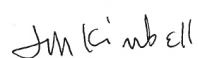# An inventive practice perspective on designing

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Submitted in partial fulfilment of the award of PhD in Design at Lancaster University in September 2013. Examined by viva voce in December 2013 by Dr Daniela Sangiorgi (University of Lancaster) and Dr Thomas Binder (Danish Design School, Copenhagen).

Declaration

I confirm this document is my own work, and has not been submitted by me in substantially the same form for the award of a higher degree elsewhere. Signed

[signature: Lucy Kimbell]

Lucy Kimbell, 16 September 2013

An inventive practice perspective on designing

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September 2013

Abstract

Two new fields of design are emerging. Design for services is concerned with the interactions between people and organisations, while designing for social innovation involves the application of design-based approaches, sometimes called "design thinking", to issues such as ageing and well-being. Across contemporary sites of practice, teaching and research, key questions include understanding the object of design and distinctive ways to approach design for service and design for social innovation.

This study addresses this by developing a conceptualisation of the relations between people and things in design for service and design for social innovation as unfolding within sociomaterial practices. The methodology developed involves remixing existing case studies with theoretical concepts from Science and Technology Studies and forging links with research within design studies, Participatory Design and Computer Supported Cooperative Work. The result is to advance an inventive practice perspective on designing which attends to how sociomaterial configurations arise through the co-articulation or mutual

elaboration of heterogeneous actors resulting in new meanings and identities, skills and procedures, and forms, capacities and properties that emerge in practice. This perspective offers two analytical foci. The first, designs-in-practice, highlights the sociomaterial configurations of people and things. The second, design-as-practice, is attentive to how actants come into being agential during intentional or unconscious designing that tries to configure particular kinds of emergence in practice. Five characteristics of inventive practice arise through this remixing of cases and theoretical research: intra-action; inventiveness; ignorance; accountabilities; and temporalities.

The contribution is to open up new ways of understanding the object of design and propose how to characterize approaches to design for service and design for social innovation. This broadens the nature of participation in design for services and for social innovation and links research literatures, which have to date had few intersections.

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Publications

Included in this dissertation are three previously published, solo-authored papers, reprinted here with permission from the publishers:

Kimbell, L. (2011). Rethinking Design Thinking: Part 1. *Design and Culture*, 3(3): 285-306. Berg Publishers, an imprint of Bloomsbury Publishing plc.

Kimbell, L. (2012). Rethinking Design Thinking: Part 2. *Design and Culture*, 4(2): 129-148. Berg Publishers, an imprint of Bloomsbury Publishing plc.

Kimbell, L. (2011) Designing for Service as One Way of Designing Services. *International Journal of Design*, 5(2): 41-52.

List of figures

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Acknowledgements

Chapter 1   Design's new publics

1.1 Introduction

1.1.1 Snapshots from design culture

A designer describes how her work evolved for a hospital. She started doing graphic and information design, thinking about how people found their way into the hospital, the signage, and how they got information and help. But quickly it became clear that there was a bigger picture: their whole experience of visiting the hospital and their experience of and engagement with healthcare services, and that started before they'd even left their home.

A group of MBA students are hunched round a table. They have been asked to create a storyboard describing in words and photos how someone might volunteer to care for an older person via a new befriending service. The lecturer briefs the students to start by asking "what if?", using insights from research interviews and combining them into a narrative about how the volunteer might interact with the older person. One MBA student looks very alarmed at this request: "But we can't just make it up."

A designer visits an informant in his home to interview him. This is part of a study to understand "hard to reach" patients (who are under-represented in the service) that a health provider wants to engage with. The informant's behaviour towards

her makes the designer anxious. No one knows where she is. She finds her way out of the situation safely, but later reflects that that her professional training has not prepared her for dealing with such situations and starts addressing this, in collaboration with her colleagues and staff.

Each of these vignettes raises questions about design. What is involved in designing services, rather than the classic outputs of manufacturing such as products, objects and goods? Can design-based approaches be used successfully in "designing" social change? Are designers the privileged carriers of design practice, or can others be involved too? How do insights from research combine with people's imaginations, to become the basis of concepts for new services and social change? These questions launch this dissertation into a fast-moving and uncomfortable territory, in which designers and designing operate in an expanded field.

Some designers and design educators refer to a quotation from an interview with modernist furniture designers Charles and Ray Eames, who, when asked, "What are the boundaries of design?" replied, "What are the boundaries of problems?" (Neuhart et al 1989). Sometimes called *design thinking*, this is a vision of professional design and designers tackling big issues, from changing people's behaviours, to reducing carbon emissions or improving health outcomes for particular groups of people. Indeed, the Eames' expansive description of the scope of design invites designers to tackle *any* issue, far removed from the industrial and consumer products with which they are more usually associated. Not just content with taking on complex issues with which other professions and

institutions are traditionally associated, this version of design claims it has a distinctive contribution to make, and suggests that through "design thinking", designers can best make it (eg Buchanan 1992; Brown 2009; Martin 2009; Brown and Wyatt 2011; Cross 2011). Designers, it is argued, are particularly good at focusing on human perspectives, through being empathetic and observing closely what goes on in people's interactions with products and services. They follow an iterative process of problem-setting and problem-solving. Visual methods help make ideas tangible and shareable with diverse others, including users and front-line staff. Through early and frequent prototyping, ideas are evaluated and redeveloped. In this account of designing, design's material practices and ways of approaching issues deployed in the particular contexts of services and social innovation can lead to very different and effective ways of reframing issues, identifying opportunities, generating and developing ideas and addressing people's needs.

This ambition for design is evident in the two fields discussed in this research, design for services and design for social innovation. Perhaps naïve, certainly ambitious, possibly arrogant and hubristic, this is design taking a new place on the world stage. Contemporary designers are involved *as designers* in addressing problems such as climate change, global poverty, ageing populations and worklessness. They are involved in designing interactions between people and organizations, new business models and services and systems. Somewhat at odds with other contemporary developments, such as DesignArt (eg Munari 2009) or critical design (eg Dunne 1999; Antonelli 2008), these new fields foreground the wider world as a site for designing. They work for and on behalf

of banks, airlines, travel providers, healthcare providers, non-profits, and central and local government, bringing design approaches to the design of existing and new services. They make claims about designing with people, not for them, or involving people in doing their own designing. Through so doing, new ideas for services and ways of doing social change are supposedly able to emerge, through a creative design practice that is open to all. On the one hand, contemporary practitioners are fulfilling the promise of earlier generations of designer-activists and critics. On the other, there are questions about what they do, how distinctive it really is, and what effects designerly expertise has on the communities and organizations in which they are involved and how it relates to other domains of professional expertise. Core to these questions, is the issue of how the relations between people and artefacts are conceptualized in designing.

This introduction aims to do three things. First it sets the scene, describing the emergence of two new formations within and also beyond the traditional concerns of design: an emerging interdisciplinary field called service design, and the application of design-based approaches or design thinking within fields of practice and research currently called social innovation and social entrepreneurship. Secondly, it reviews issues facing both those promoting service design and the application of design to social innovation, identifying a recurring difficulty in describing design, in particular questions about what its object is, and how it proceeds. This leads to articulating the research question that this thesis aims to answer and shows why it is important to answer it. The chapter concludes with an outline of each chapter to orient readers to what lies ahead.

1.1.2 Wider contexts

The shift of design culture and practice into an expanded field has happened within a larger context, which is worth exploring briefly. Design history makes clear that what design is, and what designers do, has always been shaped by economic, social, political and cultural forces (Julier 2011).

The emergence of service design and design for social innovation have taken place at the same time as changes in the nature of economic and social and cultural systems and technologies. Researchers in cultural studies and sociology have noted a greater emphasis on symbols and signs, experiences and interactions, and dematerialisation and globalisation (Lippard 1973; Lash and Urry 1994; Ong and Collier 2005). Boltanski and Chiapello (2005) have described a "new spirit of capitalism" that creates flat hierarchies in network-based organisations, which give a kind of freedom to workers at the cost of certainty. Thrift (2005) rethought capitalism as continually renewing itself as it unfolds through performative practices, which include absorbing its own critiques. Others such as Leadbeater (2008) argued there has been a shift to opening up ways for people to participate more directly in decision-making and cultural production, often enabled by digital networked technologies. In short, the contemporary environment, in which professional design is changing, is dynamic, unstable and involves the interweaving of new cultural practices and technologies.

A second development is the ongoing difficulty in addressing numerous complex challenges facing communities and nations. Many of these issues, such as access to water, high food prices or ageing societies, are at once very local *and* global in character. People with knowledge and expertise often do not agree on the nature of problems, let alone how to solve them, because of contested values and ways of being in the world (Funtowicz and Ravetz 1993). They are examples of "wicked" problems (Rittel and Webber 1973) requiring "clumsy" solutions (Rayner 2006). A persistent contemporary narrative is that both policy and market-based solutions have failed. Instead, these uncertainties lead to opportunities for "social" innovation or entrepreneurship, not just technological or market-based innovation, which require and drive changes in relations between citizens, entrepreneurs and providers, and states (eg Mulgan 2006; Young Foundation 2012). Intersections between professional design practice and these developments in policy include work by the UK Design Council (eg Cottam and Leadbeater; Cook 2011), collaborative projects exploring design approaches in relation to sustainability (eg Jégou and Manzini 2008), as well as pan-national, design-led responses such as the OpenIDEO platform (IDEO 2013). But there are also long-standing traditions of activism, involving designers seeking to take on collective issues especially in relation to consumption and climate change (eg Julier 2011; Thorpe 2012).

A third development shaping an expanded field in professional design, is the emergence of a creative class. Its members are globally mobile professionals, whose expertise is regarded as valuable in relation to these economic and social changes. Florida (2002) studied particular cities with growing numbers of

musicians, software engineers, artists, and designers, alongside other groups such as gay people. He argued this "class" is both an economic force, as well as a socio-cultural one, impacting on ways of living and working. It is not simply that some of these individual people have creative capacities. Rather it is that as an identifiable although diverse group, the creative class has come into prominence by offering resources in responding productively to contemporary uncertainties. As people skilled in working with the symbolic, designers are key resources for working towards new circulations of value (Ravasi and Rindova 2008).

Finally, an additional factor shaping the emergence of new design fields is the increasing academicisation of design. In the UK, for example, many design departments and design schools were reconstituted within universities from 1992 onwards resulting from changes in the way higher education was organised. Working within or as universities, and competing for funds and for students, design schools are now expected to produce knowledge about design, rather than just teaching it through studio-based educational practices. As research funders aim to better connect academic research with collective challenges, sometimes called Mode 2 knowledge (eg Nowotny et al 2001), academic design researchers are caught up in requirements to make their work useful and productive to society. One of the indicators of this is the growth in the number of PhDs in design. Discussions about "practice-based" PhDs have lead to a confrontation between design's pragmatic character and modes of research in universities, in contrast to the kinds of research results that are judged reliable and verifiable as in the natural and some social sciences (eg Rust 2007; Biggs and Büchler 2008). This has lead to anxieties among designers and design educators.

Are designers skilled practitioners who have unique competences to help corporations, policy-makers and communities respond to these uncertainties? If so, some ask, where is the evidence base to show the strategic contributions design can offer?

While not a comprehensive analysis, this introduction has shown that the expansion of sites and publics in relation to which professional design practice now operates has happened in a wider context of uncertainty, shifting identities for creative professionals, and anxieties about the role and impact of professional design and changes to higher education.

1.2 New fields and new publics

Any attempt to summarise the development of a new field is open to contestation. No sooner than it's written, it's already out of date. Access to the people and organizations involved, research data and publications may be limited. Any account is necessarily partial and requires defining boundaries, which constitute what is in and what is out of a narrative. Further, it requires some reflexivity about the role the author has in constructing the account and where she or he is located in relation to the matters she or he describes. This chapter reviews two important developments within design over the past decade or so. However even if these accounts are limited, they offer opportunities to identify recurring questions within the practice of and research about design, concerned with what is its nature and how it proceeds, located at a particular moment in time.

Although there are many links between the two areas, it makes sense here to pull apart the strands to allow them to emerge more clearly. The first is an interdisciplinary field called *design for services*, which is concerned with the design of services and the expertise and roles of professional designers, managers and others in designing them. A conference which included this term in the title was held at Northumbria University in 2006 (Kimbell 2011). An international professional network called the Service Design Network founded in 2004 reported it had 189 members in October 2011 (Service Design Network 2011). Post-graduate courses in service design now exist at London College of Communications (since 2010) as well as other institutions. The field includes blogs (such as Howard (2013) posting since 2007), journal special issues and an academic book on service design (Meroni and Sangiorgi 2011).

The second field is the application of design-based approaches or design thinking to social innovation and entrepreneurship, that is, taking as matters of concern for design and for designers, issues concerned with ageing, chronic disease, unemployment, poverty, humanitarian disasters and conflicts, and climate change. Terms such as "social design" (eg Rawsthorne 2013) or "design for social impact" (eg Drake et al 2010), are not used here. Following the DESIS (Design for Social Innovation and Sustainability) Network's formulation, the term used here is *design for social innovation* (DESIS 2013). Organizations trying out design-based approaches in relation to such issues include the United Nations, the UK National Health Service, Bill and Melinda Gates Foundation and the Design for All Institute of India. These developments are discussed in online magazines such as

Design Observer (2013) and at conferences and symposia, such as the Changing

the Change conference in Torino (POLIMI 2008), a Social Impact Design Summit

the Cooper Hewitt Museum in New York (Cooper Hewitt 2012) and seminars

series such as one co-organized by the London School of Economics and the UK

Design Council (London School of Economics 2011). Although there are as yet

few post-graduate courses in design schools wholly focusing on design for social

innovation, the DESIS Network and other institutions are active in involving

students in projects tackling some of these themes, such as the Design Matters

Department at Art Center Pasadena (2013).

In what follows I describe each of these in more detail, identifying key actors,

themes, publications, intersections with other fields of practice, education and

research, and distinguish important tensions. Resources used are often online

including social media and digital publications, as well as organizational and

individual blogs, and recent PhD theses. Other resources include presentations

and discussion at the Social Design Talks series that I have co-organized in

London since early 2012 (Social Design Talks 2013). What emerges are pictures

of dynamic fields led by practitioners, but with strong links to educational

institutions teaching design, some interconnections with other professional

arenas such as social policy, and as yet few academic publications.

1.3 Design for services

One of the common starting points for those making a case for service design is

the contribution of services to national economies (eg Meroni and Sangiorgi

2011). Examples of services as an economic category include education, entertainment, financial services such as banking, telecommunications, transport, as well as public sector activities such as caring for the elderly or supporting those without work. In short, what are bundled together under the term *services* are extremely heterogeneous activities touching nearly everyone's day to day lives in developed economies, created and delivered by a variety of organizations (Salter and Tether 2006). Clearly many kinds of professional design activity are already involved in creating, promoting and delivering these activities. Opportunities to use designers' expertise in the design of banking services, for example, could include contributions to marketing and branding (eg researching a bank's customer base and proposing its value and positioning), visual communication design (eg designing a bank's signage, brochures, and letters), web and interaction design (eg designing bank web sites and smartphone applications), and interior architecture (eg designing bank branches). So designers of different kinds are already implicated in the design of services. But the premise behind service design that it offers something additional and distinctive, above and beyond traditional design disciplines.

But just as management researchers working on services have found it difficult to agree what services are, so too those arguing for a specific kind of design concerned with the design of services, also run into problems. What follows is a presentation of some of the important concepts that have arisen within service design, illuminated by examples of practice, research and teaching. This overview of the emergence of service design and key concepts in the field draws in part on writing by Mager (2004); Saco and Goncalves (2008); Kimbell (2009);

Secomandi and Snelders (2011); Meroni and Sangiorgi (2011); Singleton (2012) and Polaine et al (2013). What this aims to show is that, far from being a homogeneous practice, service design is characterized by fundamental conflicts, both about the nature of designing for services, and how it proceeds.

