MULTIPROFESSIONAL COMMUNITIES OF PRACTICE IN A LARGE-SCALE HEALTHCARE KNOWLEDGE MOBILISATION INITIATIVE: A QUALITATIVE CASE STUDY OF BOUNDARY, IDENTITY AND KNOWLEDGE SHARING

A thesis submitted to The University of Manchester for the degree of Doctor of Philosophy in the Faculty of Humanities

2012

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MANCHESTER BUSINESS SCHOOL
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<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>CKD</td>
<td>chronic kidney disease</td>
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<tr>
<td>CLAHRC</td>
<td>Collaboration for Leadership in Applied Health Research and Care</td>
</tr>
<tr>
<td>CoP</td>
<td>community of practice</td>
</tr>
<tr>
<td>GMCCSN</td>
<td>Greater Manchester and Cheshire Cardiac and Stroke Network</td>
</tr>
<tr>
<td>GP</td>
<td>general practitioner</td>
</tr>
<tr>
<td>GPSI</td>
<td>general practitioner with special interest</td>
</tr>
<tr>
<td>HF</td>
<td>heart failure</td>
</tr>
<tr>
<td>IT</td>
<td>information technology</td>
</tr>
<tr>
<td>NHS</td>
<td>National Health Service</td>
</tr>
<tr>
<td>NIHR</td>
<td>National Institute for Health Research</td>
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<tr>
<td>PBC</td>
<td>practice-based commissioning</td>
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<td>PCT</td>
<td>primary care trust</td>
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<td>QOF</td>
<td>Quality and Outcomes Framework</td>
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<td>RQ</td>
<td>research question</td>
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Abstract

Name of the university: The University of Manchester
Candidate’s name: Roman Kislov
Degree title: Doctor of Philosophy (PhD)
Thesis title: Multiprofessional communities of practice in a large-scale healthcare knowledge mobilisation initiative: A qualitative case study of boundary, identity and knowledge sharing
Date: 26th November 2012

This thesis explores the development of multiprofessional communities of practice within the Collaboration for Leadership in Applied Health Research and Care (CLAHRC) for Greater Manchester—a large-scale UK-based healthcare knowledge mobilisation partnership between the University of Manchester and local NHS organisations. In particular, it examines the role of pre-existing boundaries and identities in the process of community formation and develops our understanding of knowledge sharing across multiple interconnected communities of practice.

The project deploys a qualitative single embedded case study as its research methodology, embracing 45 interviews and 69 hours of direct observation supplemented by documentary analysis, all of which were undertaken in 2010-2011. Three overlapping implementation contexts within the CLAHRC for Great Manchester are explored, each of them reported in a different empirical paper: (1) a multi-professional community of practice emerging from a specialised project team driving an implementation project; (2) multiprofessional communities of practice operating within and across primary healthcare settings; and (3) the knowledge mobilisation initiative as a constellation of multiple communities of practice.

The key theoretical contribution of this thesis is threefold. First, it demonstrates that a multiprofessional team can develop characteristics typical for a community of practice, identifies the mechanisms and consequences of this conversion and argues that teams and communities of practice do not need to be seen as mutually exclusive entities. Second, it introduces a notion of selective permeability of boundaries, whereby boundaries developing around a community of practice enable knowledge exchange between such a community and certain out-groups while impeding knowledge sharing with others. Finally, it enhances our understanding of large-scale knowledge mobilisation initiatives as emerging constellations of interconnected practices, describes a boundary between the fields of applied health research and research implementation and questions the role of implementation as a boundary practice bridging the real-time gap between the producers and users of research.

The main practical contribution of this work is the formulation of a developmental approach to communities of practice, which lies midway between the analytical and instrumental perspectives previously described in the literature and can be beneficial in those cases where strong pre-existing boundaries make the emergence of a new community of practice problematic. This approach calls for the maximal utilisation of existing organic communities and for improving communication within and between them rather than attempting to foster a heterogeneous community centred on a time-limited project.
Declaration

I declare that no portion of the work referred to in the thesis has been submitted in support of an application for another degree or qualification of this or any other university or other institute of learning.

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Acknowledgements

This thesis is a product of three years’ work, and I am very lucky to have been supported by many outstanding people through the ups and downs of my doctoral journey. First and foremost, I would like to thank my supervisors, Dr Gill Harvey and Prof Kieran Walshe, for their patient guidance over these three years. From my very first day on the doctoral programme I knew I was in good hands, and my admiration and respect for their professionalism only grew bigger with time as I got to know them better. Gill and Kieran read through and commented on an endless number of draft papers and chapters that would later become parts of this thesis. Their support was especially helpful when I was suffering from acute writer’s block and other forms of creativity crisis, and they were often able to give me highly valuable feedback within several hours after I sent them very raw and imperfect drafts. They skilfully guided me throughout the doctoral process, stimulating my own learning and allowing me to make my own choices and to explore those phenomena which I was particularly interested in.

This project would not have been possible without the generous funding provided by Your Manchester Fund and the National Institute for Health Research Collaboration for Leadership in Applied Health Research and Care (NIHR CLAHRC) for Greater Manchester, which allowed me to undertake this project on a full-time basis. I am particularly grateful to Prof Ruth Boaden, Deputy Director of the Greater Manchester CLAHRC, for supporting my ideas, providing feedback on draft papers and helping me build relationships with my research participants. Needless to say, I owe a great deal to the people from the CLAHRC and its partnering NHS organisations who were willing to spare some of their precious time to take part in this research project. Not only did they agree to participate in an interview or observation; many of them also contributed to the presentation and interpretation of data by providing valuable comments on interview transcripts and empirical papers as part of the member checking process. I also wish to give sincere thanks to Ms Annette Robinson, who transcribed the majority of interviews and helped me proofread the thesis. Her punctuality, attention to detail and knowledge of English orthography and grammar were invaluable.
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My methodology has been significantly influenced by the research training programme provided by Manchester Business School to its first-year doctoral students. I am particularly grateful to Prof Richard Whitley, for introducing me to the frightening yet enchanting world of epistemology; Prof Cathy Cassell, for infecting me with a passion for qualitative research methods; Prof Sven Modell, for expanding my understanding of critical realist philosophy; Prof Trevor Wood-Harper, for teaching me how to critically review scientific literature; and Dr Andrew James, for sharing his experience in conducting interviews. I also deeply appreciate the support of Prof Julie Froud, ex-Director of Postgraduate Research Programmes at Manchester Business School, who helped me make an informed decision about adopting an alternative, paper-based format for this thesis.

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introduced me to my doctoral supervisors and provided much needed moral encouragement when I was in transition from the Masters to the doctorate.

This work has greatly benefited from questions and advice which I received when presenting different aspects of it at academic conferences: Manchester Business School Doctoral Conference (May 2010); the 9th Annual Meeting of the Quality Improvement Research Network (QIRN) held on 10-11 April 2011 in Amsterdam; the Knowledge Utilisation Colloquium held on 14-16 June 2011 in Belfast; the 12th European Conference on Knowledge Management (ECKM) held on 1-2 September 2011 in Passau; the 8th Organisational Behaviour in Healthcare Conference (OBHC) held on 15-17 April 2012 in Dublin; and the 72nd Academy of Management (AoM) Annual Meeting held on 3-7 August 2012 in Boston, MA. I am particularly grateful to Dr Jillian Yeow (University of Manchester); Prof John Øvretveit (Karolinska Institutet, Stockholm); Ms Aleidis Skard Brandrud (Vestre Viken Health Trust Ringerike, Honefoss, Norway); Prof Markus Bick (ESCP Europe, Berlin); Prof Jeffrey Braithwaite (University of New South Wales, Sydney); Dr Victoria Parker (Boston University); Dr Beth Goodrick (Florida Atlantic University); and Prof Thomas D’Aunno (Columbia University) for their valuable feedback.

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Preface

Throughout my professional career, I have belonged to various occupational groups, often taking part in several of them simultaneously. When I was a final-year medical student, I participated in the research activities of both psychiatry and neurology departments and was torn between these two disciplines when selecting my future area of specialisation. I chose neurology as the subject of my postgraduate clinical training but then spent several years in primary care, working as a general practitioner with managerial responsibilities in a gold-mining company in Central Asia. This dual doctor-manager role provided me many opportunities of witnessing the tremendous differences in norms, values and ways of doing things between different professional groups and made me realise how difficult it could be to coordinate joint working across them. As a practitioner with little knowledge of social theory, I however had many more questions than answers about the mechanisms of the social phenomena that I observed and had to adapt to on a daily basis.

In 2008, I came to Britain to do a Masters degree in healthcare management. This course supplied me with the conceptual language and analytical tools that I could use to describe and interpret my previous experiences. I learnt about communities of practice, their cultures, identities and boundaries. This new knowledge addressed some of my questions but many of them remained unanswered, and that was one of the main reasons I joined the doctoral programme. Because of my previous experience as a medical manager, I was particularly interested in understanding the mechanisms which enable crossing the boundaries within multiprofessional groups in healthcare contexts. The development of multiprofessional communities of practice and their boundaries has thus become the topic of my doctorate and this work is an attempt to address, both at theoretical and practical levels, some of the issues experienced by those involved in mobilising knowledge in multiprofessional environments.
Chapter 1. Background

This chapter presents an introduction to the research project on multiprofessional communities of practice in a large-scale knowledge mobilisation initiative reported in the thesis. It aims to place the research project in a wider theoretical context, provide a brief review of relevant theoretical and empirical literature, formulate the research questions of the study and explain how the thesis has been constructed. The chapter is organised in the following way. The first section introduces the communities of practice approach as a theory of situated learning, briefly describes the Collaborations for Leadership in Applied Health Research and Care (CLAHRCs) as a novel type of knowledge mobilisation initiative, and identifies a number of trends in the evolution of the communities of practice theory which are, in turn, used to organise the literature review presented in the following three sections. The second section reflects on the possibility of cultivating communities of practice and their manageability; it also comments on the formation of communities of practice in the context of healthcare collaboration. The concept of boundary and its relationship with professional, organisational and work group identification is explored in the third section. The fourth section introduces the notions of ‘landscape’ and ‘constellation’ of practice and describes the role of knowledge brokers, boundary objects and boundary interactions in the process of knowledge sharing across communities of practice. Some of the critiques of the communities of practice theory and its empirical applications are summarised in the fifth section, which also reflects on how these have been interpreted by the research project. The final section presents a rationale for adopting an alternative thesis format and describes the structure of the thesis.

1.1. Introduction

1.1.1. Communities of practice as a theory of situated learning

The communities of practice approach was developed by Lave and Wenger (1991) as a theory of situated learning that challenged the assumptions of traditional cognitive
learning theory. The latter focuses on learning as an individual process of acquisition that takes place inside the learner’s mind, predominantly within formal education contexts. It sees knowledge as hierarchically structured, with complex ideas being built on basic foundations, and decontextualised; knowledge can be appropriated, internalised, stored and retrieved by the learner through the mediation of qualified teachers. This position implies a dualistic distinction between the person and the world and a discrete boundary between the inside and the outside of the individual learning mind. By contrast, the theory of learning as participation in a community of practice seeks to overcome this dichotomy and sees learning as a collective, relational and social process. According to this approach, it is the relational network, rather than ‘before’ and ‘after’ states of individual minds, that is key to understanding learning; people learn through co-participation in the shared practices of the ‘lived-in’ world; knowledge production is inseparable from the situated, contextual, social engagement with these practices; and learning is a process of identity formation, i.e. becoming a different person, rather than the acquisition of knowledge products (Fuller 2007; Murillo 2011).

Wenger’s (1998) further development of the situated learning theory is built around four interconnected and mutually defining elements:

1. **Meaning**: a way of talking about our (changing) ability—individually and collectively—to experience our life and the world as meaningful;

2. **Practice**: a way of talking about the shared historical and social resources, frameworks and perspectives that can sustain mutual engagement in action;

3. **Community**: a way of talking about the social configurations in which our enterprises are defined as worth pursuing and our participation is recognisable as competence;

4. **Identity**: a way of talking about how learning changes who we are and creates personal histories of becoming in the context of our communities.

As can be inferred from the above, the concept of community of practice can be interpreted as a social structure serving as the primary locus of learning through enabling the negotiation of meanings, engagement in practice and formation of identities. It is broadly defined as ‘a group of people who share a concern, a set of problems, or a passion about a particular topic, and who deepen their understanding
and knowledge of this area by interacting on an ongoing basis’ (Wenger et al. 2002, p. 4). Communities of practice can range in size; they can be long or short lived, co-located or distributed, homogeneous or heterogeneous, spontaneous or intentional, unrecognised or institutionalised. Organisations can in turn be interpreted as the ‘communities of communities’ (Brown and Duguid 1991, p. 53), or ‘constellations of interconnected practices’ (Wenger 1998, p. 127). Negotiation of shared meanings within communities of practice is seen as the interplay of two interdependent processes: participation, i.e. ‘being active participants in the social practices of social communities and constructing identities in relation to these communities’ (ibid., p. 4, emphasis in original), and reification, i.e. ‘giving form to our experience by producing objects that congeal this experience into “thingness [in order to] create points of focus around which the negotiation of meaning becomes organised’ (ibid., p. 58).

Wenger (1998) formulates three defining characteristics of a community of practice. First, its members interact with one another, establishing relationships and negotiating meaning of their actions through mutual engagement. Second, members are bound together by an understanding of a sense of joint enterprise, which entails a common set of tasks that they can influence. Finally, they produce over time a shared repertoire of routines, words, tools, stories, symbols or concepts which become part of the collective practice. He also introduces 14 indicators for the presence of communities of practice, which show that the above three dimensions are present to a substantial degree (Box 1-1). Mutual engagement, joint enterprise and shared repertoire can be used to determine the existence of communities of practice, distinguish between different communities and evaluate communicative processes in them (Iverson and McPhee 2008). In his later work, Wenger reformulates these characteristics and presents the ‘structural model’ of communities of practice consisting of three fundamental elements: a domain of knowledge, which defines a set of issues; a community of people who care about this domain; and the shared practice that they are developing to be effective in their domain (Wenger et al. 2002, p. 27).
It has been argued that the lack of definitional clarity in the notion of community of practice increases its interpretative viability, whereby ‘a certain degree of ambiguity in a concept endows it with greater appeal to a broader set of potential users’ (Murillo 2011, p. 3). This concept has indeed been extensively applied in education, management, IT, healthcare and other fields of research and practice. Originating as a mid-level analytical tool of the theory of social learning which embraces community, identity, meaning and practice, it subsequently became seen as a technique deliberately used by managers to improve knowledge transfer and organisational performance. This resulted in the development of two distinct perspectives: analytical, using communities of practice as a theoretical heuristic to analyse practice and learning; and instrumental, used with an intention to cultivate communities of practice or utilise them in order to achieve desirable aims (Kislov et al. 2011; Wenger 2010). Although there is an inherent tension between these perspectives, the thesis will be continuously referring to both of them: first, because the instrumental approach to communities of practice is a natural consequence of their use as a theoretical concept, for all social science theories inevitably have practical implications, and, second, because this combination may be particularly productive for the study in question, which aims to explore communities of practice developing in a large-scale knowledge mobilisation initiative.
1.1.2. Knowledge mobilisation and the CLAHRCs

A critical issue, often discussed in management literature in terms of enabling innovation or competitive advantage, is the need for knowledge embedded in one community or occupational group to become available to members in a different community. Challenges of knowledge mobilisation between the communities of researchers and practitioners have been of particular concern within healthcare research and policy, with a number of terms, such as knowledge utilisation, knowledge transfer, knowledge translation and knowledge exchange, used to describe the process of bridging the gap between research and practice (Graham et al. 2006; Greenhalgh and Wieringa 2011). The relatively new discipline of implementation research specifically focuses on the scientific study of methods to promote the systematic uptake of clinical research findings and other evidence-based practices into routine practice and, hence, to improve the quality and effectiveness of healthcare (Foy et al. 2001; Graham et al. 2006). Conceived within the evidence-based medicine paradigm, this discipline has expanded to include the study of influences on healthcare professional and organisational behaviour, with an increasing interest in theoretical approaches and frameworks borrowed from the social science literature (Eccles et al. 2005; Grol et al. 2007; Ferlie et al. 2012).

Theoretical underpinnings of knowledge mobilisation can be understood in terms of three primary perspectives (Carlile 2004; Kellogg et al. 2006):

1. Information-processing perspective: community members are seen as instrumental in their knowledge sharing behaviours, acting on the basis of strategic choice and cost-benefit calculations; knowledge is posited as capable of being codified, captured, stored, retrieved and transferred across contexts; breakdowns in knowledge transfer arise as a result of incompatible codes, routines and protocols and can be fixed by developing information artefacts—repositories, specifications and standards.

2. Cultural perspective: knowledge processes reflect occupational conventions, norms and values rather than rational calculations of efficiency; knowledge is seen to be largely tacit, situated and experiential, and not easily articulated and codified; knowledge sharing difficulties arise due to differences in
meanings, assumptions and contexts which can be negotiated through the use of collective stories, common artefacts and boundary spanners.

3. **Political perspective:** knowledge is rooted in the accumulated experience and know-how of members, invested in communities’ ways of doing things and seen to be inseparable from actors’ interests and actions; transformation of existing knowledge can provoke resistance and requires investments in time and relationship building as well as compromises in practices, interests and jurisdictions; the process of knowledge transformation can be facilitated through the construction of shared commitments and learning about each other’s differences and dependencies.

An information-processing perspective on knowledge mobilisation in healthcare implies that clinical practitioners explicitly use the findings of robust research in their routine clinical practice, initiating the search for evidence driven by their professional motivation to provide best possible care (Muir Gray 2001). Despite the concerted effort by the evidence-based medicine movement to promote the use of robust research evidence to inform clinical practice, the linear, one-way approach to knowledge transfer has proved problematic in application and has recently been complemented by a number of models and frameworks taking into account cultural and political factors shaping the interactions between the communities of researchers and practitioners (Kitson et al. 1998, 2008; Lomas 2000; Graham et al. 2006; Mitton et al. 2007; Baumbusch et al. 2008). These approaches emphasise the bidirectional nature of knowledge flows, the importance of contextual factors and the need for active engagement, interaction and collaboration in managing the academic-practitioner divide (Oborn et al. 2010).

Shifting towards collaborative approaches to knowledge mobilisation is reflected in the creation of the CLAHRCs, which were established across England in 2008. Each of them represents a collaborative partnership between one or more universities and their surrounding NHS organisations aiming to undertake high-quality, patient-centred applied health research and to support the translation of research evidence into clinical practice. In total, nine CLAHRCs were selected through an open competition out of twenty-two bids, with particular value being placed on research proposals targeted at chronic disease and public health interventions. Each CLAHRC
received up to £10m over five years from the National Institute for Health Research (NIHR), with additional matched funding to be secured from the participating NHS organisations to at least the same level as that provided by the NIHR (2008, 2011b).

The CLAHRCs are expected to enhance knowledge transfer between academic researchers and NHS staff and thus address the “second gap in translation”—a gap in the translation of new medical interventions into everyday practice identified by Cooksey's (2006; p. 99) Review of UK Health Research Funding. They have three key interlinked functions: (1) conducting high quality applied health research; (2) implementing the findings from research in clinical practice; and (3) increasing the capacity of NHS organisations to engage with and apply research. Being co-funded by the NIHR and local NHS trusts, the CLAHRCs are encouraged to develop a collaborative model of ownership, with a range of stakeholders having vested interests in determining their agendas and tailoring the conduct of research to the specific needs of a particular region (Gerrish 2010; Martin et al., 2011). The importance of both research and implementation activities is reflected in the structure of the CLAHRCs, each of them having at least one research and one implementation theme (NIHR 2008).

1.1.3. Communities of practice in a large-scale knowledge mobilisation initiative

The comparison of different perspectives on learning and knowledge mobilisation presented in the previous two subsections leads to the following conclusions. First, basic assumptions behind the early, information-processing perspective on knowledge sharing are similar to the premises of the cognitive learning theory and tend to view knowledge as explicit, acontextual “stuff” that can be appropriated, stored, retrieved and transferred across different people and communities. Second, the theory of communities of practice indicates a paradigmatic shift towards a collective, contextual and social view on learning, which also informs the cultural perspective on knowledge mobilisation and is not incompatible with the political perspective. This can explain why the communities of practice approach has become popular both as a theoretical heuristic, deployed to analyse the processes of
knowledge sharing between different occupational groups, and as a toolkit used to address the challenges inherent in the process of knowledge mobilisation. Finally, the establishment of the CLAHRCs can be interpreted as a large-scale attempt to address the persistent gap between research and practice by facilitating knowledge sharing between various academic and clinical communities of practice involved in the production and implementation of research evidence.

The broad area of interest that this study aims to explore is related to the development of multiprofessional communities of practice and knowledge sharing across their boundaries in the context of a large-scale knowledge mobilisation initiative. It will use the Greater Manchester CLAHRC—a partnership between the University of Manchester and local NHS organisations (most of which belong to the primary healthcare sector) (NIHR 2011a; Harvey et al. 2011)—as its research setting. It should be noted that the relationship between knowledge sharing in the Greater Manchester CLAHRC, on the one hand, and the concept of communities of practice, on the other, is not seen in this study as a one-way relationship between the empirical phenomenon and the analytical tool used to explore this phenomenon. It should rather be conceptualised as a two-way interdependent relationship: not only could the communities of practice theory be useful to analyse a large-scale knowledge mobilisation initiative; the inter-organisational and interprofessional nature of the CLAHRCs along with their objectives and a relatively long life-span of the initiative make them an optimal setting for studying multi-organisational and multiprofessional communities of practice.

The following three sections present a review of theoretical and empirical literature on communities of practice, identify knowledge gaps and formulate specific research questions of the study. Before proceeding to discuss these issues, it is worth making several comments with regard to the evolution of the communities of practice approach over the last two decades. It has been noted that the concept of communities of practice is still evolving (Cox 2005; Li et al. 2009a; Murillo 2011; Wenger 2010), and the analysis of the seminal publications on communities of practice allows us to identify several main trends in this evolution (also see Table 1-1). First, while early works on communities of practice (Lave and Wenger 1991; Brown and Duguid 1991) focused on the spontaneous, organic communities which
are free from formalisation and are not subject to managerial control, the later contributions (Wenger and Snyder 2000; Wenger et al. 2002) see communities of practice as a managerial tool which is to be actively used by managers to improve knowledge transfer and organisational performance. Accordingly, the issues related to formation and manageability of communities of practice will be discussed in Section 1.2. Second, while communities of practice were initially seen as uniprofessional groups with well-defined external boundaries and strong professional identities, the focus of the theory has shifted to more heterogeneous groupings which cut across professional and organisational boundaries. Issues related to boundaries of communities of practice, multimembership and identification will be explored in Section 1.3. Finally, while the early accounts of communities of practice predominantly discussed knowledge sharing between their members, i.e. inside the community boundaries, there is a greater attention in the later publications to knowledge mobilisation across multiple communities of practice embedded in complex landscapes and constellations of interconnected practices (Wenger 2010; Brown and Duguid 2001), which will be the central theme of Section 1.4.
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<tr>
<td>A short monograph rooted in the anthropological studies of apprenticeship; coined the term ‘community of practice’ as a theoretical concept in outline</td>
<td>A full book length development of the concept at a theoretical level, rooted in the situated learning approaches and targeting both researchers and practitioners</td>
<td>An easy-to-read, consultancy-type handbook based on managerialist assumptions, aiming to guide managers’ practice</td>
<td>An essay published in an edited volume on social learning systems</td>
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<tr>
<td>‘A set of relations among persons, activity, and world, over time and in relation with other tangential and overlapping communities of practice’; ‘an intrinsic condition for the existence of knowledge, [which] provides the interpretive support necessary for making sense of its heritage’ (p. 98)</td>
<td>‘A group created over time through mutual engagement of its members underpinned by the sustained pursuit of a shared enterprise and the development of a shared repertoire. Communities of practice share cultural practices reflecting their collective learning.’</td>
<td>‘Groups of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis’ (Wenger et al. 2002: p. 4)</td>
<td>The concept of community of practice is ‘a perspective that locates learning not in the head or outside it, but in the relationship between the person and the world, which… is a social person in a social world’</td>
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| **Examples of communities of practice** | **Midwives, meat cutters, naval quartermasters, tailors and non-drinking alcoholics** | **Medical claims processing clerks, interacting with each other and sharing information for doing routine office work** | **Cross-departmental groups deliberately cultivated in large business sector companies (Shell Oil, Mercedes-Benz, the World Bank, etc.)** | **No empirical examples provided** |

<table>
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<tr>
<th><strong>Central theme</strong></th>
<th><strong>Legitimate peripheral participation—a continuous, active, engaged, situated and identity-forming process by which newcomers become part of the community of practice</strong></th>
<th><strong>Structuring elements of social learning systems: communities of practice, boundary processes among these communities and identities as shaped by our participation in these systems</strong></th>
<th><strong>Principles for cultivating communities of practice and a step-by-step guide for their development by the organisations in order to manage ‘knowledge workers’, foster innovations and enhance creative problem-solving.</strong></th>
<th><strong>Communities of practice as learning partnerships. The concepts of learning governance, accountability and knowledgeability</strong></th>
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<tbody>
<tr>
<td><strong>Community of practice characteristics</strong></td>
<td>No specific attributes articulated</td>
<td><strong>Mutual engagement, joint enterprise, shared repertoire.</strong> There are 14 indicators related to these three dimensions, which show that a community of practice is formed (see p. 125).</td>
<td><strong>Domain</strong> (common ground and boundaries), <strong>community</strong> (interactions and relationships), <strong>practice</strong> (the specific knowledge the members of a community share, develop and maintain).</td>
<td>Communities of practice as learning partnerships built on <strong>domain</strong>, <strong>community</strong>, <strong>practice</strong> and <strong>convening</strong>, the latter including such aspects as leadership, power and resources.</td>
</tr>
<tr>
<td><strong>Tensions within communities of practice</strong></td>
<td><strong>Tensions and conflicts between</strong> ‘generations’ (novices and experts); a wider tension between achieving <strong>continuity</strong> over generations and <strong>displacement</strong> as full participants are replaced by newcomers</td>
<td>Learning as a tension between a community’s socially defined <strong>regime of competence</strong> and personally defined <strong>experiences</strong> of its current and potential members (this idea is further developed in Wenger 2000)</td>
<td><strong>Domain disorders</strong> (imperialism, narcissism, marginality, factionalism); <strong>community disorders</strong> (cliques, egalitarianism, dependence, stratification, disconnectedness, localism); <strong>practice disorders</strong> (documentism, amnesia, dogmatism, mediocrity)</td>
<td>Power influences the functioning of landscapes of practice along two axes of accountability: horizontal (mutual relationships among practitioners) and vertical (through formal institutional hierarchies)</td>
</tr>
<tr>
<td><strong>Purposeful formation by organisations</strong></td>
<td>Impossible; but apprenticeship programmes and clinical placements can be formally developed for mentoring new trainees</td>
<td>Communities of practice can be recognised, supported and encouraged but not designed</td>
<td>Organisations can engineer, nurture, “cultivate” and “install” communities of practice to enhance their competitiveness</td>
<td>Communities of practice as learning partnerships can be facilitated by ‘social artists’ and influenced by the processes of stewarding and emergent governance</td>
</tr>
<tr>
<td><strong>Diversity of membership</strong></td>
<td>Masters and novices - but the practice itself does not have a high division of labour</td>
<td>Variable: a community includes everyone working on the collective enterprise and having mutually defined identities. The degrees of participation in a practice may differ depending on the member’s ‘trajectory’</td>
<td>Diversity is designed into the group by bringing together members with different expertise; their degrees of involvement also differ (‘core group’, active members, ‘periphery’ and outsiders).</td>
<td>Not discussed</td>
</tr>
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</table>
1.2. **Formation and manageability of communities of practice**

1.2.1. **Formation and governance of communities of practice**

As already mentioned in the previous section, the formation of communities of practice has been viewed differently in the seminal literature. Communities of practice as defined by Lave and Wenger (1991) cannot be deliberately designed by managers; a business can only establish a team for a particular project, which may later emerge as a community (Roberts 2006). Wenger and Snyder (2000) suggest that managers cannot mandate communities of practice since the organic, spontaneous, and informal nature of the latter makes them resistant to supervision and interference. At the same time they argue that communities of practice may benefit from *cultivation* by managers, who should identify communities which can potentially enhance the company’s strategic capabilities and provide the infrastructure that will support such communities and enable them to apply their expertise effectively. Shifting from an earlier focus on communities of practice as learning systems, Wenger and Snyder suggest that communities of practice should be widely used across organisations to help drive strategy, start new lines of business, enhance problem-solving, transfer best practices, develop professional skills and enable the companies to recruit and retain talent.

Later contributions suggest that communities of practice can be cultivated intentionally; furthermore, these *deliberate* communities may be more useful for an organisation than the organic ones (Wenger *et al.* 2002; Saint-Onge and Wallace 2003). The recommendations given by the authors supporting the cultivation of communities of practice as a managerial tool are based on business consultants’ experiences and perspectives, predominantly target the practitioner audience and often contain prescriptive advice underpinned by little evidence from research. Here are, for instance, seven principles for cultivating communities of practice formulated by Wenger *et al.* (2002):

1. Design for evolution.
2. Open a dialogue between inside and outside perspectives.
3. Invite different levels of participation.
4. Develop both public and private community spaces.
5. Focus on value.
6. Combine familiarity and excitement.
7. Create a rhythm for the community.

In the most recent theoretical developments (Wenger 2010), the focus in the instrumental perspective on communities of practice has shifted from achieving business objectives to cultivating learning capabilities in communities of practice seen as learning partnerships. Such a partnership is built on the dimensions of domain, community and practice conceptualised in the previous work (Wenger et al. 2002), which are now supplemented by ‘the discipline of convening’ which covers such issues as leadership, stakeholders and resources available to support the process. Wenger suggests two types of governance contributing to social learning capability:

- **Stewarding governance**, derived from a concerted effort to move a social system in a given direction, *e.g.* championing a cause or pushing an issue; and
- **Emergent governance**, represented by the cumulative effect of local interactions and decisions negotiated in learning spaces and spread by participants.

According to Wenger (2010), these two forms of governance have complementary strengths and weaknesses and it is the combination of the two that maximises the learning capability of social systems.

An important aspect that should be taken into account when discussing the development of communities of practice relates to their differences and similarities from other groups found within and across organisations. According to Wenger *et al.* (2002, p. 42), communities of practice can be distinguished from formal departments, project teams, communities of interest and informal networks along the following dimensions (also see Table 1-2):

- **Purpose**: to create, expand and exchange knowledge, and to develop individual capabilities;
- **Membership**: self-selection based on expertise or passion for the topic;
- **Boundaries**: fuzzy;
• **What holds them together**: passion, commitment, and identification with the group and its expertise;

• **Life cycle**: communities of practice evolve and end organically; they last as long as there is relevance to the topic and interest in learning together.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Communities of practice</th>
<th>Project teams</th>
<th>Formal work groups</th>
<th>Informal networks</th>
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<tbody>
<tr>
<td>Purpose</td>
<td>To build and exchange knowledge, and to develop individual capabilities</td>
<td>To accomplish a specified task</td>
<td>To deliver a product or service</td>
<td>To collect and pass on information</td>
</tr>
<tr>
<td>Membership</td>
<td>Self-selection based on expertise or passion for a topic</td>
<td>Employees assigned by senior management</td>
<td>Everyone who reports to the group’s manager</td>
<td>Friends and business acquaintances, friends of friends</td>
</tr>
<tr>
<td>Boundaries</td>
<td>Fuzzy</td>
<td>Clear</td>
<td>Clear</td>
<td>Undefined</td>
</tr>
<tr>
<td>What holds them together</td>
<td>Passion, commitment, and identification with the group and its expertise</td>
<td>The project’s goals and milestones</td>
<td>Job requirements and common goals</td>
<td>Mutual needs and relationships</td>
</tr>
<tr>
<td>Life cycle</td>
<td>Evolve and end organically (last as long as there is relevance to the topic and interest in learning together)</td>
<td>Predetermined ending (when the project has been completed)</td>
<td>Until the next reorganisation</td>
<td>As long as people have a reason to connect</td>
</tr>
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</table>

**Table 1-2.** Distinctions between communities of practice and other groupings (Adapted from Wenger and Snyder 2000; Wenger *et al.* 2002)

This distinction has, however, been criticised for being rather vague and contradictory; for instance, the notion of self-selection contradicts the generally accepted premise that people from the same discipline automatically belong to the same community of practice (Li *et al.* 2009a). It also does not take into account the possibility that, under certain conditions, a project team may develop into a ‘true’ community of practice (Hildreth 2004). This has led some authors to suggest that the community of practice is actually an umbrella term for a number of different organisational groupings which are characterised by the support for formal and
informal interaction between novices and experts, the emphasis on learning and sharing knowledge, and the investment to foster the sense of belonging among members (Li et al. 2009a; Hildreth 2004). As shown by Li et al. (2009b) in their systematic review of empirical studies of communities of practice in business and healthcare sectors, this rather loose interpretation of the concept gets reflected in the empirical research reports, with examples of communities of practice including informal learning groups, clinical placements and healthcare collaboratives.

1.2.2. Deliberate and emergent communities of practice

The tensions between the instrumental and analytical perspectives on communities of practice have been noted by many authors, who argue that the concept of community of practice as a self-regulating process is in opposition to the ambition to manage communities for improved performance (Fox 2000; Probst and Borzillo 2008) and that managers may seek to impose conformity on organisationally engineered communities, which may hamper creativity and innovation (Pemberton et al. 2007). While it has been implied in theoretical literature that managers play a critical role in constructing, aligning or supporting communities of practice, there is little empirical evidence for these assertions. For instance, Swan et al. (2002) question the manageability of communities of practice and explore managers’ attempts to construct a deliberate community in order to mobilise, develop and legitimise a radical innovation for the treatment of prostate cancer. They demonstrate that the managers were incapable of making the community a direct instrument of policy and control. Faced with powerful professions and limited organisational support, the management used the emerging community as a rhetorical device to enrol key professionals and to mobilise and legitimise changes in work practices. This led the authors to the conclusion that community building reflected managers’ lack of power to intensify innovation by other means.

White et al. (2008) describe how the communities of practice approach was used to enhance interprofessional practice in seven clinical sites in Canada. Participation in the engineered communities was voluntary and the staff were free to decide the area of practice to focus on and the actions to be implemented. The authors report that communities of practice improved communications and information transfer.
However, it is not clear from their study how these communities were formed, how they developed and in what respects they were different from multidisciplinary teams which are so common in healthcare. The only known cluster randomised trial on the effectiveness of communities of practice in the implementation of evidence-based medicine, which was also conducted in Canada (Barwick et al. 2009), showed that the participants of a deliberately formed community of practice demonstrated a greater use of the CAFAS tool* in practice, had better knowledge of the tool and were more satisfied with the implementation support provided than the members of the control group. This study has, however, been criticised for poor research design, which renders difficult the interpretation of the authors’ findings (Archambault et al. 2009). In a wider analysis of the communities of practice approach in Canadian healthcare, Bentley et al. (2010) conclude that the use of communities of practice has been shown in some cases to facilitate quality improvement, encourage buy-in among participants and enhance knowledge transfer. They argue, however, that more research is required on how group decisions are made and applied to the world of practice.

While the research cited above focused on communities of practice which were constructed intentionally, even less is known about the processes taking place in emergent communities in the initial stages of their development. Two empirical studies conducted in non-healthcare contexts are worth mentioning in this respect. In the first study, Juriado and Gustafsson (2007) discuss the emergence of communities of practice in a temporary inter-organisational partnership which was built around a large-scale media event involving public and private partners. Their findings indicate that the majority of knowledge sharing took place in non-hierarchical and non-linear groupings, whose members were tied together by shared expertise and enthusiasm for the task that went beyond their formal terms of reference. The authors categorise these groupings as functional, although non-recognised, communities of practice. They identify four mechanisms that create the environment in which communities of practice form. Firstly, the relative stability of the community builds trust which fosters knowledge sharing. Secondly, there is a clear division of labour and

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* The Child and Adolescent Functional Assessment Scale (CAFAS) is a clinician-rated global measure of functional impairment in children aged 6-18 years old who have emotional, behavioural, substance use, psychiatric, or psychological problems (Barwick et al. 2009, p. 19).
specialised roles between community members whereas the common task, or ‘domain’, is shared. Thirdly, competence shadows, learning the job by following what the key actors do, are used in order to transfer tacit knowledge. Finally, the ‘social glue’ of informal events contributes to a sense of community.

In the second study, Thompson (2005) presents an empirical analysis of an emergent community of practice embedded in a large software development firm. He argues that organisations should sponsor the creation of loose organisational structures around which communities of practice may emerge, but introducing too much structure to control group interaction is likely to result in the disintegration of a community of practice. He distinguishes between *seeding structures* (e.g. shared symbols, artefacts and tools) that provide a relaxed, informal and creative work environment and can contribute to the development of a genuine community of practice, and *controlling structures* (e.g. introduction of consultants, targets and best practice) that impose constraints on an emergent social dynamic and may lead to the community demise. In addition, *epistemic parameters*, such as social activity, engagement and learning, should be encouraged, where the members could interact with seeding structures and among themselves but, at the same time, too much inward communicative focus is likely to result in gradual loss of meaning with a consequent negative effect on the community. The author concludes (*ibid.*, p. 164) that ‘neither organizational management nor the community of practice leaders are able to do more than nurture a fragile dynamic that consists of continued voluntary participation but resists forms of control’.

### 1.2.3. Multiprofessional communities of practice in healthcare: empirical studies

Another debated issue is the development of communities of practice in *healthcare collaboratives* which bring together groups of practitioners from different healthcare organisations to work in a structured way in order to improve the quality of their service. For instance, Bate and Robert (2002) have shown that NHS collaboratives may face difficulties in creating horizontal networks across organisations, maintaining motivation and commitment from hard-pressed employees, and identifying appropriately skilled frontline staff to lead and participate in change
programmes. The authors conclude that healthcare collaboratives are in danger of becoming time-limited project teams rather than linked and active communities of practice—which makes them question the likely sustainability of quality improvement initiatives implemented by the collaboratives.

A number of factors may explain why the formation of communities of practice in healthcare collaboration may be problematic. Individuals, teams and organisations involved in the process of joint working may have different objectives (Øvretveit et al. 2002); multiple internal and external barriers impede the development of trust and stable working relationships (Johnson et al. 2003); there is a discrepancy between the egalitarian ethos of informal networks and the vertical ‘command and control’ structure of the NHS with its emphasis on meeting targets and managing performance (Currie and Suhomlinova 2006). In addition, an excessive legitimisation and formalisation of ‘organic’ communities can disrupt, rather than support, their knowledge sharing capacity (Addicott et al. 2006, 2007).

An important aspect of the wider debate about the development of communities of practice in the process of healthcare collaboration is concerned with their multiprofessionality. In their study of eight National Health Service (NHS) innovations, Ferlie et al. (2005) show that communities of practice in healthcare are predominantly uniprofessional, tend to seal themselves off from neighbouring professional communities and are highly institutionalised, which enables a relatively easy flow of knowledge within these communities but causes the ‘stickiness’ of knowledge across boundaries and hence retards the innovation spread. The construction of a genuine multiprofessional community of practice was observed by Ferlie and colleagues only in one of their primary care cases, where professional boundaries could be successfully bridged because GPs and practice nurses shared common values; participation in change was incentivised; established systems for interprofessional dialogue were deployed; and basic cognitive assumptions of professional groups remained unchallenged.

A more optimistic view on multiprofessional communities is presented by Gabbay and le May (2011) in an ethnographic account of knowledge sharing in primary care, which describes a system of overlapping ‘communities of general practice’ existing
in primary care organisations. In addition to the uniprofessional ‘coffee room GPs’ community which is at the centre of their analysis, the authors also identify several ‘specialist’ communities located within the same practice, some of which are multiprofessional; wider (and looser) communities external to the practice (e.g. a group of fellow managers for the practice manager or a network of old colleagues for practice doctors); and, interestingly, a multiprofessional community that evolved from formal practice meetings and included almost all of the staff in the practice. Another example of a multiprofessional community operating in primary care is provided by Hudson (2007), who describes a multi-agency team working at the interface of district nursing and social work and argues that the promotion of shared values and socialisation to an immediate work group can override professional or hierarchical differences amongst staff and lead to the formation of a multiprofessional and multi-organisational community of practice.

More evidence on the use of multiprofessional and multi-organisational communities of practice to improve joint working in collaborative projects is provided by Lathlean and le May (2002). Based on action research projects conducted in primary care and outpatient dermatology and ENT services, they conclude that communities of practice can be a useful mechanism for the development of services spanning the interests of different stakeholders. The following key factors influence the development, functioning and maintenance of multiprofessional communities of practice: (1) membership—selecting the members, the extent (active or passive) and legitimacy of their involvement; (2) commitment to the desired goals; (3) relevance to local communities and the existing services; (4) enthusiasm; (5) infrastructure to support the work of the community; (6) skills in accessing and appraising evidence; and (7) resources. The authors also outline the challenges of using the communities of practice approach to implement change, which are mainly related to the leadership issues within the community of practice, the maintenance of a shared purpose and vision, the ability of the community to be flexible, and the multiplicity of types of knowledge used by different professionals within the community.

1.2.4. Knowledge gaps
As can be inferred from this section, the manageability of communities of practice and the possibility of their deliberate cultivation is an area of debate. It is still not clear to what extent communities of practice can be enabled, facilitated or supported and what practical combination of stewarding and emergent governance would be optimal for their successful cultivation. The formation of emergent, organic communities in temporary network organisations also remains an underresearched area. Several crucial questions about the development of multiprofessional communities of practice in the process of healthcare collaboration still remain unanswered. First, it is not clear what organisational, group-level and individual factors may enhance the transition from a multidisciplinary team to a community of practice. Second, in spite of the reports describing the deliberate formation of ‘genuine’ multiprofessional communities of practice from scratch, their description is often not informative enough to judge to what extent these groupings differ from project teams in terms of achieving mutual engagement, joint enterprise and shared repertoire. It may well be that the groupings which are labelled as communities of practice represent a rhetorical device rather than organic communities characterised by shared practice and sense of belonging. Finally, it is clear that the development of communities of practice may significantly differ across contexts, and further research is required to identify contextual factors which can facilitate the development of multiprofessional and multi-organisational communities of practice in healthcare, describe the dynamics of actors’ interactions within these communities and analyse the possibility of communities of practice emerging within collaborative knowledge mobilisation initiatives. This leads to the following questions to be addressed in this study:

**Research Question 1.** How do multiprofessional and multi-organisational communities of practice develop in a large-scale primary care knowledge mobilisation initiative?

**Research Question 1a.** What are the mechanisms and consequences of the conversion from an organisational project team to a multiprofessional community of practice?
1.3. Boundaries and identities in communities of practice

1.3.1. The concept of boundary

As a practice-based approach to learning, the communities of practice theory views *practice, i.e. ‘recurrent, materially bounded, and situated social action engaged in by members of a community’* (Orlikowski 2002, p. 256), as the means through which knowledge dynamics in groups and organisations unfold. According to this view, individuals continuously combine and modify knowledge through their everyday operations and interactions between each other (Wenger 2000; Bechky 2003; Tagliaventi and Mattarelli 2006). Apart from explicit, codifiable, ‘know-that’ knowledge, collective practice generates a great deal of tacit, ‘know-how’ knowledge, which is embodied in the community members’ practical skills and expertise (Brown and Duguid 2001). As a result, homogeneous and well-established communities of practice create distinct *epistemic cultures, i.e. cultures which ‘create and warrant knowledge’, making up ‘how we know what we know’* (Knorr Cetina 1999, p. 1). Knowledge can flow relatively easily within such cultures, while it can become sticky at the boundaries between them (Duguid 2005).

Situated approaches to learning define boundaries as sociocultural differences between practices that can lead to discontinuity in action or interaction (Akkerman and Bakker 2011). This understanding of boundaries, therefore, partially overlaps with the notion of ‘gaps’ popular in the knowledge mobilisation literature, where gaps are seen as ‘the network holes, spaces and missing ties that create between-group problems and opportunities for their resolution’ (Braithwaite 2010, p. 2). The latter approach, grounded in the information-processing perspective on knowledge sharing, emphasises structural and relational separation between groups that can be ‘bridged’ by ‘transferring’ knowledge from one group to another through routines, protocols and other information channels. By contrast, conceptualising boundaries as discontinuities, underpinned by differences between groups in terms of practices, identities and meanings, highlights the cultural and political nature of these phenomena, shifts the focus of analysis from ‘gaps’ and ‘bridges’ to divergent meanings, interests and cultures, and underscores the importance of reflection,
learning and transformation when dealing with boundaries (Carlile 2004; Kellogg et al. 2006).

Representing the discontinuity between the processes of one system and the systems with which it interacts, boundaries are dynamic, rather than stable or static, and become the locus of activities mediating relations between inside and outside. These activities may include integration, differentiation, interaction and development of relationships (Hyde 2006). One of the main premises of the communities of practice, reflecting the complexity of boundary relations, is the dual nature of boundaries: they can lead to innovation, learning and cross-fertilisation between practices, on the one hand, and to separation, fragmentation and disconnection, on the other (Wenger 2000). Barriers to knowledge sharing at the boundaries between communities of practice are, however, expected to prevail, being raised by the specificity of practice of a given community and a strong collective identity among its members (Tagliaventi and Mattarelli 2006). Those boundaries presenting barriers to knowledge sharing between communities can be classified as syntactic (difference in language), semantic (difference in meaning) and pragmatic (difference in practice), the latter being most difficult to overcome (Carlile 2002; 2004).

The presence of distinct epistemic cultures and boundaries in healthcare has been demonstrated by previous empirical research. It has shown, for instance, that doctors, nurses and managers have different attitudes to organisational change which are deeply embedded in their professional cultures (Degeling et al. 2001, 2003; Hall 2005; Morgan and Ogbonna 2008). In addition to strong interprofessional boundaries, the landscape of practices in the NHS is also characterised by the presence of intersectoral and intraprofessional boundaries: there are multiple differences of values, structures, education and relationships between the acute and primary care sectors (Fitzgerald et al. 2002) and between different specialities within the medical profession (see, for example, Martin et al. 2009 for a discussion of contrasting views of GPs with a special interest in genetics and specialist geneticists about the nature of genetic knowledge and its application). In the field of service improvement, administrative staff, nurses, medical practitioners, allied health professionals and managers have been shown to significantly differ in their conceptualisations of quality and safety, which may challenge the collaborative
implementation of service improvement initiatives in a multiprofessional environment (Braithwaite et al. 2011; Travaglia et al. 2011).

