there’s a lot of people commenting on your drafts, and I know how hard that is from other papers that I’ve written for research projects. There is a too many cooks thing, I think. [Fiona 418]

For the second article, a small grant enabled the lead author to be on a short-term contract especially funded for the project. The experiences of the first article, and the receipt of funding to support the second article, led to a few changes for the second article. Gillian was given a four-month contract to lead on writing the second article. Fiona observed that Gillian’s job as funded project lead was to make contributing to the paper “as easy as possible for everybody else” [Fiona 825] – this meant that Gillian herself did preliminary data extraction for each included study, as well as initial drafting of the article. This freed up the time of the other researchers, who were then able to concentrate more on corrections and revisions.
4.2.3 **Summary points: locations and types of negotiations**

In the preceding section, I have introduced the findings of my study by: describing the workflows of the two project groups; providing examples of the project artefacts discussed in interviews; and identifying types and locations of information-related negotiations that emerged from the data.

Most of the types and locations of negotiation were directly related to creating informational resources. Those points of negotiation that may be seen as less directly related to handling information – such as orientation, consensus-building, group working processes, or making time – are still relevant to a discussion of information behavior in groups because those negotiations are significant for enabling collaboration, especially where individuals are juggling multiple commitments, or have different disciplinary perspectives.

These negotiations were influenced by the pre-stated aims of the projects, the contexts of the working groups, prior work and experience, and disciplinary practices and assumptions.

In the next sections of this chapter, I will address the themes that emerged from analysis of these negotiation activities.
4.3 Transformation

The major activity in both project groups was transforming data and information into new material for use by intended audiences.

The transformation processes were iterative, starting from raw data initially structured through the use of templates, evolving into new materials with a structure recognisable and useable by the intended audiences. The use of templates alone was not enough to arrive at the final products: the processes involved consultation and consensus; decisions about which key issues to highlight; and agreement about how best to present the contents in flow of ideas and style.

In this section, I will present data on group members’ experiences and perceptions of the transformation processes.

4.3.1 Experiences of transforming data into a structure

Each group was synthesising data and information, and creating new, highly structured, objects.

In the Teaching group, the structure of the learning cases was heavily based on patient case histories and would be recognised as the typical presentation format among clinicians, as observed by Denise:

...the template as you can see follows the natural progression of a patient case. So just within medicine that’s kind of always the way we would present a patient or we would talk about a patient is that standard order. So all of those elements are still present, but some of those elements I guess I should say are focused on more so than others.
[Denise 222]

The selection of elements to focus on was linked to the teaching aims of the particular case – for some, for example, the focus was on diagnosis and for others on treatment. Earlier in the section on Selection, I introduced selection of learning outcomes as a point of negotiation where a set of decisions needed to be made about the most relevant and useful aspects of a case as a learning resource for
junior clinicians. The choice of learning outcomes also had an influence on the design and development of the case. I will discuss in more detail the experiences of developing learning outcomes in the next section, Learning, in terms of how the formulation of learning outcomes and design of teaching cases around those learning outcomes featured centrally in project participants’ own skills development.

Denise, the consultant physician, and Charles, the IT specialist at the teaching hospital, made comments that give insight into less programmable elements of transforming the raw materials into a learning case. Charles used the word “creativity” in bringing together the affordances of the electronic format of the learning cases, and the content of the cases themselves:

> the key thing that I do, basically to provide support in terms of how best they can create the resources it actually requires some creativity, someone who can see how best to combine two things, to bring them together and come up with something that will make sense to people. [Charles 64]

Denise talked about making the learning cases “come alive” by adding multimedia elements:

> ...since it was a virtual learning and so much of medicine is about visual representation is to see if we could incorporate pictures or video or when we moved into the diagnostics to see if we could incorporate a chest x-ray or any other bits and pieces that would really make this case come alive. [Denise 94]

When prompted to think about advice she would give to someone starting out on creating learning cases, Denise said,

> I think be very flexible in terms of how you go about it. I think if you’re very rigid about certain objectives, you’ll kind of miss some of the richness of what can come from these cases. So like I said some of these patient cases have taken a life of their own and have gone in directions where I hadn’t
really anticipated and I think if we stick to a lot of rules or a lot of expectations you might miss that. [Denise 230]

These observations indicate that the process of transforming the case information into a learning resource was not simply formulaic – there was scope for choice in the design and content, and the implication is that the successful learning cases required imagination, exploration, and curation of media other than text.

Turning to the Research group, the data from the primary studies were analysed using a narrative framework to explore and explain patient and carer experiences of the illnesses. As a first step, each researcher contributing data from their primary study was asked to complete an “analysis chart” or template, as described earlier. One experience of using the template was a sense of doubt expressed by Annabelle, one of the researchers, when she remembered noticing that parts of the template were completed with varying amounts of input by the primary researchers:

I do remember when we all came together [...] people still managed to interpret it quite differently? And I remember thinking ‘Oh No, mine is really rubbish compared to some others’. And I think to be fair though I think it was this bit [points at the narrative summary] it was the actual narrative bits of summarising – rather than the quotes bit, the tables bit – that people had interpreted quite differently and some people had written, like, pages, you know there was actually a lot of information, and I thought ‘Oh God, I've just summarised it in three sentences,’ so yes, so there was obviously still room for interpretation there. [...] cos I only had these three little paragraphs and somebody else had like three pages worth kind of thing [laughs] [Annabelle 135]

The template completed by each researcher helped with beginning to structure the data into a narrative framework – this approach was developed and led by the project leader, Brenda. Helen, whose role on the project was mainly in revising the drafts to make them more suited to medical journals, gave a succinct overview of the process:
Brenda, who’s very good at narrative analysis, brought that concept of a story and a plot to the way we analyse things. We didn’t necessarily start out like that so we’re trying to find out about people’s experiences of care, but they told a narrative [...] and so the story is the nested story of these illness journeys with their beginnings, middles and ends and their characters and quoting the narrative that comes out of the quotations and then that got synthesised after a wee while into this. So this emerged where we could actually compare the three together. [Helen 411-415]

The transformation of the data into a framework to allow the “comparison” that Helen describes was not, however, experienced as completely straight-forward. Gillian, who contributed data and analysis to the first article and led on writing the second article, mentioned some discomfort with the process of secondary analysis of qualitative data. Firstly, she highlighted concerns about asking new research questions of existing data generated from interviews which had not actually been structured to yield data addressing the specific angles of the narrative framework. She described this as methodologically a “slightly grey area.” [Gillian 300] Secondly, Gillian observed that the primary studies were slightly different from one another,

So even though you’ve got a bunch of studies that are all qualitative, longitudinal, all dyads or triads, done by the same research team looking for the same kind of things, there are nuanced differences in how the studies were actually carried out and the practicalities of what actually happened. So it’s always a little bit apples and oranges, and I think as long as you are able to caveat that a bit and explain it. [Gillian 380]

Gillian’s comments indicate to me that there was an element of compromise in the experience of transforming the data from the primary studies into the structure of the analytical framework adopted for the journal articles. Gillian also highlighted the importance of the original researchers’ involvement in identifying and interpreting the relevant data, because an analysis that is removed from the locus of qualitative data-generation could easily lead to misinterpretation of, or missing altogether, particular points of interest. These types of insights into data handling
and analysis indicate a disciplinary socialisation as a social science researcher: healthcare professionals do not often get in-depth experience of carrying out research, and an awareness of these issues comes with immersion in work as a researcher – especially as a researcher using qualitative methods. These points also link to a confidence in one another’s methods and data, which I will explore further in the section on Trust.

4.3.2 Experiences of selecting, establishing and affirming key perspectives

For both the Teaching and the Research group, there was still a lot of work to do after the completion of the templates, to develop and refine the learning cases and articles.

For the Teaching group, the choices of clinical features and learning points to build each learning case around were informed by the underlying aims of the project. The learning outcomes that could be drawn out were not necessarily obvious or limited – where there were several options of, for example, diagnosis, treatment or management, a selection of learning outcomes was made based on judgements of what was most needed for the audience of early career health-professionals.

...once you get to the point where you finish your patient presentation, your history, your tests, that sort of thing, there’s a lot of wiggle room within the template to really go where you want to go with the case and where you want to pull out those learning objectives, whether the strength of the case is really trying to figure out what’s going on, ‘What does this child really have?’ or maybe it’s a case where it’s pretty obvious what the diagnosis is. But the learning is really about how to manage it and that sort of thing. So there was quite a bit of flexibility in the template in terms of where to go and adapting it for each clinical scenario.
[Denise 94]

The template allowed flexibility for working on various learning angles that could emerge from a case – e.g. diagnosis angle, treatment angle. Derek, one of the
clinical consultants based in the UK, observed that in addition, one element of revision was ensuring the cases were relevant to the local context:

Getting the expert input into: Is this the right interpretation? Is this recommendation for management appropriate to the resources available to you? Those kind of questions. Have they missed anything out of the differential diagnosis? That’s the hard bit. [Derek 176]

Derek also noted that some learning cases required more input than others, depending on the level of experience of the case writer:

So both of those went through quite a lot of iterations to get them right. The second one, the fits and fever less so because the doctor who was writing the case was actually pretty experienced and good. So the more junior you are the more proof reading it needs, I guess. [Derek 282]

Writing cases could be a learning experience in itself, and not just for the more junior staff involved. I will explore this type of learning in the next section. Derek mentioned “quite a lot of iterations to get them right.” Denise gave some further insights to the experience of working through these iterations:

We work in a very diverse global background with consultants from all over the world. You know the Teaching Hospital presents its unique challenges and so that’s wonderful in many, many ways because you get many different points of view and it’s very collaborative. But sometimes it takes a while to sort through all of that and then at the end you’ve got to create a patient case and you have to go with a discussion on paper that incorporates all points of view. It’s great but it just takes a lot of time in terms of back and forth with e-mails and in-person discussions and sending the case to multiple people and getting feedback on that. So just to recognise that these things take time but in the long run they’re good quality and hopefully can be used for other people. [Denise 230]

Denise said that getting input from various contributors to develop “good quality” cases took time and effort. Her experience showed that cases about patients with multiple conditions could mean involving experts in each of those conditions.
Clinical guidelines and other literature sources, sometimes recommended by expert colleagues, could also be consulted and incorporated into the cases. The process Denise described indicates that the more complex cases were results of negotiations with relevant experts, and could, in addition, be seen to codify clinical management practices at the Teaching Hospital.

The Research group also experienced intensive periods of iterative revisions in their cooperative and collaborative process of synthesising data from several primary projects into journal articles. A key point emerging from the researchers’ experiences was the need to make sure that differences in findings were not lost in the process of data grouping and assimilation.

For the Research group, the project group for each of the two journal articles met all together in two “workshops” for the first article and one for the second article to agree on a process for analysis and producing the articles, and to share data and begin analysis.

After the initial workshop meeting for the first article, the project lead, Brenda, created a summary of the workshop discussion and an early synthesis of the data that formed the first draft of the journal article. Annabelle, one of the researchers, brought that to our interview as a document to discuss and described it as something "which starts to pull it all together." I discussed this artefact earlier in section 4.2.2.4 to show how revisions were part of the negotiations round shaping ideas, and highlight here Annabelle’s follow-on comments about draft, indicating that being able to recognise the key elements of each researcher's contribution was important to her:

pulling in the individual information that the different researchers had provided, and grouping them, so here for example it was organ failure, so the COPD - the heart failure, COPD study and I guess liver would be there, and liver, yes. [flicking through draft to find bits]. And then frailty, um, and then interpretation. So this was a copy of starting to pull it
Information-related negotiations in interdisciplinary collaborative working groups

together which we got shared, shared around. [Annabelle 119]

Outside those whole-group meetings, the work to develop and refine the article drafts was led by the project leader for each article, and shared by email among the whole group. Each member used comments and tracked changes in a Word document to add their revisions and thoughts. Although the method of each person circulating revisions to the whole group could be cumbersome, it was also perceived by Annabelle as useful for seeing how the key messages were developing:

And that was the good thing about everyone sending it to the whole group, so everybody could see other people’s comments because there were occasions where people didn’t agree with each other so that was then very helpful to see. [Annabelle 284]

Gillian’s experience reinforced the need to maintain input from each of the “original researchers” so that the synthesis of data from the various primary studies didn’t lead to elision of the key but differing findings from those studies:

Even right to the very end I remember saying, “No you’re getting that wrong ... please change that, it isn’t what was said here,” and every time it was revised and sent to a different journal to get it published, when you try and cut the word count you lose some of the nuance. So we’d get it back and you’d look at the whole paper but I was always very keen, I think we all were with our individual studies, to say you’ve lost some words here and you’ve completely changed the meaning, so reword it to say this. So that happened on and on endlessly because we tried three different journals before we got it published. So each stage was a case of redoing that and making sure that the original researcher, what was being said reflected their research and not an interpretation of somebody else. [Gillian 300]

I also see this approach as demonstrating transparency and inclusivity. Gillian, when she went on to lead the writing of the second article, was careful to facilitate negotiations that supported the inclusion of each contributor’s perspective during the cycles of revisions:
Information-related negotiations in interdisciplinary collaborative working groups

I would incorporate everybody’s comments, bring them in to the paper, keep it highlighted, what had changed. If what they were saying fitted I would leave a comment as to why or if they said something that I thought wasn’t going to fit in I would leave a comment as to why I didn’t think it would fit in and then that would then go around to everybody else and everybody else would say, “I take Catriona’s point so why don’t we put it like this;” or, “I take Gillian’s point so why don’t we put it like this.” [Gillian 105]

Helen, one of the clinicians involved in the writing, used the phrase “getting it right” in describing the result of these negotiations:

…there was a lot of debate about getting the summary right and making sure we’d reflected the summary synthesised really well what the different groups represented and getting them shaped correctly so that the message was clear enough, and trying to frame it in ways that people would understand what the journey meant in an easy, accessible way. [Helen 512]

Although the differences in findings between the primary studies presented challenges in drafting, one interesting thing about the secondary analyses presented in the two articles was that those differences were not seen negatively. Instead of being perceived as problematic – perhaps as showing something like inconsistencies in the data – the differences were perceived as adding value to findings. Gillian observed:

Certainly when it went back to Eric at [the funding organisation] I wasn’t sure how he was going to take to that because there was less absolutes in it than you might have wanted, but he actually really liked the nuanced details and the descriptions of, well this happened here, and this is why, and this is the explanation, and this is where it differed and how. So you really got the hows and whys and whats. [Gillian 201]

The Research group members’ awareness, from the outset, of the importance of representing the differences in findings between the combined studies probably
contributed to the patience with which the very inclusive, and therefore time-consuming, iterative revisions to the draft articles were accepted.

4.3.3 Experiences of creating finished objects

For both groups, the transformation of the data and information into finished learning cases or articles involved checking and polishing to ensure they had logical sequences and appropriate styles of presentation.

For the Teaching group, the final iterations of revision made sure each case had coherent flow, that the learning objectives fitted within the unfolding case, and that the information was presented clearly both in layout and terminology. Ben, one of the IT professionals, described checking through the cases, including trying to put himself in the position of the learner:

We give it a review for user experience to make sure the links are all working, it's well laid out. If the text is too small we'll break it out over multiple pages, check images are okay to be used; things like that. [Ben 182]

Ben also highlighted edits to the terminology used in cases to ensure less experienced trainees would find the content accessible:

... especially in medicine, people tend to, not make shortcuts, but use a lot of shorthand references to things, and almost assume that the student will automatically understand what they're talking about; whereas because it's an e-learning thing, you might not be in a class. [Ben 183]

Yes, so Edward [the project lead and learning design expert] normally adds things like extra explanation or encourages Denise to add extra explanations, more teaching points and better feedback for either incorrect or correct answers. [...] I guess it maybe helps him not being a complete subject matter expert, because he might see it a little bit more from the student point of view, having the understanding required to answer the questions, but will probably have that same lack of knowledge in specialisation as maybe the students have, so you can bring things up quite easily.
Information-related negotiations in interdisciplinary collaborative working groups

Whereas for me I just click them randomly and hope for the best. [Ben 191]

At this stage, Ben was describing a check that content is complete and testing that all links within the elearning case worked correctly, taking the user through an intended learning path.

It helps to get, because Edward’s got a physiology background, he can do the e-learning side and a bit of the medical side; whereas when I review it, I do much more of the user interface, are they usable, and things like that. [Ben 83]

As an elearning developer with a background in IT, Ben could only really test and review the functionality and flow of the learning cases, not the detail of the content. This comment from Ben’s experience highlights the complexity of this project and the need for different disciplinary experts to participate in the creation of each case.

It is also notable that Ben talked about designing the cases for “user experience” and the ability to “see it a little bit more from the student point of view.” The learning cases were written and designed for a particular audience, and the project team made efforts to try to put themselves in the position of that audience during revisions.

For the Research group, the final stages of drafting included: work on the sequence of points in argumentation; ensuring the style of the writing was suitable for the intended readership; compression to make narratives short and succinct; and iterative revisions for submitting and re-submitting for publication.

In discussing a nearly-final version, Fiona, one of the contributing researchers, commented that the revisions at this stage became “editorial”:

By the time I was seeing this, the much earlier discussions had informed how it was going to look, so it really is more editorial. Is this reading in the right order? Are there changes

Findings

91
Information-related negotiations in interdisciplinary collaborative working groups

to some of the wording that could be made, that kind of thing. [Fiona 785]

Fiona mentioned changes to the wording. This was closely related to the style of writing and was a significant element of creating the finished articles for the research team.