1.3.1 Practices, sites and publics

Notwithstanding the difficulty of describing what services are, and what design *for* services might look like, the field has developed at speed over the past decade with a recognizable professional practice and associated institutions and formal structures. This section presents some of the exemplars that indicate a maturing specialized field, in which practice has preceded the establishment of an academic field.

The sites and publics involving the activities called service design include a broad mix of organizations and people involved in services, including managers and employees in corporations and SMEs offering services, those working within public sector organizations and non-profit providers designing and delivering services within consultancies or in-house teams, as well as entrepreneurs developing new offerings. What is not covered here is an interdisciplinary field known as *services science* (eg Maglio et al 2006; Spohrer and Maglio 2008). This includes service design as a topic, but has its roots in computer science, information systems or management, rather than product, graphic or interaction design.

Many of the early public descriptions of service design are case studies of projects, which bring into view the fundamental tensions within the field. For example the late Bill Moggridge's book and website *Designing Interactions* (Moggridge 2006) includes a chapter on service design, with an interview with Fran Samalionis from consultancy IDEO, on the design of a banking service and a train service, examples of economic activities traditionally described as a service. A second interview is with Takeshi Natsuno, involved in designing the (then) leading mobile internet i-mode service in Japan. Both of these can be seen as examples of "pure play" digital services, where what is being designed is a technologically-enabled service experience.

But alongside these, Moggridge includes an interview with members of arguably the first service design consultancy, livework, sharing their project which involved designing a car sharing service, Streetcar (now Zipcar). Livework's discussion of how they brought service-based approaches to thinking about the car – an emblematic output of industrial manufacturing – is rooted in ideas of service ecologies (Moggridge 2006; Polaine et al 2013) and product-service systems (Meroni and Sangiorgi 2011). What became clear in livework's discussion was that business models needed designing to create value by arranging industrial objects in new ways. For them, designing services is not just about designing experiences delivered through digital artefacts, but involves opportunities to create new kinds of value relation by combining artefacts and people in new ways. Other industrial firms such as electronics manufacturer Samsung (McCullough 2012) and car manufacturer Volkswagen (Design the New Business 2012) are now using service design-based approaches to create

offerings that configure manufactured artefacts such as cars and mobility-related infrastructures into services.

An example of a pure service provider (in economic terms) that is intensely concerned with arranging artefacts into experiences for customers and users is Virgin Atlantic Airways (VAA), a British-based airline. Although it had a strong design team internally, VAA has also embraced service design. Joe Ferry, former head of design, created a new role of head of service design in his team, which brought a new attentiveness to the design of the experience of passengers, going beyond the firm's traditional attention paid to the interiors of its planes and its airport club rooms (Ferry 2009). In VAA's version of service design described by its former head of service design, Angus Struthers, the expertise he and his colleagues offer is working with the operations function including the employees who serve customers, to design and deliver particular kinds of service experiences throughout a passenger's contact with the airline (Struthers 2009).

Elsewhere, US-based design consultancy Continuum offers as one of its case studies of service design a description of how the designers worked with restaurant chain Bertucci's to research and create a new food experience offering, 2ovens launched in only 10 months in 2012. Continuum describe how they crafted the brand proposition, service experience, food concept, visual identity, and environmental design – in short contributing to the design of a new business, which happens to be a restaurant service. The consultancy describes this as follows: "We worked collaboratively across disciplines ranging from marketing to operations to finance. This integrative approach mixed qualitative and

quantitative research and full experiential and business model prototyping in parallel to achieve smart tradeoffs at every stage of development" (Continuum 2013). As with VAA, this is an account of integrating design strategically into the creation of a new venture, with a strong focus on the customer experience and how this links to resources to deliver it.

To summarise, the tension between viewing services as intangible, and recognising the digital and material interfaces, touchpoints or evidence, that people interact with as part of a service offering, is enduring. On the one hand, service designers pay attention to the artefacts that are part of services, but on the other, they are concerned with how the relations between people and artefacts create value or result in change.

1.3.2 Research and publications

Much of the first published writing on design for services is by practitioners. Examples are Parker and Heapy's (2006) discussion of bringing a human-centred design approach to the design of public services and publications by the aforementioned Design Council RED unit (Cottam and Leadbeater 2004; Burns et al 2006). Other books on service design include *This is Service Design Thinking* (Stickdorn and Schneider 2010) with an associated web resource (This is Service Design Thinking 2013). With very short chapters on fields related to the design of services including operations, branding, strategy and so on, this publication positions service design as the integration of these specialisms to research, generate and prototype new offerings. Including a toolkit of methods used in

designing services, this book presents the design of services as a valid site for designers' expertise. Polaine et al (2013) describes projects by consultancy livework and its approach. *Touchpoint* (Service Design Network 2013d), the magazine of the Service Design Network, combines short case studies and essays, with some contributions by academics. Special issues of academic journals on the topic of service design include the *International Journal of Design* (2011) and the *Journal of Behaviour & Information Technology* (2012).

One of the first academic books reviewing the emergence of this field is edited by Anna Meroni and Daniela Sangiorgi (2011). In their introduction, they note a paradigm shift in the fundamentals of value creation in the contemporary economy, drawing on Vargo and Lusch (2004) and others. They identify four possible areas of intervention into this for design: designing interactions, relations and experiences (eg researching user experiences to redesign them); designing interactions to shape systems and organizations (eg working within organizations within change management and business modeling); exploring new collaborative service models (eg involving users and participants in co-production of services); and imagining future directions for service systems (eg using scenarios to explore system change). All this, say Meroni and Sangiorgi, has implications for designers.

> The exponential increase in interactivity, connectivity and co-production of current offerings (being single artefacts or service solutions) requires designers to work in a more integrated, collaborative and systemic way; this doesn't necessarily mean that designers are currently equipped with

the required conceptual frameworks and methodologies to do so. (Meroni and Sangiorgi 2011: 25).

Academic literature on design for service is sparse. The PhD thesis often claimed as the first doctoral dissertation in service design is by Elena Pacenti in 1999 (see Secomandi 2012). More recent PhDs on the topic include these contributions:

- Han (2010) examined how service designers manage multiple stakeholder involvement in complex projects, including how they generated knowledge and disseminated it.
- Secomandi (2012) proposed that the practice of service design, as a recent development within the tradition of industrial design, may be approached primarily as the design of interfaces between service providers and clients.
- Singleton (2012) identified within service design a core concern associated with trying to change people's behaviour, which is downplayed.

These dissertations on service design are by researchers working within design traditions. In contrast with design fields, for which service design is often described as something new, within management fields there has been extensive research into the design of services but this is usually framed by management research (eg Kimbell and Seidel 2008; Voss and Zomerdijk 2007; Kimbell 2011; Meroni and Sangiorgi 2011). An open access web resource Service Design Research (2013) includes interviews with researchers and lists publications. To address this lack of a research base, in the UK, the Arts and Humanities Research

Council funded a short-term research network on service design, which came into existence in March 2013 (Service Design Research 2013).

1.3.3 Conferences and seminars

Conferences aimed primarily at design researchers with papers and tracks on service design include the Design Research Society (eg 2012), International Association of Societies of Design Research (eg 2011), and European Academy of Design (eg 2008). In contrast, although conferences aimed at management researchers that focus on services include service design as a topic, they rarely feature research elaborating designers' contributions to service design or perspectives from academic design research. Conferences focusing exclusively on service design and related topics such as service innovation and management include ServDes, first held in 2009 (ServDes 2013) and the Service Design Network's annual conferences since 2009 (Service Design Network 2013b).

One of the features of this area of design practice is its intense sociality among practitioners. This is not to say that other design fields do not sustain opportunities for social interaction, both formal and informal. Even a cursory visit to the annual Salone furniture fair held each April in Milan, for example, reveals it as an important site for those concerned with product and furniture design to gather. Those involved in developing and promoting service design have actively built into their field-building opportunities for face-to-face meetings and collaboration. In addition to conferences, some participants have set up opportunities for practitioners to meet and have drinks (Service Design

Drinks) and to talk (Service Design Thinks) (ServiceDesigning 2013) in cities
from Atlanta to Glasgow to Wellington. Another example is the Global Service
Jam, held annually since 2011. Initiated by Markus Hormess and Adam Lawrence,
this initiative is based on the proposition of groups of people working around the
world, in response to the same design brief, to research and design from scratch
a new service over the same weekend. In 2013, some 3000 people took part in
over 120 cities around the world, producing over 500 projects in response to a
shared brief (Global Service Jam 2013).

Figure 1 Photograph from service design workshop with MBA students from Saïd Business
School taught by the author in collaboration with staff and students from MDes Service Design
Innovation from London College of Communication

1.3.4 Teaching and learning

While there are instances of service design as a topic within teaching in design schools, for example, in project briefs (eg RSA 2012; Service Design Network 2013c), there are as yet few educational programmes devoted to or focusing closely on the area. There are some important differences in the way they present how they conceptualise what service design is, revealing the lack of consensus in this emerging field.

Some institutions have renamed existing courses to introduce a specialism in services. For example, at London College of Communication, University of the Arts London, a programme previously known as MDes Innovation and Creativity was formally renamed as MDes Service Design Innovation in 2012 (see Figure 1). The course website says the course "takes a multi-disciplinary approach to design and service innovation and its strategic role in both private and public sector organisations. The course emphasises the wider role of design and innovation in service systems as a vehicle for change from a societal, cultural and business perspective" (London College of Communication 2013).

Recently established new courses include MA Service Design at the Royal College of Art in London which says, "A highly integrated approach to the design of service experiences and systems is required, involving integration of multiple design disciplines to create a systems-based solution. It also demands an implicit understanding of the technological, commercial and organisational context to

assure the successful conception, development and deployment of service innovation" (Royal College of Art 2012).

Domus Academy offers a Master in Service and Experience Design. "The aim of the Master Program is to develop professional skills for Service Design and Management, with a focus on the quality of the overall customer experience and on the design of innovative service ideas. The educational objective is to impart upon participants all the conceptual and operational tools for designing and managing service innovations, such as, customer experience assessment and improvement; design of service organizational procedures; service interface design; as well as envisioning the feasibility and implementation of new service ideas." (Domus Academy 2013)

In contrast, a post-graduate course previously known as the Master of Design at Duncan of Jordanstone College of Art and Design, was renamed MDes Design for Services (Dundee University 2013). Course director Hazel White (White 2013) summarizes the course as follows: "Working with people to understand what is difficult and help them imagine what would make it easier" (White 2013: 9). This sounds like a generalized design thinking, rather than a focus on a specific object of design or as design education responding to a particular set of organizational opportunities.

These short descriptions show how differently service design is conceived of at leading design higher education institutions. Design for service is characterized an activity to help people imagine what would make life easier, or as something

aiming at systemic innovation in organizations, or as something that is tied to the strategic role of design in organizations, and technologies, or as something that is focused on designing experiences. This variety enables different versions of design for service to co-exist, which is unsurprising in an emergent domain.

1.3.5 Issues and tensions in contemporary design for services

Although this is a necessarily brief overview of a fast-changing field, what becomes clear is that there are some fundamental and important tensions that exist in the practice, research and teaching of service design. It is unclear whether thus far, these tensions have held back the field. Certainly contestation is central to the emergence of new disciplines, as "boundary work" by social actors describes and proscribes what is core to a field as its constructs evolve, and what is outside its scope. In the field of service design, current tensions in the way the field and practice are conceptualised include the following issues.

- **What is the object of design for services?** On the one hand, service design is described as concerned with intangibles and experiences. Such accounts of service design often borrow the model developed in management to define services: intangibility, heterogeneity, inseparability (of production and consumption) and perishability (IHIP) (cf Vargo and Lusch 2004; Meroni and Sangiorgi 2011). On the other, the emphasis is on how people engage with artefacts and organizations eg user interactions with diverse touchpoints during a customer's experience of a train journey, as described by Samalionis in Moggridge

(2006). Some service design advocates make the claim that it is through designing services that these various artefacts can be choreographed or arranged holistically and systemically in relation to one another (eg Mager 2004; Evenson and Dubberly 2010). Hence time becomes an important variable for designers. But on the other hand, such appeals to digital and material service "evidence" and "touchpoints" reveal that services can encompass numerous types of designed thing, including the social relations in which they are mobilized. Singleton (2012) argues for recognition that service design is directly concerned with designing human behaviour.

- **What are the distinctive ways to approach designing for services?** On the one hand, some proponents of service design claim specificity and novelty in the methods used to design services (eg Parker and Heapy 2006; Stickdorn 2010; Meroni and Sangiorgi 2011). On the other, on closer inspection, many of these methods and techniques exist in other closely related fields or specialisms such as interaction design, participatory design, product design and business innovation. Many organizations and individuals have been designing services for years without the help of professional (service) designers, so it's not immediately clear what a newly-formed grouping of self-named service designers offers. Further, it is not clear what design professionals, especially those educated in design school traditions, offer in comparison to the work of others such as customers or users, or managers and members of staff and other stakeholders or bystanders. On the one hand, proponents of service design aim to stake out designers' specialist

knowledge and expertise in the design of services. But at the same time they emphasize contributions by non-designers within collective participatory processes from research to analysis and design (eg Stickdorn and Schneider 2010; Meroni and Sangiorgi 2011; Polaine et al 2013).

- **Is service design a new discipline or field of practice, or an integration of existing knowledge and expertise?** Without a commonly-agreed definition of what is being designed within service design, it is hard to clarify whether service design is a new field. On the one hand, some of those promoting it describe it as new (eg Mager 2004) whereas others (eg Morelli 2002; Meroni and Sangiorgi 2011; Royal College of Art 2013) emphasize its emergence from and relation to ideas of product-service systems, information systems, interaction design, and management fields. On the one hand, it's a sub-discipline or specialism of design, or on the other, it's a way of thinking rooted in design that can be applied to any object (eg Polaine et al 2013).

Thus in the early stages of the formation of service design as a new field of practice and arena for teaching and research, there are some important unresolved questions. The next section will go on to examine design for social innovation, which shares many of these issues – and much of the potential.

Figure 2 Photograph showing relations between different actors around a service, as part of an exploratory workshop relating to local government services, from the author's professional service design practice

1.4 Design for social innovation

Design for social innovation is even more diffuse that design for service, in several respects. Rather than emergent, it is perhaps embryonic, and it's even less clear what kind of creature(s) it might grow into. This section will summarize its genealogy and theoretical concerns in practice and in academic research. This overview draws on numerous sources including the following: Margolin and Margolin (2002); Buur and Mathews (2008); Sanders and Stappers (2008); Jégou and Manzini (2008); Meroni (2008); Bason (2010); Björgvinsson et al (2010); Drake et al (2010); Meroni and Sangiorgi (2011); Thorpe and Gamman (2011); and Julier (2011). As with service design, a picture emerges of a

fast-developing field of practice, little academic analysis to date, and some underlying issues.