1.3.2. Professional, organisational and work group identities

Wenger (2000) argues that identities are the key for deciding in which communities of practice we participate and in which we do not; that our ability to productively deal with boundaries depends on our ability to engage and suspend our identities; and that learning from other practices involves opening up our identities to other ways of being. On the other hand, boundaries are necessary for the formation of an integrated sense of identity at individual, group and organisational level (Hyde 2006). Identity development in a community of practice is presented as a dual process of identification, which involves ‘creating bonds or distinctions in which we become invested’ (Wenger 1998, p. 191) and negotiability—‘the ability, facility and legitimacy to contribute to, take responsibility for, and shape the meanings that matter within a social configuration’ (ibid., p. 197). Learning can be seen as a product of this dual identity building process and involves realignment between the community-defined regime of competence and the individual experience of a community member (Wenger 2010).

Since the experiences of members are largely determined by their previous or concurrent membership in a number of different communities of practice, identity becomes a nexus of multimembership, whereby an individual reconciles, at least in part, their experiences in various communities of practice into one coherent sense of self. A continual negotiation of self within and across multiple communities may generate intra-personal tensions as well as instabilities within the community, which could result, for example, in opting for a marginal form of participation, adapting one’s own practice both to maintain a coherent sense of self and fit in with the community norms, or choosing not to participate at all (Wenger 1998; Handley et al. 2006). It could be assumed that the issues related to multimembership are especially pronounced in multidisciplinary, multiprofessional and multi-agency teams and communities. However, these are not specifically addressed in the seminal literature on communities of practice. It will thus be useful to refer to the wider sociological
and organisation studies literature on professional, organisational and work group identification.

*Professional identity* can be defined as ‘the relatively stable and enduring constellation of attributes, beliefs, values, motives, and experiences in terms of which people define themselves in a professional role’ (Ibarra 1999, pp.764-765). Though professional identity is not static, there seems to be a *core identity* which remains stable and with which all members are able to identify. Around this lies an *extended identity* which is subject to modification as the result of widening fields of work, increased knowledge and skills, development of new methods of care, changes in attitudes and values, or re-interpretation of old ones (Hornby and Atkins 2000). The development of professional identity in healthcare professions can be analysed in relation to the concepts of *professional dominance* over related professions and occupations, *professional collegiality*, or a sense of an equal status of the members of a profession translated into an attitude of loyalty to colleagues, and *professional autonomy* (Johnson 1972; Harrison and McDonald 2008). This has a number of implications for joint working. First, interprofessional collaboration may be more difficult where there are perceived status differentials between team members, for instance, doctors are often seen as ‘full’ professionals whereas social work and nursing are perceived as ‘semi-professions’. Second, dominant professions have the capacity to become strong groups independent of employing organisations and of other occupations. As a result, agencies which adopt the policy of joint working will not necessarily have the authority or capacity to commit their professional staff to the venture. Finally, where members of a profession have similar perceptions, values and experiences, then there will be more agreement among members within a profession, than between members of two different professions (Hudson 2002).

The analysis of identity formation in communities of practice should also include the notion of *organisational identification*, which is defined as a ‘form of psychological attachment that occurs when members adopt the defining characteristics of the organisation as defining characteristics for themselves’ (Dutton *et al.* 1994, p. 242). Organisational identity determines commitment to fulfilling organisational aims, a loyalty to the organisation and the workers in it (Hornby and Atkins 2000). It is often analysed along with a *work group identification* that has also been labelled as
collective team identification (van der Vegt and Bunderson 2005), with a dual identity (i.e. identification with both work group and organisation) seen as a means by which to achieve more effective intergroup relations in an organisation. While a high level of collective identification in teams with diverse membership is likely to increase team performance, this should probably be accompanied by enhancing organisational identification which would act as a buffer to the potentially detrimental effects of team identification on inter-team knowledge sharing (Richter et al. 2006). It could, however, be assumed that the balance between organisational and work group identities would be difficult to achieve in practice since fostering them might involve mutually exclusive managerial interventions, e.g. rotation of individual boundary spanners across teams to promote organisational identification (Richter et al. 2006) versus allowing a team to develop a shared history by stabilising their membership in order to foster collective team identification (van der Vegt and Bunderson 2005).

1.3.3. Boundaries and identities in healthcare: empirical studies

It could be assumed that the interplay between different layers of identification in multiprofessional and multi-agency communities operating in healthcare is complex and requires a substantial amount of ‘identity work’. It has been suggested, for example, that for frontline healthcare staff without a professional training the organisation is likely to be their primary group identification, whereas for practitioners it may come second to professional identification, except for the cases where the professional image is weak or ambiguous (Hornby and Atkins 2000). However, it should be noted that, although there is a wide array of publications on multidisciplinary teams (Øvretveit 1993; Øvretveit et al. 1997; Payne 2000), interprofessional collaboration (Barrett et al. 2005; Leathard 1994, 2003) and healthcare partnerships (Carnwell and Buchanan 2005; Glasby and Dickinson 2009), boundaries and identities in multiprofessional and multi-agency communities of practice has received relatively little attention from researchers. This subsection will discuss several empirical studies worth mentioning in this respect.
Some of the previous studies explore how role identities of healthcare staff change in a multiprofessional and multi-organisational work environment. In a qualitative study on interagency and interprofessional teams in the NHS, Robinson and Cottrell (2005) argue that in multiprofessional work, professional knowledge boundaries can become blurred and professional identity can be challenged as roles and responsibilities change. As a result, team members may struggle to cope with the disintegration of one version of professional identity before a new version can be built. Baxter and Brumfitt (2008) examine interprofessional practice in multidisciplinary stroke care and conclude that the depth of professional knowledge and skills is perceived as the core element in preserving professional differences; that although some role substitution is possible, there is little evidence of role boundary blurring between professions, and that there is variation among staff whether they consider themselves firstly as a member of a particular profession, or mainly as a member of a local team. Finally, based on a psychodynamic analysis of boundary systems in a mental health trust, Hyde (2006) argues that organisational restructuring affecting organisational, professional and group boundaries increases boundary complexity and may threaten identity, differentiation and interaction, leading to role confusion, loss of clarity of task and anxiety.

Other researchers use discourse analysis to look at how different groups of clinicians construct identities in the process of multidisciplinary work, interpret the roles of other groups and use these identities and interpretations to legitimise their claims for competence, professional autonomy and retaining occupational boundaries. For example, in a study of multidisciplinary heart failure care, Sanders and Harrison (2008) show that cardiologists, geriatricians, GPs and heart failure nurses use the discourses of ‘specialisation’, ‘competence’, ‘efficiency’ and ‘patient-centredness’ to establish professional legitimacy. These discourses are employed differently by each of the professional groups, with cardiologists confining themselves to a ‘specialisation’ discourse while heart failure specialist nurses employed all four. The authors suggest that the latter group, as the most newly established of the occupations in the study, have to use a greater variety of discourses as a means of strengthening their role and credibility. Lingard et al. (2002) explore how surgeons, nurses, anaesthetists and trainees working as a multidisciplinary team in the operating room form discursive constructions of the ‘other’. They show that the
subjects, particularly novices, tend to simplify and distort other professions’ roles, values and motivations as they interpret tense communication. Such interpretations may reflect each profession’s desire for primacy in a team setting and potentially hamper the formation of cohesive and functional multidisciplinary teams.

1.3.4. Knowledge gaps

Multiprofessional communities of practice may display over time the same characteristics as organic, naturally occurring, uniprofessional communities (Gabbay et al. 2003), but it could be assumed that the formation of cohesive and functional multiprofessional communities of practice in healthcare may be problematic since healthcare contexts are notorious for their interprofessional power struggles, the traditional dominance of the medical profession and strong inter- and intraprofessional boundaries. Although multiprofessional communities of practice are seen as a knowledge management tool that could be deployed for bridging the gaps between professional groups, it is not clear how their development is shaped by multiple boundaries within and across these newly formed heterogeneous groupings and to what extent these boundaries could be utilised by successful multiprofessional and multi-agency communities to enhance, rather than inhibit, knowledge sharing. In addition, the development of a multiprofessional and multi-organisational community would imply some degree of identification with the community, i.e. at least partial reconciliation of pre-existing and concurrent professional, organisational and workplace identities into one coherent sense of self. While it has been argued that our ability to suspend and engage identities determines our ability to productively deal with boundaries (Wenger 2000), development of shared identities in multiprofessional communities of practice and the influence of this process on knowledge sharing remain empirically unexplored. It is not clear to what extent socialisation to a new community of practice can override professional and organisational differences amongst staff, whether the outcomes of this ‘identity work’ within a multiprofessional community of practice are always predetermined by dominance, autonomy and status issues and in what way the process of collective identification with a newly formed heterogeneous community of practice may influence its knowledge sharing function.
Research Question 1b. How do pre-existing boundaries affect the development of multiprofessional communities of practice in a large-scale primary care knowledge mobilisation initiative?

Research Question 2. How does identification with a multiprofessional community of practice influence the process of knowledge sharing at its boundary?

1.4. Knowledge sharing in constellations of interconnected practices

1.4.1. Constellations of interconnected practices

Communities of practice do not exist in isolation. Within organisations, co-located and interrelated communities of practice form complex ‘constellations of interconnected practices’ (Wenger 1998, p. 127) or ‘communities-of-communities’ (Brown and Duguid 1991, p. 53), in which multiple practices differentiate themselves from and interlock with each other at their boundaries. Since practices within the constellation are differentiated on the basis of mutual engagement created over time through sustained collective pursuits of shared enterprises, they are not necessarily congruent with institutional divisions and boundaries existing between departments or project teams (Brown and Duguid 1991; Wenger 1998). Furthermore, it is generally assumed that communities of practice possess ‘communicative efficiency’ transporting knowledge relatively smoothly within a practice (Wenger et al. 2002, p. 152). As a result, (uniprofessional) communities of practice cutting across institutional boundaries make knowledge ‘leaky’ between departments and organisations (Addicott et al. 2006; Brown and Duguid 2001; Wenger et al. 2002). Conceptualising organisations as constellations of interconnected practices thus highlights the role of practice boundaries, as opposed to institutional boundaries, in determining the ‘stickiness’ or ‘leakiness’ of knowledge to be transferred across contexts.

One of the major themes in theorising constellations of interconnected practices is concerned with negotiation of meaning across co-located communities. For instance, Gherardi and Nicolini (2002) see a constellation of practices as an emerging
‘discursive community’, in which multiple competing discourses co-exist and learning is mediated by comparison among different perspectives embraced by co-participants, which produces not only order and negotiated meanings (‘consonance’), but also tensions and discontinuities (‘cacophony’). Although members of interdependent communities of practice develop ‘a common knowledge’ that can be used to share and assess the ‘domain-specific’ knowledge of each others’ practices (Carlile 2004), they still tend to experience knowledge sharing difficulties due to differences in their language, the locus of their practice and their conceptualisation of the product (Beckky 2003). Misunderstandings between communities of practice can be resolved through the process of transformation, which occurs when members of one community of practice come to understand how knowledge from another community of practice fits within the context of their own work, thus enriching and altering what they know (Beckky 2003; Carlile 2004; Gherardi and Nicolini 2000).

Another major theme, representing the development of a political perspective on knowledge sharing, relates to the issues of power in complex constellations of interconnected practices. For instance, Mørk et al. (2010) analyse the dynamic relationship between interconnected communities of practice in the process of medical innovation, exploring two laparoscopy-focused medical projects and their transfer to other hospitals. They argue that the emergence of new practices may lead to the contestation of the established master-apprentice relationship, whereby mastery changes from being mainly based on past merits towards increasingly being based on the ability to continuously learn new practices, mobilise arguments and build networks. They also show that innovations cannot move on without either challenging or aligning with established communities of practice, that the site for developing new practices often lies at the interstices between communities, and that the boundaries between communities of practice and the division of work within them become destabilised, renegotiated and reconfigured during the innovation process. In a later study, Mørk et al. (2012) highlight that handling multiple boundaries, facilitating mutual benefit and mutual adaptation of practice are key components of successful boundary organising, which is seen as a relational process of destabilising boundaries to include new actors and resources, followed by boundary restabilisation which stabilises the modified practice and protects it from external actors with conflicting interests.
Boundary reconfiguration in constellations of interconnected practices involved in the process of innovation is also explored by Barrett et al. (2011), who describe how the introduction of a dispensing robot into the pharmacy influenced the work practices, interests and relations of pharmacists, technicians and assistants. The authors argue that boundary relations between co-located communities of practice can be reconfigured, generating contradictory implications for workers’ skills, jurisdictions and visibility. They describe three types of emerging boundary relations: (1) cooperation, observed at the boundary between pharmacists and technicians, with bilateral expansion of work jurisdiction; (2) neglect, whereby plans and interests of assistants as the least powerful occupational group were ignored by pharmacists; and (3) strain, observed at the boundary between technicians and assistants, with unilateral loss of control, increased interdependencies and work fragmentation. Barrett and colleagues call for switching from a dyadic focus on boundary work to the analysis of multiple boundaries involved in the interaction of occupational groups co-located in the workplace.

1.4.2. Boundary bridges and the landscapes of practice

Connectivity between interconnected communities of practice can be achieved through the use of boundary bridges which are classified by Wenger (1998; 2000) in the following three groups:

1. Knowledge brokers—people who facilitate interaction between communities. Having membership in several communities of practice, the broker seeks to coordinate practice and meaning across them and often prefers to stay at the boundaries of many practices rather than move to the core of any one practice. Wenger (1998, p. 110) identifies uprootedness as ‘an occupational hazard of brokering’. Since communities of practice tend to focus on their own enterprise, boundaries lack the negotiated understanding found at the core of the practice about what constitutes competence. As a result, knowledge brokering, which lies ‘neither in nor out’, can become marginalised by the community. Whilst the importance of creating designated
knowledge brokering roles within organisations is highlighted in the management (Ancona and Caldwell 1992; Hargadon 2002) and healthcare (Dobbins et al. 2009; Ward et al. 2009a, 2009b; Ziam et al. 2009) literature, it should be noted that nominated boundary spanners can only become actual ‘boundary spanners in practice’ if they develop at least a peripheral understanding of each practice they are involved in, have legitimacy as negotiators on behalf of their practices and possess an inclination to broker knowledge (Levina and Vaast 2005). In healthcare contexts, knowledge brokering is often performed by individuals with hybrid professional roles—for example, clinical managers may span boundaries between the management and the medical professions (Fitzgerald and Ferlie 2000, Lorbiecki 1995).

2. **Boundary objects**—artefacts, discourses and processes which are plastic enough to adapt to the needs and constraints of several communities employing them, yet robust enough to maintain a common identity across sites (Star and Griesemer 1989). They possess interpretative flexibility which allows them to overcome syntactic, semantic and pragmatic boundaries and hence contribute to knowledge transfer across communities of practice (Swan et al. 2007). Some examples include X-rays in multidisciplinary cancer teams; theoretical and methodological approaches and concepts; project plans, forms and standards. Recent contributions suggest that boundary objects are not always positive in relation to knowledge translation across boundaries; they could be classified as facilitative and inhibitory (Fox 2011). The latter can become a barrier to change when they are used to legitimise work, reinforce existing power structures, solidify status and maintain occupational control over task areas (Bechky 2003; Oswick and Robertson 2009). Similarly, Kimble et al. (2010) argue that the use of boundary objects by knowledge brokers should be seen as a political interplay, which can be collectively oriented (the broker selects a certain object to further collective goals) or individually oriented (the broker chooses a boundary object to defend their own position). It has been shown, however, that boundary objects introduced by an organisation to increase cross-departmental learning, such as end-of-project reviews or ‘lessons learnt’ databases can be
used in a ritualised, tokenistic way without a visible effect on learning across boundaries (Swan et al. 2010). The potential of boundary objects as boundary bridges is therefore determined by the degree to which these objects allow coordination and negotiation of diverse perspectives, which, as Levina and Vaast (2005) argue, is only possible in the presence of a joint field, within which agents jointly recognise and value an object in question.

3. **Boundary interactions** among people from different communities of practice—these include single or discrete boundary encounters (e.g. meetings, visits and delegations) and longer-lived practice-based connections, which can take the form of overlapping practices (e.g. two types of employees dealing with a similar task), the opening of a periphery (providing a casual but legitimate access to the practice to outsiders without a full membership) or boundary practice (an established boundary encounter providing an ongoing forum for mutual engagement) (Wenger 1998). Cross-disciplinary projects can also be considered as a variant of boundary practice because participating in this kind of project exposes practitioners to specific tasks which go beyond their normal practices and forces them to negotiate their own competencies with the competencies of others (Wenger 2000). Interestingly, these projects can become communities of practice in their own right and develop their own boundaries that can prevent these communities from functioning as brokers. Bullough et al. (2004) describe, for instance, how a group of Clinical Faculty Associates, which had been created to span the boundary between the communities of school and university-based teacher educators, developed into a sharply bounded community of practice in its own right and could not therefore function in the knowledge brokering mode.

A system of interacting communities of practice, with their boundaries, overlaps, peripheries and bridges is called by Wenger (1998; 2010) a *landscape of practice*. Introduction of this concept provides a discursive tool for switching from the analysis of internal processes within communities to the exploration of relationships between them. Following Wenger, this research project will deploy the notion of ‘landscape’ along with the term ‘constellation of interconnected practices’
introduced in Section 1.4.1. The latter term will be used to denote an organisation viewed as a combination of co-located and interconnected communities of practice while the concept of landscape will imply a broader system of overlapping and interrelated communities, some of which transcend organisational boundaries. In the ‘landscape of practice’ in primary care, for instance, some communities are confined to individual GP surgeries and some cut across institutional boundaries. By contrast, the concept of ‘constellation’ will be deployed in relation to the Greater Manchester CLAHRC as an organisation comprised of multiple communities of practice. When describing knowledge flows within landscapes and constellations, the following two terms will be used throughout the project. Following Willem and Buelens (2007), the study will use the term knowledge sharing to refer to the process through which one unit (e.g. individual, group or division) is affected by the experience of another (Argote et al. 2000). Knowledge mobilisation will refer to an emerging field of inquiry that seeks to strengthen connections between research, policy and practice across sectors, disciplines and countries, attempting to harness the benefits of research for organisational and societal improvement (Cooper and Levin 2010).

1.4.3. Cross-disciplinary boundary interactions in healthcare: empirical studies

Several studies have explored the processes of knowledge sharing involved in cross-disciplinary boundary interactions in healthcare contexts. Gabbay et al. (2003) report a case study of knowledge management in two multi-agency communities of practice involved in improving health and social services for old people. They observed that the communities, which were intentionally constructed, showed over time the same characteristics as naturally occurring communities of practice. In spite of facilitation, knowledge sharing processes in these communities did not follow the model of evidence-based medicine, in which knowledge based on scientifically established facts is expected to be acquired, appraised, assimilated and implemented, but exhibited the more socially determined pattern of collective sense-making and were shaped strongly by personal, political and professional agendas. The knowledge behaviour of the community members could be described by the following four themes. First, despite the facilitators’ efforts to promote an evidence-based discourse, the groups demonstrated a strong bias towards experiential evidence
taking the form of storytelling, anecdotes or generalisations based on a person’s accumulated wisdom. Second, research evidence was transformed through experiential internalisation: scientific knowledge was most likely to be processed if it could be associated with the members’ individual and collective experiential knowledge. The process of transformation involved renegotiation of meanings and integration of this new knowledge into the groups’ shared repertoire. Third, the processing of knowledge by the communities of practice was contingent on their composition, skill mix and dynamics, with a tendency to ‘satisfice’, making the best of the knowledge available at hand rather than systematically seek out new evidence to inform the decision making processes. Finally, the communities of practice demonstrated differential sense-making determined by the roles, agenda and power of the participants.

Other studies reported in this subsection have looked at knowledge sharing between communities of practice co-located in the same institutional department. Learning across epistemic boundaries is analysed by Mørk et al. (2008) in their study of distinct, but interconnected uniprofessional communities in a medical R&D department. Mørk and colleagues show that the ‘machineries of knowledge production’ significantly differ across communities of practice possessing partially incompatible epistemic cultures. As a result, cross-disciplinary practice, learning and innovation across communities take place in the context of tension and conflict. Challenges to learning include professional identity issues; formal regulations shaping work conditions and practices; differences in the perceived hierarchy of knowledge between professions; division of labour in research activities; and marginalising emergent practice-based knowledge in the process of designing and implementing research projects. The authors conclude that radical change can become limited if the knowledge required by the new boundary practices is incompatible with the existing stock of knowledge, the latter being embedded into pre-existing and well-established communities of practice.

Tagliaventi and Mattarelli (2006) conducted an ethnographic study investigating the process of knowledge sharing between members of different professions working in a radiotherapy unit, which can be considered a constellation of interconnected practices. They found that operational proximity (performing daily activities side by
side) in combination with holding common values regarding the unit (for example, the centrality of the patient) acted as a leveraging tool for knowledge exchange between doctors, technicians, physicists and nurses. In addition, knowledge flows between different professional groups did not occur homogeneously but availed themselves of specific actors, who acted as knowledge brokers. Interestingly, their knowledge brokering role was correlated with an intense sharing of spaces and activities rather than the intensity of their participation in networks of practice. The authors suggest that voluntary knowledge sharing can be interpreted as a form of organisational citizenship behaviour, whereby both initiators and recipients of knowledge flows go beyond their formal duties and engage in extra-role activities to profit the organisation.

Oborn and Dawson (2010a) conducted an ethnographic study into learning in multidisciplinary cancer care teams. They highlighted that while learning in unidisciplinary communities of practice develops through repetition, gaining legitimacy and achieving mastery, learning in multidisciplinary teams is facilitated by the following practices: (1) organising discussions; (2) acknowledging other perspectives, and (3) challenging assumptions. In contrast to Wenger’s (1998) view of knowledge brokering as a potentially marginalising activity, Oborn and Dawson suggest that knowledge brokers in multidisciplinary teams are not marginalised by working closely with members from other unidisciplinary groups; furthermore, they were often central to their respective unidisciplinary communities. The authors also show that knowledge brokers use boundary objects (for example, X-rays) to make their practices more visible, interrelate with the neighbouring unidisciplinary communities, and hence enable a shift in understanding across communities of practice. At the same time, knowledge of more powerful multidisciplinary team members is more likely to be reconstituted as multidisciplinary group practice while diminished power status of a group renders its knowledge and practice obscured. The creation of a multidisciplinary structure may therefore support rather than challenge existing power hierarchies (Oborn and Dawson 2010b).

1.4.4. Knowledge gaps
The communities of practice approach is not limited to the exploration of internal processes within communities of practice and deploys the notions of landscapes and constellations to explore boundary relations in complex systems of interconnected communities of practice with their peripheries, overlaps and bridges. However, as can be inferred from the above, empirical literature on knowledge sharing in communities of practice is mainly concerned with the barriers to knowledge sharing between uniprofessional communities co-located within a constellation. There is, however, little discussion in the literature about boundary interactions within newly formed multiprofessional communities of practice (with the exception of Gabbay et al. 2003) as well as at the boundaries separating these heterogeneous communities from other groups within an organisation. Recent research suggests that boundaries in constellations of practice are dynamic and that their permeability and configuration may change over time (Barrett et al. 2011, Mørk et al. 2012), but the role of organisational structure, designated boundary bridges and other institutional factors in this process remains underresearched. We still know relatively little about how constellations of practices and boundaries within them develop in novel contexts. Large-scale knowledge mobilisation initiatives, such as the CLAHRCs, provide an ideal opportunity for studying the renegotiation and reconfiguration of multiple boundaries around emerging boundary practices. In particular, the following research questions will be examined:

*Research Question 3.* How is knowledge shared across the boundary separating a multiprofessional community of practice from its neighbouring extra- and intra-organisational communities?

*Research Question 4.* How do boundaries to knowledge flows develop within a constellation of interconnected practices operating in the emergent context of a large-scale primary care knowledge mobilisation initiative?

*Research Question 5.* How do these boundaries influence the implementation of knowledge mobilisation initiatives?
1.5. Theoretical challenges

This section will refer to some of the criticisms of communities of practice theory and personal experiences of the author when conducting the literature review and the first stage of data collection for this study. It will attempt to synthesise these criticisms and experiences into a brief outline of theoretical challenges that could be encountered by researchers conducting qualitative organisational research informed by the theory of communities of practice. It will also explain how the current study is going to address these challenges in order to strengthen its research design and, ultimately, increase the explanatory power of its findings.

1. Defining a community of practice

As previously mentioned in Section 1.2.1, the concept of communities of practice has been criticised for being too loosely defined in Wenger’s works, which has led to the imprecise use of the term in the wider communities of practice literature (Amin and Roberts 2008). Distinctions between communities of practice and other organisational groupings, such as teams, networks and formal organisational departments, suggested by Wenger et al. (2002), are somewhat simplistic, are more suitable for the instrumental, rather than analytical, perspective on communities of practice, and do not take into account the complexity of landscapes of practices, in which certain groups may exhibit characteristics typical for more than one category described by Wenger and colleagues. This perceived lack of definitional clarity has resulted in other authors suggesting their own definitions of the concept that may well have suited their own research but often miss out the fundamental premises of the communities of practice theory presented in the seminal theoretical literature. Other authors have proposed classifications of communities of practice (e.g. knowledge communities versus knowledge collectivities in Lindkvist 2005) or reinterpreted Wenger’s idea of a relation between ‘the local’ and ‘the global’ as a distinction between proper communities of practice and ‘networks of practice’ (Brown and Duguid 2001; Duguid 2005).
Whilst acknowledging some of these important contributions, this research project will predominantly deploy the notion of community of practice as defined in Wenger (1998), *i.e.* as a group of individuals created over time through sustained collective pursuit of a joint enterprise and developing mutual engagement with each other as well as a shared repertoire of meanings, routines, stories and artefacts. It will also draw on Wenger’s other theoretical works to the extent that they do not contradict this conceptualisation. The project will also build on the idea expressed by Wenger (2010) in his most recent work on communities of practice, where he argues that it is more useful to look at ‘community’ and ‘network’ as combined in the same social structures, with the notion of community emphasising *identity* and the notion of network focusing on *connectivity*. Adopting this approach, this study will not use the term ‘community of practice’ *in opposition* to other organisational groupings; it will maintain that an intra-, inter-, supra- or extra-organisational grouping may also be considered a community of practice if it demonstrates mutual engagement, joint enterprise and shared repertoire.

2. *Choosing between the analytical and instrumental perspectives*

In the process of its evolution, the communities of practice theory has diverged into two interconnected but somewhat conflicting perspectives, namely the analytical and instrumental. As applied to health services research, the analytical perspective on communities of practice can be viewed as a theoretical approach to analyse healthcare organisations, which fits in well with earlier theoretical works on organic communities of practice largely independent of managerial control. By contrast, the instrumental perspective views communities of practice as a practical tool enabling collaborative learning and knowledge mobilisation and suggests that communities of practice can and should be engineered by organisations to increase performance and competitive advantage. This in itself generates a managerial paradox: the increased ambition to manage and own communities of practice for the benefit of an organisation is at odds with research findings suggesting that organisations cannot fully control them (Probst and Borzillo 2008).

It should also be noted that the literature deploying the instrumental perspective on communities of practice and concerned with their ‘cultivation’ tends to take the very
possibility of deliberate creation of such communities for granted. It mainly focuses on the advantages of using this approach but does not seem to provide sufficient explanation of how these newly formed communities develop, what characteristics they possess and how they interact with a wider organisational context. Although staying mainly within the analytical perspective, this research will, however, also draw on the instrumental view, particularly in thinking about how the findings from the study might be applied to inform future developments in knowledge mobilisation. A combination of the two perspectives is useful for looking at how organic communities of practice change under the influence of a large-scale knowledge mobilisation programme, whether new communities emerge, be these facilitated or spontaneous, and what lessons can be learnt from this process to inform an instrumental use of communities of practice in future.

3. Corroborating theoretical ideas by empirical evidence

A decreased attention to the empirical grounding of theoretical ideas is one of the trends characterising the evolution of the communities of practice approach as represented by Wenger’s writings. In Lave and Wenger (1991), the five case studies of midwives, meat cutters, naval quartermasters, tailors and Alcoholics Anonymous form a substantial part of the book, where they are explicitly used to illustrate the main premises of the emerging theory, particularly the notion of legitimate peripheral participation. In another seminal book on communities of practice, Wenger (1998) argues that the theoretical ideas developed therein are based on an observational study of medical claims processors and indeed occasionally presents some field note excerpts. The links between the empirical data and the theory are, however, much less explicit than in the earlier work and the empirical grounding feels somewhat sidelined. Finally, in later contributions (Wenger and Snyder 2000; Wenger et al. 2002), which are written mainly for a practitioner audience, empirical evidence behind rather prescriptive ideas on cultivating communities of practice becomes rudimentary, being limited to some in-passing references to the authors’ experiences as consultants in large business-sector companies.

Taking this into account, the literature review presented in this chapter has tried to discuss both theoretical ideas from Wenger’s work and evidence from relevant
empirical research undertaken in the healthcare sector and beyond. Overall, this thesis will avoid taking Wenger’s theoretical assumptions for granted, reassessing them, where relevant, in light of existing empirical evidence provided by other authors as well as emerging empirical data produced by this research project. Interestingly, empirical research on communities of practice is predominantly qualitative, with the possible exception of several quantitative implementation studies (Barwick et al. 2009; Jiwa et al. 2009; Milne and Lalonde 2007; Render et al. 2006; Taplin et al. 2008; Tolson et al. 2008), which assessed the impact of interventions including the establishment of or participation in a community of practice, i.e. focused on the outcomes of interventions rather than on the process. The predominance of qualitative approaches to studying the processes taking place within and across communities of practice can probably be explained by the interpretivist nature of the communities of practice theory, its interpretive flexibility and lack of definitional clarity, leading to difficulties in its operationalisation and testing in the positivist sense (Storberg-Walker 2008).

4. Avoiding romanticisation of communities of practice

As noted by various authors, the appeal of the communities of practice theory owes a good deal to the positive connotations associated with the term ‘community’ which tends to be perceived as ‘a rather large, helpful and friendly, bounded group’ (Cox 2005, p. 532; Duguid 2005). As a result, too much stress in the wider communities of practice literature, especially in accounts underpinned by the instrumental perspective, is placed upon the supposed business benefits of communities of practice rather than on the problems related to the features of the communities functioning in a business setting (Kimble and Hildreth 2008). Wenger (2010, pp. 180-181) warns that this is not always the case: ‘[a] community of practice can be dysfunctional, counterproductive, even harmful.’ A whole chapter in Wenger et al. (2002, pp. 139-159) is devoted to ‘the downside of communities of practice’ which is categorised into domain disorders (imperialism, narcissism, marginality, factionalism); community disorders (cliques, egalitarianism, dependence, stratification, disconnectedness, localism); and practice disorders (documentism, amnesia, dogmatism, mediocrity).
As far as the literature informed by the analytical perspective on communities is concerned, the review presented in the previous sections has shown that the complex processes taking place within communities of practice and at boundaries between them, which include identity construction and knowledge sharing, often result in tensions between community members, stickiness of knowledge between communities and blockage of innovation. Taking this into account, this study will attempt to avoid romanticising communities of practice and making unsubstantiated assumptions that their mere presence within a collaborative healthcare organisation will automatically enable it to achieve its objectives, enhance performance and promote the sustainability of change. Focusing on boundary discontinuity emerging in a constellation of interconnected practices, this study aims to contribute to our understanding of the ‘dark side’ of communities of practice (Le May 2009; Pemberton et al. 2007).

5. Placing communities of practice in wider context

Focusing on the issues of practice, learning, meaning and identity, communities of practice theory does not specifically address the influence of factors grounded in the wider context. Communities of practice, however, do not exist in a vacuum; it has been argued that the context within which a community is embedded could be a major factor determining its success as a means of creating and transferring knowledge (Roberts 2006) and that it is the richness of the context that generates the fluidity, heterogeneity and diversity within communities found in the real world (Handley et al. 2006). An extreme of this context-deterministic view on communities of practice suggests that ‘many aspects of twenty-first century work… militate against the appropriation of the enterprise by a group in sustained mutual engagement’ (Cox 2005; pp. 532-533), thus undermining the role of communities of practice in contemporary organisations. These aspects of context include frequent reorganisation, employment of temporary or part-time staff, tight management, highly individualised and spatially fragmented work, very competitive and time-pressurised environments, and heavily technology-mediated practices.

This study acknowledges the importance of contextual factors in understanding the mechanisms governing communities of practice and their interactions with other
communities and various organisational and societal structures. The analysis of findings of this research project will therefore take into account the inner context (i.e. structures, resources and other organisational factors within the Greater Manchester CLAHRC), as well as the outer context (e.g. the policy environment in which the CLAHRC is operating) (Pettigrew et al. 2001). Whilst predominantly focusing on the group level of analysis, the study will also touch upon macro-level institutional forces underpinning the boundaries between communities of practice involved in the process of knowledge mobilisation. Discussing inner and outer context inevitably raises questions about power, which will be briefly addressed below.

6. Acknowledging power issues

In conceptual chapters of their book, Lave and Wenger (1991) show that socialisation to a community of practice is a power-invested process and highlight tensions between newcomers’ accomplishment of continuity of practice within the community and their instigation of innovations that results in the displacement of old-timers and old ways of doing things in the reproduction of community. However, their case studies as well as later contributions to the communities of practice theory (Wenger 1998; Wenger et al. 2002) shift the focus of discussion from power issues to collective sense-making and do not explicitly explore potential power struggles within a community (Contu and Willmott 2003; Cox 2005). Responding to this critique, Wenger (2010, p. 189) argues that ‘[i]dentification with a community makes one accountable to its regime of competence and thus vulnerable to its power plays.’ At the higher level of landscapes and constellations, the regime of accountability is comprised of the two processes, often functioning in complete separation: horizontal accountability, vested in mutual (but not by definition consensual) relationships among community members, and vertical accountability associated with traditional institutional hierarchies.

Taking into account the notions of horizontal and vertical accountability, this research project will touch upon the issue of power at the following three levels. First, it will have to consider power relations within multiprofessional and multi-agency communities of practice developing in the process of healthcare collaboration.
because, as shown in Section 1.3, these communities of practice tend to bring together a variety of individuals with differing organisational status and professional expertise (see also Pemberton et al. 2007). Second, it will consider power relationships between co-located communities of practice, such as the community of applied health researchers and the community of those implementing research into practice. Finally, when analysing contextual factors within which the communities of practice are embedded, the study will touch upon the power relations within the Greater Manchester CLAHRC as a whole, following Roberts’ (2006) assumption that an organisation’s overall power structure (decentralised or hierarchical) is directly reflected in its power relations with constituent communities of practice. It should, however, be noted that the theory of communities of practice is not a theory of power; as a result, the issues of power, although continuously mentioned throughout this research project, will not occupy a central place in the analytical accounts developed by the study.

7. Uncovering dispositions

In contrast to the theory of communities of practice, which focuses on changes in identities, meanings and practices brought about through practice itself, Bourdieu’s (1990) theory of practice uses the notion of habitus to refer to generative structures that condition practice. For Bourdieu, habitus is a set of durable, unconscious, embodied dispositions which are transposable across different contexts, can be collectively orchestrated, and are able to generate and organise practices. Whereas Bourdieu’s habitus is acquired at a relatively early stage and is prior to the given practice (although can be transformed by it), Wenger (1998, p. 289, n. 3) sees it as ‘an emerging property of interacting practices’ and argues that although experience gained outside a particular community of practice is important, it will be modified by that community. In his synthesis of the communities of practice approach and the notion of habitus, Mutch (2003; p. 397) combines these two differing but complementary views and suggests that ‘[t]he analytical interest lies in the extent to which… such dispositions are challenged by and altered by different practices, or to what extent they remain immune to such influences’ (see also Handley et al. 2006).
Members of a community of practice, especially a multiprofessional and/or multi-organisational community, can demonstrate different perceptions, attitudes and, most importantly, actions in the process of joint working. As could be inferred from Section 1.3, at the group level of analysis this diversity is probably underpinned by their differing professional backgrounds or exposure to different sectors of the healthcare system rather than generated by shared multidisciplinary practice they are collectively engaged in. Regardless of whether these dispositions to think and act in a certain way are labelled as ‘habitus’ or ‘identity as nexus of multimembership’, it is obvious that they act as antecedents for a particular emerging multiprofessional community of practice. Although prone to (re)negotiation and (re)interpretation in practice within this developing community (as the communities of practice theory argues), these internalised previous work experiences will inevitably shape collective practice, occasionally leading to conflict, marginalisation or non-participation.

Acknowledging the importance of previous experiences of members, this study will specifically examine the role of pre-existing communities of practice and their boundaries in the development of novel constellations and landscapes of practice within the CLAHRC as a large-scale knowledge mobilisation initiative.

### 1.6. Structure of the thesis

This thesis is presented in an alternative format, *i.e.* it incorporates sections that are in a format suitable for submission for publication to peer-reviewed journals. The following section explains why the alternative format has been adopted for this thesis, how the thesis is structured and in what way it differs from conventional, monograph-type dissertations. It also shows how the three empirical papers relate to the research questions of the whole study formulated in Sections 1.2.4, 1.3.4 and 1.4.4, reflects on the extent of my own contribution and the contribution of my co-authors to the publications included, and touches upon some differences in presentation related to the alternative format of the thesis.

The reasons for adopting an alternative format for this thesis are threefold. First, the traditional thesis format has been criticised for being ‘an ungeneralisable genre’ (Duke and Beck 1999, p. 32). Almost all academics produce only one dissertation in
their life, with knowledge and skills required for accomplishing this task being different from those required to produce academic papers that researchers are expected to write throughout their careers. I intend to pursue an academic career and see a paper-based thesis as an opportunity to develop this important skill and start building my publication record. Second, the traditional thesis format has a limited readership and presents further barriers for widening this readership through publication because the subsequent conversion of a completed thesis into a series of publications normally involves significant further work delaying the communication of findings. By contrast, adopting the alternative format thesis enables a direct dissemination of research findings to a wider audience, potentially increasing the impact of the dissertation project on research and practice. Finally, presenting this work in a paper-based format has allowed me to take different angles on the data, with each of the empirical papers using different subsets of data and exploring different contexts for the development of communities of practice and their boundaries.

The study has the following structure. Based on the preliminary version of the literature review conducted for the study, Paper 1 (Kislov et al. 2011) applies the communities of practice literature to the analysis of the CLAHRCs as a novel knowledge mobilisation initiative. It organises the discussion of literature around the following three themes: (1) knowledge sharing within and across communities of practice; (2) formation and manageability of communities of practice; and (3) identity construction in communities of practice. It attempts to analyse the processes of joint working within the CLAHRCs using the theory of communities of practice, identify potential problems that may arise in the process of healthcare collaboration, and reflect on the possibility of the development of new multiprofessional and multi-organisational communities within the CLAHRCs.

The main purpose of the Methodology chapter is to provide a detailed account of methodological issues involved in designing and implementing this research project. It describes the critical realist assumptions underpinning this project, explains why a single-embedded qualitative case study design has been selected to address the research questions of the study, and discusses semi-structured interviews, direct observation and documentary analysis as the three main methods of data collection.
This chapter also touches upon the issues of sampling and access, provides a detailed description of procedures and techniques involved in data analysis, and concludes with a discussion of research validity in relation to the whole study, including a reflexive discussion of the researcher’s role throughout the project.

Empirical findings of the study are then presented and discussed in three empirical papers, each of them focusing on a different subcase within the overarching case study of the Greater Manchester CLAHRC and addressing different research questions (Table 1-3). Since all of the papers represent standalone pieces of writing, they have self-contained components (e.g. Background, Methodology, Conclusion) overlapping with the chapters of the thesis, which inevitably leads to some duplication. Each paper is preceded by a short prologue discussing the position of a subcase in relation to the whole study, providing additional contextual information to aid the understanding of the subcase presented and demonstrating the links between the subcases. It should also be noted that relevant references are included at the end of each chapter/paper rather than at the end of the thesis. Finally, an integrated discussion of all empirical papers is presented in the Conclusion chapter of the thesis, which aims to draw theoretical and practical outcomes of the study into a coherent synthesis and highlights its contribution, limitations and implications for research and practice.

As far as the authorship of the papers is concerned, two (Paper 2 and Paper 4) are solely authored while the other two (Paper 1 and Paper 3) are co-authored by myself and my research supervisors, Gill Harvey and Kieran Walshe. Literature review, data collection and data analysis for all papers have been undertaken by me as the first author. I have also drafted the manuscripts. Co-authors contributed to jointly authored papers by reading through multiple versions of the manuscripts and providing extensive critical comments that I incorporated into subsequent revisions. Kieran Walshe suggested the term ‘developmental approach’ in relation to an alternative perspective on communities of practice in service improvement described in Paper 3. Overall, the contribution of the co-authors to the papers was within what could normally be expected from doctoral supervisors. At the time of submission, Papers 1 and 3 are published (Kislov et al. 2011, 2012) while the other two papers are at different stages of journal submission and review process.
<table>
<thead>
<tr>
<th>Paper</th>
<th>Title</th>
<th>Research setting</th>
<th>Research questions</th>
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| Paper 2 | From a project team to a community of practice? An exploration of boundary and identity in the context of healthcare collaboration. | The Heart Failure team as an emerging community of practice embedded with the Greater Manchester CLAHRC and interacting with various intra- and extra-organisational groupings | • What are the mechanisms and consequences of the conversion from an organisational project team to a multiprofessional community of practice? (RQ 1a)  
• How is knowledge shared across the boundary separating a multiprofessional community of practice from its neighbouring extra- and intra-organisational communities? (RQ 3)  
• How does identification with a multiprofessional community of practice influence the process of knowledge sharing at its boundary? (RQ 2) |
| Paper 3 | Managing boundaries in primary care service improvement: A developmental approach to communities of practice. | The Chronic Kidney Disease project, with a sample of four general practices used to explore intra- and inter-organisational boundaries influencing the implementation of service improvement in primary care and development of multiprofessional communities of practice in this context | • How do pre-existing boundaries affect the development of multiprofessional communities of practice in a large-scale primary care knowledge mobilisation initiative? (RQ 1b)  
• How do boundaries between communities existing within and across general practices influence the implementation of a primary care service improvement programme? (RQ 5) |
| Paper 4 | A constellation of disconnected practices: (Re)producing boundaries in a large-scale healthcare knowledge mobilisation initiative. | The Greater Manchester CLAHRC as an emerging (and somewhat dysfunctional) constellation of interconnected practices, with a specific focus on boundaries emerging between its research strand and implementation strand, and boundaries within the implementation strand | • How do boundaries to knowledge flows develop within a constellation of interconnected practices operating in the emergent context of a large-scale primary care knowledge mobilisation initiative? (RQ 4)  
• How do these boundaries influence the process of knowledge mobilisation? (RQ 5) |

Table 1-3. Empirical papers and their research questions

This chapter has placed the research study in the wider context, namely at the intersection of communities of practice as a situated learning theory and the cultural perspective on knowledge sharing in organisations. It has identified the CLAHRCs
as the research setting for the study and described them in the wider policy context of knowledge mobilisation. It has touched upon the evolution of the communities of practice approach and synthesised theoretical and empirical literature on communities of practice to identify a number of research gaps. These research gaps, which relate to the development of multiprofessional communities of practice and knowledge sharing across their boundaries in wider landscapes and constellations of practice, have been used to formulate the research questions of the study. The chapter has also presented a critique of the communities of practice approach, using this critique to formulate seven theoretical challenges experienced by the author throughout the research process. Finally, the structure of the thesis and the rationale for adopting an alternative format have been discussed.

References


Kimble, C., Grenier, C. and Goglio-Primard, K. (2010). Innovation and knowledge sharing across professional boundaries: Political interplay between boundary


Roman Kislov, Gill Harvey, Kieran Walshe
Abstract

Background

The paper combines the analytical and instrumental perspectives on communities of practice (CoPs) to reflect on potential challenges that may arise in the process of interprofessional and inter-organisational joint working within the Collaborations for Leaderships in Applied Health Research and Care (CLAHRCs)—partnerships between the universities and National Health Service (NHS) Trusts aimed at conducting applied health research and translating its findings into day-to-day clinical practice.

Discussion

The paper discusses seminal theoretical literature on CoPs as well as previous empirical research on the role of these communities in healthcare collaboration, which is organised around the following three themes: knowledge sharing within and across CoPs, CoP formation and manageability, and identity building in CoPs. It argues that the multiprofessional and multi-agency nature of the CLAHRCs operating in the traditionally demarcated organisational landscape of the NHS may present formidable obstacles to knowledge sharing between various professional groupings, formation of a shared ‘collaborative’ identity, and the development of new communities within the CLAHRCs. To cross multiple boundaries between various professional and organisational communities and hence enable the flow of knowledge, the CLAHRCs will have to create an effective system of ‘bridges’ involving knowledge brokers, boundary objects, and cross-disciplinary interactions as well as address a number of issues related to professional and organisational identification.

Summary

The CoP approach can complement traditional ‘stage-of-change’ theories used in the field of implementation research and provide a basis for designing theory-informed interventions and evaluations. It can help to illuminate multiple boundaries that exist between professional and organisational groups within the CLAHRCs and suggest ways of crossing those boundaries to enable knowledge transfer and organisational learning. Achieving the aims of the CLAHRCs and producing a sustainable change in the ways applied health research is conducted and implemented may be influenced by how effectively these organisations can navigate through the multiple CoPs involved and promote the development of new multiprofessional and multi-organisational communities united by shared practice and a shared sense of belonging—an assumption that needs to be explored by further empirical research.
Introduction

Since being identified as a mechanism through which knowledge is held, transferred, and created, the communities of practice (CoP) approach has become increasingly influential within management research and practice (Roberts 2006). Originally developed by Lave and Wenger (1991) in a study of situated learning, the CoP theory is currently being used to analyse and facilitate knowledge sharing in a wide range of organisational environments, including, but not limited to, business sector, education, information technology (IT) and healthcare organisations. In the healthcare sector, CoPs have been argued to play a role in the generation of social, human, organisational, professional, and patient capital, thus being potentially useful for enhancing care, providing learning opportunities, analysing practice, problem-solving, sharing knowledge, and generating ideas (Le May 2009).