One stylistic element evident in the first paper was in the way pseudonyms were used for the study participants: initial letters were assigned in a clearly alphabetical sequence. Annabelle, in pointing out how participant quotes were labelled in the published article, she commented,

I'm not sure if that was a sort of compromise between the social science way of trying to use people's names or giving pseudonyms and the more clinical papers where you will always have everything anonymised; you just see 'Patient 1' or 'Carer 1' which I don't particularly like; I like to keep the person in the story. [Annabelle 357]

Annabelle used the word “compromise” in describing this usage in the publication, implying a concession had been made. This indicates to me that style of writing was a negotiable issue. Compromise was evident for others in the group also – for example, when talking about the final published title of the article, Brenda commented “I don't like the title. I wish it hadn't ended up being called that. [...] it's ended up as a very ... un-grabbing title, hasn't it?” [Brenda 311] The change of title was a concession made to “fit the journal” [Brenda 317] and this was a necessary type of compromise in order to be able to publish the article in a journal that is read by the audience our researchers wished to reach.

Another significant change to wording was in reducing the length of the drafts, because in general articles in biomedical journals are short in comparison to social sciences journal articles. Brenda, who led on the first article, was only half-joking when she observed,

We social scientists like to write about ten thousand words when the medics can only read three at a time. I exaggerate
slightly, but that’s the essence of the problem. If a sentence is longer than, you know, ten words it has to go. [Brenda 221]

Helen, as a clinician involved part-time with the Research group, could bring her awareness of style more acceptable to a clinical audience:

When we write things I’m thinking what’s the audience, and the journals we publish in are not social science and medicine, they’re the BMJ, they’re the thing the doctors would [read], you know. [Helen 190]

Revising for concision was one of Helen’s main contributions to the articles:

So there’s this kind of writing process and also sometimes it comes very long-winded and a bit repetitive, so I would do precis and editing, because I’m quite good at getting rid of words. So this was going to be long, oh yes far too long and a lot of kind of slightly repetitious stuff and big long sentences and not formed. So this needed precis work and structuring work and thinking about just making sure you go the message nice and clear. So kind of writing, so I’m kind of the writer. [Helen 386]

I spent a lot of time writing and rewriting the first, this bit, and a bit perhaps less with that one. But a lot of it was just trying to get it succinct. [Helen 508]

For Brenda, the style of writing that the articles eventually ended up in were not in her usual expository style: “when I'm trying to know what it is I'm thinking by writing it down, then I don't write like this. I write in my humanities background writing.” [Brenda 277] She indicated that she would have preferred publishing “something that flows, you know, with lots of conjunctions and subordinate clauses.” [Brenda 229] In the section above on Structure and style as types of negotiations that occurred, I mentioned that Brenda used her more comfortable humanities style in drafting to develop her thinking and ideas, and then others in the group “translated” the style to fit expectations for standard medical journal articles.
Efforts to write for the reader were not simply focused on stylistic elements of the articles. Gillian commented:

I suppose there was sometimes where I was thinking I’m going to be speaking direct, this is almost speaking directly to somebody that might be able to make a difference with it. So I would give examples of people, which again I would still put in academic writing because I just do tend to write like that. [Gillian 259]

I see Gillian’s point as illustrating how she wrote in a way that she thought would persuade the reader to take some action.

Despite the careful attention to style, after completing the first article, the group found it a challenge to get the article accepted by journals that would be read by the group’s intended audience. Brenda pointed to a difference in epistemological perspective as the barrier to acceptance by the journals:

I think it was just the qualitative bit that they didn't like. The BMJ had decided that - the comments we got were certainly about the, you know, the qualitative bit, they didn't like what we'd done and the way we'd done it. It didn't fit what they saw as research at all for those reviewers that they'd sent it to, sadly. [Brenda 325]

The BMJ, a UK journal highly-regarded internationally in this field, has even made a policy decision not to accept qualitative studies. (Loder, Groves, Schroter, Merino, & Weber, 2016, p. 214) For the Research group, this situation led to a prolonged period of revisions and refinement. Helen described her experience of the process of rejection, revision and re-submission:

We kept getting it rejected, so you send it off and you wait two months or so and then it comes back and then you put it in a drawer for a month and sulk. Then you get it out again and you think right this is so important, we’re going to have another go and then you look at it again and you look at the new journal and you look at what you've learned in that six months and you think; yes, I just develop this a bit, I could add a bit more. [Helen 432]
Part of the finishing process involved tailoring the paper to the new target journals:

This one allowed us more words and I think we beefed up the methodology a bit better, we asked Brenda to think more about writing, because she usually writes the methodology section and there was also emerging literature in North America, because this is a North American journal. We often moved out of the British context we then thought about the Canadian and North American context and there was a lot of stuff developing there because their care system is very different. [Helen 431]

Preparation for re-submission also entailed updating the content to reflect recent developments in the area:

you’re trying to keep current, you’re trying to write stuff that’s current to policy now and look at how policy has got stuck perhaps [...] Because you’re going to get it published if it’s topical. So you’ve got an eye on that as well, you’ve got an eye on policy, you’ve got an eye on what everyone else is publishing about service development. [Helen 439, 444]

As we can see, revisions related to submission for publication entailed careful attention to the affordances of the new target journal, its geographical location and the context of its readership, and demonstrating topicality and relevance. The Research group was crafting an article to carry the message of their research findings in as attractive a way as possible.

4.4 Learning

As part of carrying out the work of the projects, group members learned new methods and processes, developed new skills and gained new knowledge. To a certain extent these types of learning were needed in order to conduct the work of the project, but some of the learning was an unexpected outcome. In addition, other people who were external to the groups themselves were also exposed to new ideas or knowledge when they came into contact with the outputs of the groups.
4.4.1 **New methods or skills**

For the Research group, creating and applying methods for the combined synthesis of data from the originally separate primary studies was a new venture. In addition, although the primary studies had much in common, there had been differences in design that required some of the group members to learn about a narrative framework for the synthesis. The workshops were the key points for the participants’ gaining an orientation towards underpinning theoretical frameworks, methodological approach, and discussion of detailed methods:

Brenda talked us through the background to the paper, what the thinking was in terms of looking at narratives, the literature that is out there around looking at narratives at the moment. Adam then talked more about the three different trajectories and then we basically each talked about the individual studies, our individual studies, and our thoughts, on the sort of specifics, and then we basically looked at how can we start pulling this together. [Annabelle 118]

Learning as a theme is more strongly evidenced in the Teaching group than in the Research group. In the Teaching group, skills in both learning design and in the use of software packages and systems were developed within the core project participants and the larger number of clinicians with more peripheral involvement. Initial skills development was cascaded: first between core members of the project team, and then to the clinicians who contributed to the development of cases.

The cascading of skills in case design and software use happened during group workshops when the core project group were all together at the site of the teaching hospital, or in one-to-one interactions in between workshops. These one-to-one interactions could be a meeting with the IT professional based at the teaching hospital or an iterative dialogue about case revision with more experienced teachers and learning designers.

Charles, the IT professional based at the teaching hospital, was pivotal to the initial skills development, because most of the project team was usually not on the site:
Information-related negotiations in interdisciplinary collaborative working groups

I happened to go through a training on how best to use that template when it comes to creation of resources so I do have that knowledge of how to create resources. Because Ben and the whole team only come here once in a while, and they don’t have a chance to meet everyone who is actually involved in the project, and their time is kind of limited, so when they are gone we still have to provide the same skills, training people on how to develop resources, help them with software as necessary, recommend some of the software that they can use when they want to start creating resources. [Charles 64]

Once cases were drafted, they went through an iterative ‘proof reading’ during which the more experienced clinical teacher would guide the case author through pedagogical learning about design of cases for teaching:

They were, “Did you think of this?” “Why haven’t you put that?” Or, in particular, the negatives. What negatives you need to include are often overlooked. [Derek 282]

‘Negatives’ are key points of information that would allow students to eliminate irrelevant possibilities and paths of enquiry:

This would be much easier if you told us the blood pressure for instance, otherwise they might think it was a completely different condition [Derek 298]

So they’ll say this patient presented this, that and the other, and this is the differential diagnosis. But you need to give some context. Was this patient well before or is this on the background of something previously. It often needs slight expansion for clarity I think, so that it’s not too hard for people to do, who haven’t actually encountered the patient. [Derek 286]

So although the learning cases were largely based on the well-known structure of case notes or histories, clinicians involved in creating the cases needed to learn about differences in design related to the learners’ intended path through the case and the working out of solutions for the problems that are presented.
Information-related negotiations in interdisciplinary collaborative working groups

We can see evidence of educational skills development on the part of Denise, too. In discussing her role in the project and as a clinician, she described depending on Edward for guidance on developing learning outcomes – she was an expert clinician, but not trained in education. However, she also described coaching the students who contributed cases. Earlier, when initially describing the use of templates (4.2.2.5), I quoted Denise’s comment about how the templates helped the junior clinicians to step back and begin to see how the cases could be re-shaped into teaching material: “I think sometimes it was quite hard for them to make that transition between being a doctor on the ward to being a doctor on the ward and being a teacher for others.” Denise went on to say:

So they had quite a hard time figuring out what should be the learning objectives and I would say that’s where I really had to step in and say, you know, “What about this, did you consider other differential diagnoses? Shall we focus on treatment because I noticed that you did this, this and this for the patient, but did you read any medical literature that suggests maybe we should do this or that?” So I think that’s really where they learned a lot from these patient cases, but it’s definitely where I had kind of the most input and really what my role was in terms of trying to glean objectives and learning points from these cases. [Denise 98]

It seems that Denise herself developed these skills after guidance from Edward, and began to pass on those skills to the students she worked with on cases. This comes through in her support for one of her registrars in creating a case:

So with this particular registrar she was wonderful in terms of getting all the patient details and the patient presentation and we had fantastic chest x-rays and photos of the patient. But I think where she really struggled was trying to develop the case so that it would teach other registrars how to work up a patient with multi-drug resistant TB and then what are the main things that you need to know and learn from a patient like this. So that’s where I stepped in a lot and we had a lot of back and forth e-mail exchanges as well as in person meetings about trying to come up with different learning objectives and include them within the case. [Denise 114]
Also, as her own skills in pedagogy and learning design grew, her work within the project became more autonomous and required less guidance from the learning specialists:

I haven’t gotten specific feedback on the final edited version but this was one of kind of the more later cases and so I know [Edward] definitely went through some of the first ones with a fine-tooth comb, but I think later on he trusted us to take off from there. [Denise 158]

One of the aims of the teaching projects was to build the clinicians’ skills in elearning software use and learning design so that they could continue this work after the funded project itself finished. At least from the evidence from my interviews, this aim seemed really to be achieved only in a small number of clinicians: just two individuals appeared to fulfil this objective. One of those two is Denise, one of the interview participants of this study, who was described as a “star” contributor of learning cases by Derek. The other was described by Ben:

Currently we’ve got an anaesthetist who is really engaged in the whole e-learning thing and that has probably done more development in his own materials like, e-learning content, looking for existing resources, more than what we’ve trained. He’s got an interest. He does it all on his own, whereas others are there because they may have been told to or because they’ve got a passing interest but it wouldn’t get reignited when we’re back. So there are a few people that are very keen. He’s been amazing actually, this guy. He’s gone and developed using the Moodle quiz tool a whole range of very detailed case-based teachings, linking in to readings, and all sorts, all on his own. I sort of logged back into the Moodle and just saw it was like [amazed expression on face] - really impressed. [Ben 95]

Ben touches here on motivation for engagement, which I discuss in more detail elsewhere in this chapter. Ben also made a broader reference to “academic liaisons who have been useful and have been either lecturers or mostly have been people who do lecturing and maybe attend multiple workshops and have carried that on.”
Information-related negotiations in interdisciplinary collaborative working groups

[Ben 55] However, these individuals appear to have acted more as champions for the broader aims of the project, rather than prolific creators of learning resources.

Skills development was important as a pre-requisite or early phase for project members being able to contribute to the development of cases, but as indicated in the section on types of negotiation, pressures of time because of clinical duties in an understaffed clinical environment presented a barrier to uptake and engagement with training and also of the application of skills learned to create resources.

4.4.2 Adapting project methods

Through the experience of the project work, the members of both groups made changes to processes or methods to make the workflows or outputs more manageable and achievable.

In the Research group, there was adaptation in how edits and comments were added to the iterative versions of the articles. The group deliberately wanted to make sure all the authors could comment on each revision, as Catriona observed:

   There were lots of drafts of this paper and obviously you know, drafts and redrafts are then you’re – you want it to be circulated around everybody, quite rightly so. And everyone to have their input but then obviously we have to take turns sometimes so that you can be working with the same version [Catriona 93]

But, this could rapidly become difficult to manage with people working simultaneously on a copy received by email. The writing team for the articles was large, and this was recognised by group members as a factor that affected the progress of their work. Catriona went on to comment:

   I think the more people that you’ve got involved. That’s one thing I think I would say about collaborative working and the difficulty of it. I’m sure we’ve all encountered that, just the more people that there are the more... It slows things down and it’s harder. [Catriona 89]
Catriona said, “obviously we have to take turns sometimes so that you can be working with the same version” [93] and Annabelle observed:

So you were always kind of holding out for an opportune moment. So everyone put their initials at the end of the document received with their initials and you were trying to get in and put yours on so that you could put it on top of other people's comments to minimise the amount, but we never formally discussed a method [Annabelle 279]

Having run through the workflow for the first article and experienced the methods that the group used for the integrated analysis data from the separate primary studies, the process for producing the second article was more familiar, easier to apply, and used adaptations.

I was very, very keen to get it out but that kind of challenge is trying to squeeze it in and do it as quickly as we could. So having the background of having been involved with the first paper was helpful ... for everybody I think [Gillian 41]

As described earlier, the precise context of the second article was slightly different from the first: the work was commissioned by an external body; the findings were going to be used to feed into policy development and there was a deadline associated with the policy timelines. In addition, funding was provided which allowed the lead author, Gillian, to carry out the bulk of the work, though still in collaboration with the other authors.

The funding led to Gillian, as the lead author, doing more of the groundwork. For example, she was given the relevant raw data from the primary studies and performed the initial analysis herself. It was recognised from the experience of the first article that it was very difficult for the authors to add another project to their existing workloads, so this modification was designed to ease the collective burden. The experience of the first paper gave the authors confidence in the path they were following – for example, regarding the workshops, Gillian commented,
I think the workshops had worked well and had an idea of how to put through. [...] You know what to do. But having done the workshops before that was really helpful to them to then think right this is what we do and this is how we do it. [Gillian 300]

That confidence also supported adaptations: there was only one workshop session designed into the methods of the second paper, partly due to there being less of a need to build consensus round methodological approaches to the secondary analysis – the groundwork had been laid in the work of the first article – and partly due to the allocation of the initial data analysis to the lead author.

For the second article, drafts and comments were still circulated to the whole group of writers, but as the article developed, the group communicated more explicitly about the order in which each person would review and pass on the draft, to avoid having multiple versions of the same draft in circulation at the same time:

Trying to make sure it all goes to one person then the next, then the next, then the next before it comes back to you. You revise it, that’s another thing that does make things a lot easier so you have a set plan of how it goes around people and by the end of the study, I think I said that in one of my last revision sections was, if possible can you do this one at a time after each other. I know so and so is away these days. So on the final one I remember Brenda then saying, “Okay I’ll work on it over the weekend so Fiona can get it on Monday and then Catriona can have it on Tuesday, Annabelle’s away, but she’ll be back Thursday and then so and so is off Friday”. So they actually, within themselves, within the group worked out and then they were all like, “Yes okay but I can’t do that day but I’ll do it this day,” so they knew. [Gillian 329]

This adaptation of passing the draft article between authors like a baton in a relay also allowed the group more easily to meet the externally imposed completion deadline (completion deadlines had not been a factor for the first article).
The adaptations observed in the Research group are linked to increase in familiarity of methodology and methods, agreed changes in workload balance, and recognition of ways to coordinate work between group members more efficiently.

For the Teaching group, a major adaptation was a simplification of the case template and creation process:

Some of the sessions where they were trying to create cases and they were a well-motivated group with lots of good ideas, but the design for the cases was very complex and the process of getting them online was quite complex. So the number of completed useful cases at the end of it was quite small. [Derek 128]

The simplification of the template and case creation process made for a lower threshold both of time required and of the design of the learning pathway through a case. Paradoxically, complex case structure could lead to the creation of poor-quality learning cases.

When you went back the quality of some of them was quite low and this was of course a conclusion reached after discussion with clinical colleagues, looking at the amount of work that went into it and reflecting on it and Ben was involved in that from the beginning, so these cases that you’re showing me now were quite influenced by that experience. They’re much more concise and linear... [Derek 136]

Learning about the constraints of the setting – the teaching hospital – was an important step in understanding how the case-creation process needed to change:

It seemed to me to be far more laborious than preparing a lecture and you could only, if you had this amount of number of hours available you could produce very few of these. So that led to a bit of a rethink and we’ve jumped quite a long way now. So we’ve ended up with that experience and this is experience discussed with people on the ground there and actually learning how limited their time is to create resources. [Derek 137]
The changes to the template and the expected learning path through the cases also led to different expectations about how the cases fitted into pedagogical approaches and learning activities:

So they’re more linear, they tend to have one or two key learning points rather than attempting to cover the whole of chest disease around a single case and they’re easier to write multiple instances of. But in many ways that’s certainly the way my mind has moved in that time and quite a lot of it is related to the experience in [the location of the Teaching Hospital], but it’s also influenced by just experience at home. [Derek 138]

So my experience both there and here was towards creating lots of shorter cases that put things into perspective and asked them to make decisions between one thing and another. So was presenting not too many new bits of information in each instance. [Derek 143]

The changes to simplify cases could also have led to their longevity with more sustainable management and re-use of the cases:

They’re much easier to write, they’re much easier to correct if knowledge changes and they don’t require an IT developer to help you create them. [Derek 143]

Adaptations to methods in the Teaching group show reflective thinking over time about case design, apparently not entirely linked to the context of the teaching hospital but also to project members’ other work locations. There also appears to have been a shift in perception of how comprehensive each learning case should be, from complex and inclusive to simpler and faceted. These changes can be linked to the practicalities of time and resources required to create and maintain these cases.