Accounts of design for social impact or social innovation typically cite Victor Papanek, whose *Design for the Real World* (Papanek 1971/1991) remains a call to action for designers who want to understand their role in the world. Papanek "pits socially responsible designers against a commercial market that thrives on the production of excessive and useless products" (Margolin and Margolin 2002: 27). More recently Tony Fry (eg Fry 1999; 2007; 2011) has highlighted the uncritical practices enacted in design fields that continue to support unsustainable futures. But there are other traditions that are part of the shift towards design for social innovation. These include activism through design (eg Julier 2011; Design History Society 2012; Thorpe 2012), Participatory Design and participatory architecture. Participatory Design developed within workplaces concerned with supporting the democratic involvement of workers when designing digital technologies in particular within Scandinavia but its concepts and methods have now expanded beyond this, to other contexts such as designing parks and learning environments and other challenges such as confronting dominant groups (Greenbaum and Loi 2012). Within architecture there is also a tradition going back several decades of engaging communities of participants in the activities of designing the built environment (eg Hamdi 2004; Jones et al 2005). There are also research projects within design institutions, which share resonances with these projects, but pre-date the emergence of the term social innovation. One example is the work of the Design Against Crime Research Centre, University of the Arts, London (Central St Martins 2013). Other

recent accounts, reaching audiences not familiar with design, make a case for design methods better focusing on the needs of individuals facing challenges such as access to clean water (eg Brown and Wyatt 2011).

The creation and increasing circulation of the term "social innovation" (eg Mulgan et al 2006; Social Innovation Exchange 2013), has presented new opportunities for designers. In addition to the need for designing artefacts in relation to such innovations, there are opportunities to be involved in the designing of new business models and experiences, to address collective and public issues (see Figure 2). It is against this backdrop that design for social innovation has emerged over the past decade.

1.4.1 Practices, sites and publics

The sites and publics for these activities include a wide range of organizations, professionals, projects and communities involved in designing products and services relating to collective or public issues. These include non-profit and public sector organisations, such as local authorities and central government departments, providers of social housing or services, major foundations and international and regional agencies. In contrast to established design fields such as product or graphic design, in which there are relatively clear processes for organizations wanting to hire professional designers, the emergence of designers wanting to apply their expertise to social or collective issues has lead to new forms of engagement between social actors. Many of the examples that follow are

from the UK, which is recognized as an active player in this arena (Manzini 2010b).

Key players include government-funded organizations, which take on roles as mediators between various actors who would not typically work together to design services or products. A leading example here is the UK Design Council, which has initiated and led many projects in health, ageing, unemployment and local government services (Cook 2011). In recent projects (Design Council 2012) one way of working is setting up design challenges in partnership with a government department or other body, and creating a public competition to find teams of design specialists and entrepreneurs and technologists to research, design and prototype solutions on the ground.

An important driver behind these kinds of projects is the need to use design methods to undergo practical experimentation at the local level, but sharing knowledge with others and aiming to make a solution scalable and ultimately, self-financing. For example Futuregov, a UK-based consultancy organization focusing on designing digital services for/within central and local government, has a strong focus on user interface and service design. Their projects include Casserole, which "brings local communities together around delicious home cooked food" made by neighbours for neighbours (Futuregov 2013). The service brings together people who are happy to cook an extra portion of dinner (referred to as "cooks"), with older neighbours who struggle to cook for themselves ("diners"). Surrounding this sharing of meals is a local food community, with members exchanging recipes, sharing cooking tips and

participating in local events. Futuregov developed this project with the support of two local government departments and it was awarded funding from UK government-funded bodies. So here, although Futuregov is important agency in conceptualising and designing the service, the project is reliant on combining in new ways public sector commitments (such as the local government partners) and financial resources.

In addition there are some examples of procurement by public sector bodies, specifically wanting to bring design approaches into their work. A leading example here is the creation of MindLab, set up in 2001 across three Danish ministries to bring design-based approaches to public service design (Bason 2010; Mindlab 2011). Another national government level example is the Australian Centre for Social Innovation's co-design team, which uses ethnographic and design-based approaches to design new solutions to social challenges such as troubled families (TACSI 2012). A local government example of public sector procurement is UK consultancy Engine's work with Kent County Council, which lead to the creation of a change programme called Social Innovation for Kent, including workshops, a toolkit and projects (SILK 2010). But there are also examples of entrepreneurs responding to public issues such as ageing societies. Here UK agency Participle is an example of a design-led response that works with, but outside, of public sector provision for example with its Circles projects (Participle 2012; Rawsthorne 2013).

Other key players in these developments are universities, providing opportunities for students to work on projects with a social purpose by setting

up relationships with external organizations. A leading example is the Design Matters department at Art Center Pasadena, which over more than a decade has initiated projects for students and young professionals with UN agencies and others. A second example is the DESIS Network, co-founded by Italian design researcher Ezio Manzini, which among other activities, brings together over 40 universities and design schools to share knowledge from projects undertaken by their students and undertake initiatives.

There are some examples of design for social innovation that have reached far beyond design communities and audiences. For example Emily Pilloton, who set up a project called Project H, to introduce design with a school curriculum within a rural area in the USA, has received widespread media attention (Pilloton 2009; Rawsthorn 2013). Commentator Bruce Nussbaum's reflections on Project H sparked lively debates about whether such design practice, initiated often by outsiders, was colonial (Nussbaum 2010).

Two other recent phenomena offer alternative models that try to engage broader communities as participants in designing in response to collective and public issues.

The first is design workshops, sometimes known as hackathons within software development communities. These bring together people, sometimes strangers to one another, ideally from diverse communities, groups and organizations, to go through a design process within a compressed time frame like a weekend. There are examples of such workshops addressing the benefits system (Futuregov

2012), and others which use design methods such as Social Innovation Camp (SI Camp 2013).

The second example is OpenIDEO (2013), a web-based platform. This works by finding partners such as corporate sponsors, government agencies and non-profits, who want to engage a wider public in addressing a challenge over a defined period of time. For example with partners Oxfam, the platform posed the question "How might we improve maternal health with mobile technologies for low-income countries?" to which users of the website responded with 282 inspirations, 182 concepts, 20 final ideas, and realization of at least one of them in progress in Colombia.

There are also examples of people who do not refer to their work as design, appropriating and adopting design approaches and exposing them to entrepreneurs and activists. For example the growing field of social enterprise often includes discussion of customer research and user experiences. For example the annual Skoll World Forum in Social Entrepreneurship (2013) held in Oxford, has included sessions on design thinking.

1.4.2 Research and publications

As with service design, design for social innovation is a heterogeneous topic. There have been so far few attempts to provide an overview of research contributions, although within discrete fields such as healthcare or graphic design, there are activities underway. Drake et al (2010) offer an annotated

bibliography, combining practitioner writing, blog posts, academic publications and toolkits. Much of the discussion, and several of the case studies, in Meroni and Sangiorgi's (2011) book on design for services cover social and public sector issues. Given the recent arrival of the term social innovation, and lack of academic research, it is not surprising that much of the writing to date specifically on design for social innovation is by practitioners (cf Young Foundation 2012). However there are numerous contributions that consider the role of design in relation to social change, transformation and related matters.

Within design studies, a paper by Margolin and Margolin (2002) was an early attempt to describe what a "social model" for design practice might look like, distinguishing between this and a "market" model. "The primary purpose of design for the market is creating products for sale. Conversely, the foremost intent of social design is the satisfaction of human needs" (Margolin and Margolin 2002: 25). In contrast to Papanek, who proposed that designers should develop ways of working outside of the mainstream marketplace, Margolin and Margolin proposed that designers instead find allies in professions related to health, education, social work, aging, and crime prevention.

One of the first academic journals in this area is *Co-Design: International Journal of CoCreation in Design and the Arts* (since 2005) although papers on related topics have also appeared in other design journals. Special issues with topics related to design for social innovation include *Design Philosophy Papers* (DPP 2011 and 2012). For example, Sanders and Stappers (2008) describe a shift away from traditional design disciplines focusing on the outputs of specific

disciplines (eg product design or architecture) towards designing for purposes (eg designing for serving or designing for sustainability). They then identify two specific implications. Firstly, the role of designers, researchers and users are changing. Users become co-designers, researchers become facilitators, and designers will play roles in co-designing teams and developing generative tools for collective creativity (Sanders and Stappers 2008: 12-15).

Binder et al (2008) outline how Participatory Design methods and approaches have moved away from their roots in software development and worker participation into the world. "Co-design, participatory design approaches and participatory methods are less and less seen as specialised predilections and democracy-oriented motivations; participation(-s) are already out there, circulating in general design practice and 'in the wild." (Binder et al 2008:82).

An example of research that deploys some of these approaches, is one funded by the European Commission. Based partly in universities but operating with strong local partnerships, Jégou and Manzini (2008) ran a two-year project with the title Emerging User Demands for Sustainable Solutions. The researchers explored scenarios that reduced people's needs for products and living space and distances travelled, to lessen the impact of their lives on the environment. The scenarios focused on local collaboration, mutual assistance, and sharing, and recognized how this required time, organization, and flexibility.

Manzini (2007) summarised new roles for design within these developments. Firstly, he proposed designers start with social innovations in the sense of the

ways people are already doing things differently. Their roles then include giving visibility to promising cases, highlighting interesting aspects, building scenarios of potential futures, and conceiving and developing systems of products, services and information to increase their efficiency and accessibility. Identifying a role for designers as facilitators, Manzini comments:

> [I]n practice this involves moving in the opposite direction from that more frequently taken by designers, i.e., where starting from a technical innovation the designer proposes products and services that are socially appreciated. (Manzini 2007: 15)

Further developing some of these ideas, Tonkinwise (2011) and Penin (2012) described a project led by designers at Parsons The New School for Design in New York. The project aimed to find examples of local creative practices and "amplify" these, rather than having designers come in and undertake idea generation.

More recently, Manzini (2010a) summarized concepts he and his colleagues work with as aiming to support *small*, *local*, *open*, and *connected* communities. Notwithstanding some challenges to social innovation from anthropologist Appadurai (2010), Manzini's work remains influential, as is his role as co-founder and leader of the DESIS Network.

Meanwhile in Sweden, a project in the city of Malmö, also funded by the European Union, has involved members of the local community and researchers

working together to mobilize, facilitate and connect heterogeneous participants and marginalized groups to approach complex urban challenges collaboratively (Björgvinsson et al 2010, 2012).

One of the early academic efforts to analyse a design-based contribution to the design of a healthcare service is by Bate and Robert (2007). Then relatively unfamiliar with design, the authors were involved as participant-observers in a project within a National Health Service cancer service, while consultancy ThinkPublic helped apply design-based methods to explore opportunities for improvement and innovation. Calling this "experience-based design", the researchers emphasised the collective material practices of the designers, which allow groups of people including patients and staff, to engage with each other in new ways. Junginger and Sangiorgi (2011) showed how design was a way of opening up wider transformational questions within public sector organisations.

Notwithstanding the scarce academic research on design for social innovation and its impacts, there are numerous toolkits available to help people do it. One of the first published was IDEO for the Rockefeller Foundation (IDEO 2008). Consultancy Engine published a card deck to support social innovation in Kent, as part of their project there (SILK 2010). IDEO also created a toolkit for human centred development for the Bill and Melinda Gates Foundation (IDEO 2011). Consultancy Frog design published a Collective Action Toolkit (2012). Kimbell and Julier published the Social Design Methods Menu (2012).

1.4.3 Conferences and seminars

There have, of course, been conferences that focus on design's role in the world that pre-date the term social innovation. For example Sanders and Stappers (2008) describe a 1971 conference organized by research Nigel Cross on Design Participation. Here, part of the attention on participation is as a result of the failures of designers to predict and design-out the adverse effects of their work. "There is certainly a need for new approaches to design if we are to arrest the escalating problems of the man-made world and citizen participation in decision making could possibly provide a necessary reorientation" (Cross cited in Sanders and Stappers 2008: 7).

More recently, specialist conferences exploring the role of design in social innovation include a Social Impact Design Summit the Cooper Hewitt Museum in New York (Cooper Hewitt 2012). The Participatory Innovation conferences (since 2011) bring together those studying or involved in bringing participants into innovation work, although this is not confined to social innovation. For example, the proceedings from the 2011 conference (Buur 2011), gather theories and methods across such academic fields that describe how people outside an organisation can contribute to its innovation.

1.4.4 Teaching and learning

As with service design, notwithstanding the lack of an extensive academic research base, there are examples of teaching design students, how to go about

designing for social innovation. One example is a MFA Design for Social Innovation at the School of Visual Arts in New York. This two-year post-graduate programme says it prepares students "to apply the principles and ethics of social innovation as filters for understanding and as a discipline for engaging with and improving the world through design. Graduates of the program will be more than graphic designers, filmmakers, advertising creative directors or interactive systems designers. They will be all these, mastering all the skills and knowledge of how to apply them to have a positive impact on business, society and their own lives" (School of Visual Arts 2013). Among the members of the DESIS Network, several universities are involved in setting projects for design students.

1.4.5 Issues and tensions in contemporary design for social innovation

As with the discussion above on service design, this brief introduction to accounts of design for social innovation has highlighted some important tensions. Again, some of the contested issues are around the nature of this emerging field of practice and the nature of the design expertise enacted within it.

- **What is the object of design for social innovation?** On the one hand, using terms like "social" can suggest non-commercial or public sector matters, but on the other, the term social can mean collective or public issues, in which entrepreneurs or businesses can participate but with positive shared impacts. Further, the term social also appears among providers and users of online community-based networked media. Moving away from the difficulty of selecting a particular meaning for the

term "social", there are also issues about what designing for social innovation aims to achieve. Terms such as sustainability, wellbeing, and behaviour change now appear regularly within discussions about the purposes to which designers work towards. But as with service design, it is difficult to pinpoint what it is that such designing designs. Again, user experiences (and often behaviours) are what designers are working with, including heterogeneous artefacts and interactions, but also systems, organizations, policies and structures. On the one hand, some proponents of design for social impact (eg IDEO 2008, 2010) describe an approach that is "human-centred". On the other, those rooted in traditions of Participatory Design (eg Ehn 2008; Björgvinsson et al 2010) do not rely on pre-existing distinctions between the human and the technological or social and further, acknowledge conflict and agonism among participants rather than claiming idealistic consensus.

- **What are the distinctive ways to approach design for social innovation?** Many organizations and individual activists and entrepreneurs have been designing responses to public and collective challenges (eg products, services, projects and policies) for years without the help of professional designers, so it's not immediately clear what designers or those advocating design-based approaches bring and what this might lead to. Further it is not clear how what professionals educated in design school traditions offer compare with the participation or work of others such as customers or users, or managers and members of staff and other stakeholders or bystanders. On the one hand, designers are described as key agents with roles to play in initiating or facilitating

change (Manzini 2007). On the other, designers' knowledge and intentions are not necessarily dominant factors in design projects which are also shaped by power relations such as access to resources, the narratives shaping what is enacted in defining social problems and generating potential solutions to them.

- **Is design for social innovation a distinct field of practice, or should/can pro-social purposes be integrated into all designing?** On the one hand there is a clear history of designers and activists using design to improve social outcomes (eg Papanek 1991; Julier 2011) so professional design practice has often been implicated in social change. On the other, the development of social innovation (eg Mulgan 2006) and social entrepreneurship (eg Skoll World Forum 2013) as new fields of practice and research offers opportunities and a demand for design expertise.

- **How do power, ethics and accountability play out during the activities of designing?** On the one hand, designing for social innovation is presented as attending explicitly to the social (collective) concerns of those implicated in or affected indirectly or directly by designing (eg Jégou and Manzini 2008). Such accounts present design for social innovation by meeting people's unmet social needs by being empathetic, inclusive and accessible (eg Brown and Wyatt 2011). On the other, such idealism is tempered by recognizing otherness and the agonistic nature of the social world (eg Ehn 2008; Binder et al 2011; di Salvo 2012).