This paper will use the CoP approach as a lens to look at interprofessional and inter-organisational joint working within the Collaborations for Leadership in Applied Health Research and Care (CLAHRCs)—partnerships between the universities and National Health Service (NHS) Trusts aimed at conducting applied health research and translating its findings into day-to-day clinical practice. It will briefly discuss some of the seminal theoretical CoP literature as well as previous empirical research on the role of CoPs in healthcare collaboration, using CoPs as a lens to reflect on potential challenges that the CLAHRCs will have to address in order to achieve their objectives. It will argue that the multiprofessional and multi-agency nature of the CLAHRCs operating in the traditionally demarcated organisational landscape of the NHS may present formidable obstacles to knowledge sharing between various professional groupings, effective identification with the Collaboration, and the formation of new multiprofessional communities within the CLAHRCs.

The paper will start with a brief discussion of the structure and purposes of the CLAHRCs and the main premises of the CoP approach. It will then explore the following three interrelated strands within the wider CoP literature: knowledge sharing across CoPs; CoP formation and manageability; and CoP identity building. The paper will conclude by discussing the advantages of applying the CoP theory to healthcare partnerships, summarising the key issues that need to be addressed by the
CLAHRCs and similar organisations in order to achieve their aims, and reflecting on the implications for future research in this area.

**Background**

**Collaborations for Leadership in Applied Health Research and Care**

In 2008, another major experiment was launched in the English NHS: CLAHRCs were established across England. Each CLAHRC represents a collaborative partnership between one or more universities and their surrounding NHS organisations aiming to undertake high-quality, patient-centred applied health research and to support the translation of research evidence into clinical practice. In total, nine CLAHRCs were selected through an open competition out of twenty-two bids, with particular value being placed on research proposals targeted at chronic disease and public health interventions. Each of them will receive up to £10m over five years from the National Institute for Health Research (NIHR), with additional matched funding to be secured from the participating NHS organisations to at least the same level as that provided by the NIHR (2008a, 2011).

The CLAHRCs are expected to enhance knowledge transfer between academic researchers and NHS staff and thus address the ‘second gap in translation’—a gap in the translation of new medical interventions into everyday practice identified by Cooksey's (2006) *Review of UK Health Research Funding*. They have three key interlinked functions: conducting high quality applied health research; implementing the findings from research in clinical practice; and increasing the capacity of NHS organisations to engage with and apply research. It should also be noted that the CLAHRCs are situationally placed, with their agendas being determined by the partnering organisations and tailored to the healthcare needs in their respective geographical areas.

The CLAHRCs can be considered as a somewhat experimental approach designed to further our understanding of large-scale collaborations as an implementation tool—both by internal testing of new initiatives aimed at implementation of research findings into day-to-day practice, and as the subject of a number of ongoing external
evaluations commissioned by the NIHR Service Delivery and Organisation (SDO) programme (NIHR 2008b). These internal and external evaluations are supposed to contribute to the evidence base on the efficiency and effectiveness of collaboration and other strategies aimed at increasing applied health research use in multiple populations and settings. However, the process of evaluating the CLAHRC processes and outcomes is still at the initial stage, which explains why so little empirical research on the CLAHRCs has been published so far. This paper will explore an alternative way of looking at the subject; it will attempt to draw some lessons for the CLAHRCs by analysing healthcare collaboration through the lens of CoPs. In doing so, it will refer to the seminal works on CoPs published by Etienne Wenger (Lave and Wenger 1991; Wenger 1998; Wenger et al. 2002), as well as empirical studies that have used CoPs in healthcare settings, either as an analytical approach or as a knowledge management tool.

**Communities of practice**

A community of practice (CoP) is ‘a group of people who share a concern, a set of problems, or a passion about a particular topic, and who deepen their understanding and knowledge of this area by interacting on an ongoing basis’ (Wenger et al. 2002, p.4). CoPs can range in size; they can be long or short lived, co-located or distributed, homogeneous or heterogeneous, spontaneous or intentional, unrecognised or institutionalised. Organisations can in turn be interpreted as the ‘communities of communities’ (Brown and Duguid 1991, p. 53), or ‘constellations of interconnected CoPs’ (Wenger 1998, p. 127).

Wenger formulates three defining characteristics of CoPs. First, CoP members interact with one another, establishing relationships and negotiating meaning of their actions through mutual engagement. Second, members are bound together by an understanding of a sense of joint enterprise, which entails a common set of tasks that CoP members can influence. Finally, they produce over time a shared repertoire of routines, words, tools, stories, symbols, or concepts that become part of the CoP practice (Wenger 1998). Iverson and McPhee (2008) argue that mutual engagement, joint enterprise, and shared repertoire can be used to determine the existence of CoPs, distinguish between different CoPs, and evaluate communicative processes in
them. However, in his later work Wenger reformulates these characteristics and presents the 'structural model' of CoPs consisting of three fundamental elements: a *domain* of knowledge, which defines a set of issues; a *community* of people who care about this domain; and the shared *practice* that they are developing to be effective in their domain (Wenger *et al.* 2002, p.27).

According to Wenger *et al.* (2002), CoPs can be distinguished from formal departments, project teams, communities of interest and informal networks along the following five dimensions:

1. **Purpose**: to create, expand and exchange knowledge, and to develop individual capabilities;
2. **Membership**: self-selection based on expertise or passion for the topic;
3. **Boundaries**: fuzzy;
4. **What holds them together**: passion, commitment, and identification with the group and its expertise;
5. **Life cycle**: CoPs evolve and end organically; they last as long as there is relevance to the topic and interest in learning together.

This distinction has, however, been criticised for being rather vague and contradictory; for instance, the notion of self-selection contradicts the generally accepted premise that people from the same discipline automatically belong to the same CoP (Li *et al.* 2009a). It also does not take into account the possibility that, under certain conditions, a project team may develop CoP characteristics and hence become a ‘true’ CoP (Hildreth 2004). This has led some authors to suggest that the CoP is actually an umbrella term for a number of different organisational groupings that are characterised by the support for formal and informal interaction between novices and experts, the emphasis on learning and sharing knowledge, and the investment to foster the sense of belonging among members (Li *et al.* 2009a; Hildreth 2004). As shown by Li *et al.* (2009b) in their systematic review, this rather loose interpretation of the CoP concept gets reflected in the empirical research reports, with the examples of CoPs including informal learning groups, clinical placements, and healthcare collaboratives.
Applying the CoP approach to the CLAHRCs

The structure, content, and narrative of the paper will be underpinned by the critical realist epistemological approach adopted by the authors. First, because this approach suggests that there is an interdependence, rather than distinction, between ‘the theoretical’ and ‘the empirical’ (Hands 2001; Sayer 1992), the paper will look both at the seminal theoretical writings on CoPs and relevant empirical applications of the theory. Second, because critical realism admits some form of theoretical eclecticism (Sayer 1992; Danermark et al. 2002), the paper will also be referring to other theoretical traditions that have developed outside the CoP approach but are compatible with its premises (e.g., literature on professionalism, sociology of science, and knowledge transfer). Finally, because the focus of the realist epistemology is ‘generative mechanisms’ producing outcomes in certain contexts (Pawson and Tilley 1997; Sayer 2000), the paper will mainly concentrate on the processes taking place in CoPs, rather than reflect on the definitional clarity of the concept or lack thereof.

It should also be noted that the analysis of Wenger’s germinal works shows that the concept and theory of CoPs is still evolving. Originating as a mid-level analytical tool of the theory of social learning that embraces community, identity, meaning, and practice, it later was seen as a technique deliberately used by managers to improve knowledge transfer and organisational performance. This resulted in the development of two different perspectives on CoPs: analytical, using CoPs as a theoretical heuristic to analyse practice; and instrumental, used with an intention to cultivate CoPs or utilise them in order to achieve desirable aims. Although there is an inherent tension between these perspectives, the paper will be referring to both of them: first, because the instrumental approach to CoPs is a natural consequence of their use as a theoretical concept, for all social science theories inevitably have practical implications, especially in the field of implementation research (Eccles et al. 2005) and, second, because this combination may be particularly productive both for research and practice (Wenger 2010).

In line with the two main perspectives outlined above, CoPs are being increasingly used both as a theoretical approach to analyse healthcare organisations and as a
practical tool enabling collaborative learning and knowledge mobilisation. The CoP approach has previously been applied to the analysis of healthcare collaboration on at least one occasion. Bate and Robert (2002) showed that NHS quality improvement collaboratives, which are aimed at closing the gap between potential and actual performance by testing and implementing changes quickly across many organisations (Øvretveit et al. 2002), are likely to remain time-limited projects unable to achieve sustainable organisational change unless linked and active CoPs are formed within them. The paper develops this idea by providing a brief review of theoretical and empirical literature on CoPs that is organised around the following three themes: knowledge sharing within and across CoPs; CoP formation and manageability; and CoP identity building. It will attempt to analyse the processes of joint working within the CLAHRCs using the CoP theory, identify potential problems that may arise in the process of healthcare collaboration, and reflect on the possibility of the development of new multiprofessional and multi-organisational CoPs within the CLAHRCs.

Discussion

CoP knowledge sharing

The CoP concept emerged within the situated theory of learning that views practice—i.e., a domain of collective knowing and doing—as the means through which knowledge dynamics in an organisation unfold. In a socially situated view of learning, individuals continuously combine and modify knowledge through their everyday operations and interactions between each other (Wenger 2000; Bechky 2003; Tagliaventi and Mattarelli 2006). Apart from explicit, codifiable, ‘know-that’ knowledge, collective practice generates a great deal of tacit, ‘know-how’ knowledge, which is embodied in the CoP members’ practical skills and expertise (Brown and Duguid 2001). As a result, homogeneous and well-established CoPs create distinct epistemic cultures—i.e., cultures that ‘create and warrant knowledge,’ making up ‘how we know what we know’ (Knorr-Cetina 2000). Knowledge can flow relatively easily within such cultures, whereas it can become sticky at the boundaries between them (Duguid 2005). The boundaries between CoPs can be classified as syntactic (difference in language), semantic (difference in meaning),
and pragmatic (difference in practice), the latter being most difficult to overcome (Carlile 2002, 2004).

The presence of distinct epistemic cultures and boundaries in healthcare has been demonstrated by previous empirical research. It has shown, for instance, that doctors, nurses, and managers have different attitudes to organisational change that are deeply embedded in their professional cultures (Degeling et al. 2001, 2003; Hall 2005; Morgan and Ogbonna 2008), and that there are multiple differences of values, structures, education, and relationships between the acute and primary care sectors (Fitzgerald et al. 2002). Professional CoPs in healthcare are predominantly unidisciplinary, tend to seal themselves off from neighbouring professional communities and are highly institutionalised, which facilitates knowledge flow within their boundaries, but causes the ‘stickiness’ of knowledge across them (Ferlie et al. 2005). The epistemic boundaries are especially problematic when different professions are co-located within multiprofessional organisations. The co-existence of partially incompatible epistemic cultures challenges knowledge sharing that occurs in a context of potential tensions and conflict (Mørk et al. 2008).

These findings have direct implications for the CLAHRCs as large-scale multiprofessional and multi-agency network organisations that bring together members of different, well-established CoPs with clearly demarcated boundaries, distinct and partially incompatible epistemic cultures and, especially in the case of medical professionals, supported by powerful professional organisations. The problem of interaction and knowledge sharing within the CLAHRC teams can potentially occur at multiple points. First, there will be inevitable tensions in the communication between the ‘worlds’ of researchers and practitioners, who can have difficulties communicating with each other given the differences in their epistemic cultures (Nutley and Davies 2000). Second, it should be noted that both of these worlds are not homogeneous; on the contrary, they are represented by different professional and occupational CoPs. Thus, we could expect tensions between clinical researchers employed by medical schools, whose mode of functioning is largely based on a positivist biomedical paradigm, and the implementation researchers representing social sciences and often adopting more descriptive ethnographic approaches to organisations grounded, for instance, in social constructionism and
symbolic interactionism. Similarly, the ‘world’ of clinicians also consists of multiple professional groupings: doctors, nurses, and allied health professionals, with different medical specialities (e.g., surgeons, neurologists, cardiologists) tending to form their own communities, which often spread across organisations, but are still likely to retain their own disciplinary boundaries when co-located in the CLAHRCs with other professions. Finally, there is a boundary between clinical practice and healthcare management—two fields with profound differences in cultures, perceptions of research evidence, and the nature of decision-making processes (Walshe and Rundall 2001).

To cross these boundaries, the CLAHRCs might utilise the following types of bridges (see also Table 1 for more examples):

1. Knowledge brokers—people who, having membership in several CoPs, seek to facilitate interaction and coordinate practice between them. Knowledge brokering is often performed by individuals with hybrid professional roles—for example, clinical managers may span boundaries between the management and the medical professions (Fitzgerald and Ferlie 2000; Lorbiecki 1995).

2. Boundary objects—artifacts, discourses, and processes possessing interpretative flexibility that allows them to overcome syntactic, semantic, and pragmatic boundaries, and hence contribute to knowledge transfer across CoPs (Star and Griesemer 1989; Swan et al. 2007). For example, X-rays and treatment protocols have been shown to play the role of boundary objects in a multidisciplinary cancer care team (Oborn and Dawson 2010).

3. Boundary interactions among people from different CoPs—these include single or discrete boundary encounters (e.g., meetings, visits, and delegations) and longer-lived practice-based connections, including cross-disciplinary projects (Wenger 1998, 2000).

Cross-disciplinary projects, including those implemented by the CLAHRCs, can be considered as a variant of boundary practice because participating in this kind of project exposes practitioners to specific tasks going beyond their normal practices and forces them to negotiate their own competencies with the competencies of others. While it is possible that some of the CLAHRC multidisciplinary projects may...
indeed become a bridge between different CoPs (this possibility will be addressed in more detail in the next subsection), the following potential obstacles to knowledge sharing within these projects need to be considered. First, these boundary projects can become CoPs in their own right and develop their own boundaries, which can prevent them from functioning as knowledge brokers between the wider communities these newly formed CoPs had intended to link (Bullough et al. 2004). Second, as far as the level of individual knowledge brokers is concerned, full participation in one CoP may render brokering difficult: those with multimembership seeking to coordinate across CoPs may have difficulties participating fully as members of one community if they have allegiances in another (Wenger 2000). Finally, some of the more excessively formalised boundary objects, such as project plans, performance targets, or clinical guidelines can become a barrier to successful collaboration by legitimising interprofessional differences, reinforcing existing power structures, and maintaining occupational control over task areas (Bechky 2003; Oswick and Robertson 2009).

CoP formation and manageability

As shown in the previous subsection, one of the ways to enhance knowledge transfer and learning at the boundaries between CoPs is the creation of a cross-disciplinary project that can act as a bridge between CoPs and, under certain conditions, become a multiprofessional CoP in its own right. One of the CLAHRC aims is to link ‘those who conduct applied health research with all those who use it in practice across the health community covered by the collaboration’ (NIHR 2008a, p. 2). This may be interpreted as an imperative for creating new multiprofessional and multi-organisational CoPs within the CLAHRC projects, which would bring together representatives of multiple communities. The following subsection will explore the literature concerned with the development of multiprofessional and multi-organisational CoPs in collaborative settings.

The issue of CoP formation has been viewed differently in the seminal CoP literature and remains an area of debate. CoPs, as defined by Lave and Wenger (1991), cannot be deliberately designed by managers; an organisation can only establish a team for a particular project, which may later emerge as a CoP (Roberts 2006). Wenger and
Snyder (2000) suggest that managers cannot mandate CoPs because the organic, spontaneous, and informal nature of the communities makes them resistant to supervision and interference. At the same time they argue that CoPs may benefit from cultivation by managers, who should identify communities that can potentially enhance the company’s strategic capabilities and provide the infrastructure that will support such communities and enable them to apply their expertise effectively. More recent contributions suggest that CoPs can be cultivated intentionally; furthermore, these deliberate communities may be more useful for an organisation than the organic ones (Wenger et al. 2002; Saint-Onge and Wallace 2003).

Under the influence of the theoretical literature mainly concerned with private sector organisations, deliberately constructed CoPs are getting increasingly used as a knowledge management tool in healthcare. Although the empirical evidence is still limited, it can be concluded that the formation of a genuine multiprofessional CoP is rare but possible (Ferlie et al. 2005). The CoP approach has been demonstrated to enhance interprofessional clinical practice (White et al. 2008), facilitate quality improvement, encourage buy-in among participants, promote knowledge transfer (Bentley et al. 2010), and contribute to the development of services spanning the interests of different stakeholders (Lathlean and le May 2002). The following key factors that influence the development, functioning and maintenance of multiprofessional CoPs have been described: membership—selecting the members, the extent (active or passive) and legitimacy of their involvement; commitment to the desired goals; relevance to local communities and the existing services; enthusiasm; infrastructure to support the work of CoPs; skills in accessing and appraising evidence; and resources (Lathlean and le May 2002).

However, it should be emphasised that several crucial questions about the formation of multiprofessional CoPs still remain unanswered. First, it is not clear what organisational, group-level, and individual factors may enhance the transition from a team to a CoP. Second, in spite of the reports describing the deliberate formation of ‘genuine’ multiprofessional CoPs from scratch, their description is often not informative enough to judge to what extent these groupings differ from the project teams in terms of achieving mutual engagement, joint enterprise, and shared repertoire. It may well be that the groupings that are labelled as CoPs represent a
rhetorical device rather than organic CoPs characterised by shared practice and sense of belonging. Finally, we do not know whether and how horizontal, informal, egalitarian multiprofessional communities can emerge and function in a context where they have to co-exist with the vertical, formal, command-and-control structures of the NHS, given the evidence suggesting that the excessive legitimisation and formalisation of ‘organic’ CoPs can disrupt, rather than support, their knowledge-sharing capacity (Addicott et al. 2006, 2007).

Compared to the previous collaboration initiatives in the NHS, the CLAHRCs are characterised by the more voluntary nature of involvement, placement in the context of local healthcare needs, and an emphasis on capacity building and learning. These factors may increase the probability of supplying newly formed multiprofessional projects with enthusiastic members who will be committed to achieving the relevant goals, thus addressing some of the factors mentioned above as prerequisites for the formation of multiprofessional CoPs. It has also been suggested that the CLAHRC being co-funded by the NIHR and the NHS Trusts will result in a collaborative model of ownership with a broad range of stakeholders having a vested interest in shaping the strategic direction of the collaboration (Gerrish 2010). It is, however, unclear whether this will lead to the formation of CoPs, given the potentially conflicting partners’ agendas, the continuous process of NHS reform distracting organisational resources from joint working and, most importantly, the dynamic membership within the CLAHRCs, given the potential for NHS trusts to opt out of the collaboration should their priorities change.

Whether formed organically within the CLAHRC cross-disciplinary projects or deliberately cultivated by the CLAHRC management, the multiprofessional CoPs will have to be maintained, directed, and controlled to achieve desired aims. Paradoxically, while it has been suggested that managers play a critical role in constructing, aligning, and supporting CoPs (Wenger et al. 2002; Saint-Onge and Wallace 2003), there is little empirical evidence for these assertions. Furthermore, it has been argued that managers are incapable of making the CoP a direct instrument of policy and control (Swan et al. 2002). In spite of facilitation, the knowledge transfer in these communities does not necessarily follow the model of evidence-based practice, but is shaped strongly by the personal, political, and professional
agendas of the participants (Gabbay et al. 2003). It can thus be concluded that the deliberate cultivation of multiprofessional CoPs within the CLAHRCs might help to solve the problems of knowledge sharing outlined in the previous subsection, but the extent to which these CoPs can be constructed and directed remains unclear.

CoP identity building

The concept of identity building occupies one of the central places in the CoP approach that emphasises that the negotiation of a common identity is a prerequisite for forming a community. Wenger (1998) suggests the following characterisations of identity:

1. Identity as negotiated experience: participation in a CoP and (often unspoken) negotiating the meanings of this experience with other CoP members;
2. Identity as community membership: translation of the CoP membership into an identity as a form of competence;
3. Identity as a learning trajectory: a coherent process of changing forms of participation within a CoP over time;
4. Identity as nexus of multimembership: an experience of multimembership in various CoPs and reconciliation of different identities to maintain one identity across boundaries;
5. Identity as a relation between the local and the global: negotiating local ways of belonging to broader constellations of CoPs.

Regardless of whether there is an explicit intention to cultivate CoPs within the CLAHRC or any other collaboration, the multiprofessional and multi-agency environment in which these projects are located mandates an understanding how a new ‘collaborative’ identity is negotiated by the participants. It should be noted, however, that the processes of identity formation in multiprofessional and multi-agency CoPs are not specifically addressed in the seminal CoP literature. To discuss potential problems related to the formation of the ‘collaborative’ identities within the CLAHRC, it is helpful to refer to the concepts of professional and organisational identification.
Professional identity can be defined as ‘the relatively stable and enduring constellation of attributes, beliefs, values, motives, and experiences in terms of which people define themselves in a professional role’ (Ibarra 1999). Though professional identity is not static, there seems to be a core identity that remains stable and with which all members are able to identify. Around this lies an extended identity that is subject to modification as the result of widening fields of work, increased knowledge and skills, changes in attitudes and values, or re-interpretation of old ones (Hornby and Atkins 2000). It should also be emphasised that the development of professional identity in healthcare professions should be analysed in relation to the concepts of professional dominance, collegiality and autonomy (Hudson 2002).

Several empirical studies are worth mentioning in this respect. In a qualitative study on interagency and interprofessional teams in the NHS, Robinson and Cottrell (2005) argue that in multiprofessional work, professional knowledge boundaries can become blurred and professional identity can be challenged as roles and responsibilities change. As a result, team members may struggle to cope with the disintegration of one version of professional identity before a new version can be built. Baxter and Brumfitt (2008) examine interprofessional practice in multidisciplinary stroke care and conclude that the depth of professional knowledge and skills is perceived as the core element in preserving professional differences; that although some role substitution is possible, there is little evidence of role boundary blurring between professions, and that there is variation among staff whether they consider themselves first as a member of a particular profession, or mainly as a member of a local team. Finally, in their study of a multiprofessional radiotherapy unit, Tagliaventi and Mattarelli (2006) emphasise the importance of flexibility of professional identities as a facilitator of knowledge transfer at the boundaries of different communities, when CoP members, faced with the need to cooperate, temporarily suspend their community identity in order to capture the languages and actions proper to the members of other communities.

This has a number of implications for the CLAHRCs. First, building a new, shared collaborative identity may be complicated by the perceived status differentials between the professional groups, with medical doctors traditionally possessing more
power, autonomy, and control. Second, professional collegiality, when members of a profession have similar perceptions, values, and experiences, may lead to the prevalence of traditional uniprofessional CoPs over new multiprofessional communities. Third, it is not clear to what extent those CLAHRC participants who work at the boundaries between uniprofessional communities will be able to effectively extend their professional identities and adjust to their new hybrid, boundary-spanning roles. Finally, at the individual level, it can be anticipated that committed participation in cross-disciplinary CLAHRC projects might result in internal psychological conflicts, which may be represented by the stressful disintegration of professional identity, as well as in tensions with those colleagues who still operate in traditional uniprofessional communities.

Because the CLAHRCs involve people who are at the same time employed by other organisations, such as universities, primary care trusts, and acute trusts, the analysis of identity formation within the CLAHRC cross-disciplinary projects should also consider the notion of organisational identification. This is defined as a ‘form of psychological attachment that occurs when members adopt the defining characteristics of the organisation as defining characteristics for themselves’ (Dutton et al. 1994, p. 242). A member’s level of organisational identification indicates the degree to which his/her membership in an organisation is tied to the content of his/her self-concept (Dukerich et al. 2002). Organisational identification is most likely to occur under conditions where the boundaries between one’s own organisation and other organisations are salient, when membership in the organisation is attractive, and when organisational categories best account for similarities and differences across individuals and groups (Pratt 1998).

Organisations forming the CLAHRCs may have differing organisational cultures as well as potentially conflicting motivations to collaborate and different interpretations of the process of collaboration itself. It can thus be expected that the identification with the CLAHRCs may be impeded by them being heterogeneous, temporary, network-type organisations without clear boundaries or a distinctive organisational image. Reconciliation of multiple organisational identities of the CLAHRC participants with a new collaborative identity, which is necessary for the attainment of a shared vision, could thus prove difficult. Finally, the functional separation of
research and implementation strands, which occurs in some CLAHRCs, may limit the opportunities for sharing practice, negotiating new identities, and knowledge transfer between the communities of researchers and practitioners.

**Summary**

**CLAHRCs and CoPs: the analytical perspective**

The CoP approach can be considered a mid-range theory analysing the processes of joint working, identity building, and knowledge sharing as a function of smaller, sub-organisational groupings that are distinguished by shared practices, meanings, and epistemic cultures. Focusing on the issues related to learning, meaning, and identity within and across those groupings, it provides an insightful analytical approach that can complement more traditional, rationalistic, ‘stage-of-change’ theories used in the field of implementation research (Grol et al. 2007). The main strength of the CoP theory is that it is able to provide a basis for the development and delivery of theory-informed implementation interventions as well as their evaluations, which is especially important in the current situation when theory is not sufficiently utilised in the field of implementation research (ICEBeRG 2006).

All these factors make CoP a useful lens for looking at healthcare collaboration and analysing the range of issues that may be faced by initiatives such as CLAHRCs in the process of their interprofessional and inter-organisational work. Although the CLAHRCs vary in form and focus, they have to deal with the same set of major objectives, which can hardly be achieved without promoting effective collaboration between various groups of stakeholders. As highlighted by a recent external evaluation of the CLAHRC for Leicestershire, Northamptonshire and Rutland, a special emphasis should be placed on the incorporation of social science and management sciences into the CLAHRC projects, encouraging interdisciplinary learning within the CLAHRC and developing a more integrated partnership for the operation of the CLAHRC (Øvretveit et al. 2010). As the paper has attempted to demonstrate, the CoP approach may be a useful heuristic for understanding and informing these processes.

**CLAHRCs and CoPs: the instrumental perspective**
Like any other healthcare partnerships and collaboratives, the CLAHRCs have to co-exist and integrate with a constellation of various well-established, mainly uniprofessional, communities of researchers, doctors, nurses, managers, and other healthcare professionals. These communities have distinct and partially incompatible epistemic cultures, which leads to the formation of multiple semantic, syntactic, and pragmatic boundaries hampering the process of joint working. Not only can the CoP approach illuminate these boundaries; it can also suggest ways of crossing them to enable knowledge transfer and organisational learning. There may exist multiple ways of influencing the CoPs involved in the CLAHRC projects that still need to be assessed and evaluated by empirical research. This paper will therefore avoid providing prescriptive solutions to the problem of joint working within the CLAHRC. Instead, it suggests a brief list of questions to be addressed when designing interventions and evaluations informed by the CoP theory (See Table 2).

The CLAHRCs have been charged with an ambitious goal of creating a new, distributed model for the conduct and application of applied health research that links producers and users of research. It could be hypothesised that producing a sustainable change in the ways applied health research is conducted and implemented might require the cultivation of new multiprofessional and multi-organisational CoPs within the CLAHRCs, united by shared practice and a shared sense of belonging. However, the formation of these communities may be hampered by unfavourable contextual factors, while participants’ identification with the collaborations may be influenced by issues related to professional power, autonomy, and collegiality—as well as their commitment to the institutions from which they originate. In addition, the evidence on the existence and effects of such CoPs remains sketchy; even if active and effective CoPs, whether organic or deliberately cultivated, develop within the CLAHRCs, their manageability is likely to remain limited.

**Analytical and instrumental perspectives: integration and future research**

The literature deploying the instrumental perspective on CoPs and concerned with their ‘cultivation,’ tends to take the very possibility of deliberate creation of such communities for granted. It mainly focuses on the advantages of using this approach,
but does not seem to provide sufficient explanation of how these newly formed CoPs develop, what characteristics they possess, and how they interact with a wider organisational context. To address these issues, further empirical research is required, based on the combination of the analytical and instrumental perspectives on CoPs outlined above. This complex perspective may provide more insight in the processes taking place in CoPs that have been deliberately cultivated for enhancing knowledge exchange, learning, and innovation. It may also help to identify key differences between the ‘organic’ and ‘deliberate’ CoPs, and answer the question of whether we should attempt to cultivate new CoPs or focus on fostering a better relationship between the existing organic ones instead.

It should also be emphasised that both theoretical and empirical CoP literature has mainly focused on uniprofessional CoPs. As a result, the development, functioning, and effects of multiprofessional and multi-agency CoPs, be they organic or cultivated, remains an underresearched area. Further research is required to identify contextual factors that can facilitate their formation, describe the dynamics of actors’ interactions within these communities, and analyse how the members reconcile their existing professional and organisational identities with a new ‘collaborative’ identity. Crossing inter-organisational boundaries and bringing together people from different professional backgrounds within the relatively long life span of the initiative make the CLAHRCs an optimal setting for studying multi-organisational and multiprofessional CoPs.

**Competing interests**

RK is a recipient of the CLAHRC PhD studentship, GH is an Academic Lead for the Greater Manchester CLAHRC, and KW is Director of the NIHR SDO programme, but they write here in a personal capacity. The views and opinions expressed therein are those of the authors and do not necessarily reflect those of the NIHR SDO programme or the CLAHRCs.

**Authors’ contributions**
All authors contributed to the conception and design of the paper. RK reviewed the literature and drafted the manuscript. GH and KW revised the manuscript. All authors read and approved the final manuscript.

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References


**Tables**

**Table 1. ‘Bridges’ that could be used by the CLAHRCs to cross the boundaries between CoPs.**

<table>
<thead>
<tr>
<th>Type</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge brokers</td>
<td>Clinical managers</td>
</tr>
<tr>
<td></td>
<td>Clinicians involved in management</td>
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<tr>
<td></td>
<td>Clinicians involved in research</td>
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<tr>
<td></td>
<td>Clinicians involved in quality improvement</td>
</tr>
<tr>
<td></td>
<td>Internal facilitators (<em>e.g.</em>, knowledge transfer associates)</td>
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<tr>
<td></td>
<td>External facilitators (<em>e.g.</em>, management consultants)</td>
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<tr>
<td>Boundary objects</td>
<td>Dashboards</td>
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<td></td>
<td>Websites</td>
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<td></td>
<td>Powerpoint presentations</td>
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<td>Quality and outcomes framework (<em>QOF</em>)</td>
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<td></td>
<td>Primary care registers</td>
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<td></td>
<td>Patient alert cards</td>
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<td></td>
<td>Clinical pathways and protocols</td>
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<tr>
<td></td>
<td>Assessment tools</td>
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<td>Boundary interactions</td>
<td>Face-to-face meetings</td>
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<td></td>
<td>Practice visits</td>
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<td>Learning sessions</td>
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<td>Online forums</td>
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<td></td>
<td>WebEx conferences</td>
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<td>Focus groups</td>
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Table 2. Issues to be addressed by the collaborative projects informed by the CoP theory

<table>
<thead>
<tr>
<th>Area</th>
<th>Questions to be considered</th>
</tr>
</thead>
</table>
| Knowledge sharing between existing CoPs involved in a multiprofessional/multi-organisational project | • What are the main CoPs involved in a project?  
• What are the boundaries between those communities?  
• What are the existing communication patterns within and across those communities?  
• What potential knowledge brokers can be involved in the project?  
• What boundary objects might be used to link separated CoPs?  
• What boundary interactions between the CoPs can be facilitated by the project? |
| Development of new interdisciplinary and inter-organisational communities of practice | • What is being done to promote the formation of new boundary practices centred around the activities of the collaboration?  
• What are the existing networks that the project can link to?  
• Is building a community recognised as a priority by the management of the project?  
• What is being done to make the boundaries of the new community permeable and promote knowledge transfer to other settings? |
| Developing sufficient identification with the Collaboration          | • What is the distribution of power between the key individuals and communities involved in the project?  
• Does the project create a positive image that may persuade professionals to join it and work constructively in a collaborative way?  
• How is the development of functional flexibility and hybrid professional roles supported by the project?  
• How does the project satisfy expectations, agendas and motivations of different parties involved?  
• How can potential problems relating to multimembership in several communities be envisaged and prevented? |
Chapter 2. Methodology

This chapter aims to provide a detailed account of methodological issues involved in designing and implementing this research project. It is organised in five sections. The first section discusses the critical realist philosophical approach and demonstrates the influence of critical realist assumptions on the design of this study. The second section presents a rationale for choosing a qualitative single embedded case study as the project’s overarching methodology, identifies semi-structured interviews, direct observation and documentary analysis as three components of the case study, and explains why alternative research methods, namely social network analysis, surveys and focus groups, were not deployed. The third section discusses how purposive sampling for the research project was conducted, how research participants were accessed and how the data were collected at different stages of the project. The process of data analysis is presented in the fourth section, which also contains some examples of how templates and matrices were used to organise and analyse the data. The concluding section focuses on approaches utilised to ensure the validity of research findings, including a reflexive discussion of the researcher’s role throughout the project.

2.1. Ontology and epistemology

2.1.1. Critical realism: philosophical assumptions

Contemporary critical realism is a philosophical approach primarily associated with the writings of Roy Bhaskar and combining transcendental realism as a philosophy of science with critical naturalism as a philosophy of social science. Following Easton (2010), I have adopted the critical realist paradigm because I accept its basic assumptions and believe that it provides a better description of the world than do the positivist and interpretivist alternatives. My ontological and epistemological assumptions predate my engagement with this research project, had a significant influence on it at different stages, and should thus be disclosed as part of epistemic reflexivity (Johnson and Duberley 2003). This subsection presents a brief outline of the key premises of critical realism as philosophy of science, specifically focusing on critical realist ontology, causality and explanation. This discussion will then be
contextualised in the next subsection, which describes the main methodological implications of the critical realist philosophy and explains in what ways these have shaped my research strategy and design.

Critical realists believe that there is a real world out there, which exists independently of our cognition of it. This relates to a distinction made by Bhaskar (1998a) between the intransitive and transitive dimensions of knowledge. The objects of science—be it physical processes or social phenomena—form the **intransitive dimension** of science, which does not depend upon human activity. The previously established facts, theories and models as scientific tools are part of its **transitive dimension**. These transitive objects are used to explore the unknown, but potentially knowable, intransitive structures of the world. Rival theoretical approaches have different transitive objects (concepts about the world) but their intransitive dimension (the world they are about) is the same. This implies, on one hand, that the natural and social phenomena are real but, on the other hand, that **our knowledge about them is theory-laden, imperfect and fallible.**

Critical realist ontology is stratified and distinguishes between the following three domains:

1. **‘The real’** is the realm of objects, both natural and social, with their **structures, causal powers, i.e. capacities to behave in particular ways, and causal liabilities, i.e. specific susceptibilities to certain kinds of change.** These powers and liabilities may remain unexercised, e.g. people have the power to work even if they are currently unemployed.
2. **‘The actual’** refers to the events which happen if and when those powers get activated. The domain of the actual is thus concerned with the exercise of the causal powers and their effects, whether they are perceived by individuals or not. A world of events is thus categorically independent of a world of experiences.
3. **‘The empirical’** is the domain of the experience; it is composed of events that are observed by individuals. Observability may make us more confident about the existence of phenomena, but existence itself does not depend on observability. Furthermore, a criterion of observability is not sufficient for making claims about what exists; it should be supplemented by a causal
criterion: a plausible case for the existence of unobservable entities can be made by reference to observable effects which can only be explained as the products of such entities (Sayer 2000).

On the realist view, causation is not a simple conjunction of events (‘if event A is always followed by event B, then A can be considered the cause of B’), but the ways-of-acting of objects, i.e. generative mechanisms, which get activated by certain conditions. Events arise from the application of mechanisms which derive from structures of objects, and they work in certain social and historical contexts. Causal explanation reflects on the following three levels: (1) the structures of objects involved in the process of change; (2) generative mechanisms producing change and the conditions necessary for these mechanisms to get activated and for the change to occur; and (3) concrete events as the outcome of change (Sayer 1992; 2000). It should be noted that the structures, mechanisms and their configurations in the open systems of the social world may undergo change, and new unforeseen conditions may arise. This inevitably limits the predictive power of theories, which can only provide predictions of a conditional kind: ‘if mechanism M is present and so are conditions C1 and C2, event E1 will occur, while if C3 is present, E2 will occur’ (Sayer 1992, p.136). It should be borne in mind that such predictions are tentative and cannot be used for testing theories (Outhwaite 1987).

Providing explanations about the complex phenomena of the social world should take into account a complex interplay between social structure and human agency, which are ‘existentially interdependent but essentially distinct’ (Bhaskar 1986, p. 123, italics in original). According to Bhaskar (1998b):

1. **Social structures do not exist independently of the activities they govern.** This implies that, while certain social actions are only possible within particular structures, the existence of the latter depends upon the continued reproduction of those actions (Archer 1998). Social structures can therefore endure only if people reproduce them, which often happens unintentionally (Sayer 1992).

2. **Social structures do not exist independently of the actors’ conceptions of what they are doing in their activity.** This implies that the social phenomena are concept-dependent and that the hermeneutic dimension, i.e.
understanding actors’ conceptions and meanings, is intrinsic for social research.

3. **Social structures may be only relatively enduring, so that the tendencies they ground may not be spatially and temporally universal.** This premise highlights the greater spatiotemporal specificity of the social as opposed to the natural phenomena and the role of cultural, historical, social and other contexts as conditions under which certain social mechanisms get activated.

### 2.1.2. Implications of critical realism for research strategy and design

Critical realism is not a research method or technique as such; it should rather be seen as ‘logic of inquiry’ (Pawson *et al.* 2004, p. 2), ‘a metatheory or philosophy of social science’ (Reed 2009, p. 430) that guides the formulation of research questions and identifies the selection of distinctive methodological strategies and techniques to address them. This subsection explores the implications of the critical realist assumptions about reality, causality, explanation and agency/structure dualism for management studies in general and for this research project in particular (see research questions of the study in Box 2-1). It will specifically address the following three issues: (1) the role of *theory* and its relationship with data; (2) *retroduction* (as opposed to induction and deduction) as a strategy to uncover generative mechanisms; and (3) *intensive* (as opposed to extensive) *research design* as a preferred approach to planning and executing research projects.
Critical realism holds that theories are models of generative mechanisms and their characteristic behaviour in the real domain (Hands 2001; Steinmetz 2004). Given the importance (and often unobservability) of mechanisms as well as the inherently theory-laden nature of knowledge, theory becomes an indispensable part of general research methodology, drives the development of knowledge and provides explanations. The criterion for choosing between competing theories (even if they are ‘incommensurable’ in the Kuhnian sense) is practical adequacy based on their explanatory power—the ability to explain the common aspects of reality over which they compete. When non-contradictory theories are compared, critical realism accepts some form of eclecticism and admits that different theories may complement each other because they may be concerned with different strata of reality and different structures (Danermark et al. 2002; Sayer 1992). Conceptualisation/theory construction usually comes before empirical examination which, in turn, is undertaken to develop theories, provide theoretical accounts of events and challenge theoretical preconceptions. Taken together, theory construction and data collection establish the operation of mechanisms (Ackroyd 2004).

**Box 2-1.** Research questions of the study

1. How do multiprofessional and multi-organisational communities of practice develop in a large-scale primary care knowledge mobilisation initiative?
   a. What are the mechanisms and consequences of the conversion from an organisational project team to a multiprofessional community of practice?
   b. How do pre-existing boundaries affect the development of multiprofessional communities of practice in a large-scale primary care knowledge mobilisation initiative?

2. How does identification with a multiprofessional community of practice influence the process of knowledge sharing at its boundary?

3. How is knowledge shared across the boundary separating a multiprofessional community of practice from its neighbouring extra- and intra-organisational communities?

4. How do boundaries to knowledge flows develop within a constellation of interconnected practices operating in the emergent context of a large-scale primary care knowledge mobilisation initiative?

5. How do these boundaries influence the implementation of knowledge mobilisation initiatives?
In light of the above, this research project was explicitly driven by the theory of communities of practice, which was deployed for formulating the research questions, provided analytical tools and concepts for studying groups within the Greater Manchester CLAHRC and, along with the literature, was instrumental in forming initial ideas about the phenomena of interest. Supplemented by the empirical data from the early stages of fieldwork, these initial ideas were transformed into a series of theoretical propositions which guided the further empirical inquiry but, unlike traditional positivist hypotheses, played a relatively limited role in shaping the final outcomes of this research. As a reflection of theoretical eclecticism, this research project borrowed from theoretical perspectives other than the theory of communities of practice, such as the social identity theory or sociology of professions, when it was appropriate for constructing practically adequate explanations.

To construct explanatory accounts, critical realist research uses *retroduction*—the method of inference through which the generative mechanisms are most likely to be identified; it implies moving from a superficial, *empirical* level of the social phenomenon to a deeper, *real* level of structures, conditions and mechanisms in order to identify the generative mechanism(s) and explain the phenomenon (Lawson 1999). In contrast with induction, which aims to reach a reliable generalisation from well-attested data, or deduction, testing propositions derived from theoretical postulates, retroduction involves an iterative process of moving back and forth between the theory and the data to reconstruct the conditions under which the phenomena of study emerge and develop (Reed 2009). Deploying retroductive logic as its main method of inference, this research project did not aim to test the theory of communities of practice in the context of the CLAHRC or to generate a new, alternative theory from empirical data. Its aim was to provide a theoretical explanation of how communities of practice operated in the context of an emerging constellation of interconnected practices and, albeit on a relatively minor scale, develop the theory through *analytical refinement* (Tsoukas 2009).

Critical realism rejects ‘methodological imperialism’ (Sayer 1992, p. 4) in favour of methodological pluralism, *i.e.* using a wide range of methods and techniques that are available to management researchers. However, it favours *intensive research designs* which explore how a process works in a particular case or limited number of cases,
often use qualitative or mixed methods, work with ‘causal’ groups (i.e. groups whose members are either structurally or causally connected), generate causal explanation and can be tested by corroboration between specific cases and general theory (Sayer 1992; Danermark et al. 2002; Reed 2009). Given the importance of context(s) in critical realist research, intensive research designs, at least in the field of organisation and management studies (Ackroyd 2004), often take the form of case studies. All these aspects were relevant for this research project which had to address a number of context-specific how questions, deployed the case study methodology to study a limited number of interconnected groups and did not aim to achieve representativeness or statistical generalisability.

The selection of research methods for this research project was also shaped by the duality of agency and structure outlined in the previous subsection. Although human behaviour may be caused by the inner interpretative reasoning of actors, there may also be causes that are not recognised by the actors, yet shape their behaviour. The enduring structures of social reality and human agency reciprocally presuppose each other but cannot be reduced to or explained in terms of each other. The explanation of organisational behaviour would thus require: (1) an understanding of reasons, meanings and interpretations which consciously motivate actors’ behaviour and (2) the identification of (unacknowledged or partially acknowledged) social structures which the actors unconsciously sustain, transform and reproduce. These structures can often be only inferred indirectly through the examination of their effects on human agency (Johnson and Duberley 2000) or, in some cases, become visible in the patterns of relationships which constitute ‘the building blocks of structure’ (Ackroyd 2004, p. 154). This research includes a number of qualitative research techniques, aiming to obtain both sorts of data and thus increase the probability of providing a valid explanation. A detailed description of the research methodology and research methods deployed by this study is presented in the following two sections.

2.2. Research design

2.2.1. Single embedded case study as research methodology
Case study is a research strategy that consists of a detailed investigation, often with data collected over a period of time, of phenomena within their context and aims to provide an analysis of the context and processes which illuminate the theoretical issues being studied (Hartley 2004). This strategy has been selected for this research project for a number of reasons. First, it allows a more detailed holistic understanding of complex social processes embedded in their context (Hartley 2004; Yin 2003)—the understanding necessary to address the explanatory how questions of the study. Second, the case study design allows using multiple forms of data collection, which is favoured by critical realism because different methods may illuminate different aspects of a phenomenon under study and enable triangulation of contradictory explanatory accounts (Johnson and Duberley 2000). Third, the case study methodology enables a researcher to identify causal mechanisms underlying the phenomenon under study (Easton 2010) and hence ‘to explain the presumed causal links in real-life interventions that are too complex for the survey or experimental strategies’ (Yin 2003, p. 15, italics in original). Finally, given the uncertainty at the outset of the project about the configuration, distribution and accessibility of communities of practice as phenomena of interest, the flexibility of case study design, i.e. its ability ‘to adapt to and probe areas of planned but also emergent theory’ (Hartley 2004, p. 324; Robson 2002) was seen as a major advantage.

There are multiple ways of categorising case studies which reflect differences between them in terms of their focus, structure and choice of specific research techniques (Merriam 1998; Stake 1995; Yin 2003). The methodology deployed for this research project can be defined as an explanatory, qualitative, single embedded case study (Yin 2003). The explanatory nature of this research project is determined by its research questions, underpinned by the critical realist philosophy and reflected in its intent to illuminate the understanding of communities of practice operating in a large scale knowledge mobilisation initiative, examine the mechanisms governing their development and get new insights into the role of boundaries between interconnected communities of practice. The remainder of this subsection presents a rationale for selecting a single embedded case, rather than multiple cases, while the next subsection explains why a qualitative approach was preferred to a mixed methods design, discusses alternative research methods, both quantitative and
Yin (2003) distinguishes between the following four types of research design for case studies: (1) single-case holistic design; (2) single-case embedded design; (3) multiple-case holistic design; and (4) multiple-case embedded design. This research project has deployed a single-case embedded design, structured around several overlapping subcases within the Greater Manchester CLAHRC*, namely:

1. *the Heart Failure team* as an emerging community of practice;
2. communities of general practice operating within the project run by *the Chronic Kidney Disease team*;
3. *the Greater Manchester CLAHRC* as a constellation of interconnected practices.