Ben observed that over time, as Denise’s skills in creating cases grew, she did not stick strictly to using the template:

I think [the template is] along the side of [it] to keep the balance, but she’s probably now goes a little bit more freestyle depending on what the case is, because some are
very basic and straightforward, some she might want to ask case-based decision-making type questions; others might just be to see something, get a bit of teaching content and see the next stage. [Ben 176]

The template could be seen as a “scaffolded learning” aid (Wood, Bruner, & Ross, 1976) for the clinicians who were learning to become clinical teachers: the template was an essential guide and aid for those new to creating the learning cases, but with increased expertise it was possible to design effective and tailored learning cases without direct dependence on the template.

4.4.3 **Substantive new knowledge**

With the phrase *substantive new knowledge*, I mean new learning or understanding on the part of the project members about the topics they were working on – that is, the topics or issues covered in the learning cases or articles.

In the Research group, some members learned more about the findings of one another’s studies, but it became apparent to me that although they had conducted independent primary studies, most members of the group were familiar already with one another’s original studies because of supervisory, supportive, or friendship relationships. Helen commented that before working on the articles, the primary studies had mostly been looked at in isolation and the broader “narratives” may have been present in the data but not recognised by the researchers:

> They were kind of probably always there, but because we’d all looked at different bits of it over a different time or certain of the researchers had focused on one story [Helen 552]

By bringing the data from the primary studies together in the secondary analysis, some new insights were gained from the process of analysis:

> I think it helped us formulate what we kind of knew better about the three illness trajectories. So we’ve described the sort of longitudinal shape of the trajectories, so the upping and downing of the middle one and the declining one. But we hadn’t described it in terms of the experience, so it was a
Information-related negotiations in interdisciplinary collaborative working groups

new way of looking at it and when we read the stories the three narratives emerged. [Helen 548]

Substantive learning appears to be more evident for the second article. In this case, there seemed to be some powerful explanatory findings:

Well I was surprised in the finding of the liver failure people and that the older people were more likely to get support and that the younger people were less likely, that was surprising, but I think it was really important because it pointed to where ... it really clarified everything. It's one of these little findings that clarifies everything else, it makes sense of everything else and you really started thinking this was an issue about triggers and what triggers there are to professionals thinking about putting in all these different processes, getting them into play. So that's something that really altered the way you looked at it and it probably leads to the most important finding. [Gillian 312]

By exploring new angles of enquiry across the multiple primary studies, the group members experienced clarification of findings or gained new insights into patient experience.

Moving to the Teaching group, there is more evidence of substantive learning. Where cases were written by more than one clinician, there was a mentoring and guidance role for the more senior clinician, indicating a learning experience for the more junior clinician or student about the scenario and its handling. The more junior partner would draft the case, then pass it for checking to the consultant or expert in the area:

the case is written and then someone has to decide whether or not the approach is right, the differential diagnosis is right and whether the explanation for why this was the right treatment is reasonable in the local context. [Derek 266]

During the creation of one of the cases described by Denise, there was also a substantive learning experience for the two consultants involved in supporting the trainee doctor. I used this example to illustrate analysis as part of the
transformation of data into cases, but I use this fuller extract from the same section of interview transcript to explore the angle of learning:

Well I would say what was interesting about this case is we really talked a lot about what the guidelines are and looking at different... [The more senior consultant] pointed us to a lot of good medical journals that talk about how to manage multi-drug resistant [tuberculosis], so that was a rich source to say, you should include these guidelines and talk about these guidelines and make students aware of these guidelines. But at the same time what’s interesting is we actually don’t always follow the guidelines here and that’s just because of our resources and the particular context. So the discussion was really about these are the guidelines, this is what is recommended where they have a lot more money and time, but we might need to adapt this for the patient and then talking about where we go from there. So that’s what the discussion focused on. [Denise 162]

The two consultants, working with the registrar who proposed the case, developed a set of management recommendations within this case that required learning about existing medical literature and clinical guidelines and then adapting them to the context of the teaching hospital.

4.4.4 Reification and participation

I am adopting Wenger’s usage of reification in this section. Wenger has pointed out that reification is the naming, concretising, of abstract concepts, but also extended the standard definition of reification to “cover a wide range of processes that include making, designing, representing, naming, encoding, and describing, as well as perceiving, interpreting, using, reusing, decoding and recasting.” (Wenger, 1998, p. 59)

The creation of the groups’ outputs – which carry the messages, fulfil the goals and embody the intentions of the groups’ projects – is a form of reification that can influence others outside the groups. The informational resources created by the groups enabled learning by people outside the groups who came into contact with those objects, and influenced practices of at least some of those people.
Information-related negotiations in interdisciplinary collaborative working groups

For the Research group, it was a struggle to get their work accepted by the target audiences – as discussed earlier, there was a fundamental epistemological mismatch between the group and much of their target audience. One signal that their research and its findings was recognised as valid was the fact that after initial presentations, they were subsequently invited to give keynote talks at conferences:

MD: it sounds as though in a way the work hasn't really finished because you're continuing to communicate...

Brenda: Yes, yes. Yep, and so for example, this one [points to the PowerPoint slides], when I did this with the singing and dancing, I think that was a 15 or 20 minute presentation, the next time I do it in September, it will be 45 minutes so –

MD: That's the plenary one?

Brenda: Yeah, there's two plenaries, one in September and one in November. They're both an hour I think, 45 minutes to an hour slot, so I'll have to grow it a bit. Or learn how to dance the tango [laughter] [Brenda 353-355]

Plenary presentations are generally longer presentations to the whole body of delegates at a conference, whereas parallel presentations are short and generally only attended by delegates who choose a thematic parallel out of interest. Being invited to plenary positions is indicative of a sort of confirmation of relevance and validity, and has the added impact of reaching a wider audience who may not have already encountered the subject of the plenary presentation.

Building on points of learning made in the previous section, we can see how a conference presentation about the first article indicated acceptance and led to further reusing, decoding, and recasting. Fiona observed that the second paper emerged out of thinking prompted by a presentation about the first paper:

Actually, I'll tell you where it started, was that [funding organisation's] conference, when Adam and I gave the talk about the first paper. And, on the back of that, our head of policy, who was sitting beside me, and then I came back from giving the talk, and he said, 'I wonder if age makes any
difference to experience’. And, that was where the project evolved, from there. [Fiona 148]

What is more, in the rationale for the second paper was an intention to feed into policy development:

It had to be done very, very quickly because he wanted, the policy man from [the funding organisation], wanted to be able to report back to the government before they were putting out their policy guidelines for end of life care. I think that was the thing is that it was an opportunity to feed our work directly to where it might make a difference. [Gemma 33, 41]

This concretising of the findings of the project group into policy – or even just the intention of doing so – is evidence of reification. Helen described the work of the project as “ongoing” as she continued to integrate the findings into policy with two further strands of work. She was talking directly to policy-makers about the findings – “I was talking about it at the parliament yesterday at the cross party group” [Helen 20] – as well as writing a new article “using this data to critique policy. It’s an analysis document. It’s [...] a critical analysis of the way the policy is going. And using this to provide evidence to argue a case.” [Helen 32-40]

For the Teaching group, the creation of at least some of the cases allowed the scenarios and issues to “take on a life of their own” as prompts for dialogue, learning, or change in practice. In discussing a learning case created about a challenging condition, multi-drug resistant tuberculosis in a child with another serious disease, Denise pointed out that the case required different treatment teams to coordinate and improve communications about management. The multi-drug resistant tuberculosis itself presented a major problem to the hospital, and the case prompted wider policy and management discussions about infection control. When I asked Denise if those discussions would have happened anyway, without the creation of the learning case, she commented,
I think they probably would’ve happened anyway. But with that being said, you know, what tends to happen is the people that are intimately involved with the care of the patient are the ones that see this directly and then kind of champion changing it. But as this case kind of gets disseminated to other registrars and other trainees, they’ll start thinking well what if this happens again if we have another case like this where would I put somebody like that and so after this case was done I had a few people coming up to me and saying, “Well Denise, you know, I’m worried about this patient, they might have multi drug resistant TB where do I put them, has anything come from those discussions, I read that patient case and I know you guys sent that child home, but what if I can’t send them home or what if they need to stay”. So I think it just widens the discussion and it gets more people involved. [Denise 202]

So it seems that that one case in particular helped to provide evidence to influence change in administrative systems, was brought up in policy discussions about wider hospital issues, and was a trigger to prompt one-to-one discussions with the consultant about management of other patients. The creation and dissemination of the learning case broadened the sphere of those who became interested in the issues.

Denise’s narrative also shows that some of the cases may have had an actual audience that was broader than the originally intended audience of relatively junior learners in the hospital. I explored this further with subsequent interviewees, asking if it resonated with their experience. For Derek, it did:

Yes. I guess cases like this would often be presented to the team and discussed, but the record of that discussion was not … there was no record kept of that discussion, it would disappear, it would be remembered and people might in the corridors say, “I’ve been thinking about that case”. But by writing it down and showing it to other people you are forcing further reflection or encouraging further reflection and there’s a lot of difficult issues there. Although it didn’t arise in the kidney case I’ve mentioned, some of the cases were around … they have very limited ability to do dialysis for instance and most patients who would get dialysis in the
Information-related negotiations in interdisciplinary collaborative working groups

UK wouldn’t get dialysis there. So how do you use this scarce resource and so, yes, there were some important discussions arising, you know, what rules should we use to decide who we treat. Those discussions were happening but they were taken further by this kind of in-depth consideration of a case, yes. [Derek 382]

Derek also observed that the discussions could be linked to encoding of practice:

Maybe, not solely as a consequence of that [the discussion arising from cases], but probably assisted by the extended discussion, policies became written down and more explicitly agreed. I think that did happen, yes. So you might be saying, ‘Well why did you use this treatment rather than that treatment and what are the principles you used to decide that here?’ So that might lead to them being a bit more explicit about the principles they use rather than just saying, ‘That’s what we should do, that’s what we should do’ and trying to deduce the principles from observing that process. So you do have to in explaining what the right thing to do with a patient or what occurred with the patient, there’s a need for a bit more context than you would necessarily have in the clinical situation. [Derek 386-390]

However, when I explored this development with the project leader, Edward, he was certain he had not personally observed this at all. It may be that as Edward was not a clinician, these potential consequences were less apparent to him, but it must also be borne in mind that there were multiple development projects, managed by quite different groups, happening at the teaching hospital at any one time. It is therefore impossible to attribute any causal relationship between the development of learning cases and developments such as the clinical management guidelines.

Moving away from policy-related outcomes, the engagement of clinicians like Denise, who were not part of the core project team but who became involved and were essential to the success of the project, can be viewed as embodying a reification of the project’s practices. As it was an aim of the project to build capacity for learning design in clinical teachers, the clinicians who gained expertise in teaching grew into and embodied, themselves, the aims of the project.
4.4.5 Learning outside the groups

There is evidence that as the groups’ outputs were shared or published, other people outside the groups had learning experiences when they came into contact with the groups’ work.

For the Research group, dissemination of the project’s work also took the form of presenting at conferences, where people external to the group became aware of it. Helen observed that the theoretical framework was a very effective way of giving new insight not just to the Research group themselves, but also to others:

> Once we knew it made sense we just had to find a way of describing that so that other people would see the picture properly. It is quite a good picture, I mean when you go and present it people go, “Well that’s really interesting, I never thought that before”. [Helen 556]

Brenda recalled the reception of topic and inclusion of music in the presentation, in contrast with the standard content of 10-minute parallel oral presentation slots:

> Well it certainly attracted a lot of attention, as most of the presentations the parallel sessions which is where it's been presented so far, are just slides and people talking for only 10 minutes or 15 minute so we whiz through and off you go to the next one. Um...and again some people like, really liked it, lots of people came up afterwards to talk to me about it. But I think a lot of other people don't like it, don't think it's very scientific, and right, proper. [Brenda 339]

It is not absolutely clear that the conference delegates who wished to speak to Brenda following her presentation had learned new things – but this sort of interaction shows dialogue about new ideas, and dialogue may lead to new questions and ideas. As mentioned earlier, Fiona recalled the effect of one of her conference presentations on a colleague, who was prompted to see new angles of enquiry on the issue whose questions led to the second paper produced by the group.
And as we know from Brenda’s account, these presentations did influence others’ thinking enough to prompt invitations to give keynote presentations at other conferences and to conduct further research.

For the Teaching group, as the cases became available, they were viewed not just by the target audience of students, but others in the teaching hospital. Sometimes the cases prompted discussions that show evidence of the cases being used:

Well, it’s good. That’s the only way things will get better for these patients is if you keep telling their story over and over again and the other thing is these patient cases have a life of their own and sometimes people come up to me and they say, “I read through this case and why didn’t you give this sort of treatment?” You think, yes I probably should’ve given that treatment to that patient, I hadn’t read that journal article, that’s a good idea and while I wrote that case two years ago and you’re right things have changed, we should really update it. So it’s interesting how these patient stories continue to teach you and when you get somebody looking at it with a fresh pair of eyes they think well maybe it was this or maybe you should’ve done this. [Denise 206]

In this particular comment, we can see that the cases could also continue to push the development of substantive new knowledge for the writer of the case, even after it was completed. Denise did perceive a positive impact of the cases on the learning of others, too:

…it’s great. It shows that they’re really thinking about it and that was always the hope is that it would be a springboard for them to go and learn more about whether it was typhoid or malaria or TB that they would think about these patients a bit more critically. [Denise 210]

Denise highlights thinking critically as a potential outcome of the cases, and I think this is significant. Strictly speaking this is not new knowledge, but it is a substantive shift in the culture of learning at the teaching hospital, such that other clinicians would stop to discuss with Denise, a consultant of some seniority in the teaching
hospital, the appropriateness of management decisions in the cases she had written.

4.5 Motivation

A clear theme that emerged from my interviews centred around reasons for participating in the projects. For members of both groups, the main motivation for engaging with the projects was a belief in the projects’ aims, and this can be seen as a form of activism for change. Other motivations may be linked to career and professional growth, but were expressed in mostly intrinsic terms. The participants’ various underlying motivations made the time-consuming information-related negotiations worth engaging with, even when there were elements of compromise. Motivation also made the work associated with the projects, on top of existing responsibilities, worth the extra time and effort.

4.5.1 Importance of change

In both groups, I could see that the participants had a belief in the importance of the changes that could be made by the work of the project groups. The perceived need for change may be linked to the personal experience of the participants – the conception of the changes was not based on abstract ideas but rather concrete first-hand experiences.

For the Teaching group, those who engaged were motivated by the broader aims of the project, not just because of its laudable aims, but because they experienced first-hand some of the challenges being addressed by the project. Ben described the response of one clinical teacher who was not part of the core team but still contributed:

And people are interested in it because there's something about the high staff turnover, one of the people that we trained who isn't part of that core project groups, he had just arrived about a month in; he's from [the UK], and he was basically taking over the whole teaching for this whole programme. He found a couple of PowerPoints and things,
Information-related negotiations in interdisciplinary collaborative working groups

so he’s had to write the whole thing from scratch, so as soon as we showed the VLE and some of the resources that we’ve got available that he could use, it’s, ‘Okay, I’ll build it up and then the person who’s after me…” - because he knows he’s only going to be there for a year or two - ‘…they’ll have that as a stepping stone.’ [Ben 109]

In this resource-limited setting, the participants were motivated to invest their own time to benefit the future practising clinicians who would no doubt continue to be constrained by clinical work and would benefit from sharing re-usable learning materials. Denise, as a consultant clinician, was similarly persuaded into motivation by the aims of the project:

Obviously the [teaching hospital] is stretched very thin in terms of academic support and there’s a great need in the country to train more doctors and so to have these kind of resources that would be available to our registrars was really great. So that they can kind of learn on their own and strengthen their clinical skills and judgment and so one of the things that we had talked about doing was creating patient cases. [Denise 50]

Denise saw the resources as something to take some of the teaching pressure off of those who were so busy with clinical work. Derek, as project lead, was motivated by a broader potential benefit, and hoped others would be attracted by altruistic aims:

Yes, and I think I hinted at the fact that these even though they’ve been produced in [the country of the Teaching Hospital], I think they’re only interesting if they’re transferable to other places too. That works in a number of ways. So it means that people see more value in producing them, if they’re just to their 50 students locally well they could just give them a lecture or pretend that they would teach them that on the wards. But if they see it contributing to some greater effort I think they’re more predisposed to allocate more time to it. [Derek 220]

Derek also highlighted a need to create good quality local learning resources to make it less necessary for trainees to go abroad – some doctors who go abroad for
further training do not return home to practise medicine and this leads to a detrimental loss of expertise in the country of the Teaching Hospital.

The members of the Research group appeared to be similarly motivated by the project to address an actual, current problem in clinical practice – this research is not undertaken solely out of intellectual interest. Helen highlighted the problem:

So it makes people be shoe-horned into care that doesn’t fit their perceptions of themselves or the reality of their journey. So this is music to the ears because it’s exactly what’s going on and being ignored. So that’s why we’re still using this to try and challenge that now. So this was the paper we really, really wanted to publish. So it was both a synthesis of a lot of our work and that was immensely valuable to go back and see what we’d achieved but it also had a narrative that was incredibly important to us, because it has a capacity to challenge some of the ways in which care was going off in the wrong tangent or people were missing the point. So it had a kind of almost moral imperative behind it as well as an academic or intellectual narrative. Because we tend not to do things just because ... we tend to do things because they’re important which is a strong motivator, so this was a very, very important paper to us and the story as we wrote it and rewrote it clarified itself. [Helen 407-411]

This sense of the importance of better understanding of care needs of people with the conditions of interest to the group was shared by the other group members. The usual healthcare models and pathways were not seen by the group as sensitive to the needs of the variety of conditions in patients in the care setting.