1.5 Questions that matter

The introductions to design for services and for social innovation above reveal a complex picture. They present evidence of designers and others using design-based expertise to contribute to new and better services, and to positive change in organizations and in communities, but present challenges in understanding the nature of this work and its impact and effects. To summarize:

- In services and social innovation, many different kinds of artefact and designed thing are involved.
- Professional designers are involved in designing a variety of designed things including products, communications, the built environment, digital interactions, services, policies, and systems as well as interactions, behaviours, and structures.
- Designers often work as part of multi-disciplinary teams with other specialists, and also people affected by or involved in an issue such as residents, or service users, so designing is distributed among several participants.
- The boundaries between commissioner/researcher/designer/user and commissioning/research/design/use are blurred.
- Designers' work is rewarded economically and institutionally in different ways through working as consultants, in-house employees, activists and entrepreneurs. Designers' expertise is unclear in some of the fields in which they are now working, which are more typically the domain of specialists in management, social care or policy.

- Other professions are developing designerly approaches, methods and skills raising questions about what if anything is distinctive about designers' expertise.

In this context, it becomes more important to understand the nature of the social and cultural worlds in which designers or others participate in design work. There is a shift towards designers needing to better understand the larger sets of relationships and trajectories within which they do their work and within which their designed things will exist and be used or engaged with. Rather than calling this a "social world" or "context" inside which design takes place, this study will argue this is better thought of as a reconfiguring *sociomaterial* worlds that are mutually constituted in practice. The term sociomaterial indicates the hybrid nature of social phenomena that are made up of heterogeneous actors, both human and non-human. Designers and the people with and for whom they design do not exist "in" a "context" that is "outside" of them. Rather, through practice, they are involved in co-creating such configurations.

This is where the research question shaping this study is located: *How can designing the relations between people and things be conceptualized, in design for services and design for social innovation*? The rest of this chapter describes how this dissertation will answer this question. As a research question, it sounds rather grand, as if aiming to develop a unifying theory across two diverse, dynamic fields. In fact, the intention is more modest. It recognizes the many practical and conceptual linkages between the two emerging fields sketched above. It requires tracing the ways that designers and design research have

engaged with social and cultural research, and how researchers working within anthropological and sociological traditions have in turn mobilised concepts of the social within designing. It involves taking a skeptical stance, located within and aiming to inform contemporary professional design practice, but nonetheless trying to explore its boundaries. Rather than aiming to present some totalizing theory from nowhere, the dissertation aims to open up ways of thinking and explore how these are productive at a time when designers are working in contexts that go beyond conventional expectations of what their skills and knowledge are relevant to.

Driving this are two motivations, which are both oriented towards practice. The first is that I am directly involved in design work as a consulting designer and educator, with a focus on designing for services, sometimes in the context of public policy. As a *reflective* practitioner (Schön 1986) I want to deepen the understanding of my approaches, methods and their effects and those that I teach and disseminate in other ways. As a *reflexive* practitioner I want to better understand how such methods are involved in constituting or enacting particular possibilities for design work and myself as a practitioner and educator. The second motivation is that I want to contribute to broader discussions among peers and networks. I believe the shift towards designers working on services and in relation to public and collective issues requires designers to be more aware of what their work does, and what is involved in doing it, in order to support the claims they make.

1.6 Overview

This chapter has introduced two new fields of design practice concerned with the design of services and design for social innovation. It has argued that they raise important issues for understanding the scope and role of designing. A research question was identified, which asked how design can be conceptualized in the design of services and design for social innovation. This section describes the rest of this study, which aims:

- To review literatures in complementary fields that to date have not been brought together often, including design studies, Participatory Design and Computer Supported Cooperative Work (CSCW) to examine the development of ideas of the social within design and how social and cultural research can relate to designing.
- To draw together concepts developed across three solo-authored publications and combine these with other resources within Science and Technology Studies (STS), to move towards a conceptualisation of designing the relations between people and artefacts in the context of designing for services and for social innovation.
- To apply the concepts to two cases to review their usefulness.
- To discuss implications for research and for practice, in particular within service design and design for social innovation.

Following on from this chapter, Chapter 2 describes the research strategy taken to address the question posed above. The discussion begins by introducing the

ontological and epistemological commitments that underpin the research, identifying particular ways of understanding the world and how knowledge is produced. These shape the choice of an abductive research strategy (Blaikie 2002). This involves recognising my location in the sociomaterial world I wish to understand, and the aim of understanding actors' accounts and concepts that they use to describe their own actions and the actions of others. Abductive research involves researcher alternating between periods of immersion in the social world and time spent doing analysis. The way this is enacted in this dissertation, is by thinking of this as a process of experimental writing. This experimentation is not in formal terms, for example, in my use of language, grammar, layout, or style, which are entirely conventional in academic terms. Instead the aim has been to continually rework the analysis, thinking of this as a kind of *remixing*. The approach taken is to synthesise research from previously published papers, to articulate a way of understanding design and designing that addresses the research question. The chapter then introduces the methods used in the research including participant-observation, case studies, and autoethnography. It concludes with a review of the limitations of this approach.

Chapter 3 then presents the first part of the literature review. It focuses on design studies, which is a loosely-bounded field of interdisciplinary study in which researchers aim to understand and describe design. A particular focus in this field has been to describe what designers do in their professional work including how they approach problem-framing and solving, and the nature of design expertise (eg Alexander 1971; Archer 1979; Buchanan 1992; Cross 2006). The chapter proceeds by describing the expansion of concepts for designers to

work with, in particular with the introduction of "the user" through user-centred design (UCD) influenced by psychology which was absorbed into industrial and product design (eg Norman 1990). The argument proceeds by reviewing challenges to the concept of the user, for example in critical design practice. It then introduces the work of Winograd and Flores (1986), whose concept of ontological design highlights the role of language in constituting interpretation and action. In summary, this account moves seeing design as primarily concerned with what designers do or the objects they create, to an attentiveness to users and what they do in the contexts in which they encounter designed things, to a conceptualisation of designing and using designed things as ontological.

Chapter 4 offers the second part of the literature review. It reviews research over two decades within fields in which there has been an attempt to bring social and cultural research methods, in particular ethnography, into designing. It shows how the active involvement of anthropologists and sociologists in design work offered concepts that go beyond "users" and their "contexts". The chapter summarizes important contributions in Participatory Design and CSCW and describes the emergence of design anthropology (eg Hughes et al 1992; Suchman et al 1999; Wasson 2000; Cefkin 2009; EPIC 2013). This chapter identifies four key tensions that emerge in these literatures. These are: the role of social theories in designing; gaps between research, design and use; different ways of being a member of a group or project, and who participants and researchers are accountable to; and the making of representations about the social world.

This is followed by an interstitial. Between Chapters 4 and 5, three of my publications are presented. These were published in peer-reviewed journals during the time I was involved in conducting this PhD research. Two of them focus on design thinking, and the third on service design. In dissertations it is more common to append such publications by putting them at the end of the main body of work. Including these papers in the main body of text rather than in an appendix may encourage readers to attend to them in the order I suggest and read them before moving onto Chapter 5, in which some of the arguments are remixed. Paper 1 is the first part of a study into design thinking. It describes its origins in design studies and other literatures, and the need to re-assess it. Paper 2 is the second part of the same study. It uses theories of practice to offer a conceptualization of designing that involves two paired terms: designs-in-practice (the events and sites in which objects are redesigned as dynamic practices unfold) and design-as-practice (the events and sites of design-culture, when doing designing). Paper 3 contributes to the topic of service design. It draws on literatures within management fields and in design and then uses three case studies based on my participant observation of/with practitioners doing service design, to argue for a specific kind of service design, called designing for service.

Chapter 5 then remixes concepts from these three papers in relation to some of the issues in the literatures discussed earlier, and combines them with other research. This chapter is in two parts. The first part addresses how the object of design is conceptualized and asks what is it that designers are designing when they do designing? The second part is concerned with how designers go about

doing designing. These are both long-standing questions in research about design. The aim of this chapter is to provide resources that enhance understanding about designing for service and for social innovation, by drawing upon several research traditions. In particular, resources in Science and Technology Studies are mobilized, including ideas of ignorance and experimentality (eg Shapin and Schaffer 1985; Gross 2010), inventiveness (Barry 2001; Wakeford and Lury 2012) and excess (Wakeford and Lury 2012). In summary, this chapter offers a way to re-think designing as constituted through practicing inventive methods, arising through the co-articulation or mutual elaboration of heterogeneous actors resulting in new meanings and identities, skills and procedures, and forms, capacities and properties.

In Chapter 6, this argument further develops by elaborating some of the concepts developed in the previous chapter. This chapter lays out design-as-inventive-practice, identifying two perspectives, design-as-practice and designs-in-practice. It proposes five characteristics of inventive practice: intra-action; inventiveness; ignorance; accountabilities; temporalities. It argues that together they offer an account of designing understood as a (re)configuring of the relations between people and things that unfold in practice.

The relevance of these concepts is then explored by using them to revisit two accounts of designing published elsewhere. By rewriting these accounts through the conceptual lens developed in Chapter 5, this offers a further remix of both the concepts. The first report is by researchers at Lancaster University, exploring the design and commissioning of clinical healthcare services

(ImaginationLancaster 2011). As an example of *service design*, this case brings into view some of the conceptual difficulties in understanding what is being designed in health services and how to design such services. The second case is from my own professional practice (Kimbell forthcoming), an example of *design for social innovation*. It describes a short project to support a provider of social housing wanting to design a service for older people in a London locality. Discussing each case through the lens of these concepts articulated in Chapter 6 helps illuminate their relevance to contemporary designing. It is argued that these concepts are productive because they make explicit the centrality of the relations between people and artefacts within configurations that unfold in practice, rather than the starting point being organisations, artefacts, services, roles, or behaviours. The inventive practise perspective illuminates how individual capacities, skills and needs are co-constituted relationally. Further, it sets up temporalities and accountabilities as problematics, not as matters that are given or pre-determined, and brings more clearly into view the unintended consequences of action as designs unfold.

In Chapter 7, the study concludes with a discussion of the contributions it offers to practice and research. This includes opening up new ways of understanding the object of design and how to characterize approaches to design for service and design for social innovation. Further, this study broadens understanding about the nature of participation in design for social innovation. A further contribution is to connect research traditions that do not yet have many shared points of intersection. This is followed by further reflection on the limitations of the approach used in this study.

The dissertation ends by identifying possible future direction for research. These include ways to understand and render available the diverse agencies and their mutual accountabilities, and how to identify the timeframes over which to analyse how practices unfold. A second avenue is understanding the extent to which an inventive practice can be developed as a collective capacity, that is not only associated with people who think of themselves as designers or who went through a design education. A third direction for research is understanding and evaluating the impact of design-based approaches within services and social innovation, when understood as collective agencies.

This introductory chapter started with snapshots from contemporary design culture. It demonstrated how service design and design for social innovation have attracted designers, and those who would use approaches sometimes called design thinking. Reviewing some of the issues that have emerged through this expansion of designerly practice into new fields has lead to the research question. This dissertation crystallizes a time and place: a researcher and educator working in London and Oxford, intimately involved in what may be the development of new fields that challenge contemporary design practice, or which may whither and disappear over the next few years as new formations emerge, and who knows in person many of the people whose work has just been referenced or described. There is no possibility of fully capturing the complexities in these emerging fields. But what I have done, for myself and I hope for others, is offer a way to conceptualise designing that helps address some of the challenges facing practice and research.

Chapter 2   Methodology

Because if metaphysics is interesting, it is as a method: as travel, as a way of getting at new insights. Bruno Latour (Latour et al 2011: 58)

2.1 Introduction

The aim of this section is to describe the approach taken in this research and to explain why this was the route followed. Methodology is usually viewed as an understanding of, and reasons for, choices taken for using particular methods, in the process of doing research. There is no set of rules or recipes appropriate for doing research. The point of this section, therefore, is to make explicit what was done and why. The methods used here are not arbitrary or random, but specific, to address the issues outlined above, within the context of a doctoral dissertation, which is part of a training in research methods. To launch this discussion, I turn first to discussions of ontology and epistemology to help readers locate my commitments to particular ways of understanding the world and the production of knowledge influencing the choice of a particular research strategy. What then follows is a review of methods relevant to the topics at hand, presenting a case why specific ones were chosen to address the questions posed above. The section concludes with a review of the limitations of the approach.

2.2 Research strategy

2.2.1 Overview of strategies

Being accountable for research strategies and methods orients researchers to the communities they seek to be part of and the conversations they want to contribute to. One starting point is the ways that researchers conceptualize the world and what it is made up of (ontology) and how the world, or put another way, the object of research, can be known (epistemology). The discussion that follows uses Blaikie's *Designing Social Research* (2002) to help describe the underlying ontological and epistemological commitments that underpin research, and the particular research approach used here. However it departs from Blaikie's emphasis on Interpretivism, by seeing the sociomaterial world as constituted through the everyday activities of actors.

In *Designing Social Research*, Blaikie presents four different research strategies for doing research. He describes these as four ideal or constructed types, each with a particular logic. Table 1 shows the main aims of each, and examples of how they are used.

	Inductive	**Deductive**	**Retroductive**	**Abductive**
Aim	To establish universal generalizations to	To test theories to eliminate false ones and corroborate the	To discover underlying mechanisms to	To describe and understand social life in

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	be used as pattern explanations	survivor	explain observed regularities	terms of social actors' motives and accounts
From	Accumulate observations or data	Borrow or construct a theory and express it as an argument	Document and model a regularity	Discover everyday lay concepts, meanings and motives
	Produce generalizations	Deduce hypotheses	Construct a hypothetical model of a mechanism	Produce a technical account from lay accounts
To	Use these 'laws' as patterns to explain further observations	Test the hypotheses by matching them with data	Find the real mechanism by observation and/or experiment	Develop a theory and test it iteratively

Table 1. The logic of four research strategies. Blaikie, Norman. 2002. Designing Social Research. Polity Press.

Briefly, Blaikie outlines these strategies and their particular philosophical and theoretical ancestries, and demonstrates how each requires making ontological assumptions about the nature of reality and epistemological assumptions about how that reality can be known. The *inductive* strategy assumes that the universe is made up of observable events. The task of the researcher is to use his or her senses to produce and analyse data about that universe. In contrast, the *deductive* research strategy does not rely on observations of the world. Like the inductive strategy, it regards nature and social life as made up of patterns of

events, but all observations are seen as theory-dependent. Instead of looking for confirming evidence to support an emerging generalization as in induction, in the deductive strategy a researcher aims to refute existing tentative theories. So research proceeds by a process of conjecture and refutation. Both the inductive and deductive strategies are well-established within the history of science and the social sciences.

What Blaikie calls the *retroductive* strategy rests on a constructivist ontology, in which social reality is viewed as constructed through the resources of social actors. It has a realist epistemology, which builds models of mechanisms and descriptions of social reality.

The fourth strategy, which Blaikie calls *abductive*, begins by exploring through everyday language and activities the knowledge that social actors use in the production, reproduction and interpretation of the phenomenon under investigation. In Blaikie's version of abduction, he associates this approach with Interpretivism, which privileges the meanings and interpretations of people in their everyday lives, which influence their behaviour. The ontological assumption here is that reality is constructed by social actors and does not exist independently outside their collective activities. As Blaikie (2000: 116) puts it: "Social reality is the symbolic world of meanings and interpretations. It is not some 'thing' that may be interpreted in different ways; it is those interpretations."

While Blaikie emphasizes the *interpretations* that are part of the social world, other constructivist approaches, that are not based in Interpretivism, emphasize

every *practices*. For example, ethnomethodological researchers argue that social ordering is produced by everyday activity (eg Garfinkel 1967). Researchers working within STS, whose work is discussed further in Chapter 5, exhibit variations of this position, with the important emphasis being on action, not interpretation (see Latour and Woolgar 1985; Latour 1999; Mol 2002, Latour 2005; Barad 2007).