Selection of a single-case embedded design can be justified by the following factors. First, the Greater Manchester CLAHRC is one of the nine CLAHRCs across England and can be considered as a representative case. Second, the implementation strand of the Greater Manchester CLAHRC is a big project and, given the difficulties of gaining access to the NHS and limited resources of the PhD project, it was more feasible to concentrate on the single case in depth rather than opt for a multiple-case design. Finally, looking at the three subcases would enhance the understanding of the whole case, i.e. the Greater Manchester CLAHRC, by combining several units of analysis (Yin 2003), as well as the understanding of how communities of practice operated in different organisational contexts, e.g. within the Greater Manchester CLAHRC in Subcase 3 and within primary care organisations in Subcase 2.

### 2.2.2. Choosing between qualitative and mixed methods designs

Case studies as a research strategy can be purely qualitative, purely quantitative or employ a mixed methods approach (Yin 2003). Given the critical realist

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*The structure of the Greater Manchester CLAHRC at the time of data collection is presented in Appendix 10. It should also be noted that the ‘subcases’ mentioned in this chapter, which views the Greater Manchester CLAHRC as an overarching case study, are referred to as ‘cases’ within the empirical papers, which are presented as standalone pieces of writing.*
philosophical basis of this study and the explanatory nature of its research questions, the actual choice was between the qualitative and mixed methods approaches. As far as the latter is concerned, two quantitative methodologies, namely survey and social network analysis, were considered as potential components of the case study at the initial stage of the research project. Although surveys can be used at the first stage of realist research to provide an overview of the research domain (Easton 2000), at the outset of this research project so little was known to the author about the nature and effects of communities of practice in large-scale knowledge mobilisation initiatives that there was an obvious lack of specified variables which could be subjected to quantitative analysis. Furthermore, it could be expected that previously undetected variables might be discovered, which also discouraged the use of a survey (Lee 1999). At the same time, the use of a survey at the final stages of research was unlikely to add value to the explanatory account constructed with the aid of qualitative methods because surveys are more suitable for addressing exploratory and descriptive, rather than explanatory, questions (Yin 2003).

Another quantitative method that could have been used for this research project is social network analysis—the mapping and measuring of the relations among social actors based on the premise that the location of actors in the system and other structural characteristics of their relationships have important behavioural, perceptual and attitudinal consequences both for individual actors and for the system as a whole (Knoke and Kuklinski 1982; Wellman 1983). Although this method could provide some information about the structure of communities of practice and relationships between them, it was not deployed for this study for the following three reasons. First, having emerged in the field of structural sociology, it prioritises social structure over human agency and does not provide tools for understanding cultural and normative aspects of social relationships (Mizruchi 1994), which limits its applicability to the analysis of communities of practice as groups bound together by shared norms, values and ways of doing things rather than by the strength of ties between their members. Second, since the inherent sensitivity of social network questions might act as a deterrent for actors to participate in the study, it would have been difficult to achieve a response rate high enough to avoid having significant holes in the ‘complete network’ to be constructed (Hatala 2006). Finally, although critical realism provides a philosophical justification for mixed methods research
integrating results obtained by social network analysis and qualitative methods would still be a challenge because of their different timelines and, what is especially important for an alternative format thesis, different target audiences and other publication-related issues (Bryman 2009).

After the quantitative methods were excluded, the decision was to be made about which of the qualitative research methods would be selected for the case study. Face-to-face interviews, direct observation and the analysis of organisational documents were chosen for a number of reasons. First, they are the most common methods used in qualitative case study research (Creswell 2003; Yin 2003). Second, a combination of these methods would allow collecting complementary evidence from multiple sources. For instance, interviews and documents can provide historical information while observation enables an exploration of sensitive or unusual aspects of the phenomenon that the respondents might be unwilling to discuss in an interview. In addition, observation can provide understanding of how events and behaviours naturally arise while interviews present reconstructed perspectives on their occurrence (Ritchie 2003), thus increasing the likelihood of determining deep structures and generative mechanisms. It should be noted that in this case study face-to-face interviews were used as the main method of data collection while the other two methods played a complementary role and were deployed to increase the confirmability of findings provided by interviews—partly because it was not always possible to secure an easy access to participants’ workplaces to conduct observation and partly because of the flexibility of interviews as a research technique (Bryman and Bell 2003).

Before discussing the detailed procedures for conducting interviews, observation and documentary analysis, which will follow in the next section, it is worth explaining why focus groups were not seen as a suitable option for this study. Although focus group interviews are a method of choice when the group is the main unit of analysis, they have a number of disadvantages. These include: difficulties in obtaining responses from all members of the group, possible distortion of research findings by the ‘group think’ phenomenon, and the need for the researcher to play the roles of a moderator and interviewer at the same time (Fontana and Frey 2005). Focus group interviews do not provide confidentiality (Robson 2002) and are unlikely to produce
valid responses in situations bringing together people in a hierarchical relationship to each other (Bryman and Bell 2003)—this was seen as the main obstacle to deploying this technique in the context of this research project, aiming to understand the development and characteristics of communities of practice within such hierarchical structures as multiprofessional organisations. Finally, as the number of questions that may be covered in a focus group is rather limited (Robson 2002), it was felt that in-depth face-to-face interviews would be able to provide more opportunities for clarification and detailed understanding of the complex processes taking place within and between communities of practice (also see Lewis 2003).

2.3. Data collection

2.3.1. Sampling and access

As a purely qualitative study, this research project has opted for non-probability sampling, with units ‘deliberately selected to reflect particular features of or groups within the sampled population’ (Ritchie et al. 2003, p. 78). Sampling was conducted at two different levels: first, subcases within the Greater Manchester CLAHRC had to be selected, which was followed by the sampling of individuals within each subcase. In selecting subcases, the following two factors were most important: first, subcases had to be ‘information-rich’ (Merriam 1998) to allow an in-depth exploration of communities of practice and relationships between them and, second, they had to display variation in terms of contextual factors to allow a better understanding of how mechanisms act under different conditions. In addition, the cases had to be accessible to the researcher. Purposive sampling was thus deployed, albeit with some elements of convenience sampling (Ritchie et al. 2003), and the following three overlapping subcases were selected:

(1) The Heart Failure team as an emerging community of practice developing within a novel knowledge mobilisation initiative and interacting with various intra- and extra-organisational groupings;

(2) Four communities of general practice operating in primary care and forming part of the project run by the Chronic Kidney Disease team, selected on the basis of their accessibility and size (two relatively large and two relatively small general practices; see in more detail in Paper 3);
(3) The Greater Manchester CLAHRC as an emerging (and somewhat dysfunctional) constellation of interconnected practices, with a specific focus on boundaries emerging between the research strand and implementation strand, and boundaries within the implementation strand.

Purposive sampling strategy was also deployed to recruit research participants, with participation in the CLAHRC projects as the main criterion for the whole study. To reflect a multi-layered nature of membership in communities of practice, the sample needed to include not only those actively involved in the Greater Manchester CLAHRC activities, but also those who opted for peripheral participation or even considered themselves as outsiders (Wenger 1998). Since the communities of practice under investigation were mostly multiprofessional, it was also important to make sure that research participants represented a number of professional groups: GPs, GPs with special interest, specialist nurses, practice nurses, hospital consultants, project managers, PCT executives, change agents, applied health researchers, and management academics. In total, 45 research participants were involved in the project, with their professional roles and positions in relation to specific CLAHRC projects represented in Table 2-1. Sampling continued until a point of saturation or redundancy was reached, *i.e.* until no substantially new information was forthcoming from new research participants (Merriam 1998).

A number of approaches were used to get access to research settings. These included face-to-face contact with potential research participants at various meetings and learning sessions organised by the Greater Manchester CLAHRC as well as phoning or emailing potential research participants who had been identified through searching the Greater Manchester CLAHRC organisational documents. This was complemented by *snowballing*, with research participants being asked during an interview to identify other people who could become valuable informants for the research project. In the process of recruitment for the study, the following aspects were taken into account. First, when negotiating access to primary healthcare settings, practice managers were used as the first point of contact due to their role as ‘gatekeepers’ into general practices. Second, each potential research participant was sent an invitation letter (Appendix 1) and information sheet (Appendix 2) providing clear information about the objectives of the study. Finally, the informed consent
procedures were followed (See Appendix 3), with a particular emphasis made on the voluntary nature of participation in the study (Lewis 2003). Anonymity and confidentiality were also guaranteed to the research participants—specific procedures for meeting these requirements are described in the next subsection which reflects on the process of data collection for the study.

<table>
<thead>
<tr>
<th></th>
<th>Heart Failure project</th>
<th>Chronic Kidney Disease project</th>
<th>Research strand</th>
<th>Other projects</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Change agents</td>
<td>2</td>
<td>2</td>
<td>-</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>Programme managers</td>
<td>1</td>
<td>1</td>
<td>-</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Practice managers</td>
<td>1</td>
<td>5</td>
<td>-</td>
<td>-</td>
<td>6</td>
</tr>
<tr>
<td>Specialist nurses</td>
<td>6</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>6</td>
</tr>
<tr>
<td>Practice nurses</td>
<td>-</td>
<td>3</td>
<td>-</td>
<td>-</td>
<td>3</td>
</tr>
<tr>
<td>GPs</td>
<td>1</td>
<td>5</td>
<td>-</td>
<td>-</td>
<td>6</td>
</tr>
<tr>
<td>GPSIs</td>
<td>2</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>Hospital consultants</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Applied health researchers</td>
<td>-</td>
<td>-</td>
<td>3</td>
<td>-</td>
<td>3</td>
</tr>
<tr>
<td>Management academics</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>PCT executives</td>
<td>1</td>
<td>2</td>
<td>-</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>15</strong></td>
<td><strong>19</strong></td>
<td><strong>3</strong></td>
<td><strong>8</strong></td>
<td><strong>45</strong></td>
</tr>
</tbody>
</table>

Table 2-1. Research participants recruited for the study

2.3.2. Research methods

Data collection for the research project took place from September 2010 to August 2011, after the research proposal was reviewed and approved by the North West 8 Research Ethics Committee—Greater Manchester East. In line with what critical realists recommend (Sobh and Perry 2006), data collection was organised in two stages. The first stage was mainly concerned with mapping multiprofessional
communities of practice, describing boundary processes such as knowledge sharing (or lack thereof) between them, and identifying key actors. A number of theoretical propositions were formulated by the end of this stage (see Appendix 4), crystallising initial ideas informed by the literature and emerging empirical data. In the second stage, these theoretical propositions were used to guide further inquiry, aiming to collect evidence necessary to produce explanatory accounts of the development of multiprofessional communities of practice and boundary processes across them. Documentary analysis, direct observation and interviews were deployed in both stages of data collection in the following way:

1. In the first stage, analysis of organisational documents provided background information about the projects implemented by the CLAHRC teams, the structure of the teams and their history. This information also helped to map existing external networks and identify key stakeholders. The documents analysed included agendas and minutes of implementation team meetings, project reports, presentations and formal evaluation reports. In the second stage of data collection, documents analysed also included implementation tools produced by the Heart Failure and Chronic Kidney Disease teams, internal protocols designed by general practices in the course of their participation in the project and minutes of the Greater Manchester CLAHRC steering group meetings as well as research and implementation team meetings.

2. Direct observation (see Table 2-2) took place at both stages of data collection. It was mainly conducted during implementation team meetings and when accompanying team members in their field visits to primary care settings. In addition, learning and sharing sessions for the Greater Manchester CLAHRC change agents, ‘summits’ for the practices involved in the Chronic Kidney Disease project and learning sessions for the practitioners taking part in the Heart Failure project were also observed. Observation was used to get additional information about the phenomena of interest, gained in real time and in the real context without being ‘contaminated’ by potential distortions stemming from informants’ post hoc verbal descriptions (Lee 1999). Its role in the whole study, however, remained largely complementary, which could
be explained by a relatively limited time spent in the field (69 hours) and by problems negotiating access to research settings.

3. Interviews were the main method of data collection. Forty-five interviews, each of them lasting from 45 to 90 minutes, were conducted in total. Forty-four face-to-face interviews took place at the participants’ workplace and one interview was conducted over the phone. The structure and focus of the interviews differed across the stages:

a) ‘Orientation’ interviews were used to get a general overview of the Heart Failure and Chronic Kidney Disease subcases. These interviews were relatively unstructured and aimed to collect information on three broad topics derived from the original literature review (see Paper 1): (1) development of communities of practice; (2) knowledge sharing within and between communities of practice; and (3) identities in communities of practice (see provisional interview topic guide in Appendix 5). More structured interviews were not deployed in this stage because it was felt that the imposed structure would reflect the researcher’s preconceptions, potentially restricting his ability to identify new, previously undiscovered phenomena.

b) In the second stage, semi-structured interviews were conducted with the research participants who were identified in the previous stage and were seen as valuable informants due to their role in the communities of practice and boundary processes under investigation. To ensure that different actors’ accounts could be systematically compared, the interviews were more structured than in the first stage. Two interview guides were used: one for the Heart Failure and Chronic Kidney Disease subcases (Appendix 6) and another for exploring the boundaries within the CLAHRC as a whole (Appendix 7). Besides the list of questions to be covered, these guides also included a number of probes which were used to follow up responses and obtain greater detail from informants (King 2004a).
Handwritten field notes taken during the meetings were subsequently digitalised and all interviews were transcribed verbatim by a professional transcriber. The following procedures were in place to secure the anonymity and confidentiality of research participants. First, neither the audio files nor electronic transcripts contained any labels that could compromise anonymity while the sampling document containing the names of research participants and corresponding codes was protected by a password and kept separately from the data. Second, to avoid the indirect attribution of quotes to research participants, in some cases minor details had to be changed to disguise identity and the amount of contextual information accompanying some quotes had to be reduced. Finally, all empirical papers were circulated to research participants prior to publication so that they could comment on the range of data presented and inform the researcher should their confidentiality be violated (Lewis 2003).

### 2.4. Data analysis

The study deployed *template analysis* as the main technique to organise the data derived from interviews, observations and documentary sources. This technique
refers to the process of thematically organising and analysing textual data using a list of codes (‘template’) that are grouped into a number of categories and themes, most commonly involving a hierarchical structure. It was selected for the following three reasons. First, unlike discourse analysis, which is rooted in the radical relativist position, or content analysis, which is underpinned by the positivist paradigm, template analysis fits well with the realist approach. Second, this method is highly flexible, allowing the researcher to tailor it to match their circumstances, and iterative, with codes and categories continuously modified, reclassified and added to as the researcher reads and interprets the texts. In template analysis, the initial template is applied in order to analyse the text through the process of coding, but is itself revised in the light of the ongoing analysis. Finally, template analysis works well in studies seeking to examine the perspectives of different groups within an organisational context (King 2004b).

The process of data analysis was organised in three rounds. In the first round, most of the codes, which can be defined as labels attached to sections of text to index them as relating to certain aspects of the data (King 2004b), were descriptive and emerged directly from the data. In the process of analysis, they were grouped in a number of initial categories, reflecting the structure and content of the interview guide, which was, in turn, informed by the communities of practice literature. Categories were grouped in three main themes reflecting the three main areas of interest that were being explored, namely the development of communities of practice, knowledge transfer and identity. The initial template developed after the analysis of the first twelve interviews is presented in Appendix 8. It was continuously modified in the process of further coding and analysis, with new codes and categories emerging from the data (see one of the later versions of the template in Appendix 9). In this round of analysis, the same template was used for the whole dataset, with the same system of codes, categories and themes applied to the data obtained from different subcases. This type of cross-sectional, ‘code and retrieve’ approach offered a systematic overview of the scope of the data and permitted the formulation of overarching propositions (Appendix 4) which were mentioned in the previous section.
The coding and retrieval of data at this stage was assisted by NVivo software. Computer-assisted coding was chosen to speed up and systematise the handling of large amounts of textual data contained in multiple participant interviews (Spencer et al. 2003). In addition, it was well suited for an iterative process of developing templates (King 2004b) and allowed double, or multiple coding, i.e. an application of more than one code to the same passage of text (Saldaña 2009). It should be emphasised that the software was only used for storing, coding, categorising, retrieving and linking the data, with the researcher making all analytical decisions on his own. In order to avoid a mechanistic approach to data analysis which some authors associate with computer-assisted qualitative data analysis software packages (Bazeley 2007; Bryman and Bell 2003), the process of analysis deliberately excluded automated coding and those text search options that were designed to assist quantitative analysis of qualitative data, which was not seen as appropriate for this research project.

The second round of data analysis was non-cross-sectional and focused on each of the three subcases separately, which required different conceptualisations of categories and themes. This involved gaining a sense of distinctiveness of particular sections of the material, developing subcase-specific themes and focusing on within-subcase comparisons, where needed (Spencer et al. 2003). Final subcase-specific templates were produced during this round of analysis (the final template for the Heart Failure case is presented in Box 2-2). As can be seen from this template, codes and categories became more analytical at this stage (e.g. such categories as ‘Heart Failure team as a project team’, ‘Heart Failure team as a community of practice’, and ‘Tensions related to multimembership’). During this round of data analysis, sorting data by codes and categories gave way to summarising and synthesising data within each of the three subcases, refining categories and detecting initial patterns, thus permitting ‘moving up a step on the abstraction ladder’ (Miles and Huberman 1994, p. 256). It is during this round that initial ideas about the structure and content for each of the three empirical papers were developed, although the accounts were still mainly descriptive and lacked analytical clarity.
1. **Community**

1.1. **HF team as a project team**
   - Multiprofessionality
   - Targets and deadlines
   - Distribution of roles

1.2. **HF team as a community of practice**
   - Interaction within the team
   - Leadership
   - Enthusiasm
   - Role flexibility
   - Autonomy within the CLAHRC
   - Recruitment
   - Personality
   - Sharing common values
   - Interest in the subject

2. **Boundary spanning**

2.1. **Boundaries**
   - Primary vs secondary care
   - Cardiologists vs others
   - Secondary vs community care
   - HF teams vs other CLAHRC teams

2.2. **Boundary interactions**
   - Interactions with patients
   - Interactions with heart failure professionals
   - Stakeholder events
   - Educational sessions
   - Online forum

2.3. **Boundary objects**
   - Alert cards
   - Website
   - Toolkit
   - QOF
   - Guidelines
   - Evidence
   - Pathways
   - Context assessment

2.4. **Barriers to joint working**

2.5. **Tensions related to boundary spanning**

3. **Identity**

3.1. **Membership**
   - Core members
   - Academic lead
   - Clinical lead
   - Change agents
   - Programme manager
   - Peripheral members
   - HF specialist nurses
   - GPIs
   - Recipients of CoP products
   - GPs
   - Practice managers
   - Practice nurses

3.2. **Identification with the team**
   - Identification with the CLAHRC
   - Professional identification
   - Organisational identification
   - Identification with the network

3.3. **Manifestations of the group identity**
   - Sense of ownership
   - Feeling different from others
   - Problems moving towards the integrated vascular theme

3.4. **Tensions related to multimembership**
   - Working both for primary and secondary care
   - Researching vs doing
   - Specialists vs generalists
   - Clinical vs managerial experience

4. **Wider context**

4.1. **NHS reforms**
4.2. **CLAHRC financial difficulties**
4.3. **PBC and GP consortia**

5. **Implications**

5.1. **Learning in the CLAHRC**
5.2. **Spread and sustainability**
5.3. **Impact**

**Box 2-2.** Final template for the Heart Failure team case
Finally, the purpose of the third round of data analysis was to produce explanatory accounts of the three subcases in the form of empirical papers presented in this thesis. This stage was characterised by constant movement between the raw data and emerging abstract categories and themes (cf. ‘retroduction’ in critical realism) in order to unpack more of the detail, identify generative mechanisms and, therefore, refine the analytic accounts developed. To counterbalance fragmentation and decontextualisation of data associated with the ‘code and retrieve’ approach (Bazeley 2007; Bryman and Bell 2003) deployed in the previous two stages of data analysis, another round of coding was conducted manually for each of the three overlapping datasets. This stage specifically explored connections between different phenomena (e.g. between knowledge sharing, on the one hand, and identities, meanings, and organisational characteristics, on the other), compared and contrasted the systems of meanings held by different professional and organisational groups and developed new concepts (selective permeability and the developmental approach to communities of practice) and themes (e.g. divergence of meanings as boundary legitimisation).

Developing explanatory accounts in the second and third rounds of data analysis was assisted by matrix analysis—presenting the data in a tabular format organised to represent concepts, issues or characteristics pertinent to the research questions (Miles and Huberman 1994; Nadin and Cassell 2004). It was mainly used for comparing and contrasting the data obtained from different research sites (e.g. four general practices taking part in the Chronic Kidney Disease project) and different research methods (interviews, observation and documentary analysis), thus serving the purposes of triangulation. (The matrix developed for the Chronic Kidney Disease project is presented as Additional File 1 attached to Paper 3.) Matrices were also used for within-site analysis, where they were used to present interview quotes to illustrate emerging analytical categories. For instance, Table 2-3 shows a matrix compiled for the Heart Failure case and representing four main tensions experienced by the Heart Failure team in the process of boundary spanning and different ways deployed by team members to address these issues. It contains both abstract categories (tensions and ways of dealing with them) and quotes extracted from the interviews. Deploying similar coding processes but operating at different levels, matrix analysis and template analysis complemented each other; for instance,
approaches to addressing the challenges of boundary spanning, which are presented in the matrix (Table 2-3), had not been identified by the previously conducted template analysis of the same case (Box 2-2).

<table>
<thead>
<tr>
<th>Tension</th>
<th>Ways of addressing the tension</th>
<th>Quotes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Developing their own practice but staying connected with other heart failure groups and networks</td>
<td>Avoiding conflicts with existing networks and services</td>
<td>“I wanted to make sure that we were working with people and not doing anything in parallel as well…”  (Clinical lead)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“…To be fair, when CLAHRC first came into being, I suppose I did wonder what was it that they were going to do that was going to be different to what we were going to do, and was there going to be some conflict between the work that we were doing and the work that they were doing?”  (Cardiac network manager)</td>
</tr>
<tr>
<td>Making connections with existing programmes of work in the field of heart failure</td>
<td></td>
<td>“So we’ve used a lot of [the cardiac network] contacts, initially, to get going. And in a way, the work we’re doing in primary care would support something like the breathlessness pathway that they want to see...”  (Programme manager)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“I think as being part of CLAHRC, it can only be good for our service; that CLAHRC is backing what we do as well, is acknowledging the work that we do.”  (Heart failure specialist nurse involved in providing the education)</td>
</tr>
<tr>
<td>Achieving a compromise in the presence of multiple professional groups with conflicting interests</td>
<td>Using individual meetings and small-scale group meetings to avoid intergroup conflict</td>
<td>“There are differences regarding opinion and there’s differences regarding power struggles and power relations: who knows who, who seems to be senior... If a consultant says ‘jump’, people ask, oh, how high? Some people are scared of saying things in the open forum. I think we haven’t got round that because we held two big stakeholders’ events … And what we found was that certain clinicians, mainly consultants, probably dominated. They dominated the conversations; they dominated the topics that were being discussed. And so after that we’ve kind of actively made the decision to go and speak to those people on an individual basis, all in smaller groups… So instead of bringing them all together in one meeting, it’s kind of a continual process of smaller meetings to get to an endpoint in that situation.”  (Change agent)</td>
</tr>
<tr>
<td>Accommodating the requirements of most powerful professional groups</td>
<td></td>
<td>“…We asked a couple of community matrons who’d been interested in heart failure [to develop the education package] … So I’ve had emails in capitals [from heart failure specialist nurses], who’ve said “I really think this should be specialist people, people like GPs with the special interests, or heart failure nurses, not community matrons who are involved in this project.” So there’s that barrier, they don’t feel that the community matrons should be involved in the education.”  (Change agent, their emphasis)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“We do an awful lot of ego massaging. An awful lot of adapting people’s thoughts, by giving them what they want, a lot of the time.”  (Change agent)</td>
</tr>
</tbody>
</table>

120
<table>
<thead>
<tr>
<th>Tension</th>
<th>Ways of addressing the tension</th>
<th>Quotes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Getting access to other CoPs without being considered as intruders</td>
<td>Building relationships with gatekeepers and opinion leaders</td>
<td>“…We go into the surgeries and we’ll liaise initially with the practice managers, if you like... I imagine the practice managers are probably the gatekeepers of us being able to get into the practice. So it’s about liaising with them in terms of the understanding, seeing the benefits to the practice and to the patients…” (Nurse)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“…I suppose clinical champions they’re called, basically—they need somebody to keep on every year batting on the doors, to say, “This needs re-auditing, this needs re-doing, what situation are we on to?” You always need somebody keeping an eye on the parameters that we’ve chosen, whether it be hospital admissions, the number of heart failure patients, or amount of schooling that we have done.” (GPSI)</td>
</tr>
<tr>
<td>Achieving effect on other CoPs without imposing anything on them</td>
<td>Aligning the team’s strategy with needs, agendas and expectations of participants</td>
<td>“There is the element of we can demonstrate some of the benefits: ‘You can get more patients; every patient you add on to your register is however many QOF points and this amount of money’ kind of thing; and we can look at what the savings are in terms of reducing admissions.” (Programme manager)</td>
</tr>
<tr>
<td>Brings people together and offering them a forum for knowledge exchange</td>
<td></td>
<td>“The CLAHRC isn’t about saying you need to employ two more heart failure specialist nurses. It’s about trying to make them come together. To try and get the best situation regarding what exists already. And it’s all about how those people can work together as a whole and as a team.” (Change agent)</td>
</tr>
</tbody>
</table>

Table 2-3. Matrix showing the tensions experienced by the Heart Failure team in the process of boundary spanning and ways of addressing them

2.5. Research validity

2.5.1. Validating the accuracy of research findings

After the process of data collection and analysis has been described, it is worth discussing what measures were taken to ensure that the findings of the research project and their interpretation are credible. Approaches to defining and assessing the quality of research differ across paradigms and various terms have been proposed
(Johnson et al. 2006; Seale 1999), ranging from the application of (redefined and recontextualised) positivist criteria of validity, reliability and generalisability (Lewis and Ritchie 2003; Merriam 1998; Yin 2003) to the invention of new concepts, such as authenticity, goodness, verisimilitude, adequacy, trustworthiness, and plausibility (Creswell and Miller 2000). Discussing criteriology lies beyond the scope of this chapter and, following Creswell and Miller (2000, pp. 124-125), it will use a notion of validity to refer to ‘how accurately the account represents participants’ realities of the social phenomena and is credible to them’. What follows is a brief description of methods that were deployed at different stages of the research project to ensure that its findings are accurate from the standpoint, or ‘lens’ (ibid., p. 125), of the research participants, readers of an account and the researcher.

1. Validation through the lens of the research participants:
   - **Member checking**, or respondent validation—taking data and interpretations back to the research participants so that they can confirm the credibility of the information provided. This was seen as the main method of establishing credibility and was applied at the following three stages in the research project. First, all research participants were offered an opportunity to provide feedback and comments on the transcripts of their interviews. Second, at the end of the second round of data analysis (see Section 2.4) findings emerging from the three subcases were presented to the research participants at the Heart Failure team meeting and the CLAHRC joint implementation meeting. Finally, draft empirical papers were sent to all research participants by email. Research participants were asked if the interpretation of data made sense, whether it was supported by sufficient evidence and whether the overall account was realistic and accurate. Feedback received throughout this process was incorporated in the final versions of the manuscripts.

2. Validation through the lens of the reader:
   - **Peer debriefing**—the review of the data and research process by someone who is familiar with the research and/or the phenomenon being studied (Creswell and Miller 2000). During the process of an entire study, this
function was fulfilled by my research supervisors, who provided support, challenged my assumptions and asked hard questions. Emerging findings and analysis were also continuously discussed with tutors and peer students at the Social Theories of Learning course at the University of Manchester, which I attended over two academic years (2010/11 and 2011/12) and which can be described as a community of practice forming around a shared interest in theory-informed research in social science. In addition to verbal feedback throughout the project, formal feedback from the course tutors—Professor Etienne Wenger and Professor Julian Williams—was instrumental in shaping the analysis of internal Greater Manchester CLAHRC boundaries described in Paper 4.

- **External audit**—using external reviewers who are (unlike peer debriefers) new to the researcher and the project and can provide an independent assessment of the project (Creswell 2003). An earlier version of Paper 2 was reviewed by one anonymous referee and presented at the 8th Organisational Behaviour in Healthcare Conference held in Dublin in April 2012. An earlier version of Paper 3 was reviewed by three anonymous referees and presented at the Academy of Management Annual Meeting in Boston in August 2012. The reviewers’ comments informed the development of the final versions of these papers.

- **Clear exposition of methods of data collection and analysis** (Mays and Pope 2000). While an opportunity to provide thick descriptions was somewhat limited by the publication format chosen to present empirical findings, this chapter has attempted to compensate for the lack of rich detail by describing how the data were collected and how earlier, simpler coding templates evolved into explanatory accounts presented in the empirical papers.

3. Validation through the lens of the researcher:

- **Triangulation** of data obtained from different settings (*e.g.* four general practices in the Chronic Kidney Disease case) and different methods (interviews and observation) were used to collect corroborating evidence and develop converging lines of inquiry (Yin 2003). An example of
triangulation is presented in Additional File 1 attached to Paper 3. It should be noted that due to the specificity of different methods in terms of the data they yielded, methodological triangulation was mainly used for extending understanding and providing a fuller picture of the phenomena, rather than for ‘verification’ of findings in the literal sense (Ritchie 2003).

- **Reflexivity**—sensitivity to the ways in which the researcher and the research process have shaped the collected data, including the role of the researcher’s assumptions, beliefs and biases (Mays and Pope 2000). Whilst acknowledging that some of these assumptions, beliefs and biases were likely to remain unrecognised due to their subconscious nature (Seale 1999), I made deliberate attempts to identify some areas of potential bias, which were related to my personal history and the dynamics of my relationships with research participants and research funders, and to ‘bracket’, or suspend, them (Ahern 1999, p.407; Creswell and Miller 2000, p. 127), decreasing their potential influence on the research process. Reflexive analysis took place at all stages of the research process—‘from the preresearch stage through data collection and data analysis’ (Finlay 2002, p. 536)—and is described in the next subsection.

### 2.5.2. Role of the researcher

In the *research proposal stage* I identified two potential areas of bias stemming from my personal history. The first of them was related to my medical background and a constant exposure to the strong positivist paradigm over the years spent in medical training and clinical practice. Positivist upbringing proved to be a source of anxiety and discomfort when designing a qualitative case study and could have potentially forced me to choose the methodology that was not most appropriate for addressing my research questions. The latter perfectly matched my interests and I felt that answering them would require using qualitative methods. However, at the same time I felt extremely anxious about not using any quantitative methods in my study. Until the end of the first year into the doctoral programme, I was trying, albeit with little
success, to design a mixed methods study that would have a quantitative component. Extensive reading of literature on critical realism and qualitative methods helped me understand that there is nothing ‘unscientific’ in my inclination to use qualitative methods to research complex social phenomena, that using statistical methods does not necessarily help to identify causal relationships and construct explanatory accounts, and that qualitative techniques would be more appropriate for this particular research project.

The second issue identified in the initial stage of the research project was concerned with my (probably irrational) scepticism about the possibility of positive societal change in general and effective collaboration in particular. This scepticism may be rooted in my personal history. As a teenager, I witnessed the unintended, but bizarre consequences of perestroika in the Soviet Union. Then I spent my early career years in a corrupted and ineffective healthcare system where no initiative was encouraged, hospital departments and medical schools had an extremely hierarchical structure and the main objective of a young doctor was to survive under these circumstances. Needless to say, I did not have many opportunities to witness any successful collaborative initiatives. As a result, at the beginning of this research project, my implicit assumption was that the formation of multiprofessional communities of practice within the CLAHRCs would be unlikely. There was a danger of prioritising the data that would confirm my pessimistic assumptions (‘people do not collaborate’; ‘communities of practice can never be formed deliberately’; ‘the gap between different epistemic cultures can never be bridged’) and ignoring evidence to the contrary.

My medical background was also an important factor during data collection and analysis. It proved to be both an advantage and a disadvantage. On the one hand, being a doctor increased my credibility as a researcher collecting data in general practices, assisted in building rapport with clinicians and helped me quickly grasp the technical details of the Heart Failure and Chronic Kidney Disease projects. On the other hand, I had to ensure that I did not prioritise the data collected from medics over the accounts of nurses and non-clinical practice staff. Given the multiprofessional nature of groups under investigation, ‘fair dealing’ (Mays and Pope 2000, p. 51) in relation to different groups was especially important, and I had
to be cautious about not presenting the viewpoint of one certain group as a universal knowledge claim. Reflexivity in relation to ‘fair dealing’ resulted in some insights. For instance, when collecting and analysing the data for what would later become Paper 4, I realised that management academics provided most articulate and emotional responses about the boundary between the research and implementation strands compared to other implementation team members. This helped me understand that one of the facets of the research-implementation boundary was a reproduction of the boundary between biomedical and social science research paradigms and thus influenced the development of an explanatory account presented in the paper.

Interestingly, my cultural and language background did not seem to be a major challenge in the research process. Prior to the start of the project, I had expected that being a non-native speaker of English and lack of previous exposure to the culture of the English NHS would potentially hamper my interpretation of the phenomena under investigation. However, I did not experience a ‘culture shock’ when conducting observation and interviews in the NHS, and the cultural adequacy of my analysis was confirmed by research participants on many occasions during member checking. This can be explained by a number of factors. First, although English is indeed a foreign language for me, I started learning it at the age of five, worked in an English-speaking environment for four years before coming to the UK, and achieved an overall 8.5 (out of 9.0) score in my last IELTS test in 2010, with maximal scores (9.0) in listening and reading. Second, prior to my arrival to the UK I worked in a medical clinic owned by a Canadian company and managed by South African doctors. This made me more aware of cultural differences between post-Soviet countries and the West in terms of power hierarchies, approaches to leadership and work discourses, thus preparing me for exploring the culture of the English NHS. Finally, before embarking on the doctoral programme, I had spent a year in the UK doing a Masters programme in Healthcare Management, which also provided me with a lot of useful knowledge about the structure and culture of the English healthcare system.

Interaction with research participants was one of the most important factors shaping the process of data collection and analysis. First, relationships between me and my
research participants influenced the type of data collected in different subcases. In
the Heart Failure subcase, it was easy to get access to the meetings and I felt that the
team did not mind me being there. As a result, I observed seventeen Heart Failure
team meetings. By contrast, I did experience difficulties getting into the meetings of
the Chronic Kidney Disease team, did not feel very comfortable at those three
meetings that I managed to attend, and found it much easier to shift data collection in
this team to interviews. Second, the relationship dynamics influenced the focus of
the research. Since I got a much better opportunity to directly observe the activities
of the Heart Failure team, I could collect more information about this team as a
community of practice, whereas the focus of the Chronic Kidney Disease subcase
shifted towards the analysis of boundaries within and between general practices.
Finally, my involvement in the Heart Failure team meetings became a potential
threat to the validity of analysis. While I positioned myself as an outsider at the
beginning of fieldwork and refrained from making any comments in the meetings, by
the end of fieldwork I felt that some of the team members started asking my opinion
about different work-related issues and shared their achievements and
disappointments with me as if I had become an extra team member. I realised that I
was starting to ‘go native’. An increased awareness of the potential bias made my
analysis more accurate and critical, and I took a conscious effort to avoid the
romanticisation of this team.

My relationship with the Greater Manchester CLAHRC as a co-funder of my
research was another important issue in the final stages of this project, especially
when I was working on Paper 4 that analyses the internal boundaries within the
Greater Manchester CLAHRC as a constellation of interconnected practices.
Although no recommendations were given to me by the Greater Manchester
CLAHRC throughout this research project and I was given complete freedom in its
design and implementation, I understood that its outcomes could have potential
effects, both positive and negative, on the second round of the initiative. My purpose
was to maintain scientific integrity without causing major problems to the
organisation that was sponsoring my research. Surprisingly, it was not as difficult to
achieve as it initially seemed. First, I was interested in developing a better
understanding of how communities of practice functioned within organisations rather
than producing a project evaluation. Second, I deliberately avoided making
judgements about the role of the CLAHRC management in developing internal boundaries within the initiative—primarily because it was outside the scope of my research and I would have experienced difficulties finding relevant evidence in the data collected. Finally, all three papers were reviewed by a senior representative of the Greater Manchester CLAHRC but, apart from some valuable comments helping to increase the factual accuracy of the accounts, no amendments were suggested by the funder in relation to the analysis presented.

* * *

This chapter has attempted to present a simplified account of a rather messy, cyclical and highly frustrating research process as a relatively linear and logical one by highlighting the choices I had to make in designing and conducting the study and by explicating the interdependencies between its components. It described how my critical realist philosophical assumptions and explanatory research questions led me to choosing a single embedded qualitative case study design, how the data were collected and analysed and what measures were taken to increase the accuracy of findings and reduce the influence of my assumptions, beliefs and biases on the process of analysis. However, two important methodological issues have not been discussed here. The first is methodological limitations of the study and the second relates to generalisability of its findings. These issues will be explored in full in the concluding chapter as I believe that it makes more sense to analyse them in the context of the study’s findings, i.e. after the empirical cases are presented and discussed.

References


Prologue to Paper 2

As briefly mentioned in the previous chapter, before starting fieldwork I had assumed that my research would not be able to identify any multiprofessional communities of practice and that I would instead be writing a thesis about why such communities failed to develop in a large-scale knowledge mobilisation initiative. These assumptions had to be reconsidered after I started my fieldwork with the Heart Failure team which became a case discussed in the empirical paper that follows. Despite being a formal multiprofessional project team within the Greater Manchester CLAHRC, the Heart Failure team exhibited multiple characteristics that are typical for a community of practice as conceptualised by Etienne Wenger. Some of these characteristics, identified during direct observation, are briefly described below.

First, the topics discussed at the Heart Failure team meetings went beyond operational issues directly related to the projects managed by the team members. In fact, the content of these discussions could be broadly defined as ‘various things in the field of heart failure research and practice’, not all of which were directly relevant for the projects. The domain of knowledge utilised by the team was therefore wider than operational staff directly related to the development of the website, audit tool and patient alert card. This broader domain enabled exploration and learning, with team members developing a shared understanding of the field of heart failure service improvement and their own potential contribution to this field. Artefacts produced by the team allowed new, complex, co-created knowledge to be reified in a tangible form and were a result of a messy and non-linear learning process rather than an outcome of pre-planned, stage-like interventions.

Second, although the Heart Failure team was multiprofessional, professional boundaries did not seem to hamper knowledge exchange between its members. Although the team had formal management arrangements, a lot of decisions on how to develop the projects were made collaboratively, with every team member being given an opportunity to express their point of view and contribute to the discussions. The team members were aware of the individual professional ‘knowledges’ each of them brought to the team and these were used when appropriate in the process of...
collective decision-making. The meetings did not have any formal minutes or introductory preambles; I could often observe long series of spontaneous verbal exchanges between the team members, and after the decision was agreed it was often difficult to identify the individual authorship of certain ideas. These discussions were often interspersed with insider jokes and laughter.

Finally, the team members shared similar values, for instance, the importance of relationship building with stakeholders as a cornerstone of the service improvement work, developed harmonious mutual relationships and constructed a shared identification with the Heart Failure theme. Interestingly, some clinicians (GPSIs and heart failure specialist nurses) from the partnering NHS organisations were constantly mentioned in the team meetings and considered to be members of the same group of like-minded individuals, with their opinions always taken into consideration. At the same time, the other three implementation teams functioning in the Greater Manchester CLAHRC (‘them’) were perceived as ‘different’ from the Heart Failure team (‘us’), with individual ‘knowledges’ held by the members of the other teams seen as less relevant for the implementation of the Heart Failure team projects.

By subjecting these field observations to theoretical analysis, Paper 2 presents a case study of a multiprofessional team displaying the characteristics of a community of practice. It explores internal processes taking place within its boundaries to identify group and individual factors contributing to the conversion of a project team to a community of practice. At the same time, the paper locates this team/community of practice in organisational context in order to investigate organisational factors of the team-to-community-of-practice conversion and analyse knowledge sharing processes at the group boundary. Paper 2 can therefore be seen as a case study of an individual multiprofessional community of practice embedded in a wider landscape of practices related both to the clinical aspects of heart failure care and the science of implementation.
Paper 2. From a project team to a community of practice? An exploration of boundary and identity in the context of healthcare collaboration

Roman Kislov
Abstract

The paper is based on a case study of a multiprofessional, boundary-spanning project team aiming to improve the provision of heart failure services in primary care and embedded within a large-scale partnership between a university and several healthcare organisations. Informed by the theory of communities of practice (CoPs), it shows that a project team can develop into a functional CoP, describes mechanisms and consequences of this conversion, and argues that a project team and a CoP should be viewed as two sides of a continuum rather than mutually exclusive entities. Analysing the process of knowledge sharing between such a CoP and its neighbouring groupings, the paper introduces the concept of selective permeability of boundaries in relation to different sources of knowledge, with the CoP boundary being more permeable for extra-organisational than for intra-organisational knowledge flows. Finally, the paper links the notion of selective permeability with the process of CoP identification, which is underpinned by shared practice and values, develops in spite of the multiprofessional nature of the CoP, and involves emphasising differences, rather than similarities, with referent intra-organisational out-groups.

Keywords: communities of practice; project teams; boundary; identity; knowledge sharing; healthcare collaboration
Since its origination within the theory of situated learning (Lave and Wenger 1991), the communities of practice (CoPs) approach has become widely used—both as a theoretical tool and practical instrument—in education, management, healthcare and other sectors. Over twenty years of extensive application, it has evolved into two interrelated strands of thinking: the analytical perspective, used to analyse identity, meaning, practice and learning within and across ‘organic’ CoPs and their landscapes, and the instrumental perspective, utilising CoPs as a knowledge management tool and aiming to engineer ‘deliberate’ CoPs to enhance organisational learning and innovation (Kislov et al. 2011).

The purpose of this paper is twofold. Predominantly remaining within the analytical perspective on CoPs and referring to Etienne Wenger’s seminal theoretical works, it will aim to enhance our theoretical understanding of CoPs by providing an empirical account of an emergent, multiprofessional, knowledge brokering community which emerged from a project team functioning alongside other project teams in a large-scale healthcare partnership. At the same time, by discussing the practical implications of the team-to-CoP conversion for intra-organisational processes, such as boundary spanning and identity construction, the paper provides useful insights for those intent on applying an instrumental perspective to cultivate CoPs within their own organisations.

**Background**

A CoP is defined as ‘a group of people who share a concern, a set of problems, or a passion about a particular topic, and who deepen their understanding and knowledge of this area by interacting on an ongoing basis’ (Wenger et al. 2002, p. 4). Wenger (1998) formulates three defining characteristics of CoPs. First, CoP members interact with one another, establishing relationships and negotiating meaning of their actions through **mutual engagement**. Second, members are bound together by an understanding of a sense of **joint enterprise**, which entails a common set of tasks that CoP members can influence. Finally, they produce over time a **shared repertoire** of routines, words, tools, stories, symbols or concepts which become part of the CoP practice. Wenger and Snyder (2000) argue that CoPs could be distinguished from
project teams along several dimensions (Table 1) and emphasise that the main factor defining a CoP is shared practice, whereas a project team is characterised by the coordination of tasks the group has to accomplish. At the same time, it has been suggested that, under certain conditions, a project team may develop CoP characteristics and hence become a ‘true’ CoP (Hildreth 2004; Oborn and Dawson 2010; Roberts 2006). This premise has, however, received little empirical attention.

The discussion of the possibility of the team-to-CoP conversion should be placed in the context of a wider debate about the manageability of CoPs in organisational settings. While Wenger et al. (2002) and their followers (see, for example, Saint-Onge and Wallace 2003) call for the cultivation of CoPs in order to increase competitive advantage and intensify innovation, critics point out that the organic, emergent, self-regulating nature of true CoPs makes it difficult for managers to align these communities in a driven way or use them as a direct tool for policy and control (Fox 2000; Pemberton et al. 2007; Probst and Borzillo 2008; Swan et al. 2002). It has also been shown that an excessive legitimisation and formalisation of ‘organic’ CoPs can disrupt, rather than support, their knowledge sharing capacity (Addicott et al. 2006).

Knowledge sharing across CoPs is often analysed through the notion of a boundary representing, on the one hand, a barrier between different practices and, on the other hand, an opportunity for cross-fertilisation and discovery of different perspectives (Wenger 2010). Tagliaventi and Mattarelli (2006) argue that barriers to knowledge sharing at the boundaries between CoPs are expected to prevail, being raised by the specificity of practice of a given community and a strong collective identity among its members. Similarly, Ferlie et al. (2005) show that CoPs in healthcare are predominantly unidisciplinary, tend to seal themselves off from neighbouring professional communities and are highly institutionalised, which enables a relatively easy flow of knowledge within these CoPs but causes the ‘stickiness’ of knowledge across boundaries and hence retards the innovation spread. A more optimistic view on knowledge sharing between co-located CoPs maintains that boundaries between them can be successfully bridged by knowledge brokers (both individuals and groups), boundary objects and boundary interactions among the members of neighbouring CoPs (Wenger 1998, 2000).
Another strand in the CoP literature is concerned with the processes of knowledge sharing in multiprofessional and multi-agency healthcare contexts. Several empirical studies are worth mentioning in this respect. Gabbay et al. (2003) show that the knowledge behaviour of the members of multi-agency CoPs could be described by the following four themes: (1) the ascendancy of personal knowledge; (2) transformation through experiential internalisation; (3) unpredictably contingent knowledge processing; and (4) differential sense-making related to the roles, agenda and power of the participants. In an ethnographic study of a radiotherapy unit, Tagliaventi and Mattarelli (2006) conclude that operational proximity in combination with holding common values regarding the unit acts as a leveraging tool for knowledge transfer between the representatives of different professional groups working in the unit. Finally, Oborn and Dawson (2010) demonstrate that learning across uniprofessional CoPs co-located in a multidisciplinary setting could be facilitated by the following three mechanisms: organising discussions, acknowledging other perspectives and challenging assumptions.