The perceived importance of the work sparked motivation linked to project aims, as well as a sense of “shared values,” could make some types of negotiation which in another Research group could be contentious, become unimportant. For example, Brenda commented,

So, I'm not particularly worried about authorship or being the first author on things so things like that there are other things that drive the work and make it meaningful and
Information-related negotiations in interdisciplinary collaborative working groups

worthwhile to me and ah, but I know for other people in other groups it’s very important that they get first author papers in certain journals and that kind of thing, so, I suppose mostly for me it is about working with people that I trust and whose values and aims are the same as mine, even if they achieve them in different ways. [Brenda 361]

Brenda was more interested in getting the message out to the people she wished to reach than in academic career rewards associated with a competitive publication track record. In addition, this motivation to reach the target audience made the trouble and effort to get published in a journal with clinical readership important:

I don't want to be disparaging to social science journals because I’m sure they make things happen too. But... [they’re] not read by the people who I want to read them. [Brenda 265]

Without the strong motivation to communicate the message about their research findings to the audience they wished to reach, the project team may have been less committed to the effort of transforming the text stylistically, may have been diverted to publish in a journal more accepting of qualitative methods, or may have lost their energy for perseverance after the first article rejections.

4.5.2 Personal motivations

For some of the members of both groups, there were other, more personal motivations for involvement in these information-intensive projects. Derek, as project lead for the Teaching group, observed,

You know, people get involved in projects because they fulfil their wider ambitions don’t they? They steer them in directions that fit their wider ambitions – I’m possibly guilty of that. [Derek 28-32]

Derek uses the word “guilty” – as though the project has been used as vehicle to achieve his own personal goals, regardless of the ostensible wider benefits of the project aims.
Information-related negotiations in interdisciplinary collaborative working groups

For Brenda, producing the Research group’s articles was also about fulfilling wider ambitions, by creating a sort of retrospective of her life’s work and of the team’s contributions over time:

I suppose, Adam and I are both approaching retirement age and we want to think about a legacy almost I suppose. What have we learnt from all these years and was it worth doing? Where were we at when we first met 15 years ago in terms of having discussions about care? What are the big questions now and what could we do to provide some answers for some new questions? [Brenda 115]

For Helen, as someone working part-time in the Research group, participation provided her with a chance to step away from intense clinical work:

[It] allows me to step out of the clinical coal face which is increasingly demanding in a not particularly intellectual way and frustrating because there’s lots of stuff I can’t shift, I can’t do, I can’t get people to listen to me. I can’t get bad practice stopped, I can’t change things that are out of my control. I can just do my best and I don’t get thinking space and I’m a total reflector, thinker, that sort of... you know. I like to reflect and think, I like to think about what’s happening. I like to think about what the meaning of things are. I need space to think. I would not be able to do a five day a week clinical job, I’d have to go and run an antiques shop or write plays or do something else. So in a sense it’s important to my well-being. [Helen 239-246]

In this way, the work of the Research group offered Helen a chance to compensate for difficult clinical working environment and allowed her to engage in activities that the clinical work did not appear to permit. At an earlier point in our interview, she had commented:

I do work in this group probably mostly because it’s value based. So I work pretty hard doing things in my own time because I think it’s meaningful and what I contribute is valued. [Helen 137]

These motivations appear to be expressed as intrinsic: the groups’ participants gain self-fulfilment, well-being and a sense of being valued.
4.6 Trust

In this section I explore several elements integral to information-related interactions and negotiations experienced by the participants, and which can be linked to overall group dynamic. This discussion of trust incorporates a stated sense of shared values and mutually understood working practices that enables easier negotiations. I also make a link between the experience of negotiations and perceived balance of power, and argue that perceived balance of power and mutual respect will affect a sense of risk in information-related negotiations.

Notions of trust were more evident – indeed, during interviews more explicitly stated and articulated – in the Research group than in the Teaching group. This may be partly because the Research group was more cohesive with its longevity as a group and continuity of its members, and also because the group’s culture itself permitted reflections on trust. The culture and context of the two groups did appear to have a strong influence on the negotiations involving trust.

4.6.1 “Shared values, shared ways of working”

I am grouping together a discussion of two rather different points because they were linked together in the comments made by members of the Research group. As we were discussing what could help a collaborative group project work well, Brenda said,

I think although we all come from different backgrounds, we’ve got some shared values and ways of working and trust that make it easier to give up the things and feel that you’re gaining other things. [Brenda 361]

She makes quite a lot of points in that one sentence. There is an element about compromise (giving up in order to gain), which I have touched on in the section on transformation. She mentions trust, which within the context of the data in this study, I am arguing is a broader condition enabled by things like shared values and shared ways of working.
The term “value” in this sense is defined by the Oxford English Dictionary as,

The principles or moral standards held by a person or social group; the generally accepted or personally held judgement of what is valuable and important in life. (OED, 2017)

I think that these “shared values” are at least partly the collective sense of the importance of the subject of their research – a point that comes through very strongly from the interviews, and which I have discussed in detail in the previous section on motivation. I will not repeat the discussion here, but will extend it slightly by pointing out that the shared activism for socially beneficial change and altruism in working toward a greater good are indicative of a shared sense of “what is valuable and important in life”.

Examining “shared ways of working,” I will articulate three main points. First, the group members are generally conducting qualitative research and while they recognise that it is not universally accepted within their field as scientific, they see the data as valid and relevant to clinical care. They have a shared epistemological stance. Second, they are using similar methods for the various primary studies. Third, they have come to know one another well, and many of them are fairly familiar with one another’s work.

The first point about shared ways of working is epistemological stance, which has already been discussed in the section on transformation. At this stage I would like to add a new facet to the issue of epistemological position by arguing that the challenge of working to gain acceptance in a field in which most people have a different view of what counts as knowable and valid has had a cohering effect on the group. Reflecting on the first article as a sort of milestone, Helen observed:

It was a thing of its time, it was just timing and it was a philosophical thing and it was based on a team that had a particular way of functioning. [Helen 616]

The “particular way of functioning” may partly be a reference to the group’s dynamic that is examined in subsequent paragraphs, but when she linked the point
to “a philosophical thing,” she echoed a comment made by Annabelle about how the work of the group is represented in the first article:

one thing that the group considers a strength, that we have that, that we have the methodological expertise in this area and we’ve done a lot of work in that area, unlike a lot of the other [...] research groups who [are] a lot more quantitative in their approach, so it is an area that we’ve kind of recognised is actually a strength [Annabelle 99]

This awareness of doing research differently from others helped to create a raised consciousness of the shared ways of doing things within the group.

The second point about shared ways of working is about similarity of methods. In reflecting on the history of the group, Annabelle observed:

one thing that the group has very much used over the years in all those studies as well is a qualitative approach which is not that common generally in the sort of clinical world, particularly a qualitative longitudinal approach, so a lot of the studies have used that, have followed people over a certain amount of time. [Annabelle 99]

The third point about shared ways of working is about familiarity – with one another, and with one another’s studies and the context of those studies. Although the researchers mostly worked on individual projects within the wider research group activities, they had shared experiences, and through these shared experiences some members of the group developed deeply supportive friendship ties:

[We] are very, very good friends. We started our PhDs at the same time; we’ve been through an awful lot together personally and academically, so we’re... I suppose we work very closely together. To be honest, we all do... partly because of the projects that we’ve done. And, when you all go to conferences together, and... We do – we all actually have a very good working relationship, which makes a big difference because you can sit down and really thrash things out and help each other. There’s no, “I don’t, I don’t want to ask in case.” [Fiona 253]
Information-related negotiations in interdisciplinary collaborative working groups

The co-authors were also familiar with data through supervisory or steering-group roles or from having been co-located as PhD researchers supporting one another. Helen, as a clinician who was on steering groups for several of the studies, said,

> I was involved in quite a lot of [the primary studies], not all of them but a good number to varying degree. So, I’m familiar with the story, I’m familiar with the patients because I see all these people, because I see everybody in my hospital with all the diseases in all of the wards. [Helen 394]

When I suggested to Helen that knowing the clinical context so intimately could contribute to her understanding of how to interpret the data, she replied, “That’s right, that’s exactly what’s going on here.” [Helen 402] This was echoed by Gillian when reflecting on the editing process of the articles and articulating the findings from the data:

> So that when you would say something they would remember and it would make sense to them, to what they knew of the studies. So it’s not taking a bunch of people that had never done anything even if they knew each other personally, but it was very, very interlinked. [Gillian 280]

The “shared values” and “shared ways of working” discussed here are grouped under the broader concept of trust because it is through these shared values that easier information-related negotiations emerge: the members trust one another, one another’s data, and one another’s interpretations of their data.

Significantly, this trust makes secondary use of primary data a more viable endeavour. This is a broader issue identified with research data, and not just a matter for qualitative data: for example, Zimmerman found that ecologists working with quantitative data trusted others’ data only if they really understood exactly how the data were gathered and with what purpose. They would “employ their knowledge about the relationship between purpose, methods, and data limitations to make sophisticated decisions about appropriate reuse of data.” (Zimmerman, 2008, p. 644)
4.6.2 Perceived power balance

The interactions described by interviewees from both the Research group and the Teaching group give insight to the sense of hierarchy in each context. The sense of hierarchy described by participants lets us understand the perceived balance of power within the information-related negotiations. I am handling this under the broader concept of trust because the sense of hierarchy within the groups is integral to the authority ascribed to each participant’s contributions (an aspect of trust), and appears to have had an effect on the confidence with which junior participants engaged with the projects.

The Research group members described a rather flat hierarchy, and trust can be seen in the relationship dynamics of the group. When exploring this notion of trust with Catriona, Fiona, and Gillian, all of whom contributed data from their PhDs, there was resonance. Catriona used the words “empowered” [193, 201] and “custodian” [19, 63] to describe each contributor’s role in relation to their own data. Fiona emphasised mutual respect and sharing within the group:

I think all our roles are reasonably equal, actually, within the group, and that includes my role [first as PhD student, then as post-doc] and Adam’s. I don’t think, you know, as much as they lead up the group, there’s no feeling that they have more of a role than we do … everyone’s contributions are valued in the same way, is what I mean, which I would imagine isn’t the same in every group. Which is a reflection of Adam and Brenda, really. [Fiona 100-104]

Gillian described ways of working through apparent differences that show trust in one another’s input:

if you’re interested in the decision making and how we worked out differences… it’s difficult to say because I think Catriona and Annabelle and Fiona and I, we did very similar PhDs which made it … we’re all coming from very similar research backgrounds. We all understood what had happened in the other studies. If one of the other researchers thought that something was one way then I would incorporate what they said. If it didn’t fit with what
Information-related negotiations in interdisciplinary collaborative working groups

I’d done in the analysis and what I remember from the workshop or what I’d put and then we would discuss it and we would usually come to an understanding of how and why and it made sense to both of us and then it would be written in that way in a way that made sense. [Gillian 193]

Helen also intimated that the nature of the group and its dynamic is integral to the nature and approach of the articles written; that a group with a different dynamic would not have been able to carry out this work:

You need a good leadership and shared values and mutual respect or you get a different output. You get an output, but it would be different. And it also depends what you’re trying to achieve and what type of research you’re trying to bring together. [Helen 596]

I think we have a unique opportunity, I think you’re right we have a unique opportunity to do this. This is [a] very unique paper produced by a very unique process, by a rather unique team, which is probably ... it may be recreated somewhere else, but the other team, the other big research group in the area, is very different from this one. It’s much more hierarchical and competitive. [Helen 608]

It is not as though there was no hierarchical structure within the group. There clearly was a hierarchy, and its members are aware of and responsive to the principal investigator of the whole group and also the lead roles for the organisation of work round the two articles. Fiona articulated a sensitivity to this when she commented,

I can’t remember what my role specifically... I suppose, given the author sequence, I probably felt I had more of an onus to contribute to it, but equally, there has to be an awareness of who’s leading it up. Someone has to lead it. And Adam, I think, drove it home by the end, which is his... That was his job as the head of the group, is to see us round that final bend, I suppose, (laughter) which is what he does with all of us. [Fiona 419]

Helen observed that “good leadership” is needed along with the “shared values” and “mutual respect.” A few paragraphs above, where I quoted Fiona’s comments
Information-related negotiations in interdisciplinary collaborative working groups

on the equality of value of individual contributions, the point finishes with her observation that this dynamic was “a reflection of Adam and Brenda” as the group’s leaders. Later in the interview, she also highlighted that the group leaders’ approach to collaboration between disciplines is an influence on the group’s ways of working:

the multidisciplinary bit...because that comes from the top, the head of the team, because Adam’s a GP, Brenda’s coming from that more social scientist perspective, it definitely filters down to the rest of the team, in being a strength, because it’s...because something like that could actually be a limitation, and be a problem in your group, if it wasn’t well-managed. [...] It helps it flourish. [Fiona 301-309]

Fiona’s observations indicate that she sensed a very clear leadership structure within the group, and a sense that the group’s “multidisciplinary” culture is “managed” in such a way that it “flourishes.” This approach is also visible in the structure of the groups to write each article. Helen observed,

It won’t work unless everybody views themselves as equal, that their project is not better than anyone else’s project or their voice is louder than anyone else’s. But you need somebody who is a really good chair, who can keep it altogether, pull it together, make everyone feel listened to and respected, can manage the process, need a good facilitator which is what Brenda did, a leader who everyone respects. And the strength of her leadership was that she understood the methodology; half the studies were hers. So she really understood where we were going and where they were coming from. Some of them are her own PhD students, so she’d worked with them, had a relationship with them. So without that, you might do it, but you would risk the authenticity of the researchers’ individual voices if you start having hierarchy. [Helen 576-580]

Helen’s point is pertinent to the impact of group dynamics on information-handling, and the implication of her comment is that the informational resources created by the group are more valid, truer to the closer interpretation of the data by the original researchers.
Another aspect of trust could be seen in the way presentation slides, as informational resources, were used to communicate the work of the group. Slides were shared and amended without central control or checking, and different members represented the work of the group externally:

I think we submitted the abstract with my name on it and it got taken but it was in London and I couldn't, then couldn't go to London and Fiona said she would do the talk, and so I just sent the slides to her and she adapted them, however she felt comfortable for her to do it with them and that's again generally what we do as a group. [Brenda 343]

External communications of all kinds were very important to the group, and I see this as a further indicator of trust in one another, and of autonomy granted to the relatively junior members of the group.

Turning to the Teaching group, hierarchical dynamics were less explicitly discussed by my interviewees. There was certainly an internal hierarchy inasmuch as there was a project leader, Edward, taking responsibility for ensuring the project was completed to the satisfaction of its funders. Edward also asked members to carry out tasks or provided guidance and mentoring. Trust among the core group members was clearly present, because there was delegated responsibility for various activities and respect for, and recognition of, the different types of expertise that members from different backgrounds, or in different roles, could contribute toward the success of those activities. These working dynamics were likely to feel comfortable to the group members because of normalisation of inter-professional teams within healthcare contexts. (Mitchell et al., 2006) Where I see hierarchy or power dynamics affecting the project more obviously is in the core members’ interactions with new or more peripheral participants, and strongly in relation to the context of the project within a clinical environment. There is a strong culture of hierarchy in clinical environments. Denise, in describing the target audiences for the learning cases, compared them in hierarchical terms:
Information-related negotiations in interdisciplinary collaborative working groups

So the masters in medicine and that would be the degree that medical doctors would receive after they have completed their post-graduate education. So those would be the paediatric registrars and so they would go on when they’ve finished and be considered to be paediatric consultants. So they would come and be my kind of colleagues. Whereas the BSc it’s a different training path, so after high school some students decide to go on and become clinical officers and so those are kind of considered middle grade healthcare providers [...] So my role within the college I have pretty limited input into that programme, but through the e-learning project these resources were designed so that they could be used for both our paediatric registrars as well as our paediatric BSc students. [Denise 54]

In Denise’s description we can also see the learning paths in terms of hierarchical differentiation: the masters students are on track to become “my kind of colleagues,” and the BSc students become “middle grade health care providers.”

Charles described “reluctance” on the part of clinicians to start using learning technologies – and part of this may be linked to moving to a new domain where they are not expert. He would arrange personalised one-to-one meetings with them to introduce them to the e-learning tools – meetings that may have reduced the risks associated with public loss of status. [Charles 76]

The junior doctors were required to write up clinical cases as part of their studies. However, for some reason that was not clear to the project team, they did not in general submit many cases for conversion into learning cases.

They’re clearly still doing case studies because that’s part of their course assessment, but what we’re not seeing is those cases coming to us for translation into virtual learning objects, if you like, that everybody can share. They’re still being delivered on paper, being marked by a tutor and given back with a mark and that’s it; we don’t then get any benefit from that. [Edward 61]

Even with a strong financial incentive, the junior doctors did not submit cases:
Information-related negotiations in interdisciplinary collaborative working groups

... we found with the postgraduate clinicians, who were always telling us how short of money they were, we said, “Look, you write us a case and fill in one of these templates, and we'll pay you $50,” and we had virtually no takers. We might have got ten in the whole three years. It's not, we expected they would think, “Great, I can just write up one of the cases I'm doing anyway.” [Edward 66].

Poor uptake could be linked an aversion to risk associated with showing ignorance – Derek, as a senior consultant clinician and experienced clinical teacher from the UK, appeared sensitive to this point:

I think many of the junior doctors there have a relationship with their seniors who would be reading the cases which is rather ... which we would regard as quite old fashioned, extremely respectful and they're very afraid of getting criticism... They’re anxious about showing their cases to their local seniors for being thought to be stupid, I think that’s one. [Derek 326-330]

Me: That’s very tricky, that’s quite a cultural shift isn’t it?

Derek: Yes. I say that, but it’s not that easy to do this in the UK either. So it’s not completely a different culture there, maybe it’s because I’m so scary (laughs). [Derek 334]

I must be cautious about over-interpreting the effect of hierarchy or power dynamics, though: the barriers may just have been logistical instead. Edward was not convinced that lack of time was a factor preventing students’ or junior doctors’ participation in submitting learning cases from their coursework [70], but he did think that lack of access to computing equipment was a problem [65].