The epistemological assumption of the abductive research strategy is that knowledge as derived from shared everyday concepts and meanings in the Interpretive account, or in everyday action, in the ethnomethodological account. But for both, the task of the researcher is to enter the social world to understand actors' accounts and concepts that they use to describe their own actions and the actions of others. So the abductive strategy is based on a constructivist view of social reality, and the source of its explanatory accounts is located there too (Blaikie 2000: 120). An abductive research strategy can be used to answer "what" and "why" questions, concerned with exploration, description and understanding (Blaikie 2002: 124).

What this means for abductive research is that the researcher "assembles lay accounts of the phenomenon in question, with all their gaps and deficiencies, and, in an iterative manner, begins to construct their (sic) own account" (Blaikie 2000: 181). It involves the researcher moving between periods of immersion in the social world and time spent doing analysis. "This alternating process means that theory is generated as an intimate part of the research process; it is not invented at the beginning nor is it just produced at the end" (Blaikie 2002: 181).

2.2.2 Relevance to the present study

As described above, a deductive research strategy starts with patterns of events, and says that all observations of the world are dependent on theory. An inductive research strategy rests of a view of the world that it is made up of observable events, about which the researcher produces and analyses data. Neither of these is suitable here, since both rest on the underlying ontological position of Realism – the idea that the world exists out there, independently of the researcher. Instead, the research undertaken here rests on a view of the world as co-constructed by the activities of social actors and a view of epistemology that sees interpretation and meaning as co-constructed by social actors. This will be discussed further in Chapter 5. Hence an inductive or deductive research strategy would be incompatible for this project, but an abductive one is appropriate.

To summarise, the approach taken here is part of traditions within the social sciences that rest on the notion that the world does not exist "out there" independently of the researcher, but rather that s/he is actively involved in constructing and interpreting it through a process of mutual elaboration. Having outlined the selected research strategy, the next move is to describe in more detail what this means for this study and the question posed earlier including data and methods. Figure 3 shows a typical way that research is conducted in inductive research. It follows a linear path in which data collection is followed by

analysis, which is followed by writing up. This is a simplified model. However for the purposes of this overview it makes available the salient points.

What does this process look like for abductive research in which analysis is intertwined with grappling with data, and which has a different relationship to theory? Figure 4 offers a way to understand how it can proceed. Again this is a simplistic model that ignores much of the detail suggested by Blaikie (2002) and one version of abductive research, grounded theory (Glaser and Strauss 1967). Here data are mutually elaborated with analysis, often through the practice of writing. Clarifying how this kind of research proceeds is illuminated by an important researcher within the social sciences, Bruno Latour, whose work is an exemplar of abductive research strategy, even if he does not use that term.

Observation ⟶ Pattern ⟶ Generalisation

Figure 3   Simplified version of the path of inductive research (developed from Blaikie 2002)

Review of theory

Revised theory

Observation ⟶ Specific accounts
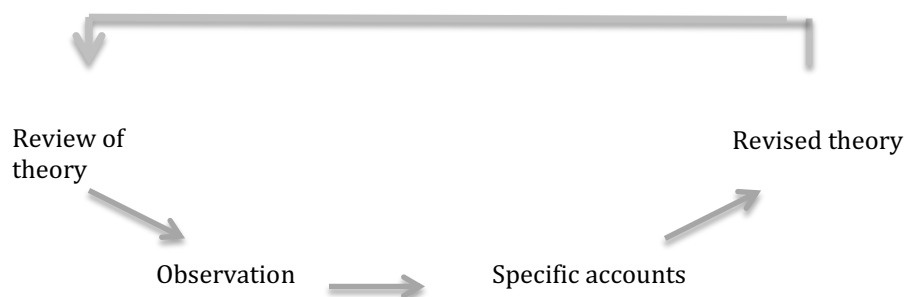
Figure 4 Simplified path of abductive research (developed from Blaikie 2002)

Speaking at a debate at the London School of Economics in 2008 (Anthem 2008),

Latour described his research as being underpinned by an *experimental*

metaphysics (Latour et al. 2011: 46). This suggests that as a social scientist

Latour sees his job as studying empirical cases to reveal how the actants

concerned constructed their world and acted within it. For Latour, in the social

sciences, there is no true protocol (Latour et al. 2011: 79).

[T]he big problem in the social sciences (and the same for philosophy) is

to invent the experimental protocol which is adjusted to the specific

recalcitrance of the beast you want to study. But the fact there is no

general principle doesn't mean that it's 'everything goes.' On the contrary,

because there are no criteria, the constraints of a case are so important.

(Latour et al. 2011: 79).

At the same debate, another participant Michael Witmore proposed, and Latour

elaborated upon, a definition of Latour's work as "serial redescription" (Latour et

al 2011: 72). At first glance Latour might seem to be agreeing with Herbert

Simon's (1969) statement that the sciences are concerned with *describing how*

things are, which Simon contrasted to design as concerned with *proposing how things should be*. But this dualism is not what Latour is talking about. Rather, his writing is a kind of experimental (re)ordering of the world. Referring to his field of science studies, Latour said "In our field, writing is our protocol and writing is our laboratory, and it's as difficult to set up good writing as to set up a good laboratory" (Latour et al. 2011: 80). In creating and sharing their descriptions and accounts, social scientists are also implicated in actively constituting the worlds they study, just as much as scientists do, as work by Latour and others have shown. Their descriptions are also reconfigurations. By drawing together an account, for example in an essay, a social scientist is also reconfiguring existing arrangements.

The implication for this study is to conceptualize this research as involving periods of immersion in design practice (observing others and my own practices as a designer and user of things), alternating with analysis enacted through an experimental writing practice. This writing is not experimental in formal terms, for example, in my use of language, authorial voice or layout. The version of experimentation adopted here draws on Latour's suggestion that writing is a kind of laboratory in which I continue to try things out and observe what can be tried out. Papers that I have written and which have been published and are thus frozen on the page, can continue to be worked on. The form this dissertation takes, then, will include an attempt to synthesize ideas developed in three published solo-authored, peer-reviewed papers, which are presented between Chapters 4 and 5. Concepts developed in them are further developed in Chapter 5 with reference to issues opened up in Chapter 1 and further elaborated

elsewhere. Chapter 6 then explores their application to recent research on service design and social innovation. The means for doing this is another kind of (re)writing. The approach used here is to take an existing piece of writing, one by researchers at Lancaster University (ImaginationLancaster 2011) exploring what a service design approach brings to the commissioning of healthcare services, another a case study I have written on using a design-based approach to design a service connected with ageing (Kimbell forthcoming). In Chapter 6, each of these is summarized, and then re-analysed using the concepts developed in this dissertation. One way to think of this re-writing is as a kind of remix.

To explore the concept of *remixing* further requires inquiring into discussions of the production and the circulation of culture, within the field known as cultural studies. Here debates on the creation, interpretation, circulation, and use of texts and other media artefacts, is a long-standing concern (eg Hall 1977; du Gay et al 1997). However with the growth and dissemination of ICTs have come new cultural practices, involving the production, reproduction, modification and movement of texts, images, videos, audio and other digital and analogue forms. Jenkins' description of convergence culture (Jenkins 2008) describes how the intersection of technological, industrial, cultural, and social changes has resulted in new kinds of format and new ways of creating and experiencing works. Such new forms involve "the widespread practice of breaking down and reassembling cultural texts across the media spectrum, from art, to literature, to film, animation and music" (Barker 2012: 369). Terms such as *sampling*, *remix*, *mash-up*, and *cut and paste* are part of these practices. These concepts highlight how the borrowing and recombining of digital materials produced by others is central

to these cultural practices. For the purposes of this dissertation, the word remix is used to refer to the practices of breaking down and reassembling cultural texts. The next section shows some of the remix cultures that exist, which is followed by a discussion as to what remixing might mean for academic writing.

The concept of remixing is a now well-established way of understanding developments in a wide range of collective worlds. In music, for example, within long-standing music cultures such as Jamaican dub and New York hip hop, using audio originally produced by other artists is a fundamental way for artists to create new work. Further, some artists create new works by combining other people's music through a mash-up of two or more genres (Barker 2012). Within the practices of young people listening to music, Julier (2007) has shown how playlists too become cultural forms that are both produced within and productive of cultural meaning. So within music, remixing and remixes can exist at the level of snippets of audio, whole tracks, or genres, for both music producers and also those who re-produce music in their consumption practices.

Among producers and users of software, the issue of whether people can re-write (remix) other people's software code has lead to extensive discussion about the ownership of intellectual property (eg Lessig 1999). For example advocates of free software such as Richard Stallman, president of the Free Software Foundation, proposed that developing software raised important questions of ownership and control (GNU 2013). Should someone using code, be able to make changes to it? Here "free" means not without being paid for, but

rather being open to rewriting. The Creative Commons licensing structure came out of some of these early debates.

Within contemporary art, Bourriaud (2002) has argued that artists use and borrow, appropriate and reference artefacts and artworks by others, in ways similar to music practices. Calling this relational aesthetics, Bourriaud highlights how some contemporary artists use remixing practices to constitute their work and to engage audiences, disrupting the boundaries both of artworks, but also art's institutions and structures and ways of valuing art.

Across these fields, one of the issues that emerges frequently in relation to remix cultures is how remixing relates to regimes of control, inclusion and exclusion i.e. who has the rights to use digital or other materials in creating new works. What has become clear is that, for many artists and cultural producers, acts of creativity are intimately connected to being inspired by, using, interpreting or referencing other people's works. Many writers and artists have asserted the centrality of borrowing and re-interpretation to their creative production, including doing so without conscious or formal citation. For example Lethem (2007) points to the history of sampling in theatre (eg Shakespeare), film (eg Disney), and visual art (eg Warhol) and shows how creating new art relies on a commons from which all can draw. Lessig (2001) has shown how re-using other people's material is closely tied to creativity. But these creative practices are at present in conflict with legal regimes of intellectual property, especially when asserted by large corporations that own music or film rights. Lessig's *Remix* (2008) argues that copyright laws have ceased to perform their original role of

protecting artists' creations, while allowing them to build on previous creative works. Instead, he says the system now criminalises the actions of music-makers and others involved in copying and distributing digital music. This he calls a "read only" (RO) culture. Lessig instead proposes a "read-write culture" (RW) allowing users to create new works as readily as they consume the work of others.

Even this limited review suggests how remixing is now embedded in cultural practices. What might this mean for writing within the traditions and requirements of academic research? Academic publishing is converging with other kinds of publication, for example through the use of Google searches to find or check references, or academic blogging and tweeting. So how might the concept of remix be useful to think through the re-writing of a case? In part influenced by Davis et al (2010), the solution proposed here is to acknowledge some of these developments and work them into the writing, in three main areas.

Firstly, it is worth recognizing that writing in the mode of the academy co-exists with other forms of production and consumption. Writing this dissertation, for example, has been a process that co-exists with other collective practices I am part of such as being a parent, cooking dinner, maintaining an active presence on Twitter, and watching TV series such as *Game of Thrones* that unfold over several months. Recognizing the remixing within these other practices begs an acknowledgement of the compositional work I do in writing this dissertation (Davis et al 2010). Even though the end of this writing process is a single digital file, containing only a few images, with no audio or video, and no opportunities

for displaying or recording annotations by others, the resulting artefact can be thought of as a digital re-composition that is networked with other artefacts and practices with which I am involved.

Secondly, it involves acknowledging the special circumstances of writing a dissertation towards the award of PhD. One of the aims is to be judged as contributing to, as well as building on and making reference, other people's research. By follow referencing and citation conventions, this dissertation can reduce the likelihood of accusations of plagiarism. By conforming to the literary writing practices of related PhD dissertations in the field (eg Wilkie 2010; Singleton 2012), this piece of writing can fit in with peers and colleagues. So there exists a tension between the novelty evident in creating a new form, and the degree to which other people's work must be cited to locate this text as a valid participant in research debates.

Thirdly, it requires thinking through ethical and legal questions. Academic writing and publishing exist within the "read-write" culture proposed by Lessig, recognizing how copying, ownership, citation and novelty play out within academic research. McKee (2008) highlights issues such as whose story is being told; re-presenting the voices and perspectives of other participants; informed consent; and copyright and fair use. Each of these is discussed more fully below in relation to the cases discussed in Chapter 6. The wider point is to emphasize that the ethics and legal issues associated with remixing are not a one-time operation, but need to be reconsidered with each remix.

So, to summarize. The approach taken here follows traditions within academia, in particular STS and anthropology, as well as practices of remixing, i.e., assembling and recombining digital and analogue texts in contemporary life, as discussed in cultural studies. There is no one right way to undertake a study resulting in a dissertation. But the argument here is that thinking of writing as a collective experimental practice, that involves iterative shifts between interpretation and analysis, through practices that are mutually constituted with a wide array of other actors, is a valid way to approach answering the questions introduced in Chapter 1.

2.3 Methods

Given the research strategy outlined above, several methods are more directly applicable to answering the question posed earlier. Each of these is reviewed in turn with a summary of why it was used. There is also a brief discussion of methods which, at first glance, might have been used but given the overall research strategy, were not.

2.3.1 Ethnographic participant observation

Ethnography is a research method originally developed within anthropology. It is also now part of the research toolkit in sociology, cultural studies and organization studies too. As Chapter 4 will show, it has spread widely within fields and projects related to designing. In essence ethnography aims to understand and describe forms of life: how a particular site and group operates

and what it means to be a member of that group or site (Geertz 1973; Clifford and Marcus 1986; Neyland 2008; Bate and Robert 2007). Part of the important work of ethnography is to identify and bring into view, the "social silences" that anthropologist-turned-journalist Gillian Tett talks of in her keynote to the Anthropology in the World Conference in London (Tett 2012).

Ethnographies typically produce rich descriptions of sociomaterial worlds, which make available how a culture operates. Doing ethnographic research involves negotiating access and close engagement with members of the group being studied. It typically takes time. Social and cultural anthropologists consider immersive fieldwork to be of value, if they are able to be within a research site for months or years. In contrast, for ethnographers studying or working for organizations, much shorter timeframes of days or weeks can be appropriate (Neyland 2008; EPIC 2012). Ethnographies are often associated with detailed fieldwork in one site, but multi-site ethnographies can illuminate how sites and practices interconnect (Marcus 1995). Tsing (2005) discusses studies of the Indonesian rainforest to explore how interconnections emerge across difference sites and contexts, which she then uses to foreground universal concepts such as such as prosperity, knowledge and freedom.

The method most closely associated with ethnography is participant observation – the apparently simple idea of a researcher going out into "the field" to see and experience first-hand a culture and how it works. There is, however, no singular, authoritative ethnography. Rather versions of ethnography have developed over the decades since Malinowski undertook fieldwork in the Trobriand Islands in

the Pacific, and then described the social and cultural world he found there. From these early instantiation associated with colonial regimes, ethnography has been rethought over a century. Geertz (1973) developed the term "thick description" to emphasize what ethnographers are trying to capture, and also how they share this with others, for example through detailed anecdotes.

An important part of ethnography, however, is that it is a theoretical Endeavour. Entry into and participation in a particular sociomaterial world, and descriptions that result from this, involves developing an analysis of what is going on there. Nader (2011) points to the danger of misreading ethnography as mere description. Instead, she argues that ethnography is a theory of description, which involves establishing what can be described and how to do it.