Although multiprofessional CoPs may show over time the same characteristics as the organic, naturally occurring, uniprofessional CoPs (Gabbay et al. 2003), the formation of cohesive and functional multidisciplinary CoPs in healthcare may be problematic since healthcare contexts are notorious for their interprofessional power struggles, traditional dominance of the medical profession and strong inter- and intraprofessional boundaries (Kislov et al. 2011). At the same time, participation in a multiprofessional and multi-agency CoP would imply some degree of identification with the community, i.e. at least partial reconciliation of pre-existing and concurrent professional, organisational and workplace identities into one coherent sense of self (Handley et al. 2006). While it has been argued that our ability to suspend and engage identities determines our ability to productively deal with boundaries (Wenger 2000), development of shared identities in multiprofessional CoPs remains empirically unexplored.

To sum up, the following issues related to CoP development need further empirical exploration. First, although a set of distinctions has been formulated to differentiate CoPs from other organisational groupings, there is a possibility of the team-to-CoP
conversion. Mechanisms of this transformation as well as its potential consequences remain underresearched. Second, while previous research has examined knowledge sharing processes within multidisciplinary teams, communities or networks of practice, i.e., across co-located uniprofessional groups, little is known about knowledge brokering/boundary spanning processes at the interfaces between multiprofessional CoPs and other neighbouring intra- and extra-organisational groupings. Finally, it is not clear how the members of a multidisciplinary CoP operating in healthcare construct a coherent identity in spite of potential interprofessional tensions and how this newly created collective identity influences knowledge brokering processes at the boundaries with other CoPs.

The paper will therefore address the following three research questions:

1. What are the mechanisms and consequences of the conversion from an organisational project team to a multiprofessional CoP?
2. How is knowledge shared across the boundary separating such a CoP from its neighbouring extra- and intra-organisational communities?
3. How does identification with a multiprofessional CoP influence the process of knowledge sharing at the CoP boundary?

**Case and method**

This research was conducted within the implementation strand of a collaborative partnership (‘Collaboration’) between a university and twenty local National Health Service (NHS) Trusts aiming to support the translation of research evidence into clinical practice by enhancing knowledge transfer between academic researchers and NHS staff. The paper will focus on one of the four implementation teams operating within the Collaboration, namely the Heart Failure (HF) team comprising six people (a senior nursing academic, a management academic, a manager, a specialist nurse and two full-time change agents, one with a managerial and the other with a nursing background) and aiming to improve heart failure services in primary care in line with existing scientific evidence.
The HF team will be analysed in this paper as a single holistic qualitative case study and the reasons for choosing this research methodology are twofold. First, this was the only case of a harmonious boundary-spanning multiprofessional CoP that could be identified and accessed and, at the same time, appeared well-suited to enhance the understanding of theoretical issues under investigation. Second, focusing on a single case allows a more in-depth and nuanced understanding of CoPs as complex social phenomena with a particular emphasis on mechanisms and contexts—an approach which is underpinned by the philosophy of critical realism (Danermark et al. 2002; Sayer 1992) adopted by the author. It should be noted that the case study looks at both the intra-organisational context in which the HF team functioned, i.e. its interactions with the other three teams in the Collaboration’s implementation strand, and extra-organisational context, i.e. its interactions with various external professional groups providing services to heart failure patients in the NHS (Figure 1).

The case study comprised semi-structured interviews, non-participant observation and documentary analysis, all of which were undertaken between September 2010 and September 2011. In total, twenty-eight people were interviewed, including all six core members of the HF team, eleven representatives of extra-organisational groups (commissioners, nurses, managers and doctors), and eleven participants (academics, managers and clinicians) recruited from the other three implementation teams working in the Collaboration and thus representing intra-organisational context. Non-participant observation comprised 45 hours of fortnightly team meetings, educational sessions, intra-organisational learning sessions and practice visits. Interview transcripts and field notes were coded and analysed with the aid of NVivo software. Template analysis (King 2004) was then applied to the datasets obtained with different methods. Triangulation of data obtained by interviews, observation and documentary analysis, member checking and peer-debriefing were used to ensure the validity of research findings (Creswell 2003).

This study is not without methodological limitations. Single case study research has been criticised for providing a poor basis for generalising. This limitation has been addressed by relying on analytical generalisation, i.e. generalising results to a broader theory, rather than statistical generalisation, i.e. generalising from a research
sample to a larger population (Yin 2003). Another limitation of this study is that it lacks a temporal dimension; adopting a longitudinal design would have allowed a better understanding of the processes related to CoP development over time but was not an option due to resource constraints. Data analysis would also have benefited from using investigator triangulation, *i.e.* triangulating the data between different evaluators. This limitation has been addressed by using peer-debriefing and member checking at the final stage of data analysis.

The remainder of the paper is structured in the following way. In line with the research questions formulated earlier, the *Findings* section starts with describing the characteristics of the HF team, goes on to discuss knowledge sharing across the team boundaries and finishes by presenting the findings related to the team members’ shared values and identity. The *Discussion* section analyses the causes and consequences of the team-to-CoP conversion, describes the tensions and selectivity of knowledge sharing across the team boundary and links the notion of selective permeability of boundaries with the processes of collective team identification. This is followed by a concluding section which summarises the contribution of the paper to the analytical perspective on CoPs, draws some practical implications and outlines potential directions for future research.

**Findings**

**Team interactions, roles and autonomy**

An essential part of the practice of the HF team was getting together for a fortnightly team meeting, which normally lasted around two hours and was used as a forum to collectively discuss various work-related issues in an open, friendly and informal atmosphere. The meetings did not have a dedicated agenda or structure and the team often discussed issues that were only indirectly related to their immediate tasks but formed part of their wider interest in heart disease. There was also room for exchanging jokes and news about things not related to work itself, some of the favourite themes being football, leisure activities of the team members and TV programmes.
We'll obviously discuss the issues, we won't always have a dedicated agenda or structure, we'll perhaps have a few points to cover. And it's more of a way just to see what's going on and I think we as a team we probably get more information out by sitting there for an hour and half or so and just throwing out to say, “Well, this weekend I’ve done this, that and that, I’ve spoken to this person and this person”... So I think that social really carries an informal atmosphere which has worked well for us. (CA1*)

I just enjoy the work, and sometimes it doesn’t feel like work; it just feels like I’m linking up with some of my friends. It doesn’t feel like a chore or anything; I look forward to going to work on a Monday, because the team are really nice, so I enjoy the work and it doesn’t always feel like work, it just feels like something I do because I enjoy it. (SN5)

The way the team was set up presumed a clear distribution of roles, with the clinical lead responsible for clinical guidance and leadership, programme manager being in charge of finances and administration and academic lead providing academic input. In reality, it did not, however, transform the team into a top-down, command-and-control hierarchical structure. Some team members described their roles as vaguely defined and flexible, with role boundaries blurred:

To be honest, it’s a bit vague, the role; it’s vague, in that it’s about facilitating and implementing evidence into practice, which is a huge subject, really. But to actually describe what my role is in it, it’s really quite difficult, because it seems to be everything. (CA2)

I would say they regarded themselves as equal but different. I never picked up very much in heart failure of “I’m in charge and you will do that” sort of stuff. They had different contributions to make. (MA3)

Also, although the roles of the team members differed, a new shared practice was forming in the team around service improvement in the field of heart failure care. This practice was markedly different from (although informed by) the practices of research, nursing and management in which the team members were engaged in their other roles outside the team. Developing a new practice meant a lot of learning, both from the field and from each other:

* The following abbreviations are used to indicate respondents who are quoted in this section: CA—change agent; MA—management academic; PM—programme manager; SN—specialist nurse.
I didn’t know anything about the QOF or Read codes—and they’ve pulled all the information that they’ve learnt from working with the GPs and networking with everybody, and they’ve shared so much information with me that I didn’t know; and I hope by the same token that maybe I’ve increased their knowledge of heart failure in return. (SN5)

In doing their work, change agents were given quite a lot of autonomy with only some guidance from the other members of the team. This approach seemed at least to some extent to be determined by the style of the clinical lead, which was, in turn, seen by many as stemming from her nursing background. It was also felt that there was a match between the personalities of the team members in terms of their shared preferences towards the ‘organic’, emergent approach to joint working and autonomous, egalitarian style of intra-team interaction:

[The clinical lead] is a very open and facilitative leader. So in a sense she doesn’t obviously lead, but in a sense she has got the responsibility for leading, and I think over time she’s created an environment where we’re actually all trying to solve the issues that are brought into the table… And then I think maybe it’s just fortuitous that actually all five or six of us have actually been very similar, so in a sense none of us have had to change dramatically… So I think we’ve somehow over time, and I think it has taken time because originally it felt as if do we know where we’re going, and now I think we’ve actually coalesced into this way… of working and I don’t know it was ever… I don’t think it was ever planned in that way. (MA1)

At the level of the Collaboration as a whole, the HF team was also given considerable autonomy to plan, design, implement and evaluate their programme of work. The team devised their own project plan which specified targets, components and deadlines of the project. It was not, however, followed literally, with the sequence of actions, deadlines and scope of work changing continuously throughout the project:

So there is a project plan and [the programme manager] did a really good job of listing all the different components and everything that needs to be done. But in a sense it takes so much of a life of its own that I don’t know in the end whether they’ve actually carried on with those plans… (MA1)

**Knowledge sharing across boundaries**
What remained stable throughout the project was the team’s affinity for building relationships and engaging with stakeholders to involve them in all stages of the project. As the team’s main aim was the facilitation of evidence-based implementation in the field of heart failure, the external groups involved included patients, academic researchers, NHS commissioners, cardiologists, specialist heart failure nurses, general practitioners (GPs), GPs with special interest (GPSIs), practice nurses, practice managers and other healthcare professionals. Their knowledge and experience were crucial for shaping up the content of the project in its planning stage, which took more than a year and included numerous consultations with stakeholders. Furthermore, the representatives of these groups were actively involved in designing, piloting and applying the products produced by the team:

So we spent a lot of time talking to people working along the pathway. So we spoke to GPSIs, we spoke to nurses, we spoke to GPs, we spoke to practice nurses, we spoke to community matrons… So we had a consensus of what it was we were going to do in the first place. We’d already built a lot of those relationships by talking to people and asking them the questions: “What do you think the challenges are around heart failure? Where do you think the improvements could be made? What is it that you do in terms of heart failure patients? What would make it easier for you?”… Maybe it wasn’t an intentional strategy at the beginning, but that’s been the output of that and we’ve kind of continued with that since. So when we got to engage people and actually working on the projects, they’ve already been engaged because we’re doing things that they wanted to be done. (PM2)

Bidirectional knowledge exchange occurred between the HF team and the groups mentioned above as well as between different professional and organisational groups brought together for stakeholder events or educational sessions. (See the list of events and products of the project in Table 2.) It should be noted that while this process was generally successful, the HF team had to overcome a number of challenges when performing their boundary spanning, knowledge brokering function. Underpinned by the complex nature of the landscape of practice involved, these challenges included the need for the team to develop their own practice but at the same time stay connected with other heart failure groups and networks; achieving a compromise between multiple professional groups with conflicting interests; getting access to other practices without being considered as intruders; and facilitating change in the practices of other communities without imposing anything on them. While a detailed analysis of how the HF team addressed these challenges
and achieved legitimacy with external stakeholders lies beyond the scope of this
paper, a number of factors are, however, important for understanding why the
boundary between the team and the external professional and organisational
groupings was permeable for knowledge flows.

First, although the change agents were seen as the main people involved in boundary
spanning activities, knowledge brokering and boundary spanning formed an essential
part of the team’s shared practice. Not only did all team members actively participate
in some of the meetings, consultations, educational sessions and other boundary
interactions; they also exchanged this information between each other and
transformed it through discussions which took place in the meetings:

Another key aspect to knowledge transfer has been a different type of
knowledge, is about [change agents] going out, finding out what the context
is and then almost bringing back that knowledge to us for us to think about
and think about how to respond… So [they] come and say something to us
and then we say … we actually … it becomes something different because
we’ve converted it in that meeting. (MA1)

Second, in the process of aligning the team’s strategy with agendas, expectations and
priorities of professional and organisational groups involved, team members invested
a lot of time and effort in building trustful relationships with these groups’ gate-
keepers and opinion leaders. In line with this relationship-building strategy, at a
structural level the HF team members tried to avoid conflicts with other heart failure
networks and services by integrating with, rather than opposing, existing
programmes of work in the field of heart failure care:

I wanted to make sure that we were working with people and not doing
anything in parallel as well… (SN6)

I think as being part of Collaboration, it can only be good for our service;
that Collaboration is backing what we do as well, is acknowledging the
work that we do.” (SN1)

Finally, relevant knowledge was transformed into the products produced by the
team, which fulfilled the function of boundary objects. These were designed either to
bridge the gaps between different groups of healthcare professionals (e.g. website
and patient alert card) or to combine the explicit, specialist, evidence-based knowledge about heart failure management with largely tacit, highly context-specific knowledge about how primary care staff manage these patients in the real world (e.g. audit tool). Combining different types of knowledge was enabled by the involvement of secondary and primary care professionals and led, in turn, to the acceptance of the tool by primary care staff. In other words, spanning the boundaries between the team and targeted extra-organisational groups was successful: not only was knowledge exchanged and transformed, but the actual practices of all communities involved became directly influenced by this process.

Interestingly, knowledge sharing processes developed differently at the interface between the HF team and other multidisciplinary teams operating within the Collaboration. All of the teams had the same overarching objectives, partially shared stakeholders and, at least according to the organisational documents, were supposed to implement the same methodological approach. At the same time, despite a shared focus on service improvement, their practices developed largely independently from each other. So-called ‘learning and sharing sessions’ for change agents across the Collaboration were established to enable knowledge exchange; there were also regular meetings for academic members. However, it was felt by the majority of respondents both from the HF and other implementation teams that these meetings were not sufficient for cross-boundary learning. Although the majority of the HF team members had some information about what and how the other teams were doing, this information was often incomplete. Some techniques and methods utilised by other teams were repeatedly mentioned in the meetings (e.g. ‘we could use those tips in our work’) but never used in actual practice; some were rejected straight away as ‘too formalised’ and, therefore, unsuitable for the ‘organic’ approach taken by the HF team. If some mutual cross-boundary learning was happening between the teams, it took the form of ‘enlightenment’ and did not seem to result in direct and identifiable impact on the teams’ practices:

…Between the teams there was not much knowledge sharing. You have to use learning and sharing sessions which I think were very useful…but I’m not sure whether there were enough to get this inter-team sharing going. (CA5)
I think primarily we’ve relied on information flows between the change agents and I don’t think that’s necessarily so good, and we’ve also relied on the knowledge flow through the academics in the academic meetings, but that’s not been ideal at all. So I’ve really not known enough about what everybody else is doing. (MA2)

Shared values and identity

Contrary to initial expectations, the multiprofessional nature of the team and team members’ concurrent affiliations with different organisations did not lead to major identifiable intra-team tensions which would negatively affect joint working. For instance, a specialist nurse seconded from secondary care to do the audit in primary care settings admitted that the work she was doing with the HF team aimed at reducing hospital admissions and could thus potentially have negative financial implications for secondary care settings. This potential tension, however, was resolved by her by prioritising patient benefit over organisational revenues:

I do often wonder if people will think anything of me from floating between primary and secondary care. But at the end of the day, my primary aim is always to improve care of the patient, so be it within whatever environment I do that, then I’m quite happy with that. So if I improve care in secondary care and primary care, if it reduces admissions, it reduces admissions; but long-term that’s better for the patient, so I just have to think what’s best for the patient, and that’ll always be the driving factor behind what I do. (SN5)

Other values shared by the team members included an ‘organic’, emergent approach to teamwork, the importance of building and maintaining relationships with stakeholders, and achieving consensus with multiple parties without imposing anything on them. These values to a large extent determined the practice co-created by the team, which centred around exchanging knowledge with other communities, discussing the results of this exchange during team meetings and other intra- and inter-community interactions, and further transformation of shared meanings into a number of boundary objects. Having developed a distinct practice of their own, team members perceived their team as being different from, rather than similar to, other teams within the Collaboration in terms of contexts, stakeholders, personalities and leadership styles. Although certain similarities between the teams were being noted
by the team members, the discussion of those formed a relatively insignificant part of the team’s shared discourse.

All the teams are going to look very differently and I think our team works different from most of them, well in my opinion I think our team works very different from how everyone else works. (CA1)

We’re actually really quite a strong and confident group, so we’re tending to think that it’s actually better this way and we’re doing it the way that it should be done. We’re going through the stakeholder route and so therefore, you know, I think we’re all actually quite confident that it will pay out real dividends in the end. But it could have been a challenge if we weren’t quite so confident about that. (MA1)

Strong identification with the team and its practice had a number of consequences. First, it may explain knowledge stickiness at the intra-organisational boundaries between the teams, where evidence accumulated and systematised by other teams was perceived as irrelevant by the members of the HF team, the latter preferring their own experiential evidence on the same topics. Second, it complicated the integration of all Collaboration implementation teams into a unified ‘vascular theme’, which was planned by the Collaboration leadership as a response to financial difficulties faced by the organisation. Instead of finishing their project and joining the vascular unit, the HF team were trying their best to secure additional funding which would allow them to continue their heart failure work.

It makes it more difficult for us now that we need to come together and make a vascular platform: the challenges are that we have been working very isolated and very differently. We’ve all taken kind of our own different areas and we’ve focused on those, and so bringing that together as a vascular team when you’ve put a lot into your individual projects and set an idea that, “Hmm, we’re not going to be able to pursue that in the same way”—it is difficult. So it’s going to take some time to make us a more cohesive vascular unit. (SN6)

It just makes me feel a bit sad because I don’t want to go back, now; because I know eventually the heart failure work will have to come to an end. But it’s just sad, because I really, really like working with the team. They’re really nice. So I’ll be a bit sad to go back, eventually. (SN5)

Finally, development of a strong identification with the team and its practice led to a strong sense of ownership over the team’s products and posed a potential risk of
becoming uncritical of their work, which was, albeit partially, recognised by team members:

I think you get so engrossed in your own project that sometimes you can’t see things that need improvement. Because I can speak from the heart failure, because doing it all the time, now, we think… not that it’s easy to undertake, but it gets more straightforward the more you do it. So we asked a couple of the team members from [another] team to come in and try and use the tool, and we realised that it’s not as easy as we think, for somebody without any knowledge of it to undertake. (SN5)

**Discussion**

**A project team or a community of practice?**

The analysis of the HF team characteristics along the five dimensions presented in Table 1 leads to the conclusion that this team is a hybrid form between the ‘pure’ project team and ‘pure’ CoP (Figure 2). Although conceived as a formal project team within an organisation, it acquired a number of features typical for a harmonious CoP with sustained mutual relationships, fast propagation of knowledge within its boundaries, strong collective identity and a number of shared routines, artefacts and stories. In other words, the team described in this paper has developed the defining CoP characteristics of mutual engagement, joint enterprise and negotiated repertoire. It could thus be suggested that a formal project team and a CoP are not mutually exclusive entities, that there is a multiplicity of transitional forms between the ‘pure’ versions of a team and a CoP as defined by Wenger and colleagues and that team/CoP distinction should be presented as a continuum rather than a dichotomy.

Another question that this study attempted to answer was about the factors that may account for the conversion from a formal organisational team to a more informal CoP. As could be inferred from the previous section, these factors operate at multiple levels (Table 3). At the organisational level, relative autonomy of a team within the organisation is important, with the team playing a significant role in determining their own deadlines, targets and outcomes. At the group level, a facilitative leadership and management style, creating an open, egalitarian and informal atmosphere for knowledge sharing, is crucial. It should not be forgotten that shared
practice, enabled in this team by discussing and doing things together, is a necessary prerequisite and takes a certain time to develop. Individual-level factors include sharing similar dispositions to collaborative work, common values, enthusiasm and passion for the area of interest. It should be emphasised, however, that not all CoPs are harmonious and, therefore, it may well happen that a different configuration of factors will lead to the formation of a more conflictual and dysfunctional community, which may render boundary spanning and knowledge sharing problematic.

In the case study presented here, a CoP developed from a project team organically, without a conscious effort from the organisational or team leadership. However, if the CoP approach is used as a deliberate organisational strategy and if a project is chosen as a crystallisation point for the potential CoP, the multiplicity of factors enabling the team-to-CoP conversion should be taken into account. When cultivating CoPs in a project-based organisation, an organisational climate supportive of autonomous, self-governing teams needs to be complemented by an adequate team leadership and a mix of team members that would be able to effectively work together. In addition, in those teams who find themselves moving towards the CoP end of the continuum, the team-CoP duality is likely to manifest itself in a number of tensions. These tensions are the result of the contradiction between a CoP’s natural inclination to determine its own agenda, focus on learning and find its own way of doing things, on the one hand, and externally predefined roles, goals and deadlines set up for the project by the organisation, on the other. It could be assumed that most successful project teams would be able to move between the two ends of the team-CoP continuum depending on the nature of the task at hand and the current contextual factors, but to what extent this is feasible remains to be explored.

**Knowledge sharing: tensions and selectivity**

The duality of team-CoP interplay was also reflected in the process of knowledge brokering and boundary spanning actively embraced by the team. By virtue of their formal role and the overarching mission of the organisation they represented, the team members had to achieve an identifiable and measurable impact on the external
CoPs they were interacting with, but at the same time they wanted to avoid intruding into those communities or imposing anything on them. This dilemma was not an insoluble one: the team managed to resolve the tension by a combination of context-specific boundary interactions involving a range of stakeholders as well as by the transformation of knowledge acquired through continuous boundary spanning into a set of products (Table 2). These, in turn, provided reification of the team’s shared meanings (Wenger 1998), served as effective boundary objects (Star and Griesemer 1989), and met the team’s regime of accountability: both vertical accountability to the organisation and horizontal accountability to a range of external communities involved.

Unlike the majority of previous studies on knowledge sharing processes informed by the CoP theory, this research predominantly focused on the processes at the boundary between a multiprofessional CoP and its neighbouring communities. It is, nevertheless, interesting to discuss its findings in the context of previous research. Similarly to Gabbay and colleagues (Gabbay et al. 2003; Gabbay and le May 2011), this study shows that knowledge is transformed, rather than simply transferred, in the process of boundary spanning and that personal, experiential evidence (‘learning by doing’) is perceived by CoPs members as superior to traditional evidence derived from research. Concurring with the findings of Oborn and Dawson (2010), this study has shown the importance of organising discussions and acknowledging each other’s perspectives in a multidisciplinary context. At the same time, the third practice described by the authors, namely challenging assumptions, has not been pronounced in the team described in the study—probably because shared practice and the formation of a relatively tight CoP in its own right led to the development of shared meanings and convergence of sense-making processes within the team in spite of interprofessional differences between its members.

The most surprising discovery of this paper is the notion of selective permeability of CoP boundaries in relation to different sources of knowledge. The study demonstrated that information was flowing relatively easily in both directions between the HF team and extra-organisational groupings representing various NHS stakeholders involved in the project. At the same time, intra-organisational knowledge sharing between the HF team and other multidisciplinary teams within
the Collaboration was much less visible, perceived both by insiders and outsiders as problematic and did not appear to have a significant effect on the practice of the HF team although a number of formalised inter-team communication channels had been set up by the organisation. To conclude, the boundaries of the newly formed CoP were more permeable for extra-organisational than for intra-organisational knowledge sharing. Before discussing the phenomenon of selective permeability in more detail in the next subsection, it should be noted that the nature and type of knowledge on its own was unable to explain this selectivity: although the information shared between the HF team and extra-organisational groups included more context-specific and clinically-oriented components than did the information involved in intra-organisational exchanges, a significant part of knowledge was mainly concerned with the practice of service improvement and was therefore similar in both cases.

**Selective permeability of boundaries and collective identity**

Limited permeability of boundaries has traditionally been attributed in the literature to inevitable differences between CoPs in terms of practice, epistemic cultures, value systems, and, ultimately, to the development of strong collective identity shared by the community members. A more detailed analysis is, however, required to explain why in this case extra-organisational boundary spanning became prioritised over intra-organisational knowledge sharing. First, the decision to engage in relationship building with stakeholders was made by the team members themselves, became one of the team core values and was seen by them as crucial for the success of the whole enterprise, whereas intra-organisational knowledge flows between the Collaboration teams had a top-down nature, were organised along more traditional uniprofessional channels and were not perceived as crucial for fulfilling the team’s mission. Second, there was a recognised lack of operational proximity between the teams within the Collaboration (cf. Tagliaventi and Mattarelli 2006), which significantly decreased opportunities for informal, ‘coffee-room’ knowledge sharing seen as fundamental for enabling knowledge exchange (Gabbay and le May 2011). Finally, there was an inherent competition for achievement and recognition, especially given the fact that
the Collaboration experienced significant financial difficulties and the existing programmes of work were under threat.

The findings of the study also show that the development of a shared CoP identity included focusing on in-group similarities (articulating similar personality traits, values, etc.) and out-group differences, whereby other teams were seen as different from the HF team in terms of their preferred approaches to change, stakeholders involved and contextual factors, with these differences possibly being exaggerated. These findings resonate with the social identity theory (Tajfel and Turner 1979), which holds that (1) social identities are maintained primarily by intergroup comparisons; (2) that groups have a vested interest in perceiving greater differentiation between themselves and referent out-groups, especially when the in-group identity is insecure (e.g. because of a threat to its domain or resources); and (3) that organisational subunits tend to be the primary focus for inter-group conflict (Ashforth and Mael 1989). It could be assumed that the processes of differentiation with referent out-groups are likely to be more acute in those organisational groupings that display such characteristics of a CoP as relatively high degrees of collective identification and strength of ties between its members.

The emphasis on in-group similarities and development of shared practice-in-the-making, which was different from the professional practices of the team members, prevented the formation of dysfunctional intra-team tensions related to the multidisciplinary nature of the team, with potential role conflicts being resolved by referring to salient shared values. This was probably aided by the fact that the core team membership was represented by nurses, managers and researchers, with no direct involvement of medics, traditionally perceived as the most dominant group in healthcare (Freidson 1988; Harrison and McDonald 2008). Multiprofessional-related tensions remained, however, an integral part of the extra-organisational context and largely determined the direction and outcomes of the team’s knowledge brokering activities. For instance, heart failure nurses were the most powerful group directly involved in the project and their knowledge, attitudes and ways of doing things seemed to have a more profound influence on the processes of collaboration than those of community matrons, practice nurses and other non-specialist groups.
Conclusion

The contribution of this paper to the analytical perspective on CoPs is threefold. First, it has demonstrated that project teams and CoPs are not mutually exclusive entities; that a project team can develop typical CoP characteristics, including mutual engagement, shared repertoire, negotiated enterprise, strong collective identity and an emphasis on learning; and that the team-to-CoP conversion is possible in the presence of a combination of certain individual, group-level and organisational factors. Second, it has analysed boundary processes taking place at the interface between a multiprofessional CoP and other extra- and intra-organisational groupings and introduced a concept of selective permeability of CoP boundaries to indicate that a CoP boundary may enable certain knowledge flows while impeding others. Finally, it has shown that the members of a multiprofessional and multi-organisational CoP can reconcile their existing professional and organisational identities into a strong, collectively-reinforced CoP identity through developing shared practice, referring to common values and contrasting themselves with referent out-groups.

As far as the instrumental perspective on CoPs is concerned, the findings presented in this paper suggest a more nuanced approach to deliberate CoP engineering in organisations. Although the conversion from a project team to a harmonious CoP is possible in principle, its probability in an organisational setting is likely to be limited by the multiplicity of factors required for this conversion to happen and an inherent tension between the formalised, task-oriented nature of project-based work and the learning-focused philosophy of CoPs. Due to their autonomous and independent nature, CoPs as a knowledge management tool might be ill-suited to settings driven by predetermined targets, deadlines and procedures. It should also be remembered that a tendency to develop their own shared practice and a shared sense of belonging may lead to the formation of a strong boundary blocking intra-organisational knowledge exchange and spread of innovation between the CoP and the rest of the organisation. As shown by this study, this can happen even to a boundary-spanning, knowledge-brokering CoP effectively managing the process of bidirectional knowledge exchange with extra-organisational groupings.
The notion of selective permeability of CoP boundaries also has a number of managerial implications. To avoid the deprioritisation of intra-organisational knowledge flows, adopting a reflexive and systematic approach to boundary management might be beneficial. This should take into account the importance of the identification processes in a CoP for creating and reinforcing its boundaries. While a high level of collective identification in teams with diverse membership is likely to increase team performance (van der Vegt and Bunderson 2005), this should probably be accompanied by enhancing organisational identification which would act as a buffer to the potentially detrimental effects of team identification on inter-team knowledge sharing (Richter et al. 2006). Another important implication is the need to shift from the tokenistic, ‘ritualised’ use of formal inter-team learning mechanisms (see also Swan et al. 2010) to a more productive dialogue focusing on actual knowledge sharing, which needs to be supported by the organisation. As part of such support, introducing incentives for inter-team learning may be required to counterbalance the negative effects of inter-team competition and other potential disincentives hampering the transfer of the team knowledge to other teams or the wider organisation (Swan et al. 2010; Willem and Buelens 2007). Finally, rotating team members between the teams and creating cross-team joint projects could be possible ways of enhancing inter-team knowledge sharing, innovation and learning.

In addition, a number of potential directions for future research may be proposed. First, the concept of selective permeability of boundaries needs further empirical exploration, especially in those CoPs which are involved in knowledge brokering activities. Second, more research on the influence of professional, organisational and workplace identification on the processes of knowledge exchange taking place at the boundaries between CoPs is required. Finally, in view of the dynamic nature of CoPs, more longitudinal studies need to be conducted in order to explore how the characteristics, boundaries and identities of CoPs, both organic and cultivated, change over time.

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References


Table 1. Distinctions between CoPs and project teams

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Communities of practice</th>
<th>Project teams</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purpose</td>
<td>To build and exchange knowledge, and to develop individual capabilities</td>
<td>To accomplish a specified task</td>
</tr>
<tr>
<td>Membership</td>
<td>Self-selection based on expertise or passion for a topic</td>
<td>Employees assigned by senior management</td>
</tr>
<tr>
<td>Boundaries</td>
<td>Fuzzy</td>
<td>Clear</td>
</tr>
<tr>
<td>What holds them together</td>
<td>Passion, commitment, and identification with the group and its expertise</td>
<td>The project’s goals and milestones</td>
</tr>
<tr>
<td>Life cycle</td>
<td>Evolve and end organically (last as long as there is relevance to the topic and interest in learning together)</td>
<td>Predetermined ending (when the project has been completed)</td>
</tr>
</tbody>
</table>

(Adapted from Wenger and Snyder 2000; Wenger et al. 2002)
Table 2. Examples of boundary interactions and boundary objects used by the HF team as part of their boundary spanning activities

<table>
<thead>
<tr>
<th>Category</th>
<th>Example</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boundary interactions</td>
<td>Stakeholder engagement events</td>
<td>Sharing knowledge about existing problems and ways to solve them; identifying potential supporters, opinion leaders, gate-keepers and blockers; reaching consensus</td>
</tr>
<tr>
<td></td>
<td>Practice visits</td>
<td>Performing heart failure register audits together with the practice staff, providing feedback on the audit results</td>
</tr>
<tr>
<td></td>
<td>Educational sessions</td>
<td>Bringing together specialists (heart failure specialist nurses) and generalists (GPs and practice nurses)</td>
</tr>
<tr>
<td></td>
<td>Face-to-face meetings with stakeholders</td>
<td>Sharing ideas, maintaining relationships, looking out for possible solutions</td>
</tr>
<tr>
<td>Boundary objects</td>
<td>Heart failure audit tool</td>
<td>Codification of secondary-care specialist knowledge for use in primary care</td>
</tr>
<tr>
<td></td>
<td>Education pack</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Heart failure alert card</td>
<td>Improving communication between patients, primary and secondary care</td>
</tr>
<tr>
<td></td>
<td>Website</td>
<td>Raising awareness of different heart failure services available; providing information relevant to patients, carers and healthcare professionals</td>
</tr>
</tbody>
</table>
Table 3. Factors that might explain the conversion from a project team to a CoP

| Organisational factors | Autonomy within the organisation  
  | Absence of strict top-down deadlines and targets  
  | Nature of the task/purpose/mission of an organisation  
| Team-level factors | Facilitative leadership style  
  | Informal, egalitarian atmosphere enabling mutual learning and knowledge exchange  
  | Autonomy within the team  
  | Regular interaction within the team  
  | Shared practice  
| Individual factors | Shared dispositions to collaborative working  
  | Passion for the area of work  
  | Common values  

Figures

Figure 1. Heart Failure team in context
Figure 2. Heart Failure team on the team-CoP continuum

<table>
<thead>
<tr>
<th>‘Pure’ project team</th>
<th>Heart failure team</th>
<th>‘Pure’ community of practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accomplishing the task</td>
<td>Exchanging knowledge to formulate and accomplish the task</td>
<td>Exchanging knowledge</td>
</tr>
<tr>
<td>Membership and roles assigned by managers</td>
<td>Flexible roles; enthusiasm; relative autonomy from management</td>
<td>Membership self-determined by passion and enthusiasm</td>
</tr>
<tr>
<td>Clear boundaries</td>
<td>Clearly defined core group plus a group of enthusiastic peripheral participants</td>
<td>Fuzzy boundaries</td>
</tr>
<tr>
<td>Goals and milestones predetermined by the project</td>
<td>Emerging goals, shifting milestones, strong collective identity</td>
<td>Commitment and identification with the community</td>
</tr>
<tr>
<td>Predetermined ending</td>
<td>Finding a way to continue the work after the formal end of the project</td>
<td>Lasts as long as there is interest in maintaining the group</td>
</tr>
</tbody>
</table>
Prologue to Paper 3

While the previous paper has concentrated on a multiprofessional implementation team embedded in the organisational context of the Greater Manchester CLAHRC, Paper 3 switches its focus to heterogeneous improvement teams operating in the primary care sector of the NHS. The empirical enquiry thus shifts from a single team facilitating the process of implementation to multiple groups directly involved in service improvement on top of their day-to-day clinical work. Building on the idea that a team can develop into a community of practice, which has been illustrated by the Heart Failure case, this paper explores the complex landscape of practices involved in the implementation of the Chronic Kidney Disease project. It uses four primary care settings to illustrate knowledge sharing processes at the boundaries of multiprofessional communities of practice that emerge around multiprofessional improvement teams comprised of GPs, practice nurses and practice managers. By contrast with the Heart Failure team that operated in the novel organisational context, communities of practice described in Paper 3 are underpinned by the previous relationships and shared histories of learning which contribute to the construction of shared collective identities and external boundaries.

An exploration of boundaries is the central theme of this paper, which moves from analysing knowledge sharing at the boundary of a single multiprofessional community of practice to a more complex system of boundaries developing in the primary care landscape. Two types of boundaries feature most prominently in the analysis: the first is the intra-organisational boundary between a multiprofessional improvement team/community of practice and the rest of the primary care setting in which this team is embedded; and the second is the organisational boundaries between multiprofessional improvement teams representing different primary care settings. Although not referred to explicitly in this paper, the phenomenon of selective permeability, introduced in Paper 2, has also been observed at the boundaries of multiprofessional improvement teams based in primary care, with knowledge circulating relatively easily between these teams, on the one hand, and the CLAHRC CKD implementation team, on the other.
The paper also continues to contemplate on the dichotomy and complementarity between the analytical and instrumental perspectives on communities of practice initially described in Papers 1 and 2. It shows that certain project-related groups (e.g. multiprofessional teams within general practices) can be seen as functional communities of practice while others (e.g. members of the improvement collaborative representing different primary care settings) might never reach the level of knowledge sharing corresponding to a successful community of practice. Pre-existing boundaries (in this case organisational) can hamper the formation of new heterogeneous communities and thus problematise the application of an instrumental approach aiming at their deliberate engineering. The paper suggests an alternative, developmental approach attempting to reconcile the theoretical and managerialist views on communities of practice and offering a way of managing relatively impermeable boundaries between communities embedded in complex organic landscapes of practice.
Abstract

Background

Effective implementation of change in healthcare organisations involves multiple professional and organisational groups and is often impeded by professional and organisational boundaries that present relatively impermeable barriers to sharing knowledge and spreading work practices. Informed by the theory of communities of practice (CoPs), this study explored the effects of intra-organisational and inter-organisational boundaries on the implementation of service improvement within and across primary healthcare settings and on the development of multiprofessional and multi-organisational CoPs during this process.

Methods

The study was conducted within the Collaboration for Leadership in Applied Health Research and Care (CLAHRC) for Greater Manchester—a collaborative partnership between the University of Manchester and local National Health Service organisations aiming to undertake applied health research and enhance its implementation in clinical practice. It deployed a qualitative embedded case study design, encompassing semistructured interviews, direct observation and documentary analysis, conducted in 2010-2011. The sample included practice doctors, nurses, managers and members of the CLAHRC implementation team.

Findings

The study showed that in spite of epistemic and status differences, professional boundaries between general practitioners, practice nurses and practice managers co-located in the same practice over a relatively long period of time could be successfully bridged, leading to the formation of multiprofessional CoPs. While knowledge circulated relatively easily within these CoPs, barriers to knowledge sharing emerged at the boundary separating them from other groups existing in the same primary care setting. The strongest boundaries, however, lay between individual general practices, with inter-organisational knowledge sharing and collaboration between them remaining unequally developed across different areas due to historical factors, competition and strong organisational identification. Manipulated emergence of multi-organisational CoPs in the context of primary care may thus be problematic.

Conclusions

In cases when manipulated emergence of new CoPs is problematic, boundary issues could be addressed by adopting a developmental perspective on CoPs, which provides an alternative to the analytical and instrumental perspectives previously described in the CoP literature. This perspective implies a pragmatic, situational approach to mapping existing CoPs and their characteristics and potentially modifying them in the process of service improvement through the combination of internal and external facilitation.
**Background**

Effective implementation of change in healthcare organisations involves multiple professional and organisational groups and is often impeded by professional and organisational boundaries that present relatively impermeable barriers to sharing knowledge and spreading work practices (Currie 2006). Professional boundaries in healthcare are reinforced by historically determined power and status differentials between healthcare professionals (Harrison and McDonald 2008) whereas organisational boundaries could be caused by the government’s imposition of divergent performance frameworks upon organisations that are expected to collaborate, with explicit incentives for collaboration frequently being absent (Currie and Suhomlinova 2006). A complementary view of professional and organisational barriers to knowledge sharing is suggested by practice-based theorists who maintain that knowledge is localised, embedded and invested in collective practice and see boundaries as inherent sociocultural differences between distinct collective practices underpinned by shared language, meanings and ways of doing things (Brown and Duguid 1991, 2001; Carlile 2002). According to this tradition, the effect of these differences is dual: they can lead to innovation, learning and cross-fertilisation between practices, on the one hand, and to separation, fragmentation and disconnection, on the other (Akkerman and Bakker 2011; Wenger 2000).

One of the practice-based theories specifically exploring boundaries between different sets of practice is the *communities of practice* (CoP) approach developed by Jean Lave and Etienne Wenger (Lave and Wenger 1991; Wenger 1998) and applied to the analysis of learning, practice, meaning and identity in various contexts, including organisational studies (Brown and Duguid 1991) and healthcare (Ferlie *et al.* 2005; le May 2009). CoPs are work-related communities of individuals created over time through sustained collective pursuits of shared enterprises (Brown and Duguid 1991; Ferlie *et al.* 2005; Wenger 1998). Shared knowledge, practice and identity produce boundaries between CoPs, at which they differentiate themselves from and also interlock with other communities, forming complex social landscapes of practice. An inherent feature of the CoP landscape is actors’ multimembership in various CoPs which can be crucial for bridging boundaries between communities (Wenger 1998, 2010). It should be noted that CoP boundaries do not usually
coincide with the organisational ones. On the one hand, organisations represent a multiplicity of subcultures and could at best be seen as ‘constellations of interconnected practices’ (Wenger 1998, p. 127) or ‘communities-of-communities’ (Brown and Duguid 1991, p. 53). On the other hand, some of the CoPs may cut across organisational boundaries, with their members potentially transferring knowledge between organisations (Addicott et al. 2006; Brown and Duguid 2001).

At the same time, CoP boundaries are often seen as a reproduction of professional boundaries, with the possibility of multiprofessional CoP formation in healthcare being contested. For example, in their study of eight National Health Service (NHS) innovations, Ferlie et al. (2005) show that CoPs in healthcare are predominantly uniprofessional, tend to seal themselves off from neighbouring professional communities and are highly institutionalised, which enables a relatively easy flow of knowledge within these CoPs but causes the ‘stickiness’ of knowledge across boundaries and hence retards the innovation spread. They argue that great effort is needed to bridge professional boundaries and create a functioning multiprofessional CoP because uniprofessional CoPs tend to defend their jurisdictions and group identity. The construction of such a CoP was observed by Ferlie and colleagues only in one of their primary care cases, where professional boundaries could be successfully bridged because GPs and practice nurses shared common values; participation in change was incentivised; established systems for interprofessional dialogue were deployed; and basic cognitive assumptions of professional groups remained unchallenged.

A more optimistic view on multiprofessional CoPs is presented by Gabbay and le May (2011) in an ethnographic account of knowledge sharing in primary care, which describes a system of overlapping ‘communities of general practice’ existing in primary care organisations. In addition to the uniprofessional ‘coffee room GPs’ community which is at the centre of their analysis, the authors also identify several ‘specialist’ CoPs located within the same practice, some of which are multiprofessional; wider (and looser) CoPs external to the practice (e.g. a group of fellow managers for the practice manager or a network of old colleagues for practice doctors); and, interestingly, a multiprofessional CoP that evolved from formal practice meetings and included almost all of the staff in the practice. Another
example of a multiprofessional CoP operating in primary care is provided by Hudson (2007), who describes a multi-agency team working at the interface of district nursing and social work and argues that the promotion of shared values and socialisation to an immediate work group can override professional or hierarchical differences amongst staff and lead to the formation of a multiprofessional and multi-organisational CoP.

Empirical studies outlined above deployed the analytical perspective on CoPs, whereby this theory is applied to the analysis of processes that take place in organic CoPs naturally emerging as a product of collective practice over a relatively long period of time. Another strand of CoP informed thinking, which has been labelled as the instrumental perspective (Kislov et al. 2011; Wenger 2010) is concerned with the deliberate cultivation of CoPs in order to bridge professional and organisational boundaries and enable knowledge transfer (Wenger et al. 2002). Deliberately constructed CoPs have been shown to be effective in enhancing professional education, adoption of innovation and problem-solving (Li et al. 2009b; Ranmuthugala et al. 2011). In service improvement, CoP cultivation has been specifically advocated as an approach useful for creating horizontal networks across organisations, promoting the sharing of tacit knowledge and achieving a better sustainability of change (Bartunek 2011; Bate and Robert 2002). However, emergence of genuine CoPs within quality improvement and other change implementation initiatives in the healthcare sector may be problematic due to the time-limited nature of the projects, a top-down approach to change management and preoccupation with performance measurement at the expense of human and social aspects of change (Bate and Robert 2002; Currie et al. 2007; Currie and Suhomlinova 2006). In addition, administrative staff, nurses, medical practitioners, allied health professionals and managers have been shown to significantly differ in their conceptualisations of quality and safety, which may challenge the collaborative implementation of service improvement initiatives in a multiprofessional environment (Braithwaite et al. 2011; Travaglia et al. 2011). Interestingly, while the instrumental perspective on CoPs sees bridging the boundaries as its target, the impact of pre-existing professional and organisational boundaries on CoP engineering in healthcare collaboration seems somewhat underestimated in the literature (Kislov et al. 2011).
The brief outline of literature presented above points to a number of aspects requiring more empirical attention. First, boundaries to knowledge sharing in healthcare have been predominantly explored in secondary care settings (Degeling et al. 2003; Oborn and Dawson 2010), at the interface between the primary and secondary care sectors (Fitzgerald et al. 2002; Martin et al. 2009), and in partnerships between NHS organisations and higher medical education (Currie and Suhomlinova 2006). At the same time, the nature and effects of boundaries existing in the primary healthcare sector may be different from those found in secondary care and intersectoral collaboration. Little is known about how complex landscapes of practice comprised of multiple CoPs influence intra- and inter-organisational knowledge sharing, especially in the process of service improvement initiatives introduced in primary care. Second, while there is a growing number of studies exploring the deliberate cultivation of CoPs in order to promote evidence-based practice, foster collaboration and achieve service improvement in healthcare, less is known about how professional and organisational boundaries shape the development of new CoPs within these initiatives, whether the manipulated emergence of new multiprofessional and multi-organisational CoPs in primary care is realistic, and how these groups relate to pre-existing organic CoPs.

In light of the above, this study is guided by the following research questions:

1. How do boundaries between CoPs existing within and across general practices influence the implementation of a primary care service improvement programme?

2. How do these boundaries affect the emergence of new multiprofessional and multi-organisational CoPs within and across primary care organisations?

Before discussing the methodology deployed to address these research questions, it is worth clarifying the definitions of boundaries and communities of practice used in this study. In line with the practice-based approach to knowledge sharing, we define boundaries as sociocultural differences between groups that may lead to discontinuity in action or interaction (Akkerman and Bakker 2011). Our understanding of boundaries, therefore, partially overlaps with the notion of ‘gaps’ popular in the knowledge transfer literature, where gaps are seen as ‘the network
holes, spaces and missing ties that create between-group problems and opportunities for their resolution’ (Braithwaite 2010). It could, however, be argued that the latter approach emphasises structural and relational separation between groups that can be ‘bridged’ by ‘transferring’ knowledge from one group to another through routines, protocols and other information channels. By contrast, our understanding of boundaries as discontinuities, underpinned by differences between groups in terms of practices, identities and meanings, highlights the cultural and political nature of these phenomena, shifts the focus of analysis from ‘gaps’ and ‘bridges’ to divergent meanings, interests and cultures, and underscores the importance of reflection, learning and transformation when dealing with boundaries (Carlile 2004; Kellogg et al. 2006).