The partnering of two institutions in the Teaching project gave rise to two further points linking its hierarchical context and notions of trust. Firstly, it is notable that for each role, there was a broad matching up of collaborators from each institution: IT or e-learning support with Ben from the UK and Charles; clinical teaching design with Edward and Derek from the UK and Denise; clinical leadership and project buy-in with Derek from the UK and the head of teaching at the Hospital. This was by design to ensure the relevant skills sets could be shared, but also enabled
knowledge-exchange and co-creation relationships to be made with project members of roughly equal hierarchical status. Secondly, the personnel make-up of the Teaching group allowed not only a relevant mix of skills and expertise, but also afforded interactions with non-local experts that might otherwise have felt too risky for junior clinical colleagues or students based at the Teaching Hospital.

4.7 Disciplinarity
In embarking on this study of collaborative project groups made up of individuals with different disciplinary backgrounds, one of my research aims was to understand information practices associated with disciplinary background in relation to the collaborative working practices of their project group. In interviews, I asked participants directly about differences they noticed in how information was handled within the projects in comparison to other areas of work – but most of the findings I discuss in this section emerged out of questions and discussions about group processes. It seems that participants did not generally dwell on disciplinary differences, and yet, disciplinarity was a dynamic within the practices of the project groups.

4.7.1 Disciplinary composition
Both the Research group and the Teaching group had members with different disciplinary backgrounds, but the Teaching group had greater difference in roles than the Research group. These differences in role can be clearly linked to disciplinary background.

In the Teaching group, each project group member had a role strongly associated with a domain of professional expertise. The composition of the group was designed to bring the necessary specialist knowledge and skills to the project. As illustrative examples here I will look more closely at three group members: Charles, the IT professional based at the teaching hospital, Denise, the consultant paediatrician at the teaching hospital, and Derek, the clinical consultant based at the UK partner institution.
Prior to this project, Charles’ work was focused on IT infrastructure and technical support. He commented that,

my job description is of computing officer. So basically it involves, ah, I act link a link between the ICT and the teaching staff. In terms of providing support on all the elearning systems that we are using and all other technologies that are to do with curriculum delivery to students from staff. [Charles 52]

In the context of the project, he described his role as that of a “learning technologist” providing on-site support for any queries or training on software or IT systems relevant to the project:

In terms of me involved in the group, what happened was, initially in the Teaching Hospital I was involved as a learning technologist and my job basically was linking the ICT department and the members of staff. So the systems that were used in the past fell within my line of responsibility, and I was the one who was in charge from this end in terms of all technical work that was required. I think the roles in the team in terms of support they are in [the UK partner organisation] and it was important that we had someone on the ground who could actually provide first-hand support, and that happens to be me. So I provide support to different members of the group, to students, members of teaching staff, and everyone else involved with the project. [Charles 40]

Denise had an underlying role as a clinician with teaching and research duties, and her role in the project was grounded in her area of clinical expertise:

I am considered a clinical lecturer and along with doing clinical work I also do research and then another big part of my role is teaching [...] I was approached to do kind of this e-learning project because they were specifically looking at kind of strengthening the post-graduate education within paediatrics. And so my role was really kind of about resource creation and in terms of resources that could be used in a virtual format. [Denise 50]
Derek’s project role was “to get engaged with other clinicians” [Derek 196] in order to ensure there was sufficient local expertise input to the content of the learning cases to make them relevant to medical practitioners working in that setting. For the project’s progress, Derek observed that travelling “repeatedly and forming relationships with the individuals has been incredibly important to getting things out of it as opposed to flying in once or twice, yes, lasting relationships have been very important.” [Derek 216] From Derek’s comments, it may be seen that a key aspect of his role in the group was developing and maintaining contacts with senior clinical peers at the teaching hospital, reinforcing group participation and support for the project.

Similarly, the IT professionals from each institution worked very closely together – Ben observed,

So those links with those guys have been important and, I think, because I’ve got an IT background, it helps; I can work with them very closely. Most of the guys actually come over to [the UK partner institution] now so you can show them around; invite them over for dinner and things; it’s very easy to work with them. And it is important because if something goes wrong, at this distance I need to be able to Skype them, text them or whatever and they can do something straight away. [Ben 40]

Disciplinarity enters into this as we can see pairing up of people in similar disciplinary roles between the two partner locations – IT, clinical – in order to gain and maintain support for the project and to get members of the teaching hospital to participate. It is also significant that in the early stages, a senior clinician who was from the same country as the teaching hospital, and who had worked with the UK-based institution, was seen as instrumental by Derek in building an early network with other senior clinicians at the teaching hospital. Clinicians at the teaching hospital were extremely pressed for time, so having a clinical peer who was also a local appeared to help the project gain some interest and commitment from other clinicians in the Teaching Hospital.
In the Research group, with the exception of one person, all the researchers had prior training and experience as healthcare professionals of different types: medicine, clinical psychology, or nursing. Brenda, the methods lead for the two articles, had an academic background in humanities and research background in social science. In comparison with the Teaching group, there was little differentiation in group roles along disciplinary lines, although Brenda’s knowledge and skills in qualitative research were instrumental in the conceptualisation of the projects and their methods. In considering the make-up of the group, Brenda observed:

I suppose I see myself as the methods person, qualitative methods person, that's my area of expertise, I guess. And then there are all the medics in their areas of expertise, and the researchers have a different background. Some are nurses, some are psychologists. [Brenda 131]

When I asked if the group would consider itself largely made up of social scientists, Brenda answered,

No, we don’t have any. Depends what you mean by a social scientist I suppose. We don't have anybody who has a first degree in sociology. Or, one of those sort of things. We've all come to it from different backgrounds. [Brenda 233]

For the researchers, the perception of discipline was less well-defined in comparison with the Teaching group, and I will examine this in more detail in the next sections. In the Teaching group, I see growth of a skill sets within a core discipline, whereas in the Research group, I see a shared philosophical and epistemological perspective which functions to enable shared working practices among a group with various professional qualifications and experiences. In the next two sections I will explore each group separately.

4.7.2 Disciplinary development
In the Teaching group I observed some overlapping of the boundaries of discipline for Charles, as the IT professional, and Denise, as a consultant clinician, based at the teaching hospital.

As part of my research into information handling in these collaborative groups, I wished to explore whether individuals’ information practices shaped, or were shaped by, participation in the group projects. I feel cautious about attributing any causal links between project involvement and changes in information practices, but by examining the participants’ accounts from the perspective of disciplinary boundaries, we can gain some insights into individual engagement with the projects.

Charles described his role in the project as that of “learning technologist,” and at the Teaching Hospital, he had other responsibilities aligned with this type of role:

I’m basically in charge of most of the electronic teaching that exists within the College. Again, I’m also in charge to do search on emerging technology as far as teaching is concerned, and to recommend to College on what to adopt and what not to adopt. Just to make sure that we are far with the whole institution. [Charles 52]

Charles learned about the creation of clinical cases using the template so that he could offer continuity of support in a context where there was high staff turnover and where those project members more expert in pedagogy and learning design were not always available:

Because we do have members of staff that may come and go, but we still need to have some set of things that are going to be there all the time, in case there’s someone, you can actually train them on how to build the resources. So what we did, was we came up with a template, I think maybe Ben might have said about that as well. I happened to go through a training on how best to use that template when it comes to creation of resources so I do have that knowledge of how to create resources. Because Ben and the whole team only come here once in a while, and they don’t
have a chance to meet everyone who is actually involved in the project, and their time is kind of limited, so when they are gone we still have to provide the same skills, training people on how to develop resources [Charles 64]

With his involvement in the project, Charles learned approaches to the creation of learning resources.

Denise was dependent, at least initially, on others’ domains of disciplinary expertise:

So I would say that the three people that I’ve worked the most closely with are Charles and Ben. So they’re both IT people. So Charles works at the Teaching Hospital and runs IT there and then Ben was obviously from [the UK partner organization] and he helps with IT and I think the reason why we work so closely with them is there is this e-learning bit and there’s a lot of kind of technical pieces and so they’re really helpful in terms of getting that piece sorted and if I have questions about how do I upload this or how do I publish this or any of those kind of IT stuff. And then I would say the other person I work quite closely with is Edward who kind of oversees the whole project. So he’s been a great resource in terms of just providing good kind of academic structure to the cases. I mean I would say obviously my speciality is that I know children and I know how to take care of them. But I think you have to remember that most medical doctors don’t, you know we don’t have an education background, we don’t know the best ways about coming up with learning objectives and making sure that we kind of glean from these patient cases what is needed in terms of making sure that students learn the basics and the fundamentals. So he’s been really a great resource in making sure that these are of high educational calibre [Denise 78]

Denise’s account highlights the areas of disciplinary intersection between roles she experienced – guidance and support for information technology on the one hand, and learning design on the other. Over time, though, Denise gained confidence in both the learning technology and learning design, to the point where she was able to create, or lead on the creation of, cases more independently. Edward thought
that one motivation for Denise to learn about the software was to bypass a perceived bottleneck in the workflow:

But ultimately, I think, Denise decided that really the IT was the stage that was holding everything up, so she put effort into learning how to do it in the software application; Ben gave her quite a lot of instruction and help on how to do that and ultimately she started just developing the cases in Articulate herself. [Edward 55]

In addition, Ben observed that Denise took on some of the IT training: “Denise’s now been training other staff members on how to create using the software application so she’s got a laptop with a licence.” [Ben 202] Denise commented that, “my particular kind of role in the e-learning was kind of resource creation and kind of leading and overseeing that,” [Denise 46] and it is apparent that for her, skills development and advocacy were part of that role. But, Denise’s underlying role as consultant clinician did not change.

The types of activities that Charles and Denise took on within the project were new for them, but not new for the UK-based project partners. Although each of them took on activities that had previously been in others’ disciplinary domains, Charles and Denise did not experience a fundamental change in discipline.

In planning this research, I wished to explore whether adoption of new information practices and skills could lead to a fundamental shift in discipline as captured by the concept of transdisciplinarity. Rather, I think what we can see in Charles and Denise is professional development within their core respective disciplines, and as something influenced by the UK-based project partners.

Learning technology and medical education have been established as areas of practice in the UK for decades. We can see this in the Association for Learning Technology (ALT) established in 1993 (ALT, 2018), the Association for Medical Education in Europe (AMEE) established 1972 (Wojtczak & AMEE, 2013), and the Association for the study of Medical Education (ASME) established in 1957 (ASME,
2018). These organisations are described as welcoming to people with different roles or disciplines. On the ALT website is the statement, “Our Membership includes practitioners, researchers and policy makers with an interest in Learning Technology. Our community grows more diverse as Learning Technology has become recognised as a fundamental part of learning, teaching and assessment.” (ALT, 2018) On the AMEE website is the statement, “AMEE is a membership organisation that helps teachers, doctors, researchers, administrators, curriculum developers, assessors and students keep up to date with developments in the rapidly changing world of medical and healthcare professions education.” (AMEE, 2018) Both of these statements imply that the people practising in these areas come from a variety of underlying roles and professions, and while it must be recognised that some people do move into specialist roles described as learning technologist or medical educator, at least some of the people practising in these domains retain their underlying roles and professions. While gaining digital and pedagogical skills, it would be inappropriate to say this represents fundamental change in discipline for Charles or Denise: in gaining the new information-related competences, they are acquiring skills relevant to their professional roles along the lines of what could be found in countries like the UK.

4.7.3 Perceptions of discipline
Overlap of clear disciplinary boundaries or individuals’ growth within their core discipline were less apparent in the Research group. The differing specialist backgrounds of the Research group members were not irrelevant – for example, Brenda’s methodological expertise and Helen’s clinically-savvy approach to writing with concision brought necessary and discipline-related contributions to the work of the group. However, disciplinary differences seemed to be personally perceived. That is to say, one person’s sense of different practices and ways of working linked to difference in disciplinary background were not necessarily the same as the disciplinary differences perceived by the others in the group.
The Research group was mostly made up of researchers with prior healthcare practitioner roles. In discussing the disciplinary make-up of the group with Brenda, she said she did not see anyone in the group as a social scientist, and as we went through the author list, she commented, “Of this list, Fiona’s a nurse, Gillian’s a nurse, Annabelle’s a psychologist, Catriona’s a psychologist.” [Brenda 237] When I asked whether she felt that those who are nurses or psychologists were more familiar with the language that is needed or preferred by the medical journals and the medical readership, it appeared Brenda was undecided about whether the researchers who had backgrounds as nurses and psychologists were more like medics than social scientists:

I don't know what to say now, because I - I did immediately say “Yes,” my gut answer was “Yes” but, actually, I think, and I'm sure they'll speak for themselves, but I think Fiona and Gillian and Annabelle and Catriona all like to write at length as well, so maybe they've won over to social science by their PhD [laughter]. [Brenda 253]

The researchers had all completed their PhDs prior to the article projects, so in Brenda’s words, they would have been “won over” to social science prior to the collaborative group work that is the focus of my enquiry. Earlier, in discussing experiences of transformation, I described the possibility of a disciplinary socialisation for the researchers who had come into the Research group to do their PhDs after experience of working in healthcare, and such a socialisation may be what Brenda was reflecting upon.

For Helen, who was still working as a clinician most of the time and with the Research group one day per week, these members of the Research group are within a new discipline because they are now researchers in an academic context. Helen compared Fiona and Gillian, as two ex-nurses, with Jean, another ex-nurse who had maintained her professional link through teaching nursing alongside work in the Research group:
Jean was formerly a nurse and she kept that, she did like me, she kept the duality of role more than the other two nurses who abandoned their professional hats. [Helen 258]

In using the word “abandoned” to describe how she saw the change in role for Fiona and Gillian, Helen indicated she did not see them as nurses any longer. However, she did also see that prior experience as healthcare professionals as a factor enabling more successful research because it allowed better understanding of terminology and easier navigation of interview dialogues:

We’ve used social scientists or nurses that have stopped being nurses and become social scientists to do the research and that’s been productive because they are much more like the person they’re interviewing. So they talk their language, they think their think and then we have to take that back and reinterpret it almost for the clinician. [Helen 214]

When I asked Fiona about the different backgrounds of the group members, she commented, “Yeah, yeah, and I think that multidisciplinary bit is a real strength ... bringing those backgrounds together.” [277] I then asked whether she saw the differences in her group members’ backgrounds coming out in their work together:

Um, yeah. I mean, I think we come from, I suppose, in a way the psychology people come maybe from a slightly different epistemological background, but then you get to the level of qualitative work that we were at, and kind of, you’re bringing everything together by that point. Different from me, I think, having been constantly grounded by the more clinical side of, well, what does that mean to the patient who’s in the bed of the-in the ward I’m looking after? So, maybe being constantly grounded by that, you have a slightly different perspective. Gillian would be a good person to ask about this, because she’s a nurse and a psychologist, so she kind of comes from both backgrounds, so that would be an interesting one to speak to her about. [Fiona 281]

It is notable that Fiona perceived differences in outlook among the nurses and psychologists, and clearly saw herself as “constantly grounded” by her prior experience as a nurse. Fiona also used the present tense to describe Gillian’s
healthcare qualifications, so it seems that Fiona saw those disciplines as active within Gillian, too. Fiona perceived that the group was multidisciplinary and more diverse than other groups in their part of the academic institution:

we belong to the medical school, it’s not, you know, it’s multidisciplinary, but it’s not multidisciplinary in the same way that we are, I wouldn’t say. Might be bringing basic scientists and doctors together, but that’s often as far as it goes. [Fiona 325]

So despite a perception that the group was multidisciplinary, these different members of the Research group did not have shared perceptions of what each person’s discipline was. Rather, there was a messy confluence of past disciplinary positioning and current roles within the group. This may be a result of the harmonising effect, of “bringing everything together” that Fiona saw in the qualitative research methods of the group.

4.8 Identity

Identity emerged as a strong theme during analysis of the interviews. Elements of identity were apparent at two main levels: individual and group. Aspects of identity emerged in relation to role within the project group, to disciplinary background, attributes of the project group itself, and to the wider aims of the projects – all of which intersect with individual and group identities.

In the following sections of this chapter, I will discuss the various ways that identity as a theme has come through from the participant interviews, especially in relation to information.

4.8.1 Individual identity

In both groups, participants’ descriptions of their work within the project gave some insight into their self-identification. This could be linked to a specific locus of activity within the group. For example: Helen, from the Research group, observed, “so I’m kind of the writer” [Helen 386]; and Derek, from the Teaching group, said, “I'm
really the manager who gets the money in and then makes sure it's spent correctly” [Derek 85].

Self-identification was also linked to discipline, expertise or profession. Brenda, from the Research group said, “I suppose I see myself as the methods person, qualitative methods person, that's my area of expertise, I guess”. [Brenda 115] And Denise, from the Teaching group, observed, “my speciality is that I know children and I know how to take care of them,” and she also offered a label, “I am considered a clinical lecturer,” [Denise 78, 50] with the implication this categorisation would be recognised by others in a medical school or teaching hospital.

However, close analysis of the transcripts revealed that individuals’ identities were not always perceived in a shared way, and were not static or fixed. For example, in the Teaching group, Derek didn’t portray himself as a pedagogy and learning design expert, but Denise, from the point of view of a clinician, and Ben as a learning technologist, did identify him in that way.