Relevant to the fields of service design and design for social innovation is an attentiveness to the particular circumstances of doing ethnography within organizations. Discussion of organizational ethnography (eg Neyland 2008); Cefkin 2009) emphasise the need to think about ways in and ways out of a study, ethics and accountability, and who and what is being studied, why, and for who. An ethnographic approach is used in two of the papers included in this dissertation. These describe how I acted as a participant researcher seeing to understand and describe the practices of professionals who described their work as service design. These papers are included in the interstitial between Chapters 4 and 5.

2.3.2 Autoethnography

The crisis of representation in the qualitative social sciences (cf Denzin 1997; Clifford and Marcus 1986) brought a new attention to what was going on when ethnographers claimed to describe another culture. These challenges made it hard to ignore how a researcher's individual subjectivity, identity, practices and locatedness were implicated in writing or otherwise creating culture, especially when writing about the cultures of others. Since then several traditions have emerged which respond to this crisis. These include visual anthropology which challenges the textual emphasis in academic anthropology and replaces it with an effort to see the world and do research visually (eg Banks and Morphy 1997; Pink 2007). In contrast autoethnography (eg Spry 2001; Russell 1999) focuses on the writing (or performing) self of the researcher and how she is constituted in relation to the social worlds she accounts for.

As a method of inquiry, autoethnography fuses the autobiographic impulse of the researcher, with ethnographic theoretical commitments to understanding how an individual's subjectivity is constituted in relation to wider social, political and cultural histories and memories. "Good autoethnography is not simply a confessional tale of self-renewal; it is a provocative weave of story and theory" (Spry 2001: 713). The concerns of researchers working in this tradition are often political, with a critical self-reflexivity that makes explicit how a researcher's gender, race, class and other aspects of identity shape the research. Some researchers emphasize the importance of resisting dominant ways of being and knowing. For example Spry (2001) has emphasized performativity and

embodiment in research practices, through her affective and poetic intertwining of her "personal" stories with her "research" in a scholarly context in which performing is "academically heretical" (Spry 2001: 708). Similarly Margery Wolf (1992) recounts the same set of events in three ways: as a short story, an academic paper from a journal, and her field notes. She shows how institutional practices render these differently as authoritative claims about the event. Denzin (1997) challenges the idea that anyone can tell anyone else's story and examines claims made about authenticity and how narrative authority is created. Russell (1999) compared experimental video and ethnographic film, showing in detail how creators working in these different traditions reveal or hide their knowledge, location, or point of view.

This approach is relevant to the study at hand since I am actively involved as a practitioner using design-based approaches within the design of services and social innovation, as well as involved in teaching the same at post-graduate level. Chapter 6 includes a case study of a project in which I acted both as a lead designer, concurrently with being a researcher seeking to understand the kind of designing being practiced.

2.3.4 Case studies

A further method used in this study is the case-based approach, which has a long history within the social sciences and more recent one in design research. Within the social sciences, this has been called "middle-range" theory, which falls "between the minor working hypothesis of everyday life and the all-inclusive

grand theories" (Glaser and Strauss 1967: 33). Individual cases can provide rich insights into understanding social phenomena because they ask a researcher to immerse herself in detail in something, but draw on data of many different kinds. Findings from cases can have limited validity and generalisability, although they do provide a rich and nuanced understanding of the phenomena being observed and created (Yin 1994). One strategy is to use multiple cases, which increases validity. In this study, paper 3 uses a multi-case approach, to develop a deeper understanding of service design and how practices and themes emerging in the three cases relate to one another.

This summary of some of the methods used in this study helps explain how I conducted the research that lies behind this dissertation. I now turn to methods that could have been used but were not.

Surveys are suitable for attempts to answer granular questions such as "why", "how often" or "how many". Surveys typically enable researchers to access a large number of research subjects concurrently and to automate data collection (eg using digital forms for subjects to fill in) and to some extent automate the analysis of data. Surveys are usually associated quantitative research although they do not have to be (Blaikie 2000). For these reasons using a survey was not appropriate here as the aim was to access the sociomaterial worlds of those working within service design, including this researcher.

Interviews are another method considered but not used. In the study on service design cited in Papers 2 and 3, there were five workshops which involved

leading practitioners doing service design presenting accounts of their work to a mixed group of design, management and other researchers. In some ways these presentations resembled semi-structured collective interviews. As the co-principal investigator on the project, I was involved in briefing the designers and facilitating the events at which they talked about their work, and chairing the questions that participants asked in response.

2.4 Limitations

Finally it is important to acknowledge the limitations of the approach taken. Qualitative research methodologies are favoured when the research aims to understand complex processes and practices that exist from connections between objects and humans in sets of relations (Marshall and Rossman 1995). The abductive research strategy and methods used were therefore appropriate in this study, which aimed to understand dynamic, emerging forms of design practice.

But issues of limited validity and generalisability appear regularly in discussions of qualitative methods. To increase the validity of the descriptions of design practice in this study, participants were given opportunities to read early versions of the research. Further, researchers who were not familiar with the research were asked to view video footage (relating to Papers 2 and 3) and create short summaries, which lead to triangulating the analysis. Participation in conferences, seminars and lectures, including organizing the Social Design Talks series in London during 2012-2013 allowed me to cross check my emerging

analysis with other researchers and with practitioners in service design and design for social innovation. Despite this, the descriptions of contemporary designing offered here remains only a partial account. Rather than seeing this as a weakness, however, the autoethnographic approach prompts me to recognize my own locatedness within these fields and in this research, which is why there are occasional comments about my own role.

Chapter 3   How designing got more social

3.1 Introduction

The introductory chapter argued that designers are increasingly working within an expanded field, beyond the concerns of industrial firms and their customers, engaging with diverse communities, for example, through social innovation and the design of services. This chapter takes the next step and reviews key debates to shed light on how design professionals understand the worlds they design within and for — what anthropologists would call the "cosmologies" of design. Design is a complex field with too many specialisms and professions to discuss in detail or through a general overview. But this chapter aims to present a coherent although still selective account, which will offer insights into key contemporary debates and position the argument within this dissertation in relation to them.

A suitable starting point is design studies, which aims to describe how professional design emerged and to articulate main features, knowledge and activities within contemporary practice and the concepts it mobilizes – such as objects, people, designers, and the relations between them. Discussing design studies also requires describing influences on design education in the 19th and early 20th centuries. A key development that reshaped understandings of design, was user-centred design (UCD), a term that industrial and technology-focussed product designers and researchers began to use, to shift their focus away from objects towards the *users* for whom they were designing objects. There were

various elaborations of, and responses to UCD, some of which are reviewed in the next chapter. But this chapter must acknowledge ontological design, a term introduced by Winograd and Flores (1986) that removed any conceptual separation between human action, tools and the worlds in which they exist, and conceived of design as intervening into our ways of being in the world, and the kinds of beings that we are. Thus the chapter traces the emergence of the main concepts in design studies and UCD literatures, and shows how these have resulted in design becoming increasingly engaged with understanding more fully the sociomaterial worlds of design.

3.2 Design studies

3.2.1 Objects in the studio

Design studies is around 40 years old as a field, now with several academic journals including *Design Studies* (founded 1979) and *Design Issues* (founded 1984), and annual conferences which bring together researchers concerned with design in a broad sense, including architecture, communications, computer systems, engineering, fashion, product design, interaction design, and craft design traditions from jewelry to textiles (Archer 1979; Cross 2007; Cross 2001; Bayazit 2004). For example Buchanan and Margolin's (1995) edited collection of essays includes topics from product design to communication design and the role of design in society. Similarly, the Design Research Society founded in 1966 (2011) says it promotes the study of and research into the process of designing in all its many fields. The broadness of this definition of design can be traced to

early attempts to conceptualise design as the thing filling a gap between the humanities and the sciences, as researchers based in design schools tried to describe design's place in the world in a way that gave it a new prominence (Archer 1979).

However, although it may be the goal of some design researchers to try to synthesize the diversity of design across these disparate professions, crafts and intellectual histories into a single category called "design", this has not resulted in any clear agreement about what design is, how it might be understood and its basic concepts, theories and methods (Simonsen et al 2010). For example numerous posts to a mailing list that draws together researchers in the art and design school traditions, as well as some architects, engineers and computer scientists, PhD Design (2011) hosted by JISC, illustrate quite how lacking these core definitions are.

In this study, instead of trying to maintain a single but unruly definition of design, a distinction is drawn between design as taught in the studio-based tradition of many art and design schools[1], in contrast to design as understood within engineering disciplines or computer science. This still describes a fragmented field including designers who specialise in giving physical form to matter as well as those engaged in designing intangible interactions with software and those aiming at social change. As indicated above, a single design institution may offer

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[1] Even this loose definition apparently ignores the teaching of say product design in engineering schools or interaction design in computer science, or indeed my own efforts to teach design practices on an MBA programme in a business school. My emphasis here is on "design" in the "art and design school" tradition rather than design within engineering or computer science.

undergraduate and post-graduate programmes in a wide range of fields.
Moreover, between schools that practice in the studio tradition, there are
important differences too. Nonetheless this limitation of design to design in the
art school tradition helps clarify where the debates are most vivid, by
highlighting both an educational tradition and mode of practice – situated in the
studio, that for better or for worse, keeps design as one of the arts rather than
being a matter of technical capability.

To understand why design fields have been slow to develop a sophisticated
understanding of the socio-cultural worlds in which designing takes place, it is
worth turning briefly to discussions of design education. It is in the studio-based
learning environments which many design schools and universities continue to
offer that we can gain an insight into why designers think about their practices
as they do. The creation of the first formal British design education institution in
the mid-19th century by Henry Cole focused on making objects more attractive
(Margolin 1995). Exactly how attractiveness was determined was not challenged
or contested. Objects were the scope of design and their qualities were self-
evident. It was up to the designer and his or her standards and tastes. Later
developments in design education also resisted enquiring too deeply into the
socio-cultural context in which designers did their work and their roles in
shaping consumption and production. In an essay on design education, Margolin
(1991) offers an analysis of different influential design schools in the early 20th
century, and shows how each of these advanced design practice, but failed to
develop a coherent conceptualisation of design that acknowledged the complex

social, political and economic contexts in which designers operate and in which their designs exist.

For example when setting up the Bauhaus in 1919, Walter Gropius had a vision of students learning through practical workshops with artists and technicians:

> His model of design education was based on a Utopian ideal of community where life was simple and marvellous results would come from an intuitive understanding of what was to be done. …[However] The attempt to develop a curriculum for designers was built on the basis of craft ideologies and [it was not] able to formulate a concept of design education that would have successfully addressed the function of technology, management, and social policy in the design process." (Margolin 1991)

Although the first version of the Bauhaus school of design and fine arts only existed for 14 years (1919-1933), its influence is well-documented (eg Bergdoll et al 2009). Ideas developed in the Bauhaus pedagogy spread, for example, when its last director Laszlo Moholy-Nagy fled Nazi Germany and ended up in Chicago, where he founded the New Bauhaus and its successor, the Institute of Design which became part of the Illinois Institute of Technology in 1949 (IIT 2013).

In his critique of design education, Margolin called for teaching and learning to include research in sociology and social psychology, to give designers a much

deeper understanding of how, when, where and why people use and engage with objects.

> By learning to look insightfully at the array of designed objects, services, and techniques in society, the design student can begin to recognize in them the manifestations of social values and policies. In design we can see the representation of arguments about how life ought to be lived. Design is the result of choices. Who makes those choices and why? What views of the world underlie them and in what ways do designers expect to make a world view manifest in their work? (Margolin 1991)

Some two decades later, researchers and educators working within design education continue to argue that the education of designers needs to include a better understanding of the social, cultural, and political environments which shape design and use (eg Findeli 2001; Collina 2009; Wang 2010). Few scholars working in design studies have made extensive use of social theory (Ingram et al 2007). These debates show that the influence of institutions such as the Bauhaus, and emphasis on designer's craft skills and their intuition, without a focus on wider social, cultural, political and economic issues, continues to animate designerly culture in the institutions in which design is taught and researched and helps explain some of the challenges faced by designers of services and those working in relation to complex collective issues.

Another way to understand how theories of design developed in design studies is via the field of design history that emerged alongside it and whose research is in

dialogue with it. Here, again, there exists a tension between studying objects and designers in isolation, and efforts to understand the wider social, cultural, political context in which these come to exist. Historians' attentiveness to wider questions about how particular kinds of expertise, knowledge and professional institutions developed over time in different societies has provided an important larger context for understanding how designers work (Design History Society 2011). However, again, there remains a striking variety of views of what design is primarily concerned with as a professional field. Some historians have, for example, focussed on accounts of authorship that tell of individual designers and their creative endeavours (eg Sparke 2010). Others have emphasized the shifting perceptions of objects in different societies over time as tastes and fashions changed (eg Forty 1986) or explored how the design profession organised and developed in response to changing social conditions (eg Julier 2008). As Buchanan remarked, "the history of design history is a record of the design historians' views regarding what they conceive to be the subject matter of design" (1992: 19). As with design studies, there exist multiple accounts of design and increasing engagement with wider social and cultural factors. For example recent Design History Society conferences have taken as themes "Networks of Design" (2008) and "Design Activism and Social Change" (2011) (Design History Society 2013).

In short, even this brief summary shows that the field of design studies offers multiple, competing accounts of what design is concerned with. This helps explain some important differences in how designers and researchers conceive

of the worlds which they are involved in making manifest in their artefacts and practices.

3.2.2 Objects, methods and milieux

The idea that design is primarily about material artefacts and their forms has a long legacy in the theory and practice of design. A quick glance at the webpages of design schools reveals how centred design education remains around particular kinds of artefact, with undergraduate degrees in design specialised in different kinds of designed output. The development of design thinking over the past decade, is one attempt to depart from this legacy, claiming a common core for all designers (Kimbell 2011). Design education has also been shifting away from object-based programmes to problem-based education, and in some cases to "post-disciplinary" design. For example, Parsons The New School for Design in New York began offering the MFA Transdisciplinary Design in 2010 (New School 2013).

However Alexander's (1971) definition that design is about giving form, organization and order to physical things remains an important way to understand the central concerns of designers that persist today. For Alexander, "the ultimate object of design is form" (1971: 15). Krippendorff (2006) described design as giving meaning to things, making design a "human-centred" activity in contrast to a technology-centred design focusing on functionality. In contrast to this focus on artefacts, Herbert Simon (1969) argued that design was concerned

with intentional change. "Everyone designs who devises courses of action aimed at changing existing situations into preferred ones" (Simon 1969: 55).