Following Wenger’s seminal analytical text on CoPs (Wenger 1998), we define a CoP as a group of individuals created over time through sustained collective pursuit of a joint enterprise and developing mutual engagement with each other as well as a shared repertoire of meanings, routines, stories and artefacts. In line with Wenger’s theory, CoPs are also characterised by the presence of boundaries, shared identities and collective histories of learning. It should be noted, however, that we do not accept the clearcut and sometimes criticised (Kislov et al. 2011; Li et al. 2009a) dichotomy between teams and CoPs postulated in Wenger’s later writings (Wenger and Snyder 2000; Wenger et al. 2002). Based on our own previous empirical research (Kislov 2012), we argue that some teams can develop certain CoP characteristics (also see Hildreth et al. 2000; Sense 2003) and that in these cases the CoP theory is applicable for analytical purposes.

Methods

Setting

To explore the interaction between primary care CoPs and a service improvement programme, this study was conducted within the Collaboration for Leadership in Applied Health Research and Care for Greater Manchester (GM CLAHRC). CLAHRCs are five-year collaborative partnerships established in 2008 between universities and NHS organisations, aiming to create innovative ways of producing and implementing applied health research by bringing together producers and users
of research (NIHR 2008). By performing the three interlinked functions of conducting high-quality applied health research, implementing research findings in clinical practice and increasing the capacity of NHS organisations to engage with and apply research, the CLAHRCs are seen as a way of addressing the second translational gap, *i.e.* a gap in the translation of new medical interventions into everyday practice (Cooksey 2006). Being co-funded by the National Institute of Health Research (NIHR) and local NHS trusts, the CLAHRCs are encouraged to develop a collaborative model of ownership, with a range of stakeholders having vested interests in determining their agendas and tailoring the conduct of research to the specific needs of a particular region (Gerrish 2010; Martin *et al.* 2011).

The study specifically looked at the Chronic Kidney Disease (CKD) theme of the GM CLAHRC Implementation Strand which worked with 19 self-selected general practices across Greater Manchester in 2009-2010. The theme aimed to increase the identification of patients with CKD in primary care and improve their management and treatment in line with existing scientific evidence. The CKD project utilised the Institute for Healthcare Improvement (2003) Collaborative model, which implies ‘participation of a number of multiprofessional teams with a commitment to improving services within a specific subject area and to sharing with others how they made their improvements, each from an organisation which supports these aims’ (Øvretveit *et al.* 2002). Since knowledge sharing was supported both within and across multiprofessional teams, whose members voluntarily opted for participation, had similar interests in CKD and/or service improvement, and interacted on a regular basis, the implementation project was seen as a vehicle for the development of CoPs within and across general practices taking part in the collaborative (Bate and Robert 2002).

Each participating general practice appointed an improvement team comprised of a GP, a practice manager and a practice nurse who were in charge of introducing change in their practices and who kept close contact with the external CLAHRC CKD facilitation team. This team, in turn, comprised two nephrologists, a management academic, a programme manager, a data analyst and two knowledge transfer associates (KTAs), all of whom interacted with the participating practices on a regular basis at quarterly learning sessions (with all improvement teams) and
monthly meetings (with individual teams) as well as by phone or email if the need arose. Supplementing the collaborative approach, external facilitation drew on the experiences of the UK knowledge transfer partnerships and specifically focused on bridging boundaries between various stakeholder groups and enabling knowledge sharing between them (Harvey et al. 2011). The programme aimed to improve CKD related clinical procedures in participating practices, namely the way that CKD patients were diagnosed, coded and managed. It also involved wider administrative and communication aspects, such as performing a series of chronic disease register searches, modifying the procedures of biological sample collection, and engaging other clinical and non-clinical staff in the process of change (Humphreys et al. 2012).

Data collection and analysis

An embedded case study design was chosen for this research project, with four general practices as individual subcases. The concept of replication logic (Yin 2003) was deployed for purposeful sampling: two smaller general practices (Practice A and Practice B, with two GPs each) and two bigger practices (Practice C with four GPs and Practice D with six GPs) were recruited for the study. In light of existing empirical evidence showing that smaller primary healthcare teams tend to achieve higher levels of integration and participation than the larger ones (Xyrichis and Lowton 2008), the sampling approach was based on an assumption that the practice size might be one of the factors influencing the dynamics of CoP formation and functioning within primary care organisations. Selecting two groups of practices with two practices in each group allowed both literal (within each group) and theoretical (across the two groups) replication (Yin 2003). In addition to purposeful sampling, recruiting these particular four cases out of 19 practices involved in the CKD project was also determined by the practices’ accessibility: at least three practice employees had to give their consent to participate in the study for the practice to be selected. In addition to the level of individual general practices, knowledge sharing across them was also explored, thus adding one more, supra-organisational, level of analysis.

* The study was reviewed and approved by the North West 8 Research Ethics Committee—Greater Manchester East.
As far as within-subcase sampling is concerned, the participants were recruited purposefully, based on their involvement in the CKD project and/or overall position within general practices. Semi-structured interviews were the main method of data collection which took place in 2010-2011. Twelve respondents (five doctors, three nurses and four managers/administrators) were recruited from the participating practices. Two practice managers employed by non-participating practices, two senior primary care trust (PCT) medical directors and four members of the CLAHRC facilitation team were also interviewed to collect additional information, of particular relevance at the supra-organisational level of analysis. In addition to semi-structured interviews, the study also included twenty hours of direct observation, conducted predominantly at learning sessions and practice meetings, and the analysis of relevant documents and artefacts produced by the facilitation team and participating general practices throughout the project. Interviews were tape-recorded and transcribed verbatim, hand-written field notes were digitalised, and all resulting text documents were subsequently coded with the aid of NVivo software.

The process of data analysis was organised in three rounds. In the first round, template analysis (King 2004) was used to organise emerging codes into a number of categories (e.g. boundary, identity, boundary objects, boundary encounters, etc.) which were informed by the CoP literature and reflected the structure of the interview guide. In the second round of data analysis, sorting data by codes and categories gave way to summarising and synthesising data within each of the four subcases, with a special focus on professional boundaries within improvement teams and intra-organisational boundaries between the teams and the rest of an organisation. The third round of analysis examined inter-organisational boundaries and also explored the relationship between knowledge sharing and different types of boundaries across the four subcases. This was assisted by matrix analysis (Nadin and Cassell 2004), which was deployed for comparing and contrasting the data obtained from four participating general practices as well as from different research methods (interviews, observation and documentary analysis), thus serving the purposes of triangulation. (See Additional File 1 as an example of cross-subcase and cross-method triangulation). In addition to triangulation, research findings were also validated by peer-debriefing between the three co-authors as well as by member checking with research participants (Creswell 2003). Research participants were
offered an opportunity to provide feedback and comments on the transcripts of their interviews and on an earlier version of this paper. They were asked if the interpretation of data made sense, whether it was supported by sufficient evidence and whether the overall account was realistic and accurate. Feedback received throughout this process was incorporated in the final version of the manuscript.

To explore the impact of knowledge boundaries on the implementation of the programme and emergence of multiprofessional and multi-organisational CoPs at different levels, the findings of the study are presented in the following way. The first subsection looks at the interactions within improvement teams which were driving change in their settings. Then the challenges to knowledge sharing between improvement teams and other intra-organisational groups are examined. Finally, knowledge sharing between improvement teams representing different primary care settings is described, with a wider exploration of the issues related to inter-organisational knowledge exchange in primary care. These issues are further elaborated in the Discussion, in which the findings related to professional and organisational boundaries are interpreted in light of the CoP theory, with a specific focus on the role of (both existing and emerging) CoPs in the implementation of service improvement initiatives.

**Findings**

**Multiprofessional improvement teams**

Implementation of CKD work in the practices was directed by improvement teams, each of them comprising a GP, a nurse and a practice manager. The roles, degrees of involvement and contributions of each of the team members differed across settings. In three cases (A, B and D), a GP provided overall leadership for the project; in Practice C, the nurse was the main driving force (Table 1). The multiprofessional nature of the improvement team in combination with a clear distribution of roles supported a focus on both the clinical and administrative aspects of the project:

> I was part of a team that worked very well together, that worked closely together... The practice manager would run the lists off... she was responsible for collating lists and computer searches, because that is her role, and she does that very well. She would then hand them to the GP, who did
her role in that. She would correctly Read Code people, look if they were people that she already knew about, people that we already had in hand and we were going to do a repeat renal profile in the three months. And then she would hand that to me and I would play my part, which was sending letters out, getting the patients in to see me, collecting the urines, doing the blood pressures, making sure that we had the blood tests done. And we worked well together as a team. We all knew our roles… Teamwork was second to none. (PN1)

Motivations to join the collaborative differed across the members of the improvement team, the most frequently reported ones including an interest in CKD (more typical for GPs and nurses), a need to improve the CKD register (more typical for practice managers), a general passion for learning new things and improving patient care, and a possibility to gain financial benefits for the practice through getting extra QOF† points. Regardless of their initial motivations, many interviewees were very enthusiastic about the CKD work they were doing:

I live, breathe and sleep CKD. My husband is sick of hearing about CKD and it’s all I talk about, so I can’t really be any more committed or interested than I am. (PN2)

I think the three of us have the motivation, because we had an interest in it and we wanted to get it right. We wanted it to work. (PM4)

Multiprofessional differences between the team members were not perceived as a barrier to the implementation of the project, this view being shared both by the practice staff and by external facilitators:

I don’t think any problems that we encounter are as a consequence of the different roles of the practice manager, the nurse, or the GP, because they’re all working for the same purpose… I find in general, I think, that most people in a practice are working toward the same thing, because they have a common practice goal, but they also have individual professional goals. But they’re all largely co-dependent on the same outcomes. (EF1)

…Here we work so much together on everything else because we are a practice. So, we have to share knowledge on everything else. So, doing it

† The Quality and Outcomes Framework (QOF) is a voluntary annual reward and incentive programme for all GP surgeries in England, detailing practice achievement results.
with the CKD was nothing different to how we would generally. We were used to sharing that knowledge. We were used to interacting: the nurse with the doctors, the nurse with me. So, it didn’t cause any major disabilities that way because that’s how we work anyway, you know, we share. (PM6)

As could be inferred from the last quote, successful communication and coordination in the improvement teams were largely predetermined by the history of previous relationships in the practices, especially in view of the fact that in many cases GPs, nurses and practice managers had spent years working together in the same practice. However, participation in the collaborative was perceived by many interviewees as further improving these processes, especially in Practices B and C, where some of the improvement team members were relatively new to their practice roles:

I would say it brought us together as a team better, and it helped I think us find out areas within the team, really, how we can work within that team, and our strengths and weaknesses, within those who were doing the collaborative, but also the actual practice itself: it certainly improved our communication… So I think it’s been teamwork, communication, and realisation that we really want to improve the practice and we can do it. (PN3)

The majority of interviewees repeatedly emphasised their commitment to the general practices they were working in. When asked whether their profession or organisation was the main locus of identification for them, they either tended to prioritise their organisational membership over professional affiliations or argued that the two are complementary and cannot be viewed as separate entities:

I feel as though being here, I’ve been able to sort of develop more, because I’ve been valued more, and I’ve had to do more… So I feel as though they’re encouraging me to be the nurse I want to be. (PN3)

**Getting the rest of the practice on board**

The dynamics of the interaction between the improvement team and the rest of the practice differed depending on the practice size and number of GPs employed (Table 1). In smaller practices (A and B), CKD related issues were routinely discussed at weekly practice meetings involving all clinicians and a practice manager. Monthly improvement team meetings, which were run by an external facilitator, were usually attended by other GPs and nurses, including those who were not formally part of the improvement team. Involvement of all clinicians working in the practice in these
interactions enabled direct knowledge exchange about the CKD project, facilitated incorporation of newly introduced approaches to the identification and management of CKD patients in practice routines, and provided senior support perceived as crucial for achieving sustained improvement in the practice:

So I think that helped as well, that [the senior partner] came to the meetings with [the external facilitator]. So she was instrumental… sort of a side with the improvement team. She was like an extra member. (PM1)

…I wanted to learn as well, along with the others, to see what’s going on. And if I didn’t know anything about CKD and if the patient comes to me, what do I do next? I didn’t want to present a blank face to the patients. Because being a small practice, we can all get involved, which probably is not possible in a big practice. (GP4)

In larger practices (C and D), the work of the improvement team did not seem to be so well integrated in the functioning of the whole practice. The improvement team members had their own regular meetings and the main challenge they had to overcome was getting the rest of the clinical staff on board, which meant explaining the importance of the CKD work for both patient benefit and financial outcomes, sharing knowledge about the identification and management of CKD patients and making sure that the changes introduced by the project became embedded in day-to-day clinical practice. This was mainly achieved by communicating to the practice staff at various types of practice meetings as well as during informal exchanges between colleagues:

The GPs have meetings every Tuesday. The CKD is actually the main thing on the agenda. They usually talk about that first before they talk about anything else. The practice nurse is coming to that meeting once a month, and we do have education meetings for all disease areas regularly as well, and even the receptionists are included in what we’re doing, so it’s not just a nurse or a GP thing. It’s the whole practice that are involved in what goes on here. (PN2)

…There are informal meetings like you’re standing around some place and start talking about an issue or something… (GP3)

Despite the fact that CKD was discussed at practice meetings and all staff members received relevant education from the improvement team members, both of the large
practices experienced some problems in getting the rest of the clinical staff to become more involved in the project or change the way they manage CKD patients. In Practice D, all GPs had their own clinical areas of interest, whereas Practice C employed two part-time GP locums who were seen (and actually saw themselves) as less committed to the surgery and were not involved in any administrative work. In both practices, those GPs did not seem to identify themselves with the work performed around CKD by the improvement team. Knowledge and practice developing around the CKD improvement project, although not actively resisted by other clinicians, were seen by the latter as the prerogative and responsibility of the improvement team:

…What happens is if you take up a thing, people tend to load all the results and everything onto you to take a decision about the patient… Not everyone was entirely keen, in the sense that they had lots of other things on their plate, with the QOF and other things, so they were more concentrating on other things. (GP3)

Two more challenges to the implementation of the CKD work were experienced by all practices taking part in the study. The first of them was related to involving the practice receptionist staff in the work and making sure that they followed the new procedures introduced in the practice. This challenge was identified and addressed quite early on through involving the admin team in the meetings, explaining to them the reasons behind new arrangements and presenting the procedures they were required to follow in a simple, clear form. Another challenge included allocating protected time for CKD work which was being implemented on top of the routine clinical and administrative work in the practice. This issue was addressed by the collaborative facilitation team who had resources to cover the additional costs of buying out clinicians’ time and thus enabling the surgeries to hire locums to backfill the time that was spent by the members of the improvement teams on CKD work. It was generally felt that without these financial resources the participation of the practices in the CKD collaborative would have been less likely. Additional resources also helped to overcome resistance of those GPs who saw the CKD work as peripheral and were worried that CKD would take priority over other clinical areas and the latter would suffer.
**Inter-organisational collaboration in primary care**

Throughout the course of the programme, it became clear that the level of communication between the practices taking part in the project was low, which manifested itself in several ways. Knowledge sharing between the practices, all of which were supposed to learn from each other about the identification of CKD patients, was limited to the quarterly learning sessions led and facilitated by the collaborative facilitation team. WebEx teleconferences organised in order to facilitate knowledge exchange at a distance attracted a limited number of usual suspects—the most enthusiastic and proactive participants, and failed to secure a wider participation. An online community launched at the collaborative website for the same purpose was never used by the members of the improvement teams:

…”Aside from the learning sessions, people didn’t really speak with each other. We didn’t get the forum community going on the web that we thought we might do, and discussion threads going on so that people could do a lot more inter-PCT sharing of learning. (EF3)

Lack of communication between general practices was acknowledged as a challenge by PCT managers, improvement team members and the collaborative facilitation team. It was generally felt that the current level of knowledge sharing between primary care organisations is not sufficient for standardisation of care, spread of best practice and developing a shared strategy to address the current reform of primary care. The insufficiency of existing mechanisms of inter-organisational collaboration was, at least partly, compensated for by the availability of external facilitators who played the role of knowledge brokers transferring contextualised project-related knowledge from one practice to another:

It would be easier for the spread if there was better communication between them... If we’d have known that they were talking to each other, we would do less of the putting in of the KTAs to actually do that role; because the KTAs, that middle person, it’s almost like they’re the hub, who’s going out and sharing learning between all the five practices in that PCT. “Practice X is doing this, so you could do this.” “That’s worked really well in practice Y; I think that would work in your context. Let’s try that.” So you would cut out that middle person, and almost… the KTA as that change agent isn’t going to be around forever. They’re only going to be around for the duration of the

*Knowledge Transfer Associates—members of the CLAHRC facilitation team working with the practices.*
project. So if you could get people working more together, you wouldn’t need that facilitation and support, because they’d be doing it themselves. (EF3)

Interviewees suggested a number of explanations as to why knowledge sharing between practices remained limited. First, the practices saw themselves as independent individual businesses competing for position in a PCT league table, for having ‘the best registers’ and hence higher QOF points, and for attracting more patients, if the practices’ catchment areas overlapped. Business-style competitive rivalry was potentiated by the ethos of confidentiality and strong organisational identification:

…I think we’re very protective of what we’ve got, and I think that will always be a barrier because it’s always been. When I started working in primary care in ’97, it was them and us. We didn’t share any information at all. It’s calming down now and it is getting better, but I think the only barrier will be “I don’t want them to know what we did well and them doing it and them being better than us”. (PM6)

Second, while the formal channels of inter-organisational communication (such as educational events for GPs, practice managers’ forums and nurses’ forums) provided some opportunities for knowledge exchange, they were predominantly organised along traditional uniprofessional lines, focused on didactic education rather than interactive discussions, and were not always well attended. The development of these communication channels markedly differed across different PCT areas, in some of which practice managers’ forums, for instance, were perceived as less useful than in others:

…We don’t really share good ideas. It’s not shared, even though we have practice managers’ groups; and Health Authority, they have a practice managers’ group where they sit in, and we have one outside the PCT to try and encourage other practice managers to come in and talk about what they know, what they specialise, and all the rest of it. But it doesn’t actually work, because people hold back on what they’re actually doing. (PM5)

It should be noted, however, that the majority of respondents agreed that inter-organisational collaboration in primary care has improved over the last five years; this development, however, appeared unequal across different PCTs. Progress achieved in more ‘collaborative’ areas was attributed to the increasing use of email
communication; publicising open comparison data by PCTs (although this was seen by people from less collaborative areas as a barrier to collaboration); and, most importantly, previous involvement of proactive practices in practice-based commissioning (PBC). GPs and practice managers involved in PBC reported sharing protocols, working together on redesigning referral pathways and collectively discussing commissioning arrangements, but many of them still perceived inter-organisational collaboration as difficult.

**Discussion**

**Professional boundaries**

Our findings show that professional boundaries were not perceived by respondents as a barrier to knowledge sharing and implementation. This could be explained by a number of factors. First, interprofessional interaction between the members of the improvement team did not challenge the existing power structures within their organisations, with GP partners providing clinical leadership and retaining final authority in terms of clinical and administrative decision-making throughout the project (see also Charles-Jones et al. 2003). At the same time, substantial autonomy was granted to the subordinate members of the team, who were in some cases allowed to drive the project and determine the overall approach to implementing change. Second, the CKD project (similar to many other activities undertaken by the primary care staff) included a combination of managerial, clinical, technical and other aspects, addressing which required a genuinely multidisciplinary approach. Finally, and perhaps most importantly, in most cases the members of the improvement teams had worked closely together in the same practice for at least several years—in other words, the relationships determining the improvement team dynamics had existed prior to the start of the programme. Effective communication within the teams was therefore largely determined by the processes taking place in wider multiprofessional CoPs existing prior to the launch of the CKD programme, although participation in it improved communication and teamwork even further.

Similar to observations made by Gabbay and le May (2011), this study has shown...
that despite the presence of inherent epistemic differences stemming from their different roles and professional backgrounds, GPs, practice nurses and practice managers working in the same practice may develop a level of knowledge sharing and collaboration that corresponds to a multiprofessional CoP. Division of labour in these CoPs provides differentiation rather than fragmentation and does not preclude the formation of a shared domain of knowledge and practice which is enabled by close operational proximity and sharing common values (Tagliaventi and Mattarelli 2006). It could be assumed that the formation of such multiprofessional CoPs is more likely within primary care than in secondary care based multidisciplinary teams because the latter operate in far more complex and hierarchical organisations, are explicitly focused on clinical decision-making traditionally seen as a jurisdiction of the medical profession, and may be misused as a way of privileging the knowledge of more powerful team members and legitimising these (in fact unidisciplinary) decisions by deploying a multidisciplinary discourse (Oborn and Dawson 2010). It should also be noted that in order to respond to growing pressures to manage workload more efficiently, GP partners have to delegate some of their clinical and administrative duties to practice nurses and practice managers, which gives these (traditionally subordinate) groups more autonomy and power in relation to those at the bottom of the hierarchy (e.g. healthcare assistants, receptionist staff), but at the same time does not significantly violate GPs’ professional dominance and power (Charles-Jones et al. 2003; Nancarrow and Borthwick 2005). A combination of these factors increases the level of interdependence and widens the domain of shared practice that may form the basis of a multiprofessional CoP, which does not need to be an egalitarian structure void of internal power relations (Lave and Wenger 1991; Wenger 2010).

**Intra- and inter-organisational boundaries**

The absence of major interprofessional tensions within the improvement teams did not mean that the sharing of CKD related ‘knowledge-in-practice-in-context’ (Gabbay and le May 2011, p. 65) met no boundaries within the participating general practices. One of these boundaries lay between the improvement team (or, as was the case in smaller practices, between a wider CoP including all clinical staff plus a practice manager), on the one hand, and the receptionist staff, on the other. This
boundary was mainly syntactic (the receptionists did not understand the professional jargon) and was successfully bridged by ‘translating’ the message into the lay language. Another boundary, typical for larger practices with a higher level of GP specialisation and a higher proportion of part-time GPs, lay between the improvement teams and other clinical staff, many of whom were members of other subgroups centred on their own areas of clinical interest, such as chronic obstructive pulmonary disease, diabetes or gynaecology. This boundary was mainly semantic: some clinicians did not share the same meanings about the importance of the CKD work as the members of the improvement team, did not seem to sufficiently identify themselves with the CKD project and failed to internalise the new arrangements in their ‘clinical mindlines’ (ibid., p. 44). It also reflected the influence the CKD work had in an organisation as well as the fit between the project and the interests of individuals and groups involved. Intra-organisational boundaries did not influence the immediate outcomes of the project as the improvement team members were doing all the necessary work, but were recognised as a potential challenge for long-term sustainability of change in the practice.

At the supra-organisational level, the formation of a functional CoP that would include all improvement teams participating in the collaborative was perceived as problematic due to the presence of strong pre-existing organisational boundaries between general practices. This reflected an acknowledged problem of insufficient communication between general practices underpinned by the business nature of primary care organisations, competition between them, strong organisational identification, as well as looseness and unequal development of inter-organisational networks, such as locality meetings or practice managers’ forums. In some areas, a certain level of inter-organisational knowledge sharing was achieved between practices which shared a history of participation in long-term initiatives, such as PBC, but this only involved a relatively small number of proactive GPs and practice managers. Overall, the role of communities and networks cutting across organisational boundaries in sharing CKD related knowledge was insignificant, with practitioners’ organisations being the primary locus of work identification. All of these factors resulted in the formation of strong inter-organisational boundaries which significantly limited knowledge sharing between the participating practices and were partially bridged by external facilitators performing a knowledge brokering
function. Given the presence of a strong organisational identification and the interconnected, overlapping nature of the CoPs operating within general practices, it is possible to view primary care organisations as constellations of CoPs united by a shared organisational culture and identity. As a result, constituent (multiprofessional) intra-organisational CoPs tend to become tighter than those (predominantly uniprofessional) networks of practice that cut across organisational boundaries in primary care.

**Existing and emerging CoPs**

Combining the findings of this study with the results obtained by previous research (Gabbay and le May 2011), it could be argued that the CoP landscape in primary care is complex and that its analysis cannot be reduced to a simple interaction between various uniprofessional CoPs co-located in an organisational setting. The implementation of the CKD project has demonstrated that this landscape includes a number of overlapping uniprofessional and multiprofessional communities and networks of practice, some of which are confined to a given primary care setting and some cutting across organisational boundaries (Table 2). Configuration of boundaries in this landscape significantly influenced the processes of project related knowledge sharing, shaped the implementation of the project and largely determined the challenges faced by the initiative in terms of spread and sustainability of change. It should be emphasised that the majority of knowledge sharing related to the CKD project was occurring within improvement teams or wider multiprofessional CoPs contained in general practices, with some information circulating through traditional uniprofessional routes of communication (*i.e.* among doctors). Knowledge sharing along these uniprofessional routes did not always lead to a change of clinical practice because of an identity boundary, whereby some GPs were not interested in CKD because they had a different area of specialisation and some were locums with a lower degree of organisational identification. This reinforces the findings of previous research showing that the growing specialisation of GPs leads to the transformation of their traditional ‘biographical’ identity into a ‘consultant’ or ‘specialist’ identity (Charles-Jones *et al.* 2003) and may potentially threaten the coherence of their shared professional identity (Currie *et al.* 2009) thus impeding knowledge sharing.
In Practices A and B, multiprofessional improvement teams could be viewed as subgroups within wider organic CoPs operating within these practices (and, in turn, composed of the clinical staff and the practice manager), whereas in larger primary care settings (e.g. Practice D) these teams may resemble small CoPs in their own right. It could thus be assumed that the formation of new CoPs within primary care improvement initiatives is likely to be confined to individual organisations, contingent on pre-existing relationships, and enabled by a shared history of working, learning and sense-making over a relatively long period of time, rather than by the introduction of an external, time-limited change initiative. The service improvement initiative described in this paper was deliberately situated in the context of existing multiprofessional CoPs and managed to successfully utilise them, exercising a certain degree of influence on the internal processes in these CoPs through context-sensitive facilitation. At the same time, creating a new CoP bringing together all practices taking part in the initiative was less successful. All participants were interested in CKD and quality improvement; the practices were recruited on a voluntary basis and their participation was incentivised; external facilitators specifically addressed the issue of inter-organisational collaboration by providing a forum for both face-to-face and online communication—all these factors did not, however, lead to the formation of a functional multi-organisational CoP centred on the initiative. The development of such a CoP in the CKD collaborative was hampered by strong organisational boundaries, lack of time and resources for inter-organisational collaboration, and de-prioritisation of inter-organisational knowledge sharing which was not seen as important for achieving individual organisational aims. This study, therefore, concurs with the findings of previous research showing that functional multi-organisational CoPs in the NHS collaboratives might fail to develop (Bate and Robert 2002) but highlights the role of pre-existing boundaries, rather than the features of the collaborative approach, as a major obstacle to their formation.

**CoPs and service improvement in primary care**

The findings of this study make us question whether deliberate CoP engineering advocated by the instrumental perspective on CoPs could be considered the most appropriate knowledge utilisation tool in the context of primary care service
improvement in general and quality improvement collaboratives in particular. Manipulated emergence of CoPs de novo is likely to be problematic, with structures that emerge in this process requiring investment of substantial resources and yet remaining unsustainable. At the same time, the analytical perspective on CoPs, aiming to study issues related to their boundaries and identities, offers little more than passive analysis and observation, giving no prescriptions as to how existing CoPs could be utilised in the process of service improvement. Consequently, this paper suggests a developmental approach to CoPs, which lies midway between the analytical and instrumental perspectives (see Table 3) and calls for the maximal utilisation of existing organic CoPs and improving communication within and between them rather than attempting to construct a heterogeneous CoP centred on a time-limited improvement initiative. This approach includes mapping existing CoP landscapes that are relevant for a given service improvement initiative, analysing the configuration of boundaries, roles and identities in these landscapes, and combining external and internal facilitation to make the boundaries between all CoPs involved more permeable and enable the incremental development of these CoPs through participation in the initiative. This may include expanding CoP membership by attracting new members, widening its scope of interests and increasing awareness of the internal CoP dynamics.

A number of important issues have to be taken into account when utilising the developmental approach to CoPs in the primary care context. First, previous literature has shown that organic CoPs are likely to be resistant to external managerial attempts to drive them in a given direction (Swan et al. 2002). This, therefore, rules out a directive, top-down approach to service improvement, underscores the importance of co-production and shared ownership of the initiative between the local CoPs and external facilitators, and requires a nuanced and facilitative approach to implementation. Second, the complex, overlapping, multi-level nature of the CoP landscape in primary care, as well as the multiplicity of communication channels within and between CoPs, underscores the need for facilitators to identify and target actors with simultaneous membership in a number of intra- and extra-organisational CoPs to secure their early involvement in service improvement and designing the strategy for its spread and sustainability. Not only will these internal knowledge brokers have to be perceived as legitimate, competent
and non-threatening by participating organisations; they will also need to possess knowledge and skills related to dealing with intra- and inter-organisational boundaries described in this paper, which goes beyond a more traditional approach to quality improvement focused on data, tools and targets. Third, it should be remembered that knowledge co-created by a CoP might become sticky at its boundaries, which needs to be counter-balanced in order to achieve long-term sustainability of change and its embeddedness in organisational routines. Finally, if the improvement programme is meant to involve inter-organisational collaboration and allow the spread of best practice across individual organisations, a strategy for bridging organisational boundaries should be planned well in advance, with maximal utilisation of existing inter-organisational networks and channels of communication.

Limitations

This study is not without limitations. First, it has only looked at general practices which voluntarily opted for participation in the project, were enthusiastic about it and could be classified as innovative organisations. It is known that primary care teams open to innovation and change are more likely to work well as a team (Borrill et al. 2000; Poulton and West 1999), which could explain the development of functional multiprofessional CoPs in the context of the study. It may, however, be assumed that less innovative practices might have a different intra-organisational dynamic. Second, a relatively small sample size can also be considered a limitation; this was counterbalanced by corroborating the findings emerging from the participating practices by the information collected from PCT representatives and external facilitators who had access to a larger number of primary care settings. Third, the volume of raw data produced by interviews exceeded the volume of data collected by direct observation and documentary analysis. This inequality is reflected in the Findings section, which has relied on interview quotes, rather than excerpts from field notes or documents, to illustrate the key findings. However, as shown in Additional File 1, observation and documentary analysis were used to validate the findings obtained by interviews as the main method of data collection. Finally, since the implementation of the project only involved the ‘core’ practice staff, the paper has chosen not to look at the communication, boundaries and collaboration between general practices and community-based representatives of broader primary care
multidisciplinary teams, such as district nurses, community matrons and health visitors. The views of the receptionist staff and features of their CoPs might also be an interesting area for future research.

**Conclusions**

This paper has explored the landscape of interconnected CoPs influencing the implementation of an improvement initiative within and across primary care settings. This landscape of practice has a number of specific features. First, multiprofessional CoPs acting within individual practices are instrumental for the sharing of knowledge produced by the improvement initiative and, in spite of inherent differences in their members’ knowledge base and status, can successfully bridge professional boundaries and achieve a sufficient level of internal integration without major tensions or conflict. Second, although knowledge circulates relatively easily within such a CoP, barriers to knowledge sharing might emerge at the boundary separating it from other groups existing in the same organisation. These barriers are often underpinned by variability in the degree of identification with the initiative and the organisation as a whole rather than by interprofessional differences. Tending to be more pronounced in larger general practices, such intra-organisational boundaries may threaten the sustainability of improvement initiatives. Finally, although some uniprofessional communities and networks cut across organisational boundaries, they make the latter only partially permeable for knowledge flows. Inter-organisational knowledge sharing and collaboration may remain problematic and unequally developed across different areas due to historical factors, competition and strong identity boundaries between individual general practices, which may present an obstacle to the spread of best practice.

Even with relatively permeable professional boundaries, the engineering of functional multiprofessional CoPs in primary care is likely to be contingent on the relationships between professional groups existing prior to the launch of the initiative and might still require an investment of substantial resources to incentivise participation and facilitate CoP functioning. Manipulated emergence of a multi-organisational CoP that brings together representatives of all practices taking part in a change initiative is even more problematic due to strong organisational boundaries;
overcoming such boundaries would take more time and effort than is available in a typical service improvement project. In light of these findings, this paper argues for a developmental approach to CoPs which builds on the strengths of the analytical and instrumental perspectives described in the CoP literature but avoids the extremes of passive observation and deliberate construction of CoPs. This pragmatic, situational approach combines a reflexive analysis of boundaries, membership and dynamics in the existing CoP landscapes with the facilitation of CoPs’ internal development and potential modification of these CoPs targeting both intra-organisational and inter-organisational boundaries. By doing so, it offers a potential to enhance the spread and sustainability of service improvement and improve the permeability of boundaries to knowledge flows without radically reconfiguring organic landscapes of practice operating in the field.

**Competing interests**

RK is a recipient of the CLAHRC PhD studentship, KW is Director of the NIHR SDO programme and GH is an Academic Lead for the Greater Manchester CLAHRC, but they write here in a personal capacity. The views and opinions expressed therein are those of the authors and do not necessarily reflect those of the NIHR SDO programme or the GM CLAHRC.

**Authors' contributions**

RK reviewed the literature, conducted the fieldwork and drafted the manuscript. KW and GH revised the manuscript. All authors read and approved the final manuscript.

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References


Harvey, G., Ferlie, E., Fielden, S., McBride, A., Waterman, H., Bamford, D.,


## Tables

### Table 1. Characteristics of the subcases

<table>
<thead>
<tr>
<th></th>
<th>Practice A</th>
<th>Practice B</th>
<th>Practice C</th>
<th>Practice D</th>
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</thead>
<tbody>
<tr>
<td><strong>Number of GPs</strong></td>
<td>2</td>
<td>2</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td><strong>Who provided leadership in the improvement team</strong></td>
<td>Dispersed leadership with the GP as the main coordinator</td>
<td>Practice nurse</td>
<td>GP</td>
<td></td>
</tr>
<tr>
<td><strong>Knowledge sharing boundaries encountered by the team</strong></td>
<td>Between the improvement team and the receptionist staff</td>
<td>1) Between the improvement team and the receptionist staff 2) Between the improvement team and the rest of the clinical staff</td>
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Table 2. Landscape of communities of practice within and across GP surgeries

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<thead>
<tr>
<th></th>
<th>Multiprofessional</th>
<th>Uniprofessional</th>
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</thead>
<tbody>
<tr>
<td><strong>Within primary care organisations</strong></td>
<td>Groups centred on an area of interest (e.g., CKD improvement teams)</td>
<td>GPs working in the same practice</td>
</tr>
<tr>
<td></td>
<td>Clinicians and the practice manager</td>
<td>Receptionist staff</td>
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<tr>
<td><strong>Across primary care organisations</strong></td>
<td>PBC groups of GPs and practice managers</td>
<td>GPs’ informal networks</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Practice nurses from the same geographical area</td>
</tr>
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<td></td>
<td></td>
<td>Practice managers from the same geographical area</td>
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</table>
Table 3. Three perspectives on CoPs and their potential application in healthcare service improvement

<table>
<thead>
<tr>
<th></th>
<th>Analytical perspective</th>
<th>Instrumental perspective</th>
<th>Developmental perspective</th>
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<tbody>
<tr>
<td><strong>Purpose</strong></td>
<td>A theoretical heuristic to analyse practice, meaning, identity and learning</td>
<td>A knowledge management tool aiming to deliberately engineer, or ‘cultivate’ CoPs</td>
<td>Analysis of relevant CoPs and their characteristics accompanied by the facilitation of their development</td>
</tr>
<tr>
<td><strong>Types of CoPs prioritised</strong></td>
<td>Existing or naturally emerging, organic, often uniprofessional</td>
<td>Deliberate, often multiprofessional and/or multi-organisational</td>
<td>Multiple, overlapping CoPs forming wider landscapes of practice</td>
</tr>
<tr>
<td><strong>Potential application</strong></td>
<td>Researching boundaries, identities and their influence on knowledge sharing; informing theory-driven implementation interventions (Kislov <em>et al.</em> 2011)</td>
<td>Delivering joint projects by CoPs comprised of committed and legitimate members, placed in favourable context and supported by infrastructure and resources (Lathlean and le May 2002)</td>
<td>Implementing service improvement interventions in complex multiprofessional and multi-organisational contexts with numerous barriers to knowledge sharing</td>
</tr>
</tbody>
</table>
Additional File 1. Cross-site and cross-method triangulation of research findings

<table>
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<tr>
<th>Practice A</th>
<th>Practice B</th>
<th>Practice C</th>
<th>Practice D</th>
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<tbody>
<tr>
<td><strong>Face-to-face interviews</strong></td>
<td><strong>Observation &amp; Documents</strong></td>
<td><strong>Face-to-face interviews</strong></td>
<td><strong>Observation &amp; Documents</strong></td>
</tr>
<tr>
<td>Interaction within multi-professional teams</td>
<td>‘...It’s something with being a small practice: we’ve always worked well as a team in getting things done. I think it’s been just another team experience, really, that’s highlighted how well things can work when everyone pulls together.’ (GP5)</td>
<td>‘I don’t know: it’s just interaction of different personalities, and we’ve all got on very well, but is that because... I don’t know... we’re similar personalities, we want the practice to improve... people are committed...’ (PN3)</td>
<td>‘I think we’re a team, and I think we work well as a team, and there’s a good skill mix, and everyone has their own roles and responsibilities, and they might kind of interlink into someone else’s role. But I think it works well.’ (PN1)</td>
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<td></td>
<td>The meeting takes place in the lobby of the general practice. The team seem to be very happy to see each other and the change agent. The atmosphere is friendly, and all members of the improvement team equally participate in the discussion.</td>
<td>The change agent (EF2) asks a question or gives a (general) suggestion - then the improvement team start discussing it linking it to the practicalities and the context of their practice. The discussion is very hands-on, very practical, and everyone seems to be actively involved.</td>
<td>All questions raised by the change agent get quickly answered: the practice manager deals with administrative issues while the nurse controls the process of the clinical follow up. Lead GP is not present (he is a part-timer and is only in the practice for two days a week).</td>
</tr>
<tr>
<td>Involvement of other clinicians in the Chronic Kidney Disease project</td>
<td>‘[Senior GP] was open for anything that’s going to improve practice and also improve prevalence and improve understanding. So she was quite open to that and quite open to periodic meetings</td>
<td>‘As far as the clinicians went, we went through the NICE guidelines for CKD... We made sure that everyone was aware of the full clinical situation of what to do with CKD... And we created kind of guidelines</td>
<td>‘The doctors seemed... the difficulties we found here was... because we were so focused on doing the CKD, the doctors got quite worried that we weren’t focusing attention on the other registers as</td>
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<td></td>
<td>The senior GP (GP4), who is not formally part of the improvement team, is present at the improvement team meeting. It looks like she is familiar with all the work performed within the project. She</td>
<td>Senior partner, who is not formally part of the improvement team, is also present in the meeting. She seems very enthusiastic about the work being done.</td>
<td>In the meeting, the team members discuss one of the doctors, ‘who is not very familiar with the CKD protocol’. It is also mentioned a couple of times that a senior clinician is not very interested in the</td>
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<td>Practice A</td>
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<td><strong>Face-to-face interviews</strong></td>
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<td><strong>Face-to-face interviews</strong></td>
<td><strong>Observation &amp; Documents</strong></td>
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<td>to keep her up to date. So that wasn't a problem in this particular practice.' (GP5)</td>
<td>takes part in discussing the results of the first phase of the Collaborative and gives the change agent (EF1) advice about recruiting potential participants for the next phase.</td>
<td>A powerpoint presentation on managing the CKD patients was prepared by one of the GP trainees (a copy obtained from the practice manager).</td>
<td>CKD work as 'he is busy doing other things'. My impression is that there is a power differential between the senior GP and all other employees (including other doctors)—does not look like a professional boundary between groups.</td>
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<td><strong>Observation &amp; Documents</strong></td>
<td><strong>Face-to-face interviews</strong></td>
<td><strong>Observation &amp; Documents</strong></td>
<td><strong>Face-to-face interviews</strong></td>
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<td>of what we have within the practice... And we got the trainees involved, as well, and they took kind of a role in managing these people, as well. (GP2)</td>
<td>well. So, CKD was kind of taking priority over everything else, what we need to do for all of our other patients. That was the major difficulty at the time...' (PM6)</td>
<td></td>
<td>line you see gross mistakes as to the way that they have put them on the register or omitted them completely, or the management treatment that you have spoken through and you think they have understood.' (GP1)</td>
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<td><strong>Face-to-face interviews</strong></td>
<td><strong>Observation &amp; Documents</strong></td>
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<td>Involvement of receptionists</td>
<td>'So I think we just worked really well together. It might have been in a way advisable to possibly have a member of the Reception team involved on the improvement team. I’m not sure. I haven’t made my mind up about that.' (PM1)</td>
<td>No reception staff were present at the improvement team meeting.</td>
<td>sustainability of change and its spread beyond the improvement team is potentially problematic. Lead GP (GP1) and practice manager (PM4) are also concerned whether the CKD work will continue in the practice after the lead GP retires.</td>
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<td>'...We realised... that we weren't involving the reception staff with just general, the run-of-the-mill work, really; we felt as if though needed to have just general meetings with the reception staff, so that was a forum for when we can discuss with them about the Collaborative.' (PN3)</td>
<td>No reception staff were present at the improvement team meeting.</td>
<td>No reception staff were present at the improvement team meeting.</td>
<td>'The receptionist staff didn't know which colour top to send off the urine in; because of that, because of our weekly monitoring, our nurse actually devised a poster that we've now put in reception, with the colour, the actual pot, the colour of the pot top, and then which sample that goes in.' (PM4)</td>
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<td>No reception staff were present at the improvement team meeting.</td>
<td>Context assessment conducted by the facilitation team in this practice showed that the staff ‘were willing to try new approaches for service improvement but also that the environment is not... Whereas the receptionists, they can do their work within their hours, but I don’t think they get kind of rewarded... If they were developing a protocol, one of the receptionists, that she would know would get used by all the doctors and all the receptionists, they would probably put their hours in.’ (PM6)</td>
<td></td>
<td>No reception staff were present at the improvement team meeting.</td>
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<td>The poster with clear and concise instructions about using different urine pots is put on the wall in the receptionists’ area.</td>
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<td>Practice A</td>
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<td>always conducive to the sharing of ideas and that there is not always sufficient recognition for good work.’</td>
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<td><strong>Change agents as boundary bridges</strong></td>
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<td>‘[Change agents had] knowledge in terms of if there was something we were stuck with they were able to go and find out, be that liaising with secondary care members, be it liaising with other practices in terms of, “If you’re finding this difficult, I’ll see what other practices are doing and see if I can come up with any ideas.”’ (GP5)</td>
<td>When discussing the problem of urine pot labelling at the practice meeting, the change agent (EF1) mentions that in another practice, there were cases when the pots were unlabeled and the lab reports were returned to the practice with no patient name.</td>
<td>‘[The change agent’s role was] also to provide us with advice as to how to target certain groups, and what other practices were doing. (GP2)’</td>
<td>In the practice meeting, the change agent (EF2) mentions the findings from a study (?) from another PCT area and suggests they might be useful for this practice.</td>
</tr>
<tr>
<td></td>
<td>‘[The change agent’s role was] also to provide us with advice as to how to target certain groups, and what other practices were doing. (GP2)’</td>
<td>‘[The change agent’s role was] also was able to point out where other practices had been doing some work... So for instance... [he] said, “Well, practice A, they’ve actually looked at a particular medication in a particular age group,” And we hadn’t thought of that. So he was able to spread good practice.’ (PM6)</td>
<td>In the practice meeting, the change agent (EF1) mentions having recently visited some other practices and says they seem to be experiencing a similar problem in the identification of the CKD patients. This is followed by a discussion about how the problem may be addressed.</td>
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<td>[The change agent’s role was] also sharing good practice as to where he had been to see if that could be applied here. So, that was important; that was useful.’ (GP1)</td>
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Prologue to Paper 4

Paper 4 differs from the other two empirical papers in a number of respects. First, deploying a higher level of analysis, it provides a case study of the Greater Manchester CLAHRC as a whole rather than of individual projects within this knowledge mobilisation initiative. Second, it moves beyond the implementation strand of the Greater Manchester CLAHRC and describes obstacles to knowledge sharing between the Collaboration’s research and implementation strands. Third, while Papers 2 and 3 can be viewed as case studies of multiprofessional communities of practice in wider organisational and supra-organisational context, in Paper 4 the main area of exploration is related to intra-organisational boundaries and their relations with organisational structure, divergent meanings and boundary bridges. Finally, the paper predominantly focuses on those boundaries that represented formidable barriers to knowledge sharing within the Greater Manchester CLAHRC, with less problematic boundaries left beyond the scope of analysis.

As could be inferred from the above, this paper does not aim to provide a case study of multiprofessional communities of practice. It should rather be read as an analysis of boundaries within the Greater Manchester CLAHRC, which is informed by the communities of practice approach. This analysis conceptualises a large-scale knowledge mobilisation initiative as a constellation of interconnected practices, complements the accounts of inter-group collaboration presented in the other two empirical papers, and draws on the premise that teams might display certain characteristics of communities of practice and can therefore be analysed using the communities of practice approach. Similarly to Paper 2, Paper 4 further enhances our understanding of how a constellation of interconnected practices may be influenced by organisational structure, power relations, and boundary spanning arrangements designed by an organisation. In line with Paper 3, this paper explores multiple and interdependent boundaries experienced by a knowledge mobilisation initiative, these boundaries being embedded in a complex system of overlapping uniprofessional and multiprofessional groups.
This system can be represented as a matrix including (multiprofessional) implementation project teams, (mostly uniprofessional) research project teams and (uniprofessional) groups, such as management academics and change agents, cutting across project team boundaries. The paper demonstrates that management academics, for instance, saw themselves as a fragmented, partially formed uniprofessional community of practice, whereas some of the multiprofessional implementation teams, such as the Heart Failure team, displayed a significant degree of mutual engagement, joint enterprise and shared repertoire, constructed strong team identities, and developed boundaries hampering inter-team knowledge sharing. Similarly to what was observed in the Chronic Kidney Disease case study, multiprofessional groups in the implementation strand of the Greater Manchester CLAHRC served as the primary loci of collective practice and shared identification and thus took precedence as knowledge sharing mechanisms over uniprofessional groups cutting across project team boundaries. To conclude, although multiprofessional communities of practice per se are not the central theme of Paper 4, this paper is still able to advance our knowledge about the role of multiprofessional groupings in complex systems of interconnected practices.
Paper 4. A constellation of disconnected practices: (Re)producing boundaries in a large-scale healthcare knowledge mobilisation initiative

Roman Kislov
Abstract

This paper uses the theory of communities of practice to analyse the local mechanisms of discontinuity in knowledge sharing and joint working that can emerge at the boundaries within constellations of interconnected practices. It presents a qualitative case study of a large-scale UK-based knowledge mobilisation initiative, aiming to bridge the gap between producers and users of research, and specifically focuses on boundaries emerging between and within the fields of applied health research and research implementation. The study deploys semi-structured interviews as the main method of data collection, complemented by non-participant observation and documentary analysis, all of which were conducted in 2010-2011. Its findings suggest that emerging constellations of interconnected practices can be seen as complex dynamic systems of interdependent boundaries, in which some boundaries are reproduced, some are blurred and some are created de novo. The findings also highlight the roles of fragmented organisational structure, divergent meanings and dysfunctional boundary bridges in (re)production, legitimisation and protection of boundaries.