I see this mismatch in perception of identity more strongly in the Research group. Brenda, the social scientist, used the present tense to describe the disciplinary background of the other researchers: “And then there are all the medics in their areas of expertise, and the researchers have a different background. Some are nurses, some are psychologists.” [Brenda 131] The use of present tense indicates to me that for Brenda, the researchers were occupying those professional backgrounds in that moment. However, Helen, a clinician, perceived that the researchers had “abandoned their professional hats” [Helen 258] because engaging in research distanced them from a professional role they had had before starting PhDs. In describing Fiona’s role, Helen said,

When she was here as a researcher she was quite far into being a researcher and quite far away [from nursing]. She’s no longer doing any clinical practice, she left that identity
Helen’s comments indicate a view that moving out of clinical work into research involves a change in identity, whereas teaching in a clinical area allows one to retain a link to the professional role. In discussing the influence of her discipline on her approach to research compared to other researchers, Fiona herself, though, did not appear to think she had abandoned her nursing background:

the psychology people come maybe from a slightly different epistemological background, but then you get to the level of qualitative work that we were at, and kind of, you’re bringing everything together by that point. Different from me, I think, having been constantly grounded by the more clinical side [Fiona 281]

Helen’s account of her own identity was the most complex and multi-layered of all the interviewees. While Brenda described Helen as a “medic” when speaking in general terms about the professional backgrounds of the group, Helen said about herself, “I’m a teacher, a clinician and an amateur academic all rolled into one.” [Helen 117] Helen’s background was clinical medicine and she worked mostly in a clinical context – she portrayed her part-time days with the Research group as an “amateur academic” as an outlet for her other interests in research, policy, teaching, communication, and she saw herself bringing all those to the work of the group, and contributing essential knowledge, skills and experience:

Within the clinical discipline I have clinical knowledge both about medicine and about education and about communication and education which is really important for this stuff and all of the fields of my life cross over, borrow from each other. So actually it means I know a lot of stuff? and so I use this stuff to help me teach and I use … so they all cross over which is what keeps me interested in life probably when the bits of it are rather difficult like the NHS just now. So it means I come at it in a very unusual way. So that makes me unusual in the group and the group unusual because of the components of the group. (Helen 121-122)
So working within the group both allowed Helen to bring a complex and overlapping set of identities to the group, and gave space for her to enact those aspects of her identity that clinical work did not permit. When I asked Helen if she felt she was changing role herself when she spent one day a week with the Research group, she replied, “Not really... It’s a part of ... so I’m comfortable in the Venn diagram, I’m quite comfortable in the Venn diagram and the Venn diagram allows me to step out of the clinical coal face” [Helen 234-8]

We can also see from Gillian’s account that the Research group work allowed her to develop an aspect of her approach to understanding:

I’m a narrative researcher and the stories are all about ... everything is about the stories and if you tell any level of story people’s interest is piqued and it makes sense and it resonates in a way that numbers and broad details just don’t. So I’m always going to pepper anything with little stories I think. [Gillian 260]

Participating in the project could act as an influence on identity as well as give members opportunity to explore. Note that in the statement I’ve quoted just above, Gillian, who qualified as a nurse first, then got academic degrees in psychology and health psychology before starting her PhD with the Research group, said: “I am a narrative researcher.”

Fiona, also initially a nurse, said, “it’s definitely shaped who I am, and the research that I do, and how I approach it, is because of the work I do with all these other people.” [Fiona 1026]

In these accounts, I see a fluidity of identity in how individuals perceive one another’s identities, and in changes to some individuals’ ways of thinking and doing things over time.

In the Teaching group, there were fewer explicit statements indicating perceptions of identity. However, in the attainment of new skills and enacting roles we can see some development, if not fluidity, of identity in Denise in her growth as a clinical
teacher. In describing her initial dependence on Edward’s expertise in pedagogy and learning design, she said,

I think you have to remember that most medical doctors don’t, you know we don’t have an education background, we don’t know the best ways about coming up with learning objectives and making sure that we kind of glean from these patient cases what is needed in terms of making sure that students learn the basics and the fundamentals. [Denise 78]

And yet, later, through her involvement with the project, she grew into a more fully rounded clinical teacher as she enacted what Edward had initially contributed when she coached junior clinicians in creating cases:

they’re still learning I think sometimes it was quite hard for them to make that transition between being a doctor on the ward to being a doctor on the ward and being a teacher for others. So they had quite a hard time figuring out what should be the learning objectives and I would say that’s where I really had to step in and say, you know, “What about this, did you consider other differential diagnoses? Shall we focus on treatment because I noticed that you did this, this and this for the patient, but did you read any medical literature that suggests maybe we should do this or that?” [Denise 98]

This sort of transformation was designed into the project: one aim was for clinicians at the teaching hospital to develop skills in pedagogy and learning technology, and in this account, I can see how Denise became a practising teacher as well as a practising clinician.

4.8.2 Group identity
For the Research group, there was also a strong sense of group identity. The identity of the group is defined by way of comparison with external groups: Annabelle described strategic planning discussions about research direction that would allow the group to develop strengths and establish itself as known for particular methodological approaches and depth of investigation of particular issues – a sort of competitive approach to identity by differentiation.
We do meet as a group regularly to discuss kind of group issues, which direction the group should take, which other projects we could or directions we could go, um the identity of the group, and how we want to be seen outwith, how we want to present ourselves, what our competitors are doing, that kind of side of things, there’s a lot of discussion. … we very much work as a team in terms of the life of the group if you know what I mean. [Annabelle 75]

External groups were also described in terms more reflective of alliance, but still shaping the identity of the group: for example in influencing the types of questions that may be asked and receive funding from grant providers and in prompting thinking about how best to influence policy-makers. Overall, though, there was evident collective work on the group’s identity:

we’re kind of looking at where do we fit in, how can, what can our little area of expertise that we can be known for world-wide and how can we build on that, what are our particular strengths that we can develop as we move forward with our research [Annabelle 95]

Significantly, Helen saw the article which was the main artefact under discussion as a manifestation of the group’s identity – and also as something situated in time that could capture the group’s work in a way that would not be possible again:

Helen: We’d got the story. We knew what we were trying to say, yes. So this is a collective story and it’s the history of our group as well. It’s the history of what we’ve achieved. It reflects the spirit of the group and the values of the group in a way that nothing else will. We’ll never do another one like this.

Me: Do you think not?

Helen: Probably not.

Me: That’s interesting. How come?

Helen: I think the timing was right to do this, the people were there that had done those projects still. It wasn’t so far that they couldn’t remember them. I think the further you go out from data and to secondary analysis you start to
get into where things are maybe not current. It’s also time consuming and you’re under pressure to do the next project, complete it and the projects get slightly shorter as the funding gets tighter, so you’re under greater pressure to complete the job you’re on and you haven’t got the luxury of being a PhD student either and a PhD student has a lot of time. The contract researchers have not got time for messing about with retrospective data. [Helen 528-540]

This sense of investment of group identity in the creation of the article is even stronger when it is perceived as an unrepeatable, unique, piece of work.
Chapter 5: Discussion and Conclusions

In this study of information practices by people of different disciplines working in collaborative project groups, I set out to understand:

a. From the perspectives and practices of individual members, what roles does information play in the construction of the group and its activities?

b. How do individuals view the information practices of their disciplinary backgrounds in relation to the collaborative working practices of their project group? To what extent do the practices shape, or are they shaped by, the context of the project group?

Analysis of the participants’ information-intensive collaborative work has yielded a rich set of insights into their experiences. In this chapter I will extend the exploration of the experiential themes introduced in sections 4.3-4.8 of the previous chapter and the types of negotiations associated with those experiences.

I will then summarise key findings, identify some limitations, point out contributions to knowledge, and propose directions for future research.

5.1 Experiential themes

The various themes were not equally weighted across the two project groups in terms of participants’ experiences – for example, Trust as a theme is more evident in the Research group. In drawing on the interviews to illustrate the aspects of each theme, I have tried to show clearly where a theme is not so evident, or where there are counterpointing perspectives.

Before exploring the themes in more detail, it may be useful to highlight key points from each theme:
• Transformation: The creation of the groups’ outputs (journal articles and teaching cases) is a process of transformation that is highly structured, but also involves judgement and advocacy.

• Learning is evident in terms of: substantive content and issues of the topics of project; how to do the work of the project by gaining new skills or developing methods; and, as part of the impact of the outputs, there is learning by other people who engage with the work of the groups.

• Motivation: Information-related negotiations take effort and time, and group members’ motivations for starting and carrying on with the projects are an important factor for working through challenges.

• Trust: Information-related negotiations can be risky, but an environment of trust appears to enable fuller engagement among group members.

• Disciplinarity: The content, structure and style of the informational resources were very much situated within the disciplinary contexts of the project members and their intended audiences. There was a strong association between the informational resources and the epistemological perspectives of the project members and their intended audiences.

• Identity: Elements of identity were apparent at two main levels: individual and group. Aspects of identity emerged in relation to role within the project group, to disciplinary background, attributes of the project group itself, and to the wider aims of the projects – all of which intersect with individual and group identities.

5.1.1 Transformation

I would like to draw out a few points of discussion about the processes of transformation described above: the implied reader; message; compromise.

5.1.1.1 Implied reader

In thinking about information handling by the groups, it is useful not just to look at the process and experiences of the group, but also their efforts to conceptualise the audiences of the informational resources the groups were creating. Both groups
clearly worked with their audiences in mind. The structure and style of the materials created by both groups were intended to meet the needs and expectations of particular audiences: they were consciously designed, and the discipline of those target audiences was either implicitly or explicitly borne in mind as part of the transformation. Berkenkotter and Huckin’s arguments about genre are relevant here – though they are talking about academic writing in the sense of research publications, their points also illuminate the approach taken by the Teaching group:

...genres are inherently dynamic rhetorical structures that can be manipulated according to the conditions of use, and that genre knowledge is therefore best conceptualized as a form of situated cognition embedded in disciplinary activities. For writers to make things happen (i.e., to publish, to exert influence on the field, to be cited), they must know how to strategically utilize their understanding of genre. (Berkenkotter & Huckin, 1995, p. 3)

Helen’s account of how the articles were crafted and re-crafted exemplifies an observation by Berkenkotter & Huckin about academic writing:

Their work must always appear to be on the cutting edge. This means that they must understand the directions in which a field is developing at any given time and possess the rhetorical savvy for positioning their work within it. An academic writer needs to possess a highly developed sense of timing: At this moment, what are the compelling issues, questions and problems with which knowledgeable peers are concerned? (Berkenkotter & Huckin, 1995, p. 3)

One contextual difference between what Berkenkotter & Huckin were describing, and what the Research group was trying to do, may help to explain their difficulty in getting the first article published: they were trying to challenge current practice and bring an interdisciplinary outlook to an audience that may not have been prepared to accept the message. In the case of the Research group, editorial control of peer-reviewed journals was a complicating intermediating factor, but I see the journal editors as part of the audience that the group was trying to reach. Here we see then
a disjuncture between the response of the audience the Research group was conceiving, and the actual response.

In discussing the process of writing, Booth described an ideal reader that an author has in mind when writing: “The author creates, in short, an image of himself and another image of his reader; he makes his reader, as he makes his second self, and the most successful reading is one in which the created selves, author and reader, can find complete agreement.” (Booth, 1983, p. 138)

For the Teaching group’s learning cases, we can see this in the way the students were kept in mind: Edward would look for instances where there was not enough information for less experienced clinical learners to understand the scenario or important data elements for working through the cases; Ben would put himself into the role of the user when testing the design and pathways of the cases. The aim in the case of the learning cases was not so much to “find complete agreement” in arguments being presented, but agreement in the level of expertise required to understand and learn from the cases, and also in the relevance of the learning cases to the context of the Teaching Hospital. In the Research group’s articles, the agreement is much more about the points of argument and epistemological basis of their research, and is also strongly apparent in their attention to making their articles fit standard medical journal article expectations, in particular the “translation” into “medic-speak.”

5.1.1.2 Message

The transformative process of creating the informational resources produced by both the Teaching and the Research groups was an intellectually intensive activity centred on the formulation and communication of a key message – or of a collection of messages.

The development of the learning cases and articles, despite working with structures like templates or journal requirements, involved creative and interpretive processes. The project members looked for ways to present the information in
relevant, accessible, attractive ways – and these processes were not conducted in a mechanistic way. Rather, the processes were exploratory and reflective. The processes were collective and collaborative acts of creation and, in the complex learning cases required consultation with additional subject experts. This can be seen in the expression, “get it right,” which came up in interviews from each group – this was partly about getting the learning cases or journal articles “right” for their intended audiences, but it was mostly about making sure that the core informational aims of the cases and articles were as clear and relevant as they could be.

The importance of getting the message right appears to have provided the motivation and continued engagement needed to work through all the layers of negotiations and informational syntheses required when collaborating in groups to create these informational resources. I think the completion of these complex transformational processes can be linked to intrinsic motivations, and I will discuss the motivations I have identified, in more detail, later in this chapter.

5.1.1.3 Compromise

The collaborative creation of informational resources involved compromise and adjustment in order to achieve agreement on processes, content and style.

For the Teaching group, compromise is present in the steering of topics for cases to the core areas of learning identified by the project team, and in arriving at agreement on adapting external clinical guidelines for the local context.

In the Research group, we can see this in Gillian’s concerns about appropriate extraction and interpretation of data from the primary studies using the analytical framework adopted for the journal articles. Compromise is apparent in the transformation of the article drafts into “medic-speak” – it was not the preferred style of writing for at least some of the researchers, but they recognised that a change in style was necessary in order to reach the clinical readers they wanted to communicate with.
5.1.2 Learning
Learning is more evident in the Teaching group, as can be seen by the greater depth of each discussion point in this section. This can be explained by the aims and the context of the Teaching project: the project participants were involved with influencing and implementing curricular change and helping clinicians who had been taught in traditional modes to develop learning resources using new (to them) pedagogical approaches.

The valuable substantive learning observed in these two projects was emergent and probably could not have been anticipated or programmed into a project. Similar to the learning leading to adaptations of method, it emerges from practice, experience and analysis. As an outcome, it was distinct from planned learning of new skills or methods, or quantifiable outcomes that could have been articulated in a project proposal – such as number of publications, number of people trained up, or number of resources created. Although the substantive learning may be recorded in the findings of the articles or the clinical cases, it was emergent in nature. This prompts questions concerning the evaluation of processes and outcomes of collaborative projects like these in the very target-driven contexts of education, health-care and research where impact and success tend to be assessed using ‘objective’ preordain quantitative measures that do not capture the experience of, or effect on, the collaborators in a project. (Clarke & Dawson, 1999, p. 56)

It's really with an eye to what the funder is going to want to know, so it's strategic in that sense. It's probably not well planned from a research perspective. If I was thinking I'm going to do a major piece of research; what will I want to do, then I would probably have done it slightly differently. I don't know because I never really thought of it in those terms, but my main focus has been getting good reports into the Scottish Government that they would find useful and if we ever applied for another grant, they would think, “This is a good group of people who do good work and they report well, and they gather data.” So it's really have those sorts of data that I wanted to collect. So it was really how often do they access the website, what times of day, which pages are
more interesting, how long do they spend accessing resources; so it was that; all the usual stuff you'd expect to collect, and outside of that we really haven't tried to delve anything deeply. [Edward 221]

The sort of learning on the part of the trio of two consultants and junior doctor described above, for example, was not captured in the report submitted to the funding body of the Teaching group because what they wanted reported were things like the numbers of resources created, of workshops and training sessions, and of attendees at those workshops and training sessions.

For both projects, reification leading to participation can be seen in acceptance on the part of others of not only new knowledge but also of approaches or methods. This acceptance can be seen in willingness to discuss the issues raised, and further, to consider the issues as valid for discussion.

In the Teaching group, the interplay of reification and participation can also be seen in what could be called changes in ways of doing and being. As part of this outcome, clinical teachers who engaged fully with the project team learned new skills that influenced their teaching activities. As another part, in a very hierarchical context where senior colleagues are highly respected, the outcome that more junior colleagues could become confident enough to enter into a critical discussion about case management is a significant step.

When people outside the immediate project groups engaged with the outputs, dialogue was prompted and this dialogue could lead to new insights for the project members. For both project groups, there is some indication that the work of the groups began to influence policy discussions, and policy as a form of codification, must be considered the ultimate form of reification. The codification of the outputs of the project groups is analogous to transformation of tacit knowledge into explicit knowledge, which is more easily shared and essential to underpinning collaborative knowledge creation. (Inkpen, 1996)
In wider learning as an impact of the knowledge sharing of the two groups, we can see features of intra- and inter-organisational knowledge creation described by researchers of knowledge management and organisational learning. Nonaka defined organizational knowledge creation “as the process of making available and amplifying knowledge created by individuals as well as crystallizing and connecting it to an organization’s knowledge system.” (Nonaka et al., 2006, p. 1179)

5.1.3 Motivation
Motivation, whether as part of a philosophical engagement with the aims of these projects, or as part of personal fulfilment through the activities of the groups, is a factor that contributed to successful collaborative working.

There were practical barriers, such as lack of time, which were overcome by the enthusiasm of group members. More importantly, though, I see the various motivations experienced by the different group members as helping to enable the information-related negotiations represented in all of the themes I have presented, here most importantly barriers to do with engaging collaborators, finding time to complete the projects, overcoming epistemological differences that could be felt by collaborators from different disciplinary backgrounds, or learning new skills.

5.1.4 Trust
Exchanges of data, information and knowledge, and co-creation of informational resources can be risky, but group dynamics like shared values, shared ways of working and relationships enabling trust, can mitigate against the risks. The risks can include misinterpretation or misrepresentation of information, or feeling exposed by gaps in skills or knowledge. In both groups, trust and willingness to enter into negotiations can be linked to cordial working relations between participants, and trust and a willingness to enter into negotiations can be linked to familiarity with the information being handled and understanding of methods/systems.
In knowledge management literature, the importance of fostering “norms of care” (Von Krogh, 1998) and mutual trust are identified as contextual enablers of knowledge creation, with organisations urged to focus efforts interpersonal relations rather than on systems of knowledge management. At least for the Research group, the elements of trust appear to have been implicit in the group’s culture; they were tacit practices learned through interaction. Brenda, as project lead for the first article and methods lead for both articles, commented toward the end of our interview,

It’s just really interesting to talk to you about it because, I don’t mean it’s been a thoughtless experience, but I’ve never given it any amount of thought, that we work in a group and how we work, and it’s perhaps, it’s not, it’s not got a constitution or written down who does what or who owns what or who can use what, it’s just been a sort of fluid organic growing thing that’s very much rooted I suppose, thinking about it, in the culture of the team and the way that we work and share things and it’s unspoken and unwritten and it is something about coming to understand that and either accept it or not, I suppose [Brenda 373]

I quoted this extract from the interview with Brenda in the Methods chapter, when I was describing the dynamics of the interviews, and the end-phase of the interviews as a fruitful point when reflective insights was shared by the interviewees – I quote it here again because Brenda’s observations in this comment give us insight into the trust-related group dynamics.