As understanding about design developed, the object remained important but other entities in the world in which designers designed were identified. Bayazit (2004) describes how during the 1960s it became evident that designers could not rely solely on their ability to focus on the product as the centre of a design task. Roberts' (1992) model of design makes explicit others who play roles in constituting that world including, the maker, the user, and the observer (see Figure 1). Produced as part of a study into design education, the model aims to "characterise designing as acting in and on the world and to show that it is essentially concerned with making value judgements about changing states of affairs" (Roberts 1992).
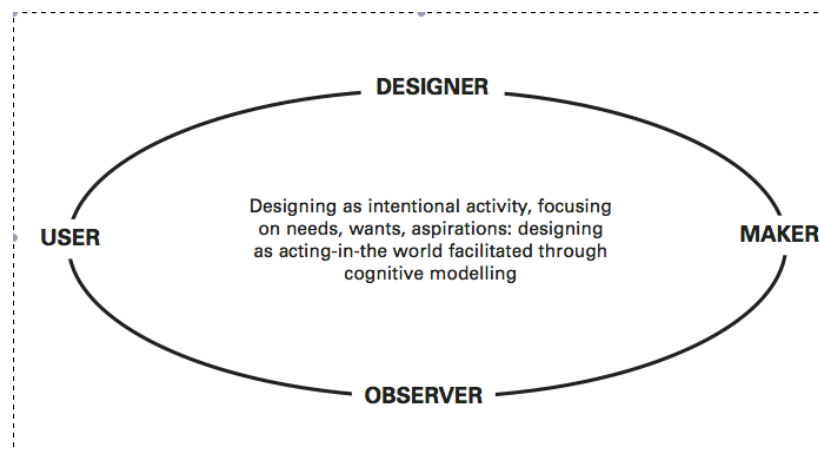
Figure 5 Four Roles (the Designer, the Maker, the User, the Observer) offering complementary perspectives on learning-through-designing. From Roberts (1992)

Another perspective on the core concerns of design was articulated by designers and writer John Chris Jones. Known for his influential book *Design Methods* (first published in 1970), at first glance Jones might be seen to be advocating design as giving shape and form to determinate objects. But in later writings, he clarified his position as follows: "We still have specialized design professions, and we still have the old idea that what is being designed is 'objects'. The designers persist in acting as if 'they themselves are objects and the people whose lives are being shaped by this objective process are being treated as objects. Without minds of their own." (Jones 1980: 347). Others writing at a similar time also emphasized the systems in which objects exist. For example, Bruce Archer argued that "Design research is systematic inquiry whose goal is knowledge of, or in, the embodiment of configuration, composition, structure, purpose, value, and meaning in man-made things and systems" (quoted in Bayazit 2004: 16).

Other design researchers have also explored how the objects of design relate to the wider world. For example Dilnot (1993) examined the object to explore the social context in which purchases and use take place. Using Mauss' work on the gift and Scary's work on destruction and creativity, Dilnot deconstructs the mundane objects of design and turns them into powerful actors that play important roles in constituting social relations. This is an important move that reconceptualises the object of design as the *object-as-gift* and makes all objects inherently relational. "First, objects embody a perception about our condition and work to alleviate the problems that this truth about ourselves causes us. This means that objects fundamentally 'wish us well.' But second, this means that the

object, no matter what its mundanity, is like a collective gift: it is issued for all of us, and its function or work is giftlike in that its form embodies recognition of our concrete needs and desires… But this means that to make and to design something is to create something whose end is not in itself but is rather 'in' the subject for whom the object is made (whether that subject is individualized, or is ourselves, collectively, as a whole)" (Dilnot 1993: 56).

Another approach to understand more thoroughly what design practitioners often call "context" is to examine how individual objects connect to the things and people around them. Margolin's (1995) term for this — the product milieu — highlights the environment into which any newly designed thing enters and to which it must relate. Similarly Margolin (1997) introduced "the user" as a social actor who does not come to the product in a vacuum, but instead considers it in relation to his or her own plans and activities. However Margolin (1997) claimed there was little in the way of a theory of social action to describe how people relate to products, which he saw as an issue for design. Thus Jones, Dilnot, Margolin and others have moved the focus of researchers working within design studies away from the individual object towards social relations.

One additional concept in the cosmologies of design is, of course, the designer himself or herself. Much of the effort among researchers has been to understand and analyse what goes on during designing by studying designers, in search of "designerly ways of knowing" (Cross 1982; 2006) or a distinct "design thinking" typically drawing on cognitive science (Cross et al 1992; Dorst 2010; Cross 2010). Design has been described as designers co-creating problems and

solutions in an exploratory, iterative process in which problems and solutions

co-evolve (Cross 2006; Dorst & Cross 2001) in contrast to engineering design in

which engineers design functions in response to constraints (Hubka, 1982).

Design can be seen as problem-solving in which the desired state of affairs is

known at the outset and problems can be decomposed into smaller units before

being solved (Simon 1969), or in contrast, problem-solving is seen as a special

case of design which is exploratory and in which the desired end state cannot yet

be known (Hatchuel 2001). In a close reading of Simon, Pandza and Thorpe

(2010) distinguished between deterministic design, in which designers' agency

is paramount as it is their decisions which determine the nature and behavior of

artifacts; path-dependent design, in which adaptation and repetition determine

the progress of an artifact; and path-creating or radical engineering design, in

which novelty emerges through individual and collective agency.

These descriptions of the worlds that designers are designing in and for

generally adopt a Positivist stance that seeks to describe what goes on

empirically while maintaining a separation between researcher and world, and

between designer and the world the designer is designing for. Adopting the

model of mainstream cognitive science, here the artefacts that designers create

are only important in as much as they shed light on what is going on inside the

designer's mind.

This brief overview of some of the contributions to the field of design studies has

shown that there is a long-standing tension between seeing the central concern

of designers as creating the *forms* of objects, and seeing designers' work as

concerned with the *social relations* between things and people. The underlying

direction, however, over the past two decades, has been a move away from a

focus on objects and their forms, towards sets of relations, or put another way,

attending to the wider contexts around designers and the things they design. One

of the key developments involved opening up understandings of the people who

used the end results of designers' work: the people we now know as users.

3.3 User-Centred Design

3.3.1 Enter the user

In this section the focus is on the creation of a new entity in the cosmologies of

designers that marked a significant change in the understanding of the worlds

designers designed within and for, although not without bringing its own

problems. The emergence of "the user" in the last quarter of the 20th century

marked an important development in understandings of design and saw the

creation of a new term: user-centred design (UCD) (Margolin 1997; Shove et al

2008; Wilkie 2010). In his review of the development of UCD, Wilkie summaries

its contemporary formation as follows:

> Although UCD's provenance lies in the application of cognitive science
>
> within HCI, it is now more commonly deployed as a catch-all term to the
>
> various approaches to computer system design where the needs and
>
> requirements of end users are prioritised during the development of
>
> computer systems. (Wilkie 2010: 28).

A key conceptual distinction here is between "technology" and "humans". The aim of UCD was to make technology more usable and useful for humans.

One of the most important contributions to this development was Donald Norman's book *The Design of Everyday Things* (Norman 1990). The first edition's title – *The Psychology of Everyday Things* (1988) – gives a clear indication of the intellectual origins of Norman's work in cognition, with a focus on what goes on in people's minds, as far as we can tell. Norman is concerned to explain why and how people act, and what this means for designers. By presenting many examples of industrial products that people find hard to use and the resulting frustration that he and others experience, Norman builds up an argument that things going wrong tell us a great deal about what's wrong with professional design practice. People using designed things should not feel stupid or inadequate for not knowing how to use them, he argues. The problem is with the things as they are designed, and thus with the designers who designed them.

To improve how designers do design, Norman offers a set of concepts that provided a focus on how people use things, rather than what designers want things to be like. For Norman, the starting point is the user's "goal" which drives a seven-stage process shown in Table 2.

1 The user forms a goal
2 The user forms an intention to act to achieve the goal 3 The user specifies an action
4 The user performs the action
5 The user perceives the state of the world
6 The user interprets the state of the world
7 The user evaluates the outcome
Table 2   The seven stages of action from Normann 1988: 45-46

Although Norman makes explicit in his model that there is something called "the world" in which the user and his or her goals and actions exist, the primary entity that designers must consider is "the user". Norman provides designers with several concepts that help construct the user in some detail and provide the basis of user-centred design conceived of as helping people achieve tasks. These all presumably exist in the mind of the designer as he or she imagines or speculates about the mind of the future user (Krippendorff 2006). They include *conceptual models* (coherent and consistent models for the user to understand how a system or device works); *mapping* (making explicit for the user the relationships between what is happening inside the system that the user can control); *feedback* (giving the user information about changes in the system); and *visibility* (giving the user visual evidence of the current state of the system).

Norman's work has had a huge impact on different kinds of designers. His research offers powerful concepts that allow designers to describe the world around an artefact and the sorts of interactions a person might have as they engage with or use things. But the spread of Norman's work and the development of UCD raise questions about the extent to which that "world"

around the user and the object can be marked off as a separate object. Two brief examples illustrate this.

The first example is how Norman's use of the term *affordances* has been adopted. Norman introduced the term affordances to draw attention to how particular kinds of use or activity are enabled by a design. As described by psychologist Gibson (1979), affordances are clues that indicate possibilities for action. For example in product design terms, a button affords pushing whereas a lever affords pulling. However as Norman (2011) describes, following his introduction of the term into design, the idea of affordances has been used wrongly by many designers. Some of them, he says, use affordances to mean the *intrinsic* properties of a thing, to support different kinds of user behaviour or action. This misses Gibson's insight, which focuses on the *relationship* between a thing and the environment it is in. Norman suggests clarifying the use of the idea of affordances, by making a distinction between "perceived" and "actual" affordances. He argues that designers are mostly concerned with perceived affordances and a user's perception of what action is possible (Norman 2011).

A second issue in UCD is the lack of discussion about what might shape the user's goals and his or her needs. Where do these needs and goals come from? Norman (1988) describes how designers should attend to and design within "cultural constraints and conventions" but there is little here to help designers understand how wider socio-cultural developments might influence professionals trying to determine the user's "needs" (Wasson 2000). User-centred design describes users and the systems or products with which they interact, within a world. But

the gaze of the user-centred designer rests determinedly on, and close to, the individual user, neglecting the activities of the designers, researchers or others who are involved in constructing both objects and users.

3.3.2 De-centring the user

Alongside the development and institutionalization of user-centred design within design practice and education were attempts to question some of the assumptions associated with UCD and what they meant for design. There are extensive challenges to UCD from researchers working within sociology and anthropological traditions (eg Woolgar 1991), which the next chapter will cover. But within design schools there have also been challenges to the reification of the user. Some of the most interesting developments have emerged within art and design schools. I will focus on one example, originating in the Computer Related Design research studio operating at the Royal College of Art, London, in the late 1990s and early 2000s[2]. This undermines UCD's project. Simply stated, UCD promises that if you study the user and what he or she is trying to do, and design to afford this, then you'll produce better designs. But this begs questions about the extent to which one can find out what users are really trying to do and then translate that effectively into designs. This practice known as critical or speculative design offers resistance to UCD's claims, by questioning the futures it is implicated in designing.

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[2] The Computer Related Design studio existed at the Royal College of Art in various forms between 1990 and 2005. Note: I taught for two years in the same department, then named Interaction Design, between 2003-2005, where Bill Gaver was then a colleague heading up the Interaction Design Research Studio and Tony Dunne was a senior research fellow.

In the first articulation of what became known as "critical design" Tony Dunne[3] (1999) questioned the idealisation of the user and the smooth technological narratives in which they appeared. The point of critical design, according to the two designer-researchers most linked to it, Tony Dunne and Fiona Raby, is to use "speculative design proposals to challenge narrow assumptions, preconceptions and givens about the role products play in everyday life" (Dunne & Raby 2011). Here, value is placed on a lack of certainty and speculation. But in critical design, there is an over-arching question too, of the purposes to which new designs and technologies are put. Critical design invites speculation about the future scenarios, which designers are helping bring into view in their work.

To summarise, UCD as described by Norman introduced an important new entity into the worlds in which and for which designers do design: "the user" and especially his or her mind where his or her needs, goals and intentions apparently reside. As Shove et al (2007) demonstrate in their study of product designers, the user is now an everyday part of the conceptual toolkit for many designers. However as Wilkie (2010) shows, there are many types of user within design research.

Even as UCD concepts became absorbed within product and industrial design, there were also efforts to query its assumptions. New methods such as cultural probes did not claim to get an accurate picture of what was inside the user's

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[3] Tony Dunne is professor and head of what is now called the Design Interactions Department at the Royal College of Art.

mind, but rather served to open up dialogues with people engaging with the objects designers design. Designers such as Dunne and Raby took a different approach, that of creating thought-experiments about designed futures, highlighting some of the social and ethical implications of particular possible scenarios. So the user now exists as a cipher, standing in for the person a designer designs for, but questions remain about how accurately she or he can be captured and represented, and whether the goals attributed to her are goals worth pursuing. Further, the user as presented in UCD is not someone who exists "over there", independent of and available to designers, but is an entity that comes into view through the work of designing. It is this work of construction within designing that needs further exploration.

3.4 Ontological design

Although concerned with the design of computer-based systems, *Understanding Computers and Cognition: A New Foundation for Design* (1986) by Terry Winograd and Fernando Flores has implications for a much broader range of designed artefacts. Winograd and Flores use literatures on language, philosophy and computer science to make an argument that design is ontological, which can be summarised as follows. Design is concerned with the link between understanding and creation and as such it requires understanding the links between language and action. Central to their argument is a view of language that sees it as constituting understanding through interpretation, rather than offering descriptions of an objective reality.

This approach follows Heidegger's (1962) rejection of the dualism that either (a) the objective physical world is the primary reality; or (b) the subjective stance that a person's thoughts and feelings are the primary reality. In Heidegger's philosophy it is impossible for one to exist without the other. "The interpreter and the interpreted do not exist independently: existence is interpretation, and interpretation is existence" (Winograd and Flores 1986: 31). The argument can be summarised as follows:

- Our implicit beliefs and assumptions cannot all be made explicit.

- Practical understanding is more fundamental than detached theoretical understanding.

- We do not relate to things primarily through having representations of them.

- Meaning is fundamentally social and cannot be reduced to the meaning-giving activity of individual subjects.

- We exist in the world in a condition of "thrownness" in which we cannot avoid acting.

- Every representation is an interpretation and no representation is stable.

- Language is action.

Winograd and Flores use Heidegger's tool analysis from which they introduce three concepts: breakdown, *readiness-to-hand* and being *present-at-hand*. An example Heidegger gives is someone using a hammer, for whom the hammer becomes invisible and ready-to-hand, when doing hammering. Instead, the person takes the hammer for granted, until the moment when there is some kind of breakdown. Winograd and Flores compare Heidegger's hammer example to

the design of computer systems in which the network of objects connected to a computer are taken for granted until there is a breakdown. "What really *is* is not defined by an objective omniscient observer, nor is it defined by an individual – the writer or computer designer – but rather by a space of potential for human concern and action." (Winograd and Flores, 1986: 37; emphasis in original). An attentiveness towards breakdown provides an orientation towards the nature of the world and how we understand it, that is closer to design than to problem-solving. "A breakdown is not a negative situation to be avoided, but a situation of non-obviousness, in which the recognition that something is missing leads to unconcealing (generating through our declarations) some aspect of the network of tools we are engaged in using" (Winograd and Flores, 1986: 165).

The tools we make and use are part of the background where we explore what it is to be human. The objective for design is to anticipate forms of breakdown and provide a space for possibilities for action when they occur. Thus for Winograd and Flores, design is in essence ontological. At its core it constitutes an intervention into what it means to be human, "growing out of our already-existent ways of being in the world, and deeply affecting the kinds of beings that we are" (Winograd and Flores, 1986: 163).

The implication of ontological design for the present study is to say that design activity is not just concerned with the creation of new forms but has a more fundamental character. Ontological design takes further Schön's idea that design is concerned with world-making and presents arguments that (1) make it difficult to separate the designed artefacts and the people who use them from the

world they are in; and (2) challenge the idea that we can separate an objective physical reality from our subjective interpretations; and (3) show how we do not relate to things primarily through having representations of them, but instead interpret breakdowns. The separation between self/world evident in design studies and UCD is no longer maintained.

3.5 Summary: Expanding design's worlds

To summarize, this review of literatures in design studies and UCD has traced the development of some of the important concepts in design fields and opened up the analytical concerns at the heart of this dissertation. I have shown how researchers working within design have tried to conceptualize what design is concerned with, noting a shift towards seeing design as relational, and an increasing engagement with other disciplines to understand the wider social and cultural world. Overall, the following themes help orient this study of ways to conceptualise designing for services and design for social innovation.