The paper argues that the activities of implementation as a distinct field may well be able to successfully mobilise the existing research evidence into healthcare organisations but its role as a boundary practice bridging the real-time gap between the producers and users of research in the current context is likely to be limited. It also highlights the diversity of perspectives regarding the nature of implementation and its relationship with health services research and quality improvement, which may lead to the development of new distinct practices within the implementation field but, at the same time, create new boundaries to knowledge flows.

Keywords: UK; communities of practice; boundary; implementation; knowledge mobilisation; CLAHRCs
Introduction

The theory of communities of practice conceptualises learning, meaning and identity as functions of groups of individuals created over time through sustained collective pursuits of shared enterprises (Wenger 1998). Initially developed (Lave and Wenger 1991) to capture the complexities of learning within tightly-knit, relatively homogeneous groupings, it later evolved and expanded to include the processes of knowledge sharing between them. Unsurprisingly, the notion of boundary has become one of the most prominent concepts in this theory and is seen as dual in nature, accounting for connectivity, innovation and knowledge sharing between practices, on the one hand, and for separation, fragmentation and disconnection, on the other (Wenger 2000). It is this discontinuity in action or interaction at the boundary (Akkerman and Bakker 2011) that this paper is especially interested in.

It should be noted that previous research has mainly analysed the processes taking place at a single boundary rather than in complex constellations of interconnected practices, including multiple, overlapping, interdependent communities and, therefore, multiple boundaries (recent exceptions include Barrett et al. 2011 and Mørk et al. 2012). We know relatively little about how the constellations of practices and boundaries within and between them emerge in novel organisational contexts and what factors can potentially influence this process. In addition, despite a growing interest in learning across communities of practice (Oborn and Dawson 2010a; Oborn et al. 2010) and their popularity as a knowledge management tool (Li et al. 2009; Ranmuthugala et al. 2011), potential negative effects of emerging communities of practice, especially those taking place at their boundaries (Ferlie et al. 2005), have received relatively little empirical attention.

In an attempt to address these gaps, the paper uses one of the Collaborations for Leadership in Applied Health Research and Care (CLAHRCs)—a novel, large-scale knowledge mobilisation initiative aiming to bridge the gap between producers and users of research—as an example of a constellation of interconnected communities of practices (Kislov et al. 2011). Focusing on those boundaries that acted as a major source of discontinuity in knowledge sharing and joint working within this initiative,
it analyses the roles of organisational structure, systems of shared meanings and boundary bridges as mechanisms of creating and maintaining discontinuity at the local level, i.e. the level of practice. The paper also questions the effectiveness of current policy arrangements determining the relationship between the fields of applied health research and its implementation and suggests the possibility of fragmentation and divides within the implementation field. Given the growing international interest in collaborative research partnerships (Balakas et al. 2011; Denis and Lomas 2003; Granger et al. 2012), the findings of this paper are likely to be relevant beyond the context of the English National Health Service (NHS).

The paper is structured in the following way. Starting with a brief review of theoretical and empirical literature on boundaries between interconnected communities of practices, it then describes CLAHRCs as novel knowledge mobilisation initiatives, identifies potential boundaries to knowledge sharing within them and describes the Collaboration that acted as a research setting for this study. The Methodology section outlines procedures for data collection and analysis. The findings of the study are then presented in two subsections, the first describing the boundary between research and implementation, and the second, boundaries between the CLAHRC implementation teams. This is followed by the Discussion, focusing on the role of organisational structure, systems of meanings and boundary bridges in (re)producing, legitimising and protecting discontinuity across boundaries. The concluding section of the paper outlines its contribution and limitations and draws a number of practical implications for the research-implementation relationship.

**Background and context**

**Boundaries in constellations of interconnected practices**

Practice is ‘recurrent, materially bounded, and situated social action engaged in by members of a community’ (Orlikowski 2002, p. 256) and boundaries between practices are unavoidable, being underpinned by diverging regimes of competence, shared identities and histories of learning represented by different communities (Wenger 1998, 2010). For Wenger (2000, p. 232) ‘the very notion of community of
practice implies the existence of boundary’ and the role of the latter is dual: knowledge flows often become sticky at the boundaries but, at the same time, boundaries can become a source of cross-fertilisation and innovation (Brown and Duguid 2001; Wenger 1998). Since this study focuses on the mechanisms of discontinuity in action and interaction between interconnected practices, it will define boundaries as relatively impermeable frontiers between different communities that inhibit the spread of new work practices (cf. Ferlie et al. 2005). In organisations, co-located and interrelated communities of practice form complex ‘constellations of interconnected practices’ (Wenger 1998, p. 127), or ‘communities-of-communities’ (Brown and Duguid 1991, p. 53), in which multiple practices differentiate themselves from and interlock with each other at their boundaries.

Since practices within the constellation are differentiated on the basis of mutual engagement created over time through sustained collective pursuits of shared enterprises, they are not necessarily congruent with institutional divisions and boundaries (Brown and Duguid 1991; Wenger 1998). It has been shown, for instance, that, even if co-located in an organisation bringing together different professional groups, communities of practice often remain uniprofessional, which may lead to the formation of relatively strong intra-organisational boundaries (Ferlie et al. 2005; Mørk et al. 2008). At the same time, in the presence of operational proximity, shared history of learning and common values in a team, department or organisation, boundaries between interrelated practices can become permeable, and new multiprofessional communities may develop (Gabbay and le May 2011; Hudson 2007; Lathlean and le May 2002; Tagliaventi and Mattarelli 2006). This suggests that permeability and configuration of boundaries in a constellation of interconnected communities may change over time, but the role of organisational design and other institutional factors in this process has received little empirical attention.

Another major theme in the literature that may be useful for understanding boundaries is concerned with negotiation of meaning across interconnected communities of practice. For instance, Gherardi and Nicolini (2002) see a constellation of practices as an emerging ‘discursive community’, in which multiple competing discourses co-exist and learning is mediated by comparison among different perspectives embraced by co-participants, which produces not only order
and negotiated meanings (‘consonance’), but also tensions and discontinuities (‘cacophony’). Although members of interdependent communities of practice develop ‘a common knowledge’ that can be used to share and assess the ‘domain-specific’ knowledge of each others’ practices (Carlile 2004), they still tend to experience knowledge sharing difficulties due to differences in their language, the locus of their practice and their conceptualisation of the product (Bechky 2003). In a healthcare context, previous research has identified a number of mechanisms enabling the negotiation of meaning in a multidisciplinary arena, such as organising discussions, acknowledging other perspectives and challenging assumptions (Oborn and Dawson 2010a), but it is not clear to what extent and under what conditions these mechanisms are able to override existing and emerging discontinuities between co-located communities.

In addition to the process of negotiating meanings, connectivity in a constellation of interconnected practices can be achieved through boundary interactions among these practices, which can take the form of boundary objects (Star and Griesemer 1989), knowledge brokering and boundary practices (Wenger 1998). Seen as effective ‘bridges’ whose ability to provide continuity is often taken for granted, they can either emerge organically or be intentionally promoted in organisations in order to connect interdependent but relatively disconnected communities of practice (Wenger 2000). Recent research, however, has shown that boundary interactions do not always lead to ‘bridging’ the boundary. For instance, boundary objects can become a barrier to change when they are used to legitimise work, reinforce existing power structures, solidify status and maintain occupational control over task areas (Bechky 2003; Oswick and Robertson 2009). Boundary practices can become communities in their own right and develop their own boundaries that can prevent these communities from functioning as brokers (Bullough et al. 2004). Finally, given the tendency of communities of practice to resist external influence and control (Swan et al. 2002), it could be assumed that boundary objects, spanners and practices nominated for a constellation of practices in a top-down fashion may be less successful than those emerging from within communities themselves, but this area still remains empirically unexplored.
CLAHRCs as constellations of interconnected practices

CLAHRCs are five-year collaborative partnerships established in 2008 between universities and NHS organisations, aiming to create innovative ways of producing and implementing applied health research by bringing together producers and users of research (NIHR 2008). By performing the three interlinked functions of conducting high-quality applied health research, implementing research findings in clinical practice and increasing the capacity of NHS organisations to engage with and apply research, the CLAHRCs are seen as a way of addressing the second translational gap, i.e. a gap in the translation of new medical interventions into everyday practice (Cooksey 2006). Being co-funded by the National Institute of Health Research (NIHR) and local NHS trusts, the CLAHRCs are encouraged to develop a collaborative model of ownership, with a range of stakeholders having vested interests in determining their agendas and tailoring the conduct of research to the specific needs of a particular region (Gerrish 2010; Martin et al. 2011). Although the CLAHRCs vary in their approaches to addressing the second translational gap, they have a common feature that was stipulated by the NIHR and is especially important for our subsequent analysis: each CLAHRC involves at least one research theme, focused primarily on carrying out applied health research, and at least one implementation theme, whose primary aim is the implementation of research findings across the region (NIHR 2008, p. 7).

Bringing together a number of distinct domains, namely clinical practice, applied health research, commissioning and implementation, CLAHRCs can be conceptualised as emerging constellations of interconnected practices that may form around, within and across these domains. Continuity of knowledge sharing across these practices, however, is likely to be shaped by a number of tensions faced by the CLAHRCs. First, there is an inherent tension between a linear, stage-like vision of knowledge translation still evident in the current policy domain (Ferlie et al. 2012) and a growing understanding that the linear process of knowledge production followed by implementation is neither efficient nor effective in closing the research to practice gap (Rowley et al. 2012). Second, knowledge brokering at the local level has to mediate powerful macro-level institutional forces potentially driving research
and implementation apart (Currie et al. 2010), which include, for instance, lack of incentives to collaborate and divergent performance management systems (Addicott et al. 2006; Currie and Suhomlinova 2006). Finally, tensions may arise between various communities of practice which represent different domains and may have conflicting epistemic cultures (Kislov et al. 2011), which can be aggravated by the inclination of professional communities of practice to protect their autonomy and status (Ferlie et al. 2005; Martin et al. 2009; Oborn and Dawson 2010b).

This paper explores one of the CLAHRCs (referred to as the ‘Collaboration’ or ‘the CLAHRC’ in the subsequent sections) as an example of a novel, emerging constellation of interconnected practices. Structurally, the Collaboration was divided into the research strand, composed of four research teams conducting applied health research projects, and the implementation strand, comprised of four disease-specific teams involved in the implementation of evidence in four areas of cardiovascular medicine. The implementation teams were multiprofessional, each of them including a clinician, a management academic, a manager, a data analyst and two change agents, playing a knowledge brokering role between the implementation teams and the NHS organisations into which research evidence was to be implemented. The activities of the research and implementation teams were coordinated by the Collaboration’s executive team and overseen by a steering group.

This paper specifically focuses on the following two types of boundaries that developed in the Collaboration over the first three years of its existence: (1) the boundary between the Collaboration’s research and implementation strands and (2) boundaries between four implementation teams within the implementation strand. These boundaries have been chosen for analysis for the following three reasons. First, while boundaries between researchers and practitioners (Rynes et al. 2001) and between providers and commissioners of researchers (Martin et al. 2009) have been relatively well researched, there is a dearth of empirical evidence on the nature and potential effects of the boundaries emerging within large-scale knowledge mobilisation initiatives in which implementation becomes a distinct activity. Second, an exploration of these boundaries, which emerged between groups, rather than institutions, fits our aim to develop a better understanding of constellations of interconnected practices. Finally, these boundaries proved quite difficult to bridge
and their analysis has the potential to extend our knowledge of discontinuity between interconnected communities of practice. Whilst acknowledging the importance of institutional and political factors operating at the macro-level, this analysis will explore how the boundaries were enacted at the level of practice, examine the role of organisational structure, systems of meaning and boundary bridges in the development of these boundaries, and question the role of implementation as a bridge between applied health research and clinical practice.

**Methodology**

Given the complexity of boundary processes as social phenomena and the need to provide an in-depth analysis of multiple boundaries in a constellation of practices, the qualitative single case study methodology was chosen for this research (Yin 2003). Purposive sampling strategy was deployed, with research participants drawn from both core and peripheral membership of the four domains represented in the Collaboration, i.e. clinical practice (doctors and nurses from the NHS organisations), applied health research (members of the research teams), implementation (management academics and other members of implementation teams), and commissioning (medical directors and chief executives of the primary care trusts). Semi-structured interviews served as the main method of data collection and were conducted in two stages. The first stage (22 interviews) was mainly concerned with the identification of boundaries within the Collaboration, mapping out their characteristics and processes of knowledge sharing across them, and inducing a list of theoretical propositions to guide further data collection and analysis. In the second stage (23 interviews), theoretical propositions were tested to uncover the mechanisms underlying the reproduction and creation of boundaries between and within the Collaboration’s research and implementation strands. For the purpose of triangulation, the interviews were complemented by direct observation (69 hours) of various boundary encounters (e.g. implementation team meetings, learning sessions, practice visits, etc.) and the analysis of documents and artefacts produced by the research and implementation teams (e.g. reports, meeting minutes, presentations, leaflets, etc.) All data were collected by the author in 2010-2011, in strict compliance with the procedures of ethical approval and informed consent.
Interviews were digitally recorded and transcribed verbatim; interview transcripts, observation field notes and copies of organisational documents were coded and analysed with the aid of NVivo software. The process of coding was organised in three rounds. In the first round, template analysis (King 2004) was deployed to organise (predominantly descriptive) codes that were informed by the literature review and reflected the structure of the interview schedule. The second round of coding linked previously identified boundaries with a number of emerging categories (e.g. organisational and team characteristics, knowledge brokers, attitudes to research/implementation/Collaboration, etc.). Finally, in an iterative process of refining codes and categories, detecting patterns and developing explanations (Spencer et al. 2003), existing codes and categories were transformed into three main themes (organisational design as boundary (re)production, divergent meanings as boundary legitimisation, and dysfunctional boundary bridges as boundary protection). This process was assisted by matrix analysis (Nadin and Cassell 2004) of the datasets obtained with different methods and from different teams represented in the Collaboration. Member checking, peer-debriefing and triangulation of data obtained by interviews, observation and documentary analysis were used to increase the validity of research findings.

**Findings**

**Boundary between the research and implementation strands**

As previously mentioned, research and implementation strands of the Collaboration were structurally and functionally separated, which was explained by some research participants as a response to the NIHR requirements which prescribed the formation of separate research and implementation themes in the CLAHRCs. According to the initial plan, in Years 1 to 3 implementation teams were encouraged to design their own programmes of work dealing with the implementation of existing research evidence in the NHS organisations. Starting from Year 4, they were supposed to implement research products which would, by that time, have been developed by the research themes:
…We had a naïve linear view that somehow products would emerge from research teams and be sold by implementation teams into the NHS in some sort of linear production line model. (APH1; research strand)

It was expected that knowledge exchange would be taking place between the ‘researchers’ and ‘implementers’ from the very beginning, so that the transition to the more integrative phase at Years 4 and 5 could be made easier. However, communication between the two strands was perceived by many respondents as highly problematic, hindering the impact and credibility of the Collaboration:

It was clear that people were in two separate camps: the implementation and the researchers. (APH2; research strand)

…It's all meant to be about putting research into practice. So the fact that there’s a huge barrier between research and implementation means the CLAHRC cannot fulfil its vision, its mission, its goal of doing that. (PM1; implementation strand)

There were significant differences between the researchers and implementers as to how they viewed the context of the NHS and the nature of the CLAHRC. The dominant view within the implementation strand was that the CLAHRC was a novel organisation with a mission to facilitate the implementation of research in the NHS, bridge the boundaries between scientific knowledge and day-to-day clinical practice and thus contribute to improving the quality of patient care. The implementation staff tended to view the activities of the research teams as less relevant to NHS priorities, insensitive to contextual factors and insufficiently specified in terms of expected outcomes and their value for the NHS:

…However [the researchers] say they've done this in the past and they’ve done that in the past, I don’t think they actually really understand what goes on at ground level, and I think sometimes they come out with things that aren’t... they’re not very good at the context of the NHS… (PM2; implementation strand)

* The following abbreviations are used to indicate respondents who are quoted in this section: APH—applied health researcher; CA—change agent; HC—hospital consultant; MA—management academic; PM—programme manager.
On the other side of the boundary, researchers did not seem to be interested in a more proactive interaction with the NHS organisations, seeing them as unable to innovate, and viewed the Collaboration as a programme for funding research rather than a novel organisation aiming to bridge the boundaries between the worlds of research and practice:

…It’s always the wrong question and a very annoying distraction to have said, “What’s special about the CLAHRC? What about this structure? What about this way of doing research?” It’s irrelevant. It’s the simple fact you have long-term funding to do applied stuff that other people wouldn’t fund… CLAHRC should just be a programme funding compartment for applied research, not some mystical, magic thing that no one can define. (APH3; research strand)

Incentives to participate in the collaboration were markedly different between the strands: the researchers hoped to produce high-quality research publications in top journals to advance their academic careers while for many implementers meeting the objectives of their projects was the first priority. The interpretation of ‘research’ and ‘implementation’ also significantly differed between the strands. Influenced by the traditional biomedical hierarchy of evidence prioritising randomised controlled trials (RCTs) as the ‘gold standard’ of research, some of the researchers were reluctant to share their products with the implementation strand explaining it by the need to ‘ensure a robust RCT’. They argued that involving the implementation teams in their research projects may lead to RCT contamination and thus violate the validity of research findings. They perceived the implementation teams to be driven by ‘management science’ and tended to criticise them for being insufficiently evidence-based and inappropriate for bridging the gap between researchers and practitioners:

…The implementation themes were misconceived. They were designed as a management tool that would never really work with clinicians who understand clinical research. So they wouldn’t foster a conversation between clinicians and research themes. (APH3; research strand)

There are aspects of ownership in which I think some tools are not to be handed over for implementation because the implementation is actually part of the research... (APH2; research strand)
By contrast, the implementation staff tended to prioritise service improvement and knowledge translation over research, emphasising the importance of context in the process of implementation. Management academics working in the implementation strand questioned the usefulness of the biomedical research paradigm in relation to applied health research:

…It’s obvious that a number of the… implementers felt why do we actually need to spend so much time and money on research when we could just go ahead and implement a number of these things without knowing that it’s gone through randomised controlled trials? (MA1; implementation strand)

…Implementation can’t help [the researchers], because they’re only trying to find out the “Does this work?” question—not “How does this work?” one—and then they haven’t got anything that they can go and offer universally to general practitioners. (MA3; implementation strand)

Quarterly research and implementation meetings were set up as a communication channel between the strands, involving the leads of the implementation and research themes along with the CLAHRC executives. Although some factual information was indeed shared between the leads at these meetings, there was little evidence that these exchanges resulted in increased interaction, connectivity and collaboration between the research and implementation strands:

…They were sort of polite meetings, I think, in which people sort of said, “This is what I’m doing,” and next week it’ll be, “This is what we’re doing.” We knew there were issues between implementation and research but we didn’t get to discuss those until [in the third year of the programme] there was a sort of awayday in which some of these tensions came out. (APH2; research strand)

Finally, lack of resources for joint working between the strands was cited as another barrier:

There’s resource committed already in the research theme, so you can’t then only commit that resource to free up some new resource to answer the questions that have just come from, let’s say, a lead of an implementation theme. Which you might like to, but you haven’t got the funding. (APH3; research strand)

**Boundaries between the implementation teams**
Although the implementation strand was conceived as an integrated programme of work utilising the same overarching approach to implementation, the four multiprofessional implementation themes quickly developed into separate, tightly-knit groups, each of them focusing on one or more disease-specific projects:

…The team structure that I described of the two [change agents], the clinical lead, the academic lead and the project manager, where they’ve worked reasonably well I think have formed I think quite a tight little community—almost too tight, possibly. (MA2; implementation strand)

Joint working in these groups enhanced knowledge sharing between clinicians, academics, managers and change agents, i.e. within the implementation teams, and helped them meet the objectives of these projects, but it created barriers to knowledge sharing between them:

We’re lots of little silos, almost, each doing their own individual thing, and nothing being brought together for a greater benefit. (PM1; implementation strand)

All of the four implementation teams developed their own approaches to implementation, which significantly differed across some of the teams. These differences were often cited by the respondents, when they explained the lack of knowledge sharing between the teams, and included such aspects as the use of implementation tools, involvement of the NHS stakeholders in decision-making, distribution of roles within the team and the focus of the implementation projects. Co-developed by all members within their respective teams, these distinct ways of doing things formed the basis of shared team identities, became deeply engrained in their practice and hampered knowledge sharing and joint working across inter-team boundaries:

…We have been working very isolated and very differently: we’ve all taken kind of our own different areas and we’ve focused on those, and so bringing that together as [an integrated] team when you’ve put a lot into your individual projects and set an idea that, “Hmm, we’re not going to be able to pursue that in the same way”—it is difficult. (HC2; implementation strand)
Further divergence was caused by the relative autonomy of the teams within the strand and lack of functional and operational proximity: not only were the teams working with different groups of stakeholders; they were also based in separate locations, which made informal knowledge-sharing between them problematic:

…I had so much to contend with in my own work I never felt like I could prioritise the exploration of what else was going on above what I had scheduled to be getting on with. … Without the day-to-day conversation with colleagues in other teams there wasn’t the frequency of contact there to build up a detailed understanding of what they were doing day-to-day. (CA3, implementation strand)

Although the formal channels of inter-team dialogue, in the form of fortnightly learning sessions and monthly cooperative inquiry sessions for change agents, were deployed to counterbalance these processes, their impact on inter-team knowledge sharing remained limited, with inter-team competition, lack of trust and overformalisation of communication structures cited as barriers:

…I think there’s a lot of competitive spirit between the [change agents], which could be healthy, but I think it has got to a point where it’s been probably a bit more detrimental than… doing a bit more harm than good, basically. (PM1; implementation strand)

…We have to sell constantly, very much, that we are successful, that our projects work; and to some extent we do that internally. And I think you shouldn’t do that; and I think that’s sometimes not happening. And I think it’s a trust issue…it’s still ongoing process… (CA5; implementation strand)

…The communications structures within the implementation half are poor, over-formalised, not regularly supported… (MA2, implementation strand)

Another group that was supposed to span the inter-team boundaries was represented by management academics. Some of them acted as academic leads for the implementation teams and others were involved in training and evaluation activities conducted by the Collaboration. Their knowledge brokering function was, however, limited: all of the academics had different research backgrounds and experiences and played different roles in different teams, which was accompanied by the absence of clear, centrally defined terms of reference for the academic role:
…It was all “define your own role” for the academic leads—they’ve all taken on what it is that they want to do… (PM2; implementation strand)

…Academic leads group… they’re so different. Just the research tradition they are coming from, where they’re looking at, the kind of methodologies they work with, paradigms and such: they are very, very different... (CA5; implementation strand)

As a result, some of academics initially saw implementation as quality improvement supplemented by critical observation and reflection; some would have prioritised implementation research over ‘doing implementation’ but were not provided with sufficient resources and support; and some struggled to conceptualise implementation at all:

So philosophically and conceptually I still struggle with whether or not what we’re doing is ‘quality improvement’ as opposed to ‘knowledge transfer’. (MA1, implementation strand)

…Within the implementation side, because it was an academic thing and it was a link between the university and the service, we weren’t just meant to be doing the implementation; we were meant to be doing evaluation of that implementation... (MA2, implementation strand)

I’m not sure that at the start, even if we’d had the resources and decided to do it that way, we could have designed much of an implementation research programme, because we didn’t know what we were doing. … If we do more research in implementation, which may be a good thing, it still doesn’t address the issue of doing implementation. (MA3, implementation strand)

Discussion

Fragmented organisational structure: reproducing old and creating new boundaries

The boundary between the research and implementation strands can be interpreted as a local enactment of two generic boundaries: the gap between producers and users of research, which the CLAHRCs were expected to bridge in an innovative way, and the epistemic boundary between biomedical and social science research paradigms. The reproduction of these boundaries was enabled by the structural design of the Collaboration separating the research and implementation activities. This separation,
in turn, reproduced a linear view on the research-implementation relationship, which sees research and implementation as separate activities, stages or ‘themes’, and which the CLAHRCs, paradoxically, were meant to challenge. The structure of the Collaboration institutionalised the pre-existing gap between the activities of research and implementation strands underpinned by political (conflicting goals and incentives) and epistemic (conflicting attitudes to evidence) factors. This prevented an open conflict between the strands, but at the same time removed the need to renegotiate the boundary and develop a shared practice.

Organisational structure played even a greater role in the formation of boundaries within the implementation strand. In contrast with the research-implementation gap, the boundaries between implementation teams were not related to any pre-existing political or epistemic differences. The emergence of these boundaries can be seen as a response to structural, functional and geographical separation of the four multiprofessional implementation teams. Each of these teams represented a shared practice-in-the-making which was developing around a joint activity. It should be noted that professional boundaries between clinicians, managers, academics and change agents within these teams were permeable for knowledge flows, which can be explained by the fact that emerging multiprofessional practices-in-the making were novel, differed from the pre-existing practices of clinicians, academics and managers in a significant way (see also Levina and Vaast 2005) and made interprofessional differences and dependencies less relevant in the new context (Carlile 2004). *Inter-team boundaries* developing in the implementation strand could thus be seen as a side effect of *intra-team integration* in the process of joint working. Relative isolation of these practices enabled the development of distinct and sometimes incompatible approaches to implementation, problematised cross-team knowledge sharing and undermined organisational learning in the Collaboration as a whole.

Previous research has suggested that structural reorganisation is likely to have a limited effect on knowledge sharing across boundaries compared to ‘soft’ knowledge management approaches, such as incentivising behavioural change or facilitating context-sensitive leadership (Currie *et al.* 2007). This study offers a more nuanced understanding of the role played by organisational structure in emerging
constellations of interconnected practices. It shows that through its ability to shape the development (or separation) of practices, the structure of a constellation can promote the reproduction of existing boundaries (e.g. the research-implementation boundary), their blurring (e.g. professional boundaries within implementation teams) or the creation of the new ones (e.g. the boundaries between implementation teams). Our findings also suggest that the organisational design issues can be compounded by the lack of clear strategy and shared understanding of the knowledge mobilisation activity to be undertaken. The latter is explored in more detail in the next subsection.

**Divergence of meanings: legitimising the boundary**

One of the most significant manifestations of the research-implementation boundary was the divergence of perspectives held by the representatives of these two groups in relation to the Collaboration’s mission, the NHS context and, most importantly, the role, credibility and value of each other’s activities. The boundary between the strands can be interpreted as a collision of competing claims for epistemic authority, with both strands attempting to monopolise jurisdictional control over implementation as a disputed domain and protect their own autonomy (Gieryn 1983; Lamont and Molnár 2002). Each of the two strands had enough power to protect its autonomy but this power was not sufficient to subsume the other practice. In this context, divergence of meanings served as a mechanism of legitimising the boundary, with cross-boundary learning being limited to *othering* (Akkerman and Bakker 2011): each of the two diverse practices clearly delineated how it differed from the other practice and thus justified lack of knowledge sharing and joint working at the boundary.

At the inter-team boundaries within the implementation strand, divergence of meanings mainly involved approaches to implementation. Differences between the perspectives taken by the teams were, overall, less pronounced and clear cut than in the case of the research-implementation boundary, which could be explained by a number of factors. First, as the implementation teams were newly emerging practices-in-the-making, shared discourses were still at the stage of development. Second, although each team had a set of its own project-specific objectives, these were not conflicting, as all teams shared the same overarching goal of implementing
evidence-based improvements in the NHS. Finally, divergence of meanings between the implementation teams did not have such a degree of epistemic incompatibility as was observed at the boundary between the research and implementation strands. However, in some cases the differences between the teams were perceived as quite significant, were clearly articulated (and possibly exaggerated) by the team members and used by them to justify lack of knowledge sharing, thus legitimising inter-team boundaries. This was accompanied by the diversity of conceptual approaches to implementation held by the management academics. This diversity, in turn, reflected the hybridity and marginality of implementation science as a field emerging at the interface between quality improvement and health services research (Sobo et al. 2008).

The findings of the study suggest that some of the conflicting views and attitudes (e.g. epistemic differences between the strands) formed prior to the researchers and implementers joining the Collaboration, while others developed in the process of joint working within the teams (e.g. different approaches to implementation). In any case, it is in the Collaboration as a constellation of emerging practices, that most of these perspectives were clearly delineated within the teams, became part of the teams’ shared discourses and started to be seen as formidable obstacles to knowledge sharing and joint working. These findings resonate with an observation that co-existing competing discourses in constellations of interconnected practices lead to the comparison among different perspectives but do not necessarily involve the development of a shared understanding or collective action (Gherardi and Nicolini 2000). They also suggest that, in the absence of a shared activity and in the context of authority disputes, the divergence of meanings may be perceived as so significant that it can block the process of negotiation, let alone transformation, of meanings, and become a mechanism for legitimising the boundary and impeding knowledge sharing between co-located communities.

**Dysfunctionality of boundary bridges: protecting the boundary**

Regular boundary interactions between the research and implementation strands took place at the formal quarterly meetings. These meetings brought together the research and implementation team leads, who were meant to act as knowledge brokers
between the teams. The knowledge brokering potential of boundary interactions, however, remained unrealised for a number of reasons. First, the meetings were infrequent, did not include other team members and were not seen as a forum for discussing tensions and finding solutions. Second, there seemed to be very few opportunities for informal exchanges between researchers and implementers. Third, divergence of objectives, meanings and practices across the strands meant that very few artefacts, concepts or ideas could be utilised as ‘facilitative’ boundary objects potentially enabling boundary-crossing. Furthermore, by virtue of their conflicting interpretations across the boundary, the notions of ‘research’ and ‘implementation’ played the role of ‘inhibitory’ boundary objects blocking knowledge sharing at the boundary between the strands (Fox 2011). Finally, since all resources were committed to individual projects at the outset, no additional resources were available to incentivise cross-boundary knowledge sharing and support the development of cross-boundary projects between the strands.

In the implementation strand, numerous formal arrangements for boundary crossing were made to counterbalance the impeding effect of inter-team boundaries on knowledge flows. However, the direct impact of these interactions was limited by inter-team competition, low trust and lack of opportunities for informal knowledge sharing. As suggested by the communities of practice literature (Brown and Duguid 1991), it could be expected that two uniprofessional (and, therefore, relatively homogeneous) groups, namely change agents and management academics, would act as knowledge brokers, spanning the boundaries between the (heterogeneous) multiprofessional implementation teams. In reality, the groups of change agents and management academics did not develop into fully formed and functional communities of practice. This may be explained by the dominance of multiprofessional teams as loci of emerging shared practices-in-the-making within the implementation strand, by the diversity of roles played by change agents and management academics across the implementation teams, and by the absence of a shared conceptualisation of implementation. All these factors slowed down the negotiation of shared meanings and knowledge exchange within these uniprofessional groups and limited their knowledge brokering function.
These findings suggest that formal boundary spanning arrangements designed by an organisation to bridge the gaps between its constituent practices may fail to transform into effective boundary bridges. Their potential boundary spanning role may be neutralised by overformalisation and infrequency of interaction, significant divergence of meanings across the boundary, competition for recognition and resources, low trust and lack of rewards for participation in boundary spanning activities. These factors may prevent the transformation of potential (‘nominated’) boundary spanners into actual connectors between the practices (cf. ‘boundary-spanners-in-practice’ in Levina and Vaast 2005) and turn boundary interactions into a rhetorical device which is unable to challenge the status quo but can create an illusion of cross-boundary knowledge sharing and thus contribute to the preservation of the boundary. Our findings also highlight an internal tension in an approach advocated in the seminal communities of practice literature (Brown and Duguid 1991, p. 54), i.e. between preserving and enhancing ‘the healthy autonomy’ of communities of practice in an organisation, on the one hand, and simultaneously ‘building an interconnectedness through which to disseminate the results of separate communities’ experiments’. As this study has demonstrated, the more autonomous communities become, the more difficult it is to bridge boundaries between them.

**Conclusion**

The analytical contribution of this paper is threefold. First, it has shown that emerging constellations of interconnected practices should be seen as complex dynamic systems of interdependent boundaries, in which some boundaries are reproduced, some are blurred and some are created de novo. Second, focusing on how discontinuity of knowledge sharing is mediated at the local level, i.e. the level of practice, the paper has highlighted the role of fragmented organisational structure, divergent meanings and dysfunctional boundary bridges in (re)production, legitimisation and protection of boundaries. By doing so, it contributes to our understanding of the ‘dark side’ of communities of practice (le May 2009; Pemberton et al. 2007) and complements previous accounts of boundaries informed by institutional theory (Currie and Suhomlinova 2006) and sociology of professions (Martin et al. 2009). Finally, the paper has contributed to the debate on
multiprofessionality in communities of practice (Ferlie et al. 2005; Kislov et al. 2011) by demonstrating that, despite professional differences among their members, multiprofessional groups operating in relatively novel and autonomous conditions may develop more effective internal knowledge sharing mechanisms than those (more homogeneous) uniprofessional groups that cut across inter-team boundaries.

The findings presented in the paper also suggest that the structural and functional separation of research and implementation activities in collaborative research partnerships may further deepen epistemic and political differences between these two domains and result in a significant discontinuity in knowledge sharing. In these circumstances, implementation may well be able to successfully mobilise the existing research evidence into healthcare organisations but its role as a boundary practice bridging the real-time gap between the producers and users of research is likely to be limited. Productive integration of applied health research and research implementation is further complicated by the inconsistency of policy, which tries to achieve collaboration through dividing researchers and implementers into separate ‘themes’, fails to incentivise the process of joint working and lacks a unifying ideology that could be embraced by all of the CLAHRCs’ stakeholder groups. Last but not least, this study has highlighted the diversity of perspectives regarding the nature of implementation and its relationship with health services research and quality improvement, which may lead to the development of new distinct practices within the implementation field but, at the same time, create new boundaries to knowledge flows.

This work also has a number of limitations. First, as the paper explicitly focused on discontinuity of boundary processes, it may have given an impression that the Collaboration did not manage to successfully bridge any boundaries and fulfil its goal of knowledge mobilisation. This, however, was not the case: boundaries at which more continuity was achieved are described elsewhere (Kislov 2012*; Kislov et al. 2012†). Second, the findings of the study may not necessarily apply to those CLAHRCs which significantly differ from this case in terms of structure, ideology and interpretation of the implementation process. It could, however, be argued that

* Referred to in this thesis as Paper 2.
† Referred to in this thesis as Paper 3.
the analytical conclusions of this paper could be generalised across a wide range of emerging constellations of interconnected practices experiencing a number of internal boundaries. Third, it should be emphasised that this paper has been informed by the analysis of the first three years of the Collaboration and does not specifically cover subsequent changes in its architecture and internal dynamics. Finally, this study may be criticised for using the term ‘communities of practice’ in relation to project teams but it could be argued that a clear cut distinction between them (Wenger et al. 2002) serves managerialist, rather than analytical, purposes and that teams and communities of practice should be seen as two ends of a continuum rather than mutually exclusive entities (Kislov 2012). The fact that the teams described in this study developed shared discourses, shared identities and shared practices, were separated by boundaries and perceived themselves as ‘communities’ justifies our choice of the communities of practice theory to analyse boundary processes between them.

Creating new boundary practices centred on joint projects between researchers and implementers seems the most obvious solution to counterbalance the boundary between the two fields. However, maintaining the equilibrium between the research and implementation activities co-located in the same team may be difficult if these are underpinned by conflicting epistemic paradigms. In this case, competing claims for epistemic authority and possible power struggles may result in the domination of one worldview (and practice) over the other. The study also highlights the importance of collective negotiation, both formally and informally, of those concepts, approaches and objectives which are central for the whole knowledge mobilisation initiative but may be interpreted in a conflicting way by its constituent communities. It shows potential limitations of formalised communication channels and centrally assigned boundary spanning roles which may not only be insufficient for enabling effective knowledge exchange, but could also become a mechanism of preserving the boundary by creating an illusion of boundary crossing and hiding existing tensions and conflicts. To compensate for the lack of policy-level incentives, boundary-spanning organisations may need to create their own systems of incentives, rewards and resources to support productive knowledge sharing and joint working at their boundaries. To conclude, given the dynamic, complex and interdependent nature of boundaries, effective boundary management should be
critical, reflective and flexible. Future research could usefully explore the process and outcomes of deliberate attempts to shape the permeability of boundaries between interconnected practices.

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References


Chapter 3. Conclusion

This chapter provides a summary of the thesis and highlights its contribution, limitations and implications for research and practice. It is structured in the following way. The first section starts with recapping the background and restating the research objectives of the study, which is then followed by a brief description of the methodological approach used to address these questions, a summary of the three empirical papers and a discussion of the study findings in relation to previous empirical literature. The second section highlights the analytical contribution of the study to our understanding of multiprofessional communities of practice and their boundaries in complex landscapes of practice as well as its practical implications for cultivating multiprofessional communities of practice and boundary management in constellations of interconnected practices. The third section discusses the limitations of the study and reflects on representational, inferential and theoretical generalisability of its findings. Implications for future research are presented in the last section.

3.1. Summary of objectives and main findings

3.1.1. Restating the objectives of the study

With boundary issues as one of its main themes, the research project reported in this thesis is itself located at the boundary of two distinct, but overlapping bodies of knowledge. The first is the theory of communities of practice—a socially situated, practice-based approach to learning that challenged influential cognitivist assumptions of learning as an individual process of acquisition taking place inside the learner’s mind, predominantly within formal education contexts. By contrast, communities of practice are seen as the primary locus of learning which occurs through the negotiation of meanings, engagement in practice and formation of identities. The second area is knowledge mobilisation, also labelled as knowledge transfer, translation, utilisation, or exchange, concerned with exploring and facilitating the uptake of research findings in clinical practice and currently developing into a separate discipline of implementation research. Given a growing
awareness of the inadequacy of earlier information-processing, evidence-based medicine models to account for knowledge sharing between the worlds of research and practice, the theory of communities of practice could be seen as a useful heuristic emphasising the importance of cultural and political aspects of knowledge processes and enabling an exploration of barriers to effective knowledge sharing. The communities of practice approach to knowledge sharing adopted by this study implies that knowledge processes reflect conventions, norms and values existing within groups, that knowledge is largely tacit, situated and experiential, and that knowledge sharing difficulties between groups arise due to inherent differences in meanings, assumptions and ways of doing things.

Over the last two decades, the theory of communities of practice has evolved and expanded in a number of directions, reflecting the interpretative flexibility of this approach and its popularity across disciplines and sectors. Theoretical expansion has, however, highlighted a number of knowledge gaps requiring empirical exploration. First, while initially described communities of practice were relatively homogeneous, later contributions suggested that uniprofessionality does not need to be seen as a key characteristic of a community of practice, and the theory of situated learning is now being increasingly applied to multiprofessional and multiorganisational groupings. At the same time, the evidence on the existence and effects of multiprofessional and multi-organisational communities of practice remains sketchy and contradictory. Second, an early, analytical perspective on communities of practice became complemented by an instrumental perspective, which uses communities of practice as a knowledge management tool and calls for their deliberate engineering within and across organisations. The proponents of an instrumental perspective, however, tend to take the possibility of deliberate cultivation of communities of practice for granted, with the roles of pre-existing professional and organisational boundaries and identities in this process being somewhat underestimated and, consequently, underresearched. Finally, the focus of analysis in the communities of practice approach is shifting from internal processes within communities towards interactions between groups co-located in complex, overlapping landscapes and constellations of interconnected practices. There is, however, relatively little discussion in the literature about how knowledge mobilisation is shaped by multiple dynamic boundaries developing in constellations
of interconnected practices, particularly those boundaries separating multiprofessional communities from other groups within an organisation.

In line with the trends in the evolution of the communities of practice theory and empirical gaps described above, this study explores the development of multiprofessional communities of practice in a large-scale knowledge mobilisation initiative, the role of pre-existing boundaries and identities in this process, and knowledge sharing across multiple interconnected communities involved in the implementation of research findings in clinical practice. It examines a number of overlapping implementation contexts: the level of specialised teams driving an implementation project; the level of primary healthcare settings into which research findings are implemented; and the level of a knowledge mobilisation initiative comprised of multiple research and implementation teams. The study is guided by the following research questions:

1. How do multiprofessional and multi-organisational communities of practice develop in a large-scale primary care knowledge mobilisation initiative?

   a. What are the mechanisms and consequences of the conversion from an organisational project team to a multiprofessional community of practice?

   b. How do pre-existing boundaries affect the development of multiprofessional communities of practice in a large-scale primary care knowledge mobilisation initiative?

2. How does identification with a multiprofessional community of practice influence the process of knowledge sharing at its boundary?

3. How is knowledge shared across the boundary separating a multiprofessional community of practice from its neighbouring extra- and intra-organisational communities?
4. How do boundaries to knowledge flows develop within a constellation of interconnected practices operating in the emergent context of a large-scale primary care knowledge mobilisation initiative?

5. How do these boundaries influence the implementation of knowledge mobilisation initiatives?

Prior to the empirical part of the project, *Paper 1* attempts to provide an initial contextualisation of theoretical research questions by applying the communities of practice literature to the analysis of the CLAHRCs—novel, large-scale knowledge mobilisation programmes established in 2008 in England. The role of this paper in the thesis is fourfold. First, it shows that the development, functioning and effects of multiprofessional and multi-organisational communities of practice in healthcare remains a relatively underresearched area, thus providing the rationale for the whole study. Second, it clarifies and articulates the distinction between the instrumental and analytical perspectives on communities of practice, showing that these are based on different assumptions, that there is an inherent tension between them and that a combination (but not a conflation) of these two perspectives may be useful for studying multiprofessional communities of practice. Third, it demonstrates that crossing inter-organisational boundaries and bringing together people from different professional backgrounds within the relatively long life span of the initiative make the CLAHRCs an optimal setting for studying such communities. Finally, this paper formulates a number of assumptions about the CLAHRCs as constellations of interconnected practices, some of which are subsequently refined in the empirical papers. For instance, it identifies a number of internal boundaries that could potentially become formidable obstacles to knowledge sharing within the CLAHRCs, suggests that the separation of research and implementation activities may limit opportunities for knowledge sharing, and hypothesises that uniprofessional communities of practice would prevail over multiprofessional ones as loci of collective learning and practice due to the divergence of epistemic cultures and strong pre-existing professional and organisational identities of different groups involved in the CLAHRCs.
The project deploys a qualitative single embedded case study as its research methodology, with face-to-face interviews as the main method of data collection, which is supplemented by direct observation and documentary analysis. This choice is informed by the philosophy of critical realism that underscores the role of theory in planning and conducting research, privileges intensive research designs when dealing with complex social phenomena, advocates the deployment of multiple forms of data collection and, most importantly, highlights the importance of constructing explanatory accounts. The Greater Manchester CLAHRC—a large-scale UK-based healthcare knowledge mobilisation partnership between the University and local NHS organisations—has been selected as a research setting, with research participants representing different domains involved in the CLAHRC activities, such as clinical practice, applied health research, research implementation, commissioning and management. The study is composed of three overlapping subcases, each reported in a different empirical paper:

- Paper 2: *the Heart Failure team* as an emerging community of practice embedded with the Greater Manchester CLAHRC and interacting with various intra- and extra-organisational groupings;
- Paper 3: *the Chronic Kidney Disease project*, with a sample of four general practices used to explore intra- and inter-organisational boundaries influencing the implementation of service improvement in primary care and development of multiprofessional communities of practice in this context;
- Paper 4: *the Greater Manchester CLAHRC* as an emerging (and somewhat dysfunctional) constellation of interconnected practices, with a specific focus on boundaries emerging between its research strand and implementation strand, and boundaries within the implementation strand.

A brief summary of the most significant findings reported in these papers is presented in the next subsection.

### 3.1.2. Summary of empirical findings

*Paper 2* shows that a project team can develop into a functional community of practice with sustained mutual relationships, fast propagation of knowledge within its boundaries, strong collective identity and a number of shared routines, artefacts
and stories. This conversion is enabled by a combination of mechanisms acting at
different levels, such as a relative autonomy of the team within the organisation,
facilitative leadership and management style, development of a shared practice,
similar dispositions to collaborative work, common values, enthusiasm and passion
for the area of interest. The paper also demonstrates that the boundaries of the newly
formed community of practice are more permeable for extra-organisational (i.e.
between the Heart Failure team and various groups of stakeholders outside the
CLAHRC) than for intra-organisational (i.e. within the CLAHRC) knowledge flows.
Selective permeability of the team boundary is enabled by the prioritisation of
relationship building with external stakeholders over knowledge sharing with other
CLAHRC teams, lack of operational proximity between the teams within the
CLAHRC, and an inherent competition for achievement and recognition within the
organisation. Finally, the paper links the notion of selective permeability with the
process of collective identification which is underpinned by shared practice and
values, develops in spite of the multiprofessional nature of the community of
practice, and involves emphasising differences, rather than similarities, with referent
intra-organisational out-groups. Perceived differences between the Heart Failure
team and other teams are concerned with preferred approaches to change,
stakeholders involved and contextual factors. At the same time, an emphasis on in-
group similarities and development of shared practice-in-the-making, which is
different from the pre-existing professional practices of the team members, prevents
the development of intra-team tensions related to the multidisciplinary nature of the
team, with potential role conflicts being resolved by referring to salient shared
values.