The dynamic of the Research group appears to fit what Lowry et al. identify as “shared control”:

Shared control occurs when all team members have simultaneous and equal access and writing privileges throughout the writing activity [...] This can be a highly effective, nonthreatening form of control in groups that work face-to-face, engage in frequent communication, and have high levels of trust; in remote groups and less functional groups, this mode can lead to conflict. (Lowry, Curtis, & Lowry, 2004, p. 85)
For the Teaching group, high levels of trust and shared control may have been present among the core project members, but the influence of the project would not have been strong enough to affect the hierarchical dynamics of the Teaching Hospital and attract greater levels of contribution from junior clinicians. Linell describes power asymmetries in interactions, dialogue and meaning-making:

“When people negotiate meanings in interaction, their contributions usually do not carry the same weight. There may be a sort of power struggle.” (Linell, 2009, p. 215) Linell points out that “asymmetries between participants may of course characterise longer sequences and larger activities”. (2009, p. 214) So, even if the Teaching group had explicitly invited more symmetrical or co-operative exchange, for students and more junior doctors, the wider context may have constrained interactions to remain asymmetrical or confrontational. Perhaps in order to avoid conflict or confrontation, then, the more junior colleagues did not engage with the project.

5.1.5 Disciplinarity

Disciplinary background was important to both groups, but in different ways and for different reasons. In the Teaching group, there was more differentiation in members’ roles, and those roles were aligned to disciplinary background: the make-up of the Teaching group was deliberately designed to bring different skills and knowledge sets together. For the Research group, disciplinary background was seen as important for good data-gathering and for communicating the findings in a style acceptable to the target audience.

There were discipline-related changes for those involved in these project groups. In the Teaching group, members based at the teaching hospital acquired new skills from project partners in other roles, but those new skills did not change their core discipline or role – they could be seen as enhancing the skills sets they had within their core discipline. The approach of the Teaching group is broadly similar to interprofessional modes of healthcare delivery, (Mitchell et al., 2006) where each disciplinary role makes a recognised contribution and although there may be
overlaps in knowledge and expertise between those roles, each disciplinary role continues to have a core set of responsibilities.

In the Research group, an individual researcher’s self-perception of discipline was not necessarily shared by all the other members of the group. This leads me to think that a shared understanding of disciplinary categories is not necessary for a productive group. In the Research group, experience and expertise appeared to be more relevant than discipline.

In considering the perceptions of disciplinarity within the Research group, it seems that framings in terms of the over-arching concepts of multidisciplinarity, interdisciplinarity (Huutoniemi et al., 2010) or transdisciplinarity (Bergmann et al., 2005) do not really fit. Specific areas of agreement that have been achieved by the group, such as philosophical outlook, appear to be more important than notions of discipline. Collaborative working between people of different disciplinary backgrounds can perhaps be better understood by examining a more subtle layering of shared epistemological perspective and specific sets of practices.

5.1.6 Identity

Identity is closely linked with the information-related activities of participants in their functional roles within the projects, in determining the type of information that is used, how it is structured, and how it is communicated. In discussing “Discourses,” Gee argues that identity is bound up with ways of communicating, ways of thinking and

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\text{coupled with distinctive ways of acting, interacting, valuing, feeling, dressing, thinking, believing with other people and with various objects, tools, and technologies, so as to enact specific socially recognizable identities engaged in specific socially recognizable activities. (Gee, 2012, p. 152)}
\]

Gee goes on to argue that the enacting of these elements of Discourse allow people to “get recognized as a given kind of person at a specific time and place.” Recognition of kinds of person is, I think, apparent in the perception of others’
identity, even where there appears to be a mis-match in identification. In the Research group, Brenda, the social scientist, perceived enough difference in the researchers’ ways of interacting that she saw them still as inhabiting clinical roles. Helen, the clinician, also perceived enough difference in the researchers to see them as having abandoned clinical ways of interacting, thinking, and doing. Similarly, in the Teaching group, Denise’s colleagues observed her growth into the “kind” of clinical teacher that is well-rounded in both clinical and teaching skills when she began to be able to create learning resources autonomously and even to coach more junior colleagues to become teachers themselves.
5.2 Key findings

5.2.1 Transformation

The collaborative creation of informational resources was an intensively iterative process of transformation. The iterations involved negotiations round identifying key messages, structure, and style. The structure and style of the created objects were influenced by the intended audiences, and it was clear that the project members constantly bore their intended readers in mind throughout their work on these projects. Although the informational resources were initially structured by the use of templates, the project members adapted the templates and perceived that judgement and creativity were essential to the creation of successful objects.

5.2.2 Learning

The work related to the creation of informational resources in these two groups led to several types of learning on the part of group members. It was also possible to identify some wider impact on learning in people who came into contact with the group members or their creations. Within the groups, there were practical skills learned in order to do the work of the projects – skills related to understanding methods of analysis, learning design, or technical software skills. The project members also adapted processes to improve efficiency or effectiveness – these points of workflow adaptations entailed some negotiation and showed a reflective and meta-analytic approach.

The project members also gained new knowledge themselves: in developing the informational resources they performed research and information syntheses that led to substantive new knowledge of the content and issues handled within each project.

5.2.3 Motivation

An important factor contributing to the successful creation of the informational resources was motivation. The negotiations involved in the iterative processes of transformation took a lot of effort and time. The potential barriers imposed by
required effort and time that were required seemed to be overcome by group members’ motivations for starting and carrying on with the projects. The participants’ motivations were largely linked to firm beliefs in the positive potential impacts and value of the projects’ aims. Some members also articulated strong personal motivations for involvement, revealing ways in which they identified with the projects and experienced fulfilment through the work of the projects.

### 5.2.4 Trust

Shared aims, values and of ways of working were enabling factors for the project groups. There are risks entailed in the co-creation of informational resources, including the potential for disagreement about key messages, for misunderstanding or misrepresentation of information provided by colleagues, or the exposure of a lack of skills or knowledge. Trust in fellow project members appeared to help mitigate against these risks, and may have enabled partners to enter more easily and willingly into the negotiations round the co-creation of informational resources, and with greater engagement. A sense of trust was found to be linked to how hierarchical structures were experienced by individuals, and in particular with the ways in which power symmetries or asymmetries played out or were perceived. (Linell, 2009) In addition, cordial relations such as friendships and supportive mutual respect contributed to trust among group members.

### 5.2.5 Disciplinarity

The content, structure and style of the informational resources were very much situated within the disciplinary contexts of the project members and their intended audiences. There was a strong association between the informational resources and the epistemological perspectives of the project members and their intended audiences. We can also see that the disciplinary backgrounds of the various collaborators influenced their roles and practices within each group, although the ways in which this played out in each group were different: in the Teaching group disciplinary background was more closely linked to role and activities within the project; whereas in the Research group there was little role differentiation, but
experience of healthcare provision was seen as important to gathering, analysing and communicating the research data effectively.

In the Teaching group, participation in the creation of the informational resources led to growth in skills-sets for members based at the teaching hospital, but not any substantial shift in discipline or professional role.

In addition, it was remarkable that in the Research group, perceptions of disciplinary categories were inconsistent between group members, leading me to conclude that for this group, shared ways of working and a shared philosophical perspective in relation to their area of research were important for overcoming cross-disciplinary barriers.

5.2.6 **Identity**

Analysis of the interview transcripts revealed how aspects of identity played out in the work of creating these informational resources. These aspects were largely linked to discipline, but also to individuals’ roles within the project groups. Some project members expressed a strong sense of involvement in, and identification with, the creation of the informational resources. We can also see how the involvement in the creation of these informational resources may have had an effect on how the participants perceived themselves, whether they defined themselves as learning technologists or “the writer.” In the Research group, the members strongly identified themselves with the work they were doing: they were proud of it, invested themselves in it, both philosophically, and in working on top of other work commitments to complete the project. For the Research group, it was also apparent that the very nature of the information they were handling, and their methods of research, were bound up in the identity of their group: it differentiated them from other research groups in that area of healthcare, and they worked to reinforce and add value to that differentiation.
5.3 Limitations

5.3.1 Recall of past events

For the Research group in particular, participants were asked to recall activities that had taken place up to two years before. Although the first article had just recently been accepted for publication, and the second article was in process and completed over the course of the period of interviews, the main work for the first article had taken place months before. Inevitably this meant that details were forgotten or that artefact examples could not be found. This was not such a problem for the Teaching group, as the project activities were relatively recent or concurrent to the timing of interviews.

The adaptation of “critical incident” methods by using artefacts for triggering recall by participants was helpful in overcoming some difficulties with recall. The act of choosing artefacts to discuss, and looking at the artefacts themselves in interviews, helped participants to remember the relatively mundane processes, or to remember particular events and experiences. Where some interviewees were not able to find artefacts they had wanted to discuss, or could not decide what to bring in advance, I was able to provide a copy of the artefact – or a very similar object – that had been previously identified by another participant. It was then possible to have a relatively uninterrupted discussion about particular activities during interviews.

5.3.2 Sampling

For each of the two project groups, a more complete range of experiences and perspectives could have been gathered if a larger number of participants had been interviewed. In the Teaching group, for example, it was not possible to secure interviews with students who had helped to create or who used the learning cases – my requests for assistance to find students were met with positive support but were in the end not fruitful. This means that a particular key role perspective is not represented in the data, and observations about student participation or experiences are based on data from the staff members of the group.
Decisions on sampling in this study were based partly on recommendations and introductions by key informants from each group, and partly purposive to support theoretical sampling as I was exploring emergent themes.

A more comprehensive and in-depth study could have been performed using ethnographic methods including observation of the project teams’ activities as they were happening. An ethnographic study was beyond the resource capacity available to me, but the adaptation of “critical incident” methods for gathering data was a relatively economical and efficient method for providing rich insights into participants’ experiences of the collaborative group-work.

In this study, I interviewed people working in two different collaborative project groups – a total of eleven individuals. This was therefore a small-scale study, and questions of transferability or generalisability to other settings, disciplines or groups will arise.

Maxwell argues that in qualitative research, generalisation “usually takes place through the development of a theory that not only makes sense of the particular persons or situations studied, but also shows how the same process in different situations can lead to different results” (Maxwell, 1992, p. 293) and that the theory can help to “make sense” of other persons or situations with similar characteristics. Along these lines, I argue that despite this study being on a small scale, my examination of these two groups in some depth has allowed me to construct concepts that are relevant to other collaborative multidisciplinary groups. In addition, this study has permitted me: to explore particular gaps within information behaviour research in the understanding of collaborative creation of informational resources; and to raise a number of conceptual questions and issues pertinent to information behaviour.
5.4 Contributions

5.4.1 Creation of informational resources

Prior research in the areas of information practices, information behaviour largely focuses on the discovery or management of information, and does not adequately address the creation of information. In this study, I have examined the creation of informational resources and propose that practices round structuring, analysis and co-creation of informational resources sit centrally within information practices. This study gives insights into those practices, and factors for engagement round those practices.

5.4.2 Negotiation

This study makes a contribution to work in practice theory approaches (Moring & Lloyd, 2013) to information handling. The information practices examined in this study were shaped by a number of factors: disciplinary background; immediate tasks and goals; and contexts with their affordances and constraints. Participants could not simply transfer their own information practices to the others in their group, but needed to negotiate a sufficiently common sense of purpose round the tasks, and sufficiently common ways of working. In both groups, templates were used to support the creation of structure and content, but were not themselves sufficient for completion of the informational resources. In addition, they were not slavishly applied: they supported a process of creation open to a degree of flexibility in application but that still involved iterative cycles of negotiation and agreement. Compromises or concessions made during negotiation were easier to accept because participants felt that the goals of the projects were of sufficient importance. However, some matters of negotiation that were felt to be intrinsic to the goals of the projects were negotiated extensively until agreement could be reached.

5.4.3 Trust
Trust and power asymmetries as factors in the relationship dynamics between the individuals involved in the co-creation of informational resources is a relatively little researched area. Prior research has looked into trust as a factor in willingness to share information between colleagues or competing researchers (see for example Borgman, 2012; Widén & Hansen, 2012); trust in the reliability of data generated by other researchers (e.g. Yoon, 2017; Zimmerman, 2008); and there has been extensive prior work on the perceived trustworthiness of sources (e.g. Hyldegård, 2006; Sundin & Francke, 2009). However, trust, especially in relation to relative hierarchy, appeared to be a significant factor in mitigating against risks associated with co-creation, and in enabling the productivity of collaboration in these two groups. Trust is a long established aspect of work in organisational knowledge sharing but this thesis brings to bear aspects of trust important to successful collaborative work in creating new informational resources, through an information practices lens.

5.5 Future directions for research and practice

5.5.1 Experiences and practices of creating
Within the fields of information behaviour and information practices, there has been little research into the creation of informational resources, much less co-creation within multi- or interdisciplinary groups. While this thesis has made a contribution to this area, there is much scope for future research. Researchers of Information Behaviour study aspects such as affect, coping strategies, and decision-making. All of these angles of interest are just as relevant to the creation of informational resources as to the more commonly studied activities related to information seeking.

5.5.2 Immersive methods
The issues I have identified in this study warrant more immersive methods for further exploration. Ethnographic approaches would allow deeper understanding of multi- and interdisciplinary group dynamics, and would have the benefit of
observing developments as they unfold over time rather than depending on recollection of events that had occurred months before.

5.5.3 Systems and tools

The information technology applications and systems used by project participants influenced the experience of the creation and publication of informational resources. Affordances and constraints of information technologies used by the project groups affected processes and decisions on methods of collaboration and negotiation. Further research toward understanding the barriers and enablers associated with information technology and their impact on the contribution of individuals, of group processes, and usable artefacts would be beneficial to organisations wishing to promote collaborative multi- and interdisciplinary working.
Information-related negotiations in interdisciplinary collaborative working groups

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Information-related negotiations in interdisciplinary collaborative working groups


References


Information-related negotiations in interdisciplinary collaborative working groups


Chapter 6: Appendices

Appendix 1: Interview schedules

Phase 1 Preliminary interviews with key informants [one person from each group]

- Can you tell me about the group’s activities in general?
  - What are its background, aims (some of these may be obtained from documents/records)
- How does the group organise itself round its projects?
- Who are the group’s members?
- What role does each member have? (or perhaps only selected members if large)
- Can you suggest a suitable example project undertaken by the group, which can be the focus of more detailed interviews?

Phase 2 Interview topic sets and questions for project members

1. background: interviewee’s perspective on group, their role within it, motivations
   - Could you tell me about the project group?
   - How do you view of aims of the group?
   - What is your role within the group?
   - How did you come to be involved in the group?
   - How does the work of the group relate to work in your core subject area/job?
2. the project: interviewee’s role, general interactions within group
   - Tell me about [the project]?
   - What are you doing as a member of this project team?
   - Thinking about each of the other members in your group – who do you work most closely with?
     - Follow on: What do you work on?
3. more detailed discussion about processes – triggered by items selected by interviewee
   For each item:
   - Could you begin by describing what this is?
   - Why did you select this one?
   - What purpose does /did it have for the project?
   - Who contributed to working on this? What did they do?
   - Can you take yourself back to when it was being developed, and tell me a bit about the process of creating it?
     - How did working on it compare to your work on other projects?
Information-related negotiations in interdisciplinary collaborative working groups

- Ask about those other projects – discipline, context, solo or group?
  - Do you remember any discussions round how it should be done?
  - Was there anything you remember being surprised by?
  - Was there anything that you thought was easy or difficult?

4. wrapping up/review questions
- What advice would you give to someone just starting off in a similar collaborative project?
- Are there any ways in which your work with this group has changed how you work with information in other projects?
Appendix 2: Phase 1 interview note sample

Some details have been redacted for anonymisation

This is a scan of a handwritten note made during initial phase 1 interview with Ben (Teaching group), included to illustrate how phase 1 interviews provided an overview of the project selected for study in each group. This page of the notes shows an early schematic of the learning cases workflow and names of group members [names redacted] who were involved at various stages and would be good candidates for phase 2 interviews.
Appendix 3: Project description and pre-interview notes sent to interviewees

Managing information in collaborative working groups

Marshall Dozier, Doctorate in Education, Moray House, University of Edinburgh

Purpose of project

The overall aim of this project is to gain a better understanding of how people in interdisciplinary groups work with information such as data, resources, or publications. With increased requirements by funding bodies for collaborative bids, there is benefit in understanding enablers and barriers to collaborative and interdisciplinary use and creation of information resources. As a result of this project, I hope to gain understanding of not only what processes are used by the group for managing these types of information, but how these processes have been arrived at, and the individual experiences of working with information in an interdisciplinary group.

This project is for research to complete a thesis for a Doctorate in Education, and findings may also be used to inform developments in services provided by Information Services.

Interviews

I will be gathering data by semi-structured individual interviews. I will ask to interview a handful of people in your group, about a particular project or strand of work your group has recently completed or is currently engaged in. I expect each interview to last between 60 and 90 minutes.