**Paper 3** demonstrates that professional boundaries between the members of
multiprofessional improvement teams operating in primary care settings do not
necessarily act as a barrier to knowledge sharing and implementation. This can be
explained by the complexity of implementation requiring a genuinely
multidisciplinary and interdependent approach, by the history of previous work
relationships within the teams, and by less hierarchical power structures of the
primary care sector as compared to secondary care settings. GPs, practice nurses and
practice managers working in the same practice can develop a level of knowledge
sharing and collaboration that corresponds to a multiprofessional community of
practice. Division of labour in such communities provides differentiation rather than fragmentation and does not preclude the formation of a shared domain of knowledge and practice which is enabled by close operational proximity and sharing common values. Barriers to knowledge sharing, however, emerge at the external boundaries of multiprofessional communities, namely between the improvement teams and the rest of the staff, and are underpinned by semantic and syntactic differences as well as by lack of identification with the Chronic Kidney Disease project or the primary care setting as a whole. At the supra-organisational level, the formation of a functional community of practice that would include all improvement teams participating in the collaborative may be problematic due to the presence of strong pre-existing organisational boundaries between general practices. The latter are underpinned by the business nature of primary care organisations, competition between them and strong organisational identification. Contrary to the initial expectations, the role of inter-organisational communities and networks in sharing chronic kidney disease related knowledge is insignificant, with (multiprofessional) intra-organisational communities of practice becoming tighter than those (predominantly uniprofessional) networks of practice cutting across organisational boundaries.

*Paper 4* focuses on the internal boundaries impeding knowledge sharing within the Greater Manchester CLAHRC, namely the boundary between its research and implementation strands and boundaries between the implementation teams. It shows that through its ability to shape the development (or separation) of practices, organisational structure can promote the reproduction of existing boundaries, their blurring or the creation of new ones. These effects are in turn mediated by pre-existing epistemic differences, novelty of emerging practices-in-the-making and political factors of the context. Developing the line of argument initiated in the previous two empirical papers, this paper suggests that inter-team boundaries could be seen as a side effect of intra-team integration in the process of joint working. An analysis of attitudes towards research, implementation and the knowledge mobilisation initiative as a whole reveals the divergence of meanings between different communities of practice involved in the CLAHRC. In the absence of a shared activity and in the context of authority disputes, this divergence of meanings can be so significant that it blocks the process of negotiation, let alone transformation, of meanings, and becomes a mechanism for legitimising the
boundary and impeding knowledge sharing between co-located communities of researchers and implementers. Finally, the paper highlights the role of dysfunctional boundary bridges in protecting the boundary, describing how divergence of meanings, competition for recognition and resources, low trust and lack of rewards for participation in boundary spanning activities can transform formalised boundary interactions into a rhetorical device creating an illusion of cross-boundary knowledge sharing.

**3.1.3. Study findings in the context of existing literature**

As mentioned in Section 3.1.1, this thesis has identified three broad areas of current debate that correspond to the main evolutionary trends within the communities of practice approach. These trends include: (1) shifting from uniprofessionality to multiprofessionality when exploring the membership of communities of practice and knowledge sharing within them; (2) development of an instrumental, managerialist perspective on communities of practice calling for their deliberate engineering; and (3) a growing interest in knowledge sharing across multiple communities embedded in complex landscapes and constellations of practice. The following subsection attempts to discuss the findings of the study in relation to these three lines of enquiry and link them to the existing empirical literature. This focused discussion prepares a ground for a broader exploration of the main theoretical and practical contributions of the study presented in Section 3.2.

As far as the issue of multiprofessionality is concerned, this study concurs with the findings of Ferlie *et al.* (2005) arguing that the construction of genuine multiprofessional communities of practice is possible when co-located professional groups share common values, their cognitive assumptions remain unchallenged and established systems for interprofessional dialogue are deployed. At the same time, the analysis of the Heart Failure team shows that certain characteristics typical for a community of practice may develop in the context of a novel practice-in-the-making, without a history of previous relationships or an established system of interprofessional communication. Similarly to Gabbay *et al.* (2003) and Gabbay and
le May (2011), this study demonstrates that knowledge is transformed, rather than simply transferred, in the process of knowledge mobilisation (also see Bechky 2003; Carlile 2004; and Gherardi and Nicolini 2000) and that personal, experiential evidence (‘learning by doing’) is perceived by the members of multiprofessional communities of practice as superior to traditional evidence derived from research.

Informed by both analytical and instrumental perspectives on communities of practice, the findings of this study resonate with those of Hudson (2007), Gabbay et al. (2003) and Gabbay and le May (2011), demonstrating that communities of practice may develop in organisational contexts on the basis of pre-existing teams. At the same time, the analysis of inter-organisational collaboration and knowledge sharing between primary care practices described in Paper 3 shows that pre-existing boundaries between diverse groups may make the deliberate engineering of new multiprofessional and multi-organisational communities of practice highly problematic. This highlights the need to deploy the theoretical body of knowledge on communities of practice to inform instrumental applications of this approach and calls for a more critical and reflective attitude to designing, implementing and evaluating interventions trying to deliberately engineer communities of practice than is currently the case in the health services research literature (Barwick et al. 2009; Bentley et al. 2010; Li et al. 2009; Ranmuthugala et al. 2011; White et al. 2008).

Finally, the study develops our understanding of boundary configurations and boundary organising in constellations of interconnected practices embedded in novel organisational contexts. Similarly to Mørk et al. (2010, 2012), it shows that some boundaries between communities of practice may become destabilised, renegotiated and reconfigured during the innovation process. At the same time, this study highlights the role of organisational structure, divergent meanings and inefficient boundary bridges as factors potentially preventing the destabilisation of boundaries and hence inhibiting knowledge sharing within a constellation of interconnected practices. It shows that the abstract concepts of ‘research’ and ‘implementation’ may act as inhibitory boundary objects (cf. Fox 2011), that groups with an organisationally designated boundary spanning role may fail to become ‘boundary-spanners-in-practice’ (cf. Levina and Vaast 2005) and that boundary interactions
arranged by an organisation may be used in a ‘ritualised’, tokenistic way (cf. Swan et al. 2010).

3.2. Contribution of the study

3.2.1. Theoretical contribution

This study enhances our understanding of how multiprofessional communities of practice and their boundaries develop in different organisational contexts. First, it questions the analytical value of the clearcut distinction between teams and communities of practice (Wenger and Snyder 2000; Wenger et al. 2002) by demonstrating that a team can develop characteristics typical for a community of practice, such as mutual engagement, shared repertoire, negotiated enterprise, strong collective identity and an emphasis on learning. It shows that this conversion is possible both in a novel organisational context (e.g. the Heart Failure team within the CLAHRC) and in organisations with a history of previous work relationships between the team members (e.g. general practices involved in the Chronic Kidney Disease project). Based on its empirical findings, the study argues that teams and communities of practice do not need to be seen as mutually exclusive entities and that the theory of communities of practice is applicable for the analysis of processes taking place between and within teams possessing core characteristics of communities of practice.

Second, synthesising the findings of the Heart Failure and Chronic Kidney Disease case studies leads to the conclusion that the formation of a multiprofessional community of practice is underpinned by two mechanisms acting in parallel. The first is the permeability of intra-team professional boundaries for knowledge flows, which can be enhanced by the nature of the enterprise requiring an interdependent multiprofessional approach, facilitative leadership and management, regular interaction within the team, and, most importantly, shared interests, values and dispositions to multiprofessional work. Under these conditions, professional differences between team members act as a source of innovation and learning rather than as a barrier to knowledge sharing. The second mechanism is the development of a boundary around an emerging multiprofessional community of practice. This
process is underpinned by the emergence of a strong, collectively-reinforced group identity through developing shared practice, referring to common values and contrasting the team with referent out-groups, with inter-team boundaries becoming a side effect of intra-team integration.

Third, the study introduces a notion of selective permeability of boundaries, whereby boundaries developing around a community of practice enable knowledge exchange between such a community and certain out-groups while impeding knowledge sharing with others. For instance, knowledge exchange between the Heart Failure team and external groups of stakeholders was more successful than knowledge exchange between the same team and other teams within the CLAHRC. Similarly, the permeability of boundaries around communities of practice involved in the Chronic Kidney Disease project differed in the following instances of knowledge exchange: with the CLAHRC facilitation team, with other intra-organisational groups, and with communities of practice from other primary care settings. This selectivity is context-specific and is probably determined by the extent to which different out-groups are important for the development of a collective in-group identity, by the level of inter-team trust and competition, and by the perceived importance of out-groups for achieving in-group aims and objectives.

Fourth, the study shows that landscapes and constellations of practice are complex and that their analysis cannot be reduced to an interaction between various uniprofessional communities of practice. The findings reported in Papers 3 and 4 suggest that landscapes and constellations of practice are represented by overlapping and interdependent uniprofessional and multiprofessional communities separated by a dynamic system of boundaries, in which some boundaries are constantly reproduced, some are blurred and some are constructed de novo. As shown by the analysis of inter-organisational collaboration in Paper 3 and the research-implementation boundary in Paper 4, development of new heterogeneous communities within complex landscapes and constellations can potentially be hampered by strong pre-existing epistemic, political and identity boundaries. However, in those cases where these boundaries are overcome, emerging multiprofessional communities of practice may develop more effective internal
knowledge sharing mechanisms than those (more homogeneous) uniprofessional groups that cut across inter-team and inter-organisational boundaries.

Finally, the study enhances our understanding of large-scale knowledge mobilisation initiatives as emerging constellations of interconnected practices and describes a boundary between the fields of applied health research and research implementation. It shows that structural and functional separation of research and implementation activities may further deepen existing epistemic and political differences between them and result in a significant discontinuity in knowledge sharing. This discontinuity can be interpreted as the local reproduction of a linear approach to the research-implementation relationship reflected in the policy documents which conceptualise these two activities as separate stages or ‘themes’. It is further aggravated at the level of practice by lack of shared ‘collaborative’ vision and identity, insufficient incentivisation of joint working, and dysfunctionality of boundary bridges. In these circumstances, implementation may well be able to successfully mobilise existing research evidence but its role as a boundary practice bridging the real-time gap between the producers and users of research is likely to be limited. Furthermore, diversity of perspectives regarding the nature of implementation may lead to the emergence of distinct implementation practices developing their own boundaries.

### 3.2.2. Practical contribution

Informed by both analytical and instrumental perspectives on communities of practice, the study highlights the importance of synthesising these two perspectives when tackling practical challenges related to knowledge management and service improvement. It questions the value of a purely managerialist approach to communities of practice that tends to focus on cookbook-style prescriptions for their deliberate engineering at the expense of a deeper understanding of how such communities emerge and function. The study shows that communities of practice may naturally emerge from teams embedded in a wider organisational context, which may mean that their deliberate engineering in organisations is possible in principle. However, its findings also suggest that a more nuanced approach to cultivating communities of practice is required. First, the development of a genuine community
of practice is contingent on a number of factors operating at organisational, group and individual levels, all of which have to be taken into account when using communities of practice as a knowledge management tool. Second, there is an inherent tension between the formalised, task-oriented nature of project-based work and the learning-focused philosophy of communities of practice. As a result, the latter might be ill-suited to settings driven by predetermined targets, deadlines and procedures and focusing on delivering tangible outcomes. Finally, a tendency to develop shared practices, meanings and identities may lead to the formation of strong boundaries hampering knowledge exchange between a community of practice and other groups.

As demonstrated by the study, in certain cases inter-group and inter-organisational boundaries may prove so significant that the development of a functional multiprofessional and/or multi-organisational community of practice bringing together representatives of these groups and organisations becomes unfeasible and unrealistic. In those cases where pre-existing boundaries are too strong while the commitment, infrastructure and resources are not sufficient to support the deliberate engineering of a community of practice, the deployment of a developmental approach to communities of practice may be beneficial. This approach lies midway between the analytical and instrumental perspectives on communities of practice and calls for the maximal utilisation of existing organic communities and improving communication within and between them rather than attempting to foster a heterogeneous community centred on a time-limited project. A developmental perspective implies mapping existing landscapes of practice that are relevant for a change initiative being implemented, analysing the configuration of boundaries, roles and identities in these landscapes, and combining external and internal facilitation to make the boundaries more permeable. It argues for an incremental development of organic communities of practice specifically targeting boundaries to knowledge exchange without radically reconfiguring organic landscapes of practice operating in the field. This may require identification and empowerment of actors with simultaneous membership in a number of intra- and extra-organisational communities of practice, deployment of a self-critical and reflexive approach to boundary management, and utilisation of selective permeability of inter-group boundaries.
The notion of selective permeability and its contingency on group identity suggest taking into account a complex interplay between organisational, professional, workplace and other forms of collective identification when implementing knowledge mobilisation initiatives. While a high level of collective identification in multiprofessional teams with diverse membership increases team performance, this should probably be accompanied by enhancing identification with a knowledge mobilisation initiative as a whole. This could promote the development of shared meanings, increase permeability of inter-team boundaries and act as a buffer to the potentially detrimental effects of team identification on inter-team knowledge sharing. To this end, the following practical steps can be taken. First, the overarching goals and philosophy of a collaborative enterprise should be clearly articulated at the outset, preferably after consultations with all relevant groups of stakeholders. Second, creating opportunities for informal knowledge sharing between the teams should complement the use of formalised inter-team learning mechanisms. The latter should enable a collective negotiation of problematic issues rather than create an illusion of knowledge sharing whilst hiding existing tensions and conflicts. Third, developing a shared identity could be enabled by creating shared practices, which can take the form of cross-team joint projects and might be supplemented by rotating team members between different teams. Finally, introducing incentives and rewards for inter-team learning may be required to counterbalance the negative effects of inter-team competition and other potential disincentives hampering inter-team knowledge exchange.

3.3. Critique

3.3.1. Limitations of the study

This study involved one episode of fieldwork which lasted for a year and was used to collect the data relating to the first three years of the Greater Manchester CLAHRC. It did not take into account subsequent changes in the organisation’s architecture and dynamics. Adopting a longitudinal design could have been beneficial for studying the communities of practice as a dynamic phenomenon, but was not feasible because of the limited resources available, potential difficulties getting access to the initial
sample and the study’s focus on the processes, rather than outcomes, of change. The following measures were taken to ensure that a dynamic nature of communities of practice and their boundaries is accounted for. First, face-to-face interviews allowed constructing fairly detailed retrospective accounts; second, documentary analysis provided evidence to corroborate these accounts and was used to counterbalance potential problems with recall, distortion and post-event rationalisation (Lewis 2003); finally, direct observation, as an inherently longitudinal method (Bryman and Bell 2003), allowed direct access to the dynamic processes taking place within communities of practice as well as at their boundaries.

It should, however, be noted that although all three methods of data collection were crucial for the case study presented in this thesis, the volume of raw data produced by interviews exceeded the volume of data collected by direct observation and documentary analysis. This inequality is reflected in the empirical papers which mainly use interview quotes, rather than excerpts from field notes or documents, to illustrate the key findings. Even though raw data supplied by these two methods may be somewhat underrepresented in the thesis, they were used throughout the study to validate the findings obtained by interviews as the main method of data collection, get insights about the history and development of communities of practice, and shed light on phenomena manifesting themselves through social interaction. The latter included, for instance, the notions of mutual engagement, negotiated enterprise and shared in-group identity.

As far as the process of data analysis is concerned, the study could have benefited from investigator triangulation, *i.e.* involving other skilled qualitative researchers in coding and interpreting the data followed by assessing agreement between them (Mays and Pope 1995; Armstrong *et al.* 1997). This could not be done in this study because in a PhD research project the data must be collected and analysed single-handedly. Other ways to ensure the validity of the research account have therefore been deployed, including methodological triangulation, peer-debriefing, member checking and external audit. These methods, along with adopting a reflexive approach to the research process, were also deployed for minimising potential negative effects of the researcher’s cultural, linguistic and professional background on data collection and analysis.
Another limitation of the study is an exclusion of certain groups whose views might have enriched the analysis. For instance, since the implementation of the Chronic Kidney Disease project only involved the ‘core’ practice staff (i.e. general practitioners, practice managers and nurses), the study has chosen not to look at the boundaries between general practices and community-based representatives of broader primary care multidisciplinary teams, such as district nurses, community matrons and health visitors. The views of the receptionist staff and features of their communities of practice have also been left beyond the scope of the study. In addition, proponents of patient-centred approaches to research and practice might criticise the study for ‘ignoring’ patients in the analysis of landscapes of practice presented. In response to this anticipated criticism, it could be argued that while patients are certainly able to form communities of practice (patient groups have indeed been mentioned among extra-organisational groupings involved in the implementation of the Heart Failure project), they acted as recipients of services provided by healthcare organisations and teams rather than members of multiprofessional communities of practice under investigation. Finally, the analysis of institutional boundaries between the CLAHRC teams and PCTs involved in the process of knowledge mobilisation has also been left beyond the scope of the thesis.

It should also be noted that this research project explicitly focused on the processes taking place within and across communities of practice, while the impact of communities of practice and their characteristics on the outcomes of the interventions conducted by the Greater Manchester CLAHRC lay beyond its scope. The study never intended to provide an evaluation of the Greater Manchester CLAHRC; its aim was to enhance our understanding of how communities of practice function rather than explore the consequences of their deliberate engineering in organisations. It would be too early to assess the outcomes of the Greater Manchester CLAHRC interventions before the end of the programme and, even more importantly, too difficult to determine which of the outcomes are related to the participation in a community of practice and which are determined by other characteristics of the programme or the wider context (see also Ranmuthugala et al. 2011). Given the non-evaluative nature of the inquiry, this research project did not utilise the method of realist evaluation (Pawson and Tilley 1997), which seems to
have become the most well-known critical realist methodological approach in the field of health services research, preferring to return to earlier, more generic and less prescriptive, works on the application of the critical realist philosophy in social sciences (e.g. Sayer 1992).

Last but not least, the study could be criticised for its relatively low sample size that may result in limited generalisability of findings. Generalisability of qualitative research in general and of small-scale qualitative studies in particular has long been an area of debate (Lewis and Ritchie 2003; Schofield 1990; Seale 1999; Tsoukas 2009) and deserves a detailed discussion. The next subsection explains how this particular research project addressed the issues related to representational, inferential and theoretical generalisation at the level of the main case (i.e. the Greater Manchester CLAHRC as an example of a large-scale knowledge mobilisation initiative) and individual subcases (i.e. general practices and CLAHRC implementation teams), reflecting on its strengths and weaknesses in this respect.

### 3.3.2. Generalisability of findings

*Generalisability* can be defined as ‘the extent to which one can extend the account of a particular situation or population to other persons, times, or settings than those directly studied’ (Maxwell 1992, p. 293). According to Lewis and Ritchie (2003), in qualitative research generalisations could be drawn: (1) in relation to the parent population from which the sample is drawn (*representational generalisation*); (2) about other settings in which similar conditions to those studied may exist (*inferential generalisation*); and (3) in relation to more widely applied theoretical propositions, principles and statements (*theoretical generalisation*). These three forms of generalisation in relation to the findings of this research project are briefly addressed below.

As is often the case in qualitative case studies (Yin 2003), *representational generalisability* of this study is limited. For instance, when presenting the Heart Failure subcase, Paper 2 explicitly stated that the Heart Failure implementation team could be seen as a unique subcase within the whole Collaboration due to the extent to which it developed the characteristics typical for a community of practice. In
Paper 3, the findings about intra-organisational boundaries in general practices can hardly be generalised to all general practices in England because the study has only looked at general practices which voluntarily opted for participation in a particular project, were enthusiastic about service improvement and could be classified as innovative organisations. It could be assumed that practices with different characteristics would display different intra-organisational dynamics. Similarly, the findings of Paper 4 in relation to internal boundaries within the Greater Manchester CLAHRC do not necessarily apply to the other eight CLAHRCs operating in the country as these may differ from the Greater Manchester CLAHRC in structure, ideology and local context.

Inferential generalisability depends on the degree of congruence between the ‘sending context’ within which research is conducted, and the ‘receiving context’ to which it is to be applied. Readers establish whether the proposed receiving context is similar to the case studied using their common sense, knowledge of the receiving context and a detailed description of the sending context supplied by the researcher. It is difficult for a researcher to predict the potential for inferential generalisation from their studies, and it is the readers who have to make their own judgements about the relevance of findings to their own situations (Lewis and Ritchie 2003; Lincoln and Guba 1985; Seale 1999). It could, however, be assumed that the findings of Paper 2 may be applicable to a range of relatively autonomous, tightly knit boundary spanning teams, that the configuration of boundaries described in Paper 3 may be similar to other innovative primary care settings involved in service improvement, and that the barriers to knowledge sharing identified in Paper 4 may resonate with problems experienced by those collaborative research partnerships whose design and policy context resemble those of the Greater Manchester CLAHRC.

Theoretical generalisability of small-number case studies is underpinned by ‘seeing particular cases as opportunities for further refining our hitherto conceptualizations of general processes’ (Tsoukas 2009, p. 286). By drawing distinctions between the case under examination and existing theoretical literature, this research project aimed to refine our understanding of multiprofessional communities of practice and boundaries within complex landscapes of practice. The notion of team-to-
community-of-practice conversion, the concept of selective permeability and the factors underpinning the discontinuity of boundaries in constellations of interconnected practices could be seen as products of analytical refinement, whereby ‘[t]he particular is not subsumed into the general; it rather further specifies the general’ (ibid., p. 298). They form the distinct theoretical contribution of the study and could possibly be generalised to a wide range of settings, to which the theory of communities of practice can be applied. It should, however, be emphasised that the relevance of a refined theory needs to be established by further empirical inquiry and theoretical generalisations must be seen as hypotheses until corroborated or refuted by further evidence (Lewis and Ritchie 2003, Seale 1999; Tsoukas 2009). In line with this idea, the next section reflects on potential areas of empirical exploration suggested by the research project.

3.4. Implications for future research

The study offers three potential directions for future research into communities of practice. The first potential area of research relates to how multiple, overlapping communities function in complex landscapes and constellations of practice. The following aspects might be of particular interest:

- *Selective permeability of boundaries in landscapes of practice*. What forms can it take? In what ways can it be influenced by actors involved in boundary spanning? How does the selectivity vary across different communities of practice? How does it change over time? Is the degree of selectivity influenced by the type of knowledge being mobilised?

- *Transformation of project teams into communities of practice*. Can a group switch between the two ends of the team-to-community-of-practice continuum? How likely is the team-to-community-of-practice conversion? What outcomes can it have on the team’s performance?

- *Interdependence between communities of practice and organisations*. How do different organisational factors (e.g. power) influence the functioning of multiple and interconnected communities of practice? How do communities of practice influence organisations? How does the process of intra-organisational knowledge sharing develop in ‘matrix’ organisations
supporting both (multiprofessional) project teams/departments and (uniprofessional) communities of practice cutting across the team/departmental boundaries?

- **Communities of practice formed by knowledge brokers.** How do these communities of practice develop? How is their functioning influenced by other related communities of practice? How permeable are the boundaries of these communities?

Second, while this study has mainly focused on the group level of analysis, future research could deploy the individual level of analysis to explore issues related to membership in communities of practice and wider constellations of practices. Some of the following questions are applicable to a wide range of actors within communities of practice while some specifically target knowledge brokers:

- **Identity as the ‘process of becoming’**. How do actors make decisions about joining communities of practice? How does participation in communities of practice change their attitudes, behaviour and self-perception? How is identity influenced by participation in boundary spanning and knowledge sharing activities across communities of practice?

- **Simultaneous participation in multiple communities of practice (‘multimembership’)**. How do actors prioritise their memberships in different communities of practice? How do knowledge brokers resolve potentially negative consequences of multimembership? How do they achieve legitimacy in different communities of practice?

- **Accountability of members: horizontal (i.e. to a community of practice and its members) and vertical (i.e. to an organisation as a constellation of interconnected practices).** How are these two types of accountability prioritised in different organisational contexts? How are potential conflicts between them resolved? How do knowledge brokers adapt to different regimes of accountability across multiple communities of practice and/or organisations in which they are involved?

The third potential area of empirical inquiry involves studying the process and outcomes of deliberate attempts to manage boundaries between communities of
practice. This study has consistently argued for the importance of combining analytical and instrumental perspectives on communities of practice, and it could be suggested that designing, implementing and evaluating boundary management initiatives should be informed by the theory of communities of practice or other approaches to theorising boundaries and knowledge sharing across them. The following questions could be proposed:

- **Developmental approach to communities of practice.** How can it be implemented in different contexts? What are its strengths and weaknesses? What skills and knowledge does it require from facilitators? In what ways can selective permeability of boundaries be utilised in the process of boundary management? What are the outcomes of applying the developmental approach?

- **Utilisation of boundary bridges in the process of boundary management.** What configuration of boundary objects, spanners and encounters are successful in different contexts of knowledge mobilisation? What factors determine the functionality/dysfunctionality of boundary bridges? How can facilitators increase the effectiveness of boundary bridges?

- **Managing relatively impermeable boundaries,** such as the one between applied health research and research implementation. How can managing such boundaries be facilitated? Under what conditions can implementation become a real-time bridge between ongoing research and current clinical practice? How do the communities of researchers and implementers interact if co-located in a multiprofessional team?

To conclude, one of the major practical questions emerging from the study relates to the management of the boundary between the communities of research and implementation. On the one hand, the findings of this research project suggest that co-locating the representatives of different professions in the same team may boost the development of shared practice, create opportunities for interprofessional learning and enable knowledge sharing. On the other hand, the study has shown that epistemic differences between researchers and implementers may block the negotiation of shared meaning, that control over the process of implementation may become a bone of contention, and that strong pre-existing boundaries may turn into a
formidable obstacle to the formation of new functional multiprofessional communities of practice. Two possible solutions to the problem of knowledge sharing and joint working between the worlds of research and implementation could accordingly be proposed: to create joint projects bringing together researchers and implementers or to deploy a developmental approach to communities of practice relying on external facilitation and effective boundary bridges. Comparing these two scenarios in different contexts of knowledge mobilisation could become a fruitful area of future theory-driven and practically-oriented research.

References


Epilogue

I have learnt a great deal through working on this thesis. Some of the learning outcomes relate to a better understanding of joint working and knowledge sharing across communities of practice and have been explicitly discussed throughout the thesis in much detail. I have also discovered the world of epistemology, acquired new skills necessary for conducting qualitative data collection and analysis, and started to learn the craft of publishing in peer-reviewed journals. Engagement with a range of theoretical issues has made me look outside the relatively narrow world of healthcare management and introduced me to the wider domain of organisation and management studies. I also hope that the work undertaken for this project has taught me to be more rigorous and critical when dealing with various sources of evidence and that my perception of the organisational phenomena is now deeper and more nuanced than it was at the beginning of my doctoral studies.

The most important learning outcome for me personally is probably about gaining a better understanding of myself in the context of professional work. Through continuous (and often painful) reflection accompanying the PhD journey I came to realise that my somewhat erratic (but never boring) career path may be a consequence of my natural inclination to work at the interface between disciplines and broker knowledge across communities of practice. This thesis, introducing ideas from organisation theory into the practical field of healthcare implementation science, is itself an example of a cross-disciplinary project located at the boundary of two distinct specialisms. The uncertain, underappreciated, but potentially very innovative ‘boundary world’ is something I am really passionate about and I now see boundary spanning as an important facet of my own identity. This project has also made me reflect on the potential negative aspects of working at the boundary, such as marginalisation, uprootedness and lack of competence, all of which result from the relative remoteness of the boundary from the core of the practice. Regardless of my future career path, this better understanding of my own preferences, strengths and weaknesses will, hopefully, help me in navigating through the complex landscapes of practice.
Appendices

Appendix 1. Invitation letter to research participants

Dear __________

I am writing to ask if you would consider taking part in a research study I am conducting to explore some aspects of interprofessional and inter-organisational joint working in the Greater Manchester CLAHRC as an example of a major partnership between academic researchers and healthcare professionals. This study is a doctoral research project supervised by Professor Kieran Walshe and Dr Gill Harvey from the Health Management Group at Manchester Business School. It is jointly funded by the Your Manchester Fund Research Impact Scholarship and CLAHRC PhD Studentship.

Collaboration and partnership approach is being increasingly used in UK healthcare to improve healthcare provision, enhance communication between stakeholders and achieve sustainable organisational change. This study will look at interprofessional and inter-organisational collaboration through the lens of communities of practice. I am particularly interested to examine how communities of practice develop in the process of joint working, how participation in these communities changes the roles and identities of participants, and what factors facilitate knowledge sharing between people from different professional backgrounds.

We are asking a range of staff involved in the Greater Manchester CLAHRC to participate in the study. In total there will be three case studies, each of them examining a network of people who are taking part in service improvement linked to a specific CLAHRC theme: Chronic Kidney Disease, Chronic Heart Disease, or Stroke. In each case study, we aim to interview around twelve to fifteen people who have been involved with the CLAHRC projects under discussion. From the initial contact with other CLAHRC members, you were identified as an individual actively involved in the CLAHRC activities, hence this preliminary approach.

Your participation in the research would involve taking part in an interview and observation. The interview will discuss your perceptions of the interprofessional work you have been involved in as part of the CLAHRC activities. These interviews will take place face to face at your place of work and will last about 60 minutes. If you agree to be interviewed, your permission will be sought to record the interview. We might also ask you for a follow up interview at a later stage, should there be any issues requiring clarification. As far as the observational component is concerned, it will include the observation of the CLAHRC team meetings and other CLAHRC events (e.g. focus groups and learning together events) you might be involved in.

However, it is important for you to realise that your participation is entirely voluntary and there is no requirement for you to take part. If you do agree to take part, you will be free to withdraw at any time and if you are concerned about any of the questions in the interview, you can skip those questions or choose to stop the interview at any time. The study is confidential, and no individual who is interviewed or observed will be identified in any way in any analysis or project report.

An information sheet about the project is attached, with my contact details should you wish to discuss anything about the research or ask further questions. If you are interested in being involved, please contact me by email.

Best regards,

Dr Roman Kislov
Doctoral Researcher
Manchester Business School
Appendix 2. Information sheet

Multiprofessional Communities of Practice in Healthcare

Principal investigator: Dr Roman Kislov

You are being invited to take part in a research study as part of a PhD project. Before you decide whether to take part, it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Please ask if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to take part. Thank you for reading this information sheet.

PURPOSE AND DESCRIPTION OF STUDY

This is an investigation into how multiprofessional communities of practice develop in healthcare organisations. In particular, we are interested in studying how participation in interprofessional and inter-organisational collaboration influences the roles and identities of participants and how knowledge is shared between people from different professional and organisational backgrounds. The findings of the study will be used to identify mechanisms which can later be used to address barriers to joint working and thus make collaboration in healthcare more successful.

The research is using a case study design to look at three implementation themes within the Greater Manchester CLAHRC, namely Chronic Kidney Disease, Chronic Heart Disease and Stroke. Participants include people involved in the CLAHRC activities and are recruited from different professional groups, for example, doctors, nurses, managers and academics. All participants will be interviewed. In addition, the research will include the observation of the CLAHRC team meetings and other events organised by the CLAHRC for NHS staff involved in the CLAHRC projects.

The study is a three year project, with a number of distinct phases, some of which are already underway. The data collection will commence in autumn 2010. The whole study is due to be completed in autumn 2012. The study is co-funded by the Your Manchester Fund Research Impact Scholarship and CLAHRC PhD studentship. The research has been reviewed and approved by the North West 8 Research Ethics Committee—Greater Manchester East.

PARTICIPATION

Participation in this research is entirely voluntary – it is up to you whether or not to take part. If you do decide to take part, you will be given this information sheet to keep and be asked to sign a consent form. If you decide to take part, you are still free to withdraw at any time without giving a reason and without detriment to yourself or your organisation.
INTERVIEW PROCEDURES

We are asking twelve to fifteen people from each of the three CLAHRC themes to be interviewed. You have been chosen because of your involvement with the CLAHRC activities. You are being asked to take part in an interview. This will be conducted by the researcher who will arrange a convenient time to meet with you at your place of work. The interview should last around 60 minutes. If you agree to be interviewed, your permission will be sought to record the interview. It is important for you to realise that if you are concerned about any of the questions in the interview, you can skip those questions. Furthermore, you can stop the interview at any time. You might be also asked for an additional follow-up interview at a later stage, should the researcher have any issues requiring clarification.

OBSERVATION PROCEDURES

The research will include observation of some of the CLAHRC activities, such as CLAHRC team meetings, focus groups and meetings with stakeholders, in which you might be involved. The researcher will seek permission for observation at the start of each meeting and, should anyone object, the observation will stop. No tape and video recording will be used during the observation.

PUBLICATION OF RESULTS

The final project report will be produced in autumn 2012. This will be accompanied by a wide-ranging dissemination exercise, including publications in professional and academic journals, seminar and conference presentations. You will be advised where to access publications and sent details of relevant seminars and conferences.

PAYMENT AND BENEFITS

There is no organisational or individual payment for participation in the research study.

CONFIDENTIALITY AND RISKS

The information collected will be kept strictly confidential, and your responses will be anonymised. All published and unpublished reports will disguise the identity of individuals. Only aggregate/summary information will be reported. Due to the nature of the research proposed we do not expect that involvement in the study carries any risks.

FURTHER INFORMATION OR QUERIES

If you have any concerns about the research or any further questions, you can contact the researcher, Dr Roman Kislov, at roman.kislov@postgrad.mbs.ac.uk. Alternatively, you can email the researcher’s academic supervisor, Dr Gill Harvey, at gHarvey@mbs.ac.uk as an independent contact.
### Appendix 3. Consent form

**Multiprofessional Communities of Practice in Healthcare**

*Principal investigator: Dr Roman Kislov*

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<td>I confirm that I have read and understand the information sheet for the above study</td>
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<td>(version 2.0 dated 20\textsuperscript{th} July 2010). I have had the opportunity to</td>
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<td>consider the information, ask questions and have had these answered satisfactorily</td>
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<td>I understand that my participation in this study is entirely voluntary and that I am</td>
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<td>free to withdraw at any time without giving any reason</td>
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<td>I agree to take part in the above study</td>
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<td>I agree to the recording of the interview between myself and the researcher</td>
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<th>Name of person</th>
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[First copy to be retained by interviewee; second copy to be filed by researcher with interview notes]
Appendix 4. Theoretical propositions

The following theoretical propositions have been formulated as the result of analysing the data obtained from Stage 1 of fieldwork, which comprised 22 interviews and 32 hours of observation:

(1) The organisational landscape in the NHS primary care sector is represented by multiple co-existing and overlapping CoPs, which are mainly centred on general practices, professional groups and geographical areas.

(2) Multiprofessional CoPs in primary care are characterised by such features as division of functions, interconnectedness with co-existent uniprofessional communities, and operational proximity of its members.

(3) Formation of emergent multiprofessional and multi-organisational CoPs is influenced by their relationship with pre-existing communities and networks, enthusiasm of CoP participants and adequate leadership.

(4) Identity formation in these newly formed communities takes place in the context of multimembership in several relevant CoPs and may be hampered by strong identification with existing professional and organisational communities.

(5) Knowledge sharing between CoPs can be promoted by a combination of external and internal facilitation whereby knowledge brokers deploy a number of context-tailored boundary objects and boundary interactions.

(6) Distinct boundaries between general practices, which are only partially permeable, as well as marked barriers to the development of supra- organisational CoPs in primary care, underscore the importance of external facilitation in the process of implementing change.

(7) The CLAHRC’s ability to promote knowledge sharing may potentially be hampered by intra-organisational boundaries and lack of knowledge exchange between the communities of practice which have developed within the CLAHRC itself and which are centred on divisions (e.g. Implementation strand vs Research strand), specific projects (e.g. Heart Failure team) and professions (e.g. academic leads).
### Appendix 5. Provisional Stage 1 interview guide

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<thead>
<tr>
<th>Topic area</th>
<th>Focus of questions</th>
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<tr>
<td>Introduction (5 minutes)</td>
<td>- Purpose of interview</td>
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<td>- Confidentiality and right to quit</td>
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<td>- Any questions</td>
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<td>- Permission to record</td>
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<td>- Signing consent form</td>
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<tr>
<td>Professional, organisational and CLAHRC role-identities (15 minutes)</td>
<td>- What is your professional background?</td>
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<td>- What is your role in your organisation?</td>
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<td>- What is your role within the CLAHRC?</td>
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<td>- What is your motivation to participate in the CLAHRC?</td>
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<td>- Has your professional identity changed over the time you have been involved with the CLAHRC?</td>
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<td>- To what extent do you identify yourself with the CLAHRC?</td>
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<tr>
<td>Knowledge transfer across interprofessional and inter-organisational boundaries (20 minutes)</td>
<td>- What boundaries between professions has your project come across?</td>
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<td>- What boundaries between organisations has your project come across?</td>
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<td>- How do these boundaries influence knowledge transfer between the people involved in the project?</td>
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<td>- Which people involved in the project are especially important in the process of knowledge exchange? Why?</td>
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<td>- Are there any objects that are used as ‘bridges’ between different communities (e.g. HF website)?</td>
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<tr>
<td>Development of communities of practice and their characteristics within the CLAHRC (20 minutes)</td>
<td>- How has the project changed the relationships between the existing traditional communities of practice?</td>
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<td>- Has the project contributed to the creation of new multiprofessional and multi-organisational communities?</td>
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<td>- How are these communities changing over time?</td>
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<td>- Which people have been especially important in creating the new community(ies)?</td>
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<td>- What do you think are the main barriers to joint working?</td>
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<td>- How are they addressed?</td>
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<td>- What do you think are the main facilitators of joint working?</td>
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<td>- How are they used?</td>
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<td>Conclusion</td>
<td>- Is there anything else you want to add?</td>
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<td>- Participation in a follow up interview</td>
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<td>- Transcript to be sent for verification</td>
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<td>- Name other individuals whom I might want to talk to</td>
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<td>- Thank you!</td>
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# Appendix 6. Provisional Stage 2 interview guide for the HF and CKD subcases

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<tr>
<th>Topic area</th>
<th>Questions and probes</th>
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| **Introduction** | - Purpose of interview and approximate length  
- Confidentiality and right to quit  
- Any questions  
- Permission to record  
- Signing consent form |
| **CLAHRC and communities of practice**  
(20-25 minutes) | - What professional/organisational groups are taking part in your project? How do these groups interact with each other? Why?  
- General practices  
- Improvement teams and the rest of the general practice staff  
- General practices and community care  
- General practices and PCTs  
- Nurses/doctors/managers  
- Primary/community and secondary care  
- How has the project changed the relationship between these groups?  
- Has the project contributed to the creation of new communities? How?  
- How does the CLAHRC project link in with other networks?  
  - PBC & GP consortia  
  - GMCCSN  
  - Local Enhanced Service (LES)  
- What could be used to bring people together and promote joint working?  
  - Interest/enthusiasm  
  - Leadership  
  - Money  
  - Competition  
  - Peer pressure  
  - QOF |
| **Roles and identities**  
(10-15 minutes) | - What is your role within the CLAHRC?  
- Why have you decided to participate in the CLAHRC?  
- How committed are you to your organisation? Why?  
- How committed are you to your profession? Why?  
- How committed are you to the CLAHRC project? Why?  
- How do all these different commitments link together? |
| **Knowledge sharing**  
(15-20 minutes) | - What boundaries between different individuals, groups and organisations has your project come across? How are these boundaries being dealt with?  
- What is the role of change agents, GPSI, HF specialist nurses, etc?  
- What is the role of teamwork in the project?  
  - Relationship between team members  
  - Division of labour  
  - Leadership  
- What is the role of the following ways of sharing knowledge?  
  - Protocols/pathways  
  - Educational packages/learning sessions  
  - Website and online forum  
  - Meetings  
  - Heart failure skills assessment tool  
  - Heart failure alert cards  
- What is the impact of the CLAHRC on the way you are doing your work?  
- Will the change be spread and sustained? How? Why? |
| **Conclusion** | - Is there anything else you would like to add?  
- Participation in a follow up interview  
- Transcript to be sent for verification  
- Name other individuals whom I might want to talk to  
- Thank you! |
### Appendix 7. Provisional Stage 2 interview guide for the analysis of the internal boundaries within the Greater Manchester CLAHRC

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| Introduction | • Purpose of interview and approximate length  
• Confidentiality and right to quit  
• Any questions  
• Permission to record  
• Signing consent form |
| CLAHRC structure, strategy and power (10-15 minutes) | • How was the initial CLAHRC structure designed? Why?  
• What were the positive and negative consequences of adopting this structure?  
• What is the CLAHRC strategy regarding bridging the boundaries between different professions and organisations? How successful is it?  
• What is the CLAHRC strategy regarding the spread and sustainability of change? How successful is it?  
• Who is in charge of decision making in the CLAHRC at different levels?  
• What are the main challenges to joint working within the CLAHRC? |
| CLAHRC and communities of practice (20-25 minutes) | • How do different groups involved in the Greater Manchester CLAHRC communicate and collaborate with each other?  
  a) Within the CLAHRC Implementation strand:  
  - Academic leads; Clinical leads; Change agents  
  b) Within the CLAHRC as a whole:  
  - Research strand vs Implementation strand  
  - CLAHRC vs PCTs  
  c) In the wider NHS context:  
  - Researchers vs practitioners  
• How has the project changed the relationship between these groups?  
• Has the project contributed to the creation of new communities? How?  
  What are these new communities like?  
• How does the CLAHRC project link in with other networks?  
  - PBC & GP consortia  
  - GMCCSN |
| CLAHRC roles and identities (15-20 minutes) | • What is your role within the CLAHRC?  
• Why have you decided to participate in the CLAHRC?  
• How does the CLAHRC foster sense of belonging and commitment in its participants (both core team and people in primary care?) How successfully?  
• How has moving towards the integrative vascular theme been influenced by the initial theme-based divisions?  
• How do the CLAHRC members’ professional and organisational backgrounds influence their participation in collaborative projects?  
• How has working in the CLAHRC with representatives of different professions changed your views and ways of doing things?  
• How has working in the CLAHRC changed your colleagues’ views and ways of doing things? |
| Conclusion | • Is there anything else you would like to add?  
• Participation in a follow up interview  
• Transcript to be sent for verification  
• Name other individuals whom I might want to talk to  
• Thank you! |
## Appendix 8. Initial template developed after coding the first twelve interviews

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**Appendix 10. The structure of the Greater Manchester CLAHRC in 2009-2011**

### Collaboration for Leadership in Applied Health Research and Care (CLAHRC) for Greater Manchester

#### Implementation Strand

<table>
<thead>
<tr>
<th>Heart Failure</th>
<th>Chronic Kidney Disease</th>
<th>Diabetes</th>
<th>Stroke</th>
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<tr>
<td>• Develop a website for HF patients, carers and healthcare professionals</td>
<td>• Using the Breakthrough Series Collaborative methodology, work with general practice teams to improve the identification and management of CKD in accordance with clinical guidelines</td>
<td>• Design a lifestyle intervention for people with impaired glucose tolerance (IGT), delivered by health trainers</td>
<td>• Develop a six-month post-stroke assessment tool for patients, in line with the National Stroke Strategy</td>
</tr>
<tr>
<td>• Validate general HF registers and develop a tool facilitating the identification and management of HF patients in primary care</td>
<td>• Enable sharing progress and mutual encouragement across practices</td>
<td>• Design the PCT coordination hub providing a single point of contact for health and social care services for patients with long-term conditions</td>
<td>• Explore how the assessment tool might be delivered locally by the most appropriate person in the most appropriate setting to best meet the needs of patients</td>
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<tr>
<td>• Implement tailored education sessions in general practices</td>
<td>• Set up and evaluate telephone-based services: a) for patients with IGT b) for people who have two or more risk factors for vascular conditions</td>
<td>• Develop and implement local delivery models for local PCTs to spread the six-month post-stroke assessment tool</td>
<td>• Develop new strategies of engagement and support for self-care which are sensitive to the differing contexts in which people live with vascular conditions</td>
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<tr>
<td>• Develop, test and implement the patient alert card, enhancing the transition of HF patients between acute and community care</td>
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<td>• Evaluate the cost-effectiveness of these new strategies for patients and health services</td>
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#### Research Strand

<table>
<thead>
<tr>
<th>People with Long Term Conditions</th>
<th>Health Care Practitioners</th>
<th>Health Care Services</th>
<th>Health Information Systems</th>
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<tr>
<td>• Explore the experience and needs of socially disadvantaged people living with long-term vascular conditions</td>
<td>• Design a treatment guideline, based on NICE guidance, to direct the clinical care of depression in adults with chronic physical health problems. It will be used by practitioners and patients as a focus to discuss the diagnosis of depression, negotiate treatment options and follow-up, and provide patients with a record of planned treatment</td>
<td>• Assess patient and professional views about access to specialist health care services and support for self-care</td>
<td>• Develop the informatics methods and tools needed to improve health care planning in Greater Manchester to: a) map patient volume and flow through clinical care pathways</td>
</tr>
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<td>• Assess people’s systems of support and access to resources which influence how they engage with services and cope with health problems</td>
<td>• Assist people’s systems of support and access to resources which influence how they engage with services and cope with health problems</td>
<td>• Develop a new model of access to specialist care that supports patient self-care and is tailored to the needs of disadvantaged patient groups, including South Asian, Black African-Caribbean and White British ethnic groups</td>
<td>b) monitor the impact of planned interventions on the quality of patient care, including inequalities in access to care by sex, age, ethnicity and economic deprivation</td>
</tr>
<tr>
<td>• Develop new strategies of engagement and support for self-care which are sensitive to the differing contexts in which people live with vascular conditions</td>
<td>• Design a training intervention to assist practitioners in the detection, assessment and treatment of depression in people with vascular conditions</td>
<td>• Working in a panel of clinical experts and patients, pilot and refine the new model and evaluate it in a clinical trial</td>
<td>• Develop simulation models of selected pathways for healthcare commissioners to interactively examine the likely impact of new services before they are introduced</td>
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<tr>
<td>• Design a lifestyle intervention for people with impaired glucose tolerance (IGT), delivered by health trainers</td>
<td>• Pilot the treatment guideline and training intervention and then evaluate them in a clinical trial</td>
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