I will ask questions about how you work with information and resources in that project, and would like to get a good understanding of:

- What types of information, data and resources you work with
- How information, data and resources are managed and shared
- How reports or other types of outputs are created and developed

Before the interview

In advance of the interview, I will ask each person independently to select three or four different examples of information, data or resources that are illustrative of the project (for example, grant proposals, examples of data, logbooks, field notes, publications etc.). Here are a few criteria for selecting these examples:

- It should be closely linked with the project – for example, a publicity document about the project, a working tool used by the group to manage the project, data gathered as part of the project, or a publication of the project
- At least two members of the group should have been involved in its creation or use
- It should not contain confidential information or sensitive data
Appendix 4: Sample interview transcript with coding

Denise: Interview Extract
Teaching group
22-Dec-15

So I would say that the three people that I’ve worked the most closely with are Charles and Ben. So they’re both IT people. So Charles works at the Teaching Hospital and runs IT there and then Ross was obviously from the University of Edinburgh and he helps with IT and I think the reason why we work so closely with them is there is this e-learning bit and there’s a lot of kind of technical pieces and so they’re really helpful in terms of getting that piece sorted and if I have questions about how do I upload this or how do I publish this or any of those kind of IT stuff and then I would say the other person I work quite closely with is Edward who kind of oversees the whole project. So he’s been a great resource in terms of just providing good kind of academic structure to the cases. I mean I would say obviously my speciality is that I know children and I know how to take care of them. But I think you have to remember that most medical doctors don’t, you know we don’t have an education background, we don’t know the best ways about coming up with learning objectives and making sure that we kind of glean from these patient cases what is needed in terms of making sure that students learn the basics and the fundamentals. So he’s been really a great resource in making sure that these are of high educational calibre and then, of course, the other people here in --- that I work quite closely with are the registrars or our clinical officer, BSC students. So the point of this was to really get them involved and them writing the cases as well. So those are, you know, when I work on a specific patient case it’s usually with a registrar or a BSC student and so they kind of write the rough draft and then I oversee it and change it up a little bit and then rely on Edward to help with the educational bit of it and then Charles and Ben in terms of the IT support.

MD
Okay. Wonderful thank you for such full answers, it’s wonderfully informative. I think I might come back later to ask more about the participation with students, but that might also emerge from the case that you’ve chosen. Would you like to move on to start talking about the case that you’ve chosen?

Denise

Sure. So the case that I’ve chosen so just to give you a bit of background. So you sent the template so really the design was to pick an interesting case that any of the trainees had seen on the ward and then to present it in a way that we tend to present among each other and talk about it. So first start with the patient presentation, just the basic details of the patient. Who is the patient, how old are they, where do they come from and what is their story of why they’re here in the hospital?

MD

Sorry just to check. Are you looking at the template just now as you’re speaking?

Denise

Yes.

MD

Okay, I’ll just make sure I have it open.

Denise

Okay and then I’ll pull up the specific patient case if that’s alright with you.

MD

Yes.

Denise
The other thing since it was a virtual learning and so much of medicine is about visual representation is to see if we could incorporate pictures or video or when we moved into the diagnostics to see if we could incorporate a chest x-ray or any other bits and pieces that would really make this case come alive. And then so that’s the patient presentation and then talking about delving more into the history, the past medical history, the drug history, surgical history, all of that and then physical exam. Then stopping there and then asking questions about what sort of things should you be thinking about, what’s on your differential diagnosis, what sort of tests would you want to order and then really getting the student to kind of think about this patient in a real world context. Then as I mentioned we went through and we talked about the diagnostics and actually I think Edward did a pretty great job of outline the template but once you get to the point where you finish your patient presentation, your history, your tests, that sort of thing, there’s a lot of wiggle room within the template to really go where you want to go with the case and where you want to pull out those learning objectives, whether the strength of the case is really trying to figure out what’s going on, ‘What does this child really have’ or maybe it’s a case where it’s pretty obvious what the diagnosis is. But the learning is really about how to manage it and that sort of thing. So there was quite a bit of flexibility in the template in terms of where to go and adapting it for each clinical scenario.

MD
That’s really interesting. How easy was it to or has it been to identify the angle in the learning angle or angles maybe for cases?

Denise
Well so I would say that that has actually been a bit of a challenge. I think the initial idea is that the ---ans would come up with an interesting patient case that they saw on the ward and they would write the rough draft and I think because they’re still a bit junior and they’re still learning I think sometimes it was quite hard for them to make that transition between being a doctor on the ward to being a doctor on the ward and being a teacher for others. So they had quite a hard time figuring out what should be the learning objectives and I would say that’s where I really had to step in and say, you know, “What about this, did you consider other differential diagnoses? Shall we focus on treatment because I noticed that you did this, this and this for the patient, but did you read any medical literature that suggests maybe we should do this or that?” So I think that’s really where they learned a lot from these patient cases, but it’s definitely where I had kind of the most input and really what my role was in terms of trying to glean objectives and learning points from these cases.

MD
How interesting, so the creation of the cases was also a valuable learning experience for the registrars themselves.

Denise
Yes. I think so. I mean the one that I was going to talk about was multi drug resistant tuberculosis and so the other thing I should mention is some of the ---ans picked very unusual cases, which sometimes was a bit challenging because they were so weird and wonderful that I just felt that nobody else is ever going to see a patient quite like this. And they’re useful in many ways to show how you manage and work up a really rare case.
Appendix 5: Sample post-interview memo

This is an example of a memo started after an interview (the interview example from appendix 3). The memo was annotated with notes, following later interviews in which points or themes were explored further with other project members. Some sections and details have been changed or redacted for anonymisation.

Denise, paediatrician
Teaching group
Interview 22 December 2015

This was via Skype – worked pretty well with much better audio quality than previously with Charles.

Denise is currently [location and context].

Denise shows strong motivation for participation in project
• motivated by healthcare situation in [Country of Teaching Hospital]
• motivated to change teaching practices
• motivated to release time for clinical work by investing time in creating cases

Denise sees the cases creation as a very successful project.
(Note: this is in contrast to Edward view where he emphasizes poor uptake on part of students to create case material, and very low levels of use; Derek's views somewhat mixed)

Denise tells very powerful story with the MDR TB case – there seems to be an example of wider organizational reflexivity and learning as a result of this case.
(Note: when raised in interviews with Edward and Derek: Edward was not aware of wider learning or discussions triggered by cases, though he does remember discussing this case with Denise (check for sure); Derek spotted trend to document patient management policies, noting that management decisions tended to vary depending on which consultant was on duty. The shift to documentation of policy is remarkable. )
(Note after visit to [Country of Teaching Hospital]: in discussion with [another project member I met but did not formally interview] who has visited [Country of Teaching Hospital] several times with Edward and Ben, he pointed out that there are multiple concurrent international projects happening at the Teaching Hospital at any one time, and it's not possible to separate out which projects might be influencing wider health management policy developments)

Denise will contact student for me, so this will help get well rounded input
(Note: student off because of health reasons – unavailable.)
(Note after Country visit: I didn’t manage to speak to students who were involved with the creation or use of learning cases while I was there – unavailable or moved away)
### Appendix 6: Codes and themes

<table>
<thead>
<tr>
<th>Code / Theme (themes in bold)</th>
<th>Scope</th>
<th>Associated with</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administration</td>
<td>How the group organized itself in operational matters</td>
<td>Negotiation: Group working processes</td>
</tr>
<tr>
<td>Aims of project/ project aims</td>
<td>Objectives of the project, as articulated by interviewees</td>
<td>Theme: Motivation</td>
</tr>
<tr>
<td>Analysis</td>
<td>Activities or steps taken to bring together elements of identifying key messages or interpreting relevant aspects of included data or information sources</td>
<td>Themes: Transformation, Trust, Learning</td>
</tr>
<tr>
<td>Artefact</td>
<td>Role of artefact in project</td>
<td>[Annotation for discussion of artefacts]</td>
</tr>
<tr>
<td>Audience</td>
<td>Descriptions of intended audience or users</td>
<td>Theme: Transformation Negotiation: structure and style</td>
</tr>
<tr>
<td>Consensus</td>
<td>Processes leading to getting agreement</td>
<td>Themes: Trust, Motivation, Learning Negotiation: Consensus-building</td>
</tr>
<tr>
<td>Context</td>
<td>Setting or other contextual factors for project and group</td>
<td>[Annotation to support descriptions of background and context]</td>
</tr>
<tr>
<td>Discipline / Disciplinary</td>
<td>To do with perspectives or conventions linked to particular disciplines, as articulated by interviewees</td>
<td>Theme/focused coding</td>
</tr>
<tr>
<td>Group description / Nature of group</td>
<td>Background information about project group</td>
<td>[Annotation to support descriptions of background and context]</td>
</tr>
<tr>
<td>Group dynamic</td>
<td>Working relationships between group members</td>
<td>Theme: Trust Negotiation: Group working practices</td>
</tr>
<tr>
<td>Group working</td>
<td>How group organized itself, including e.g. communication, file sharing, cooperation</td>
<td>Negotiation: Group working practices</td>
</tr>
<tr>
<td>Identity</td>
<td>Individual (self or others) or group identity, as articulated by interviewees. Sometimes linked to role or specialist contribution to project.</td>
<td>Theme/focused coding</td>
</tr>
<tr>
<td>Learning</td>
<td>New learning on the part of project members or others closely associated/collaborating with project members: new skills needed for</td>
<td>Theme/focused coding</td>
</tr>
<tr>
<td>Information-related negotiations in interdisciplinary collaborative working groups</td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>project work, or substantive new learning</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Location/point of negotiation</strong></td>
<td>Stage in workflow where a type of negotiation takes place; points to use as illustration</td>
<td>[Annotation to inform reporting of workflows and negotiations]</td>
</tr>
<tr>
<td><strong>Making time</strong></td>
<td>Points illustrative of time needed, especially working out how to find time or persuade others to give time, for project</td>
<td>Themes: Motivation, Learning, Negotiation: Making time</td>
</tr>
<tr>
<td><strong>Methods</strong></td>
<td>Points to remember to mention in methods write up</td>
<td>[Notes to self within transcripts]</td>
</tr>
<tr>
<td><strong>Motivation</strong></td>
<td>Individual motivations for contributing to project, or for project overall, as articulated by interviewees</td>
<td>Theme/focused coding</td>
</tr>
<tr>
<td><strong>Negotiation</strong></td>
<td>Concept linked to type of negotiation</td>
<td>[Annotation to inform reporting of negotiations]</td>
</tr>
<tr>
<td><strong>Orientation</strong></td>
<td>Activities or steps taken to give project team a grounding</td>
<td>Themes: Learning, Motivation, Disciplinarity</td>
</tr>
<tr>
<td><strong>Quote</strong></td>
<td>Note to self: consider using as quote to illustrate concept</td>
<td>[Notes to self within transcripts]</td>
</tr>
<tr>
<td><strong>Reification</strong></td>
<td>Codification of project outputs into organisational practice; also linked to wider organizational learning and impacts of project outputs</td>
<td>Theme: Learning</td>
</tr>
<tr>
<td><strong>Revision</strong></td>
<td>Process of drafting and redrafting</td>
<td>Theme: Transformation, Negotiations: Shaping ideas, Structure &amp; Style</td>
</tr>
<tr>
<td><strong>Role blending</strong></td>
<td>Where disciplinary boundaries could be being blurred or made to overlap, as project members learned new skills or became more deeply involved in the project</td>
<td>Themes: Disciplinarity, Identity, Negotiation: Development of skills</td>
</tr>
<tr>
<td><strong>Roles</strong></td>
<td>Toward clarifying what each person did within project</td>
<td>Themes: Disciplinarity, Identity, Negotiation: Group working processes</td>
</tr>
<tr>
<td><strong>Selection</strong></td>
<td>Choices and decisions made by project members about relevance and priority - what to include or leave out, what key messages or learning outcomes to focus on</td>
<td>Themes: Transformation, Trust, Disciplinarity</td>
</tr>
<tr>
<td><strong>Shaping ideas</strong></td>
<td>During process of drafting and redrafting, related to selection of foci and key messages</td>
<td>Themes: Transformation, Learning, Disciplinarity, Identity</td>
</tr>
<tr>
<td><strong>Skills development</strong></td>
<td>new skills needed for project work</td>
<td>Themes: Learning, Disciplinarity, Identity</td>
</tr>
<tr>
<td>Structure</td>
<td>Elements to do with overall structure or design of informational resources created</td>
<td>Themes: Transformation, Learning, Disciplinarity, Identity</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Template</td>
<td>Discussion of using template</td>
<td>Theme: Transformation Negotiations: Selection, Shaping Ideas, Structure &amp; Style</td>
</tr>
<tr>
<td>Transformation</td>
<td>Overall process of creating a coherent informational resource from separate elements of data/sources</td>
<td>Theme/focused coding</td>
</tr>
<tr>
<td>Trust</td>
<td>Illustrative of aspects of trust, including shared values, delegated responsibility, acknowledged expertise</td>
<td>Theme/focused coding</td>
</tr>
<tr>
<td>Workflow</td>
<td>Description of steps to in group process, including timing and sequence</td>
<td>[Annotation to inform reporting of project workflows]</td>
</tr>
<tr>
<td>Working tools</td>
<td>Tools or systems used by group to support collaborative working</td>
<td>Negotiation: Group working processes</td>
</tr>
<tr>
<td>Workshop</td>
<td>Aspects of workshops for project development</td>
<td>Negotiations: Orientation, Consensus-building, Development of skills</td>
</tr>
</tbody>
</table>
Appendix 7: Post-interview memo and concepts linked to negotiation

Some sections and details have been redacted or changed for anonymisation

Brenda, project lead
Research group
Interview 31 July 2015

[Note on impressions of interviewee’s views redacted for anonymity]

Short term nature of research projects and contracts - this group has managed to develop long-term research strand out of multiple short term funded projects. This paper is bringing that long term research together.

Translation - Describes as a normal process what the group goes through to write articles, since the group is made up of people with different backgrounds: Translate into medic-speak - put into words and style that is acceptable to medical audience, but trying not to lose meaning or message.

‘caught between worlds’

‘all of us have to give up something to gain something’

‘trade off’

Title of article was changed to try to be more acceptable to medical journals [...] became something ‘ungrabbing’

sees ‘continuity … with original interest different cultures and peoples and other worlds, and how you can translate those for a different audience to use.’

Trust: mentioned advice she was given when setting out on research to work ‘only ever work with people that you like and trust’ - their group has ‘shared values and ways of working and trust’
Appendix 8: Memo: early emerging themes

This memo was written following the third interview, and focuses on the two most recent interviews of Research group members. This memo is shared to show early emerging themes following initial analysis of early interview transcripts.

15 Aug 2015

Puzzling over differences in accounts
- haven’t said to each that other was interviewed, haven’t brought up comparisons
- perception of incomplete accounts, and thinking about this in terms of ‘plausibility’ as opposed to accuracy, as discussed by Charmaz.

Observing curiosity about some statements that I’d like to look into more, but also needing to decide if they are linked to a theme/theory

Thinking now about follow-up interviews. If done, would it need to be for all participants?

Thinking of suggesting 'artefacts' because first two interviewees found it a struggle to identify what to bring. Not sure how much briefing/guidance is good balance.

Current themes I’m seeing:
- Compromise (resistance to and acceptance of)
- disciplinary ways of writing
- Identity (of self and of group)
- underlying motivations
Appendix 9: Diagram of negotiation types and links to broader themes

I created this figure to keep track of which types of negotiations illustrated the different broader themes. Initially I planned to include this figure in the findings section, but on reflection decided it was more of an aide memoire for myself – the links I was seeing were not simple one-to-one links and this was intended to help keep track.

<table>
<thead>
<tr>
<th>Types of negotiation</th>
<th>Themes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selection</td>
<td>Transformation</td>
</tr>
<tr>
<td>Shaping ideas</td>
<td>Learning</td>
</tr>
<tr>
<td>Structure &amp; style</td>
<td>Motivation</td>
</tr>
<tr>
<td>Orientation</td>
<td>Trust</td>
</tr>
<tr>
<td>Consensus-building</td>
<td>Disciplinarity</td>
</tr>
<tr>
<td>Development of skills</td>
<td>Identity</td>
</tr>
<tr>
<td>Analysis</td>
<td></td>
</tr>
<tr>
<td>Making time</td>
<td></td>
</tr>
<tr>
<td>Group working process</td>
<td></td>
</tr>
</tbody>
</table>
Appendix 10: Note: early development of Trust theme

*Some sections and details have been redacted or changed for anonymisation*

Trust

Brenda mentioned advice she was given when setting out on research to work ‘only ever work with people that you like and trust’ – their group has ‘shared values and ways of working and trust’

In the Research group, each person selected and interpreted their own data used in the collective paper, and there was no cross-checking. Each contributor to the paper was invited to comment on revisions, and each person was was given equal weight in their revisions.

Annabelle, my first interviewee on that project, describes the process of each researcher formulating summary interpretations and selecting relevant data extracts from their datasets, then she describes how the group used the extracts and summaries to create a synthesis along the themes of the narrative framework […] .

Annabelle said that Brenda (the paper’s lead) didn’t know the individual studies’ data, and was reliant on the individual researchers’ choice of data extracts and their interpretive summary.

When Brenda described her role and the work of the group on developing the paper she focussed on the work of synthesising the data and summaries brought to her. There was no sense at all in our discussion that there could be any doubt in the selection decisions made by the primary researchers.

When exploring this notion of trust with Catriona, Fiona, and Gillian, all of whom contributed data from their PhDs, there was resonance - Catriona used the word ‘custodian’ to describe each contributor’s role in relation to their own data; Fiona emphasised mutual respect and sharing within the group.

HOWEVER — Gillian pointed out that Brenda, Adam and the other senior contributors, were supervisors or co-supervisors of the PhD projects, or were on their steering committees - so she felt they actually would have had good awareness of the primary data sets in their essence and main messages, if not in their detail.

Trust may be less about blindly accepting views - more about the 'shared values and ways of working' described by Brenda.