Firstly, this discussion has noted expanding ontologies in research about design. Although some researchers focused on designers and objects as being central to designing, this section has shown how the cosmologies of design changed to include new concepts, such as users and their tasks or needs, as researchers have tried to analyse what goes on in designing and its impacts.

Secondly, it has shown how knowledge about design has proceeded through disciplinary bricolage. Early work within design studies, often undertaken by researchers working with design schools or consultancies, sometimes ignored

other academic traditions. Later contributions have drawn on an array of fields including psychology and philosophy, but to date, within design studies, there has not been extensive engagement with research in sociology and anthropology. Chapter 4 will outline the major contributions in the encounters between design and sociology and anthropology.

Thirdly, this review helps explain how the term "context" has served as a useful catch-all for "everything important that is not the user or the object". While researchers recognised that context was important to design, this rested on a realist ontology in which the world existed "out there" – for example, designers should learn about users in order to design better for them. In contrast, ontological designing recognises that that the worlds in which designs have meanings are created through practice, and that breakdowns reveal how the sociomaterial worlds unfold.

This leads this argument away from a cosmology of design in which entities such as the designer, the object, and the user pre-exist within a context. Rather, ontological design as proposed by Winograd and Flores prompts a recognition that these entities come into being through the processes of designing and how things happen in practice. But given the limited attention within design studies and UCD traditions to theories of the social, perhaps shaped through design's institutional histories, it now seems important to turn to researchers working within sociology and anthropology, to identity research that can more adequately describe the social worlds of designing.

Chapter 4   Encounters between design and social and cultural research

4.1 Introduction

The previous chapter presented an account of how theories of design in the design studies tradition increasingly required describing social relations. This chapter charts some of the important encounters between design and the social sciences, in particular ethnography, over the past couple of decades, mostly sited within developments around human computer interaction (HCI) and systems design. This extensive body of research is productive for two reasons. It has lead to some ways of understanding designing, that address the weaknesses in design studies. Exploring this contribution, it is helpful to start with a brief history of the fields in which researchers have explored the intersections between ethnography and design, methodologically and theoretically. Several of the analytical concerns that emerge across these literatures are then pulled out.

In short, this is a story of how theories of the social, and one research method in the social sciences, ethnography, travelled beyond the concerns of anthropologists and sociologists working within the academy, and entered into the everyday conversations of those involved in designing systems and technologies and then into product and service design and marketing research. Visit the website of any mid- to large-scale design consultancy today, and ethnography is likely to be one of the offerings, although it is often not clear

whether trained anthropologists or designers are doing this work – or whether this matters. As Wasson (2000) foresaw over a decade ago, ethnography has now entered the mainstream of design, where it is practiced within a context in which the purpose of ethnography is not building knowledge, but serving a client.

At the time of writing, the sites where design and ethnography encounter one another include the anthro-design mailing list founded by anthropologist Nathalie Hanson in 2002. This list currently has over 2400 members (Anthrodesign 2013), and contributions include announcements, requests for assistance and advice, critical discussion, and details of meet-ups and events. Another key contemporary site for the encounter between design and ethnography is the network of people, firms and practices associated with the annual Ethnographic Practice in Industry Conference (EPIC), under the aegis of the American Anthropological Association (EPIC 2013). Held annually since 2005, this conference and its published peer-reviewed proceedings, has created opportunities for dialogue among different kinds of professional involved in diverse organisations with a shared interest in what design and anthropological approaches bring to one another. Participants come from large corporations, often technology firms such as Microsoft, Intel and Yahoo, but also consultancies including design agencies involved in product marketing, social innovation, policy and management consultancy.

Recent books are also staking out a specialist field, exploring what happens in these projects and organizations. For example Cefkin (2009) reviews key individuals and firms involved in exploring the potential and implications of

doing research rooted in anthropology within corporate contexts, often in new product development and in close collaboration with design teams. Similarly, in Clarke (2010), anthropology is seen as creating possibilities for design practice and research to rethink itself.

These brief examples show how far ethnography has spread beyond academic concerns to a series of fields and contexts in which ethnographic knowledge is used in the context of product and service design and marketing research. In what follows the discussion shows how ethnography became a favoured method, to which first systems designers and then industrial and product designers have turned to build knowledge about the "context" in which design is taking place. Alongside this, several theoretical and methodological challenges have emerged. In summary, ethnography appears to offer "a means by which the complexity of real-world settings could be apprehended, and a toolkit of techniques for studying technology 'in the wild'" (Dourish 2006: 2). However it remains a slippery concept – itself a boundary object medidating between different professionals (Wakeford 2005).

4.2 Some partial histories

The fields drawn on here are associated with conferences, mailing lists, university teaching programmes, books, journals, blogs and other kinds of gathering, both formal and informal, involving professionals and researchers from all over the world but particularly Europe and North America, often, but not always, working within university departments and corporate research

institutes, and therefore subject to institutional and disciplinary pressures and funding regimes that shape their work. The focus will be in particular on workplace studies, Computer Supported Cooperative Work (CSCW), Participatory Design (PD). This will demonstrate how the explicit linkages between ethnography and design became a well-established feature of several kinds of professional design practice, increasingly written about (eg Cefkin 2009), discussed at specialist conferences (eg EPIC 2013) and also taught at post-graduate level[4].

The theoretical underpinnings referred to by researchers working within these fields range from cultural anthropology to computer science to ethnomethodology to activity theory as well as Science and Technology Studies, feminism, cultural studies, and philosophy. This is quite a cocktail of fields, and this account is necessarily a limited overview, which reduces much of each field's specificity and particularity. Nonetheless the aim here is to synthesise some of the concepts that emerged. This presents a picture of how the involvement of researchers trained in anthropology and sociology, working in support of or studying the design of computer systems, brought an important new focus on how to conceptualise the sociomaterial worlds through which designs, users and designers come into being, challenged existing descriptions of design, and helped reframe the encounters between people and designed artefacts.

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[4] Post-graduate courses linking design and the social sciences include the MSc Design Ethnography at University of Dundee; MDes Design Anthropology at Swinburne University; MA Design, Culture and Materials at University College London; MA Interaction Research at Goldsmiths, University of London.

4.2.1 Workplace studies and systems design

The emergence of ethnography within systems design has been described in several essays, journals and books (eg Hughes 1992; Luff et al 2000; Wasson 2000; Macaulay 2000: Crabtree et al 2001; Hartswood et al 2002; Dourish 2006; Cefkin 2009) and PhD theses (eg Halse 2008; Wilkie 2010; Moll 2012; Anderson 2012). The pioneers of ethnography in systems design were often working in the context of collaborations with engineers designing computer-based systems for workplaces[5]. Although there remains a question about to what extent these concepts, methods and tools are directly transferable to other contexts such as homes and communities rather than workplaces, and to projects that do not rely on the development and dissemination of capital-intensive ICTs, these researchers have produced powerful ways of conceptualising design, designers, users and the sociomaterial worlds in which they come into existence. The interdisciplinary field of Computer Supported Cooperative Work (CSCW) emerged with a series of conferences starting in 1986 (Grudin and Poltrock 2013). I briefly outline some of the main contributions.

The emergence of ethnography within systems design was shaped by two developments. First were anthropological and sociological studies of organizationals and communities nearer to home than the early 20th ethnographies (Dourish 2006; Wilkie 2010). These offered a new way to

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[5] There are multiple overlaps between Human Computer Interaction, Information Systems and interaction design, concerned in different ways to design systems and interfaces supported by information and communication technologies (ICT). Since the distinctions between these fields are not relevant to my argument, I will group these loosely under the term "systems design" to distinguish their concerns from industrial and product design.

understand the social life of employment and organizations. Second was the failure of many technological systems to work well and a growing realization that designing systems for people to collaborate and required understanding in more depth how they communicate and work together. These developments lead to two related moves: new studies of workplaces which brought into view the practices of people working together (eg Heath and Luff 1992); and efforts to understand how such descriptions could become the basis of requirements for designs, which became institutionalized in CSCW. Schmidt & Bannon (1992: 11) defined CSCW "as an endeavour to understand the nature and characteristics of cooperative work with the objective of designing adequate computer-based technologies".

The supposed value of ethnography for systems designers was its ability to undertake fieldwork about the social life of employees or future users of technologies, and analyse them in ways that were productive for designers. What for designers was a new method to articulate requirements for design, was for social scientists trained in ethnography, something more complex.

> On the face of it, the very virtues of ethnography for some kinds of social inquiry, such as its attention to the diversity of 'real world' social life, its activities and its settings, the remit to uncover that social life as constituted in and through the understandings and activities of its participants, and its reluctance to presume much about the character of that life in advance of inquiry, would make the task of informing system design a very difficult one. … The ethnographer's task is to gain access to

and knowledge of the social practices, knowledge, beliefs, attitudes and activities, etc., as exhibited by participants in some 'natural setting', and to present these in terms of a sociological account of a 'way of life' as organised by its participants." (Hughes et al 1993: 127)

One of the main contributors to this field is Lucy Suchman who over several decades has brought an anthropological perspective to the design of systems and technologies, through her work as a researcher at Xerox PARC and more recently within academia. Suchman's (1987) influential study of a the use of a photocopying machine showed how human action is constantly constructed and reconstructed through dynamic interplay between social actors. Instead of a mode of *planning* what action to take, Suchman instead showed how human action in relation to interacting with a machine unfolded through multiple encounters that were situated in everyday life and practical activities. Suchman showed how usage is local and contingent, rather than general and unvarying, which suggested that the conventional distinction between "human" and "technology" was not useful. Instead, the human-technological interactions emerged in practice.

Other research also developed these ideas. For example, a close study of the organization of work involved in air traffic control revealed the power and limitations of careful descriptive, interpretive ethnographic research (Hughes et al 1992). They argue that "how the setting is understood by and through these understandings, socially organised by the participants, is not presumed in advance of inquiry, but is the task of the ethnographer to discover". (Hughes et al

1993: 126). Another important strand of this work was the growing acknowledgement of the embodied nature of such interactions. For example Dourish (2001) argued for an understanding of situated practice as embodied encounters between humans and technologies.

Suchman and colleagues (Blomberg et al 1996; Suchman et al 1999; Suchman 2002b) developed what they called a "work-oriented design practice" in the design of technology at Xerox. The starting point was the recognition that "systems development is not the creation of discrete, intrinsically meaningful objects, but the cultural production of new forms of practice" (Suchman et al 1999: 404). Thus research and design must involve researchers, technologists and designers, and workers.

Exploring relations of production and relations of use, Suchman proposed a feminist approach to technology design that involved reflexively acknowledging researchers' own roles as members of a social world:

1. Recognizing the various forms of visible and invisible work that make up the production/use of technical systems, locating ourselves within that extended web of connections, and taking responsibility for our participation;

2. Understanding technology use as the recontextualization of technologies designed at greater or lesser distances in some local site of practice;

3. Acknowledging and accepting the limited power of any actors or artefacts to control technology production/use;

4. Establishing new bases for technology integration, not in universal languages, but in partial translations;

5. Valuing heterogeneity in technical systems, achieved through practices of artful integration, over homogeneity and domination. (Suchman 2002a: 101)

Suchman proposes a skilful integration of both ethnographic perspectives, that see designs as constituted in practice, and the roles of designers and researchers as well as users in mutually performing them.

One thing to highlight within this tradition is that the ethnography practiced here was influenced by ethnomethodology, in particular the emphasis on attending to the accounts by which members of a world or community make present their world by focussing on the detailed organisation of activities (Garfinkel 1967). The ethnomethodological insight is that social ordering is produced by everyday activity, that is, through people and things interrelating with one another, in specific circumstances. Viewed through this analytical lens, the design problem is not so much concerned with the creation of new technological artefacts as it is with their effective configuration and integration within work practices. Thus the work of systems designers and those working alongside them such as sociologists or anthropologists is not so much concerned with designing a new artefact, but bringing into being new worlds in which social organisation and work practices are reconfigured and accomplished in practice (Hartswood et al 2002).

In short, workplace studies and CSCW offered a conceptualisation of the social relations in designing as involving multiple actors, not lone users as in UCD, who were situated within a specific, local place in which they were mutually interdependent with others as design unfolds in practice. Arguably ethnography was primarily used to make representations of work. But how such studies of workplaces and existing practices could shape or determine particular designs, became an issue that required other resources.

4.2.2 Participatory Design

Emerging at around the same time, a field now known as Participatory Design developed from different starting points. As in CSCW, researchers and designers working within PD were usually involved in designing or studying systems for organisations. However the emphasis in PD was more to do with creating opportunities for future users of a new design to be engaged in designing it, underpinned by a Scandinavian commitment to democratic ideals and for workers not to be deskilled in the workplace as new technologies were introduced (Ehn 1988; Greenbaum and Kyng 1991; Kensing and Blomberg 1998). What became the field of PD was influenced by earlier projects within the "Collective Resource" approach (Ehn and King 1987), which involved working with unions and workers and researchers to try out new ideas together on practical initiatives. This commitment to engaging members of the workplace was also influenced by related developments including the British "socio-technical" approach in which social scientists from the Tavistock Institute of Human Relations highlighted how the values and beliefs of employees in

industrial workplaces interacted with organizational effectiveness (eg Emery et al 1976). Researchers within PD aimed to develop the principles and practices to enable active stakeholder participation in the design of software and tools, but also businesses and social institutions in which technologies are embedded (Robertson and Simonsen 2012). As with CSCW, contributors to PD came from different fields including design, computer science, and the social sciences. A first conference with this title was held in 1990 (Kensing and Blomberg 1998).

An influential researcher in this field, Pelle Ehn (1988; 2008) used Wittgenstein's language games to describe what goes on in design and use. He understands design as a process of creating new language games that have a family resemblance to the language games of users and designers. A designer's job is to set up these new language games. Ehn's view of the world of design is focussed on the designer and the user, who participate in these language games, and the artefacts they create and use such as lo-tech prototypes and models. This user is based on a quite different analysis to the user at the heart of user-centred design. Ehn (2003) describes a shift to participation becoming a fundamental epistemological category; design is seen as a learning process in which designers and users learn from each other. Thus the user in Participatory Design is an active entity who participates in constituting designs, both by being involved at project time (design for use) and during use time (design for use after design).

As with CSCW, one of the challenges in such design work is to envision how a new system would actually be used in practice, when it did not yet exist. Methodologically PD developed a commitment to ongoing collaborative

prototyping, not to test a design, but rather to help trigger or constitute the language games or *design games* (Binder et al 2011) through which existing use practices can be understood and future use practices can be brought into view. Such low-tech prototyping could be done very early on in a project as a way to involve participants in a design process. For example Ehn and Kyng's (1991) description of the design of software for graphic designers working in the newspaper industry included cardboard mock ups of computers and visualizations of software user interfaces.

Gradually researchers working within CSCW and PD began to explore what was shared across these two fields, and several published in both. For example Kensing and Blomberg (1998) reviewed PD as a maturing field and identified the core issues animating it as the politics of design; the nature of participation, and methods and techniques for doing designing. Kensing and Blomberg reviewed interconnections and differences between PD and CSCW, given that both were concerned with designing technical and organizational systems that were informed by and responsive to everyday work practices. The differences they identified included an emphasis on understanding and designing for collaborative work in CSCW, in contrast to an emphasis on collaborative design in PD; and a commitment within PD to explicit organizational and political change agenda rooted in workers' rights. Hartswood et al (2002) proposed the concept of corealization, as a way to help bridge the gap between understanding use practices and doing designing.

More recently, researchers working within PD have been using these concepts within the design of community based projects, in which a computer-based system may or may not be part of the future practices, and where the "system" is perhaps better described as a place-based social world with intersections with public services. For example Hillgren et al (2011) describe their involvement in "living labs" in the city of Malmö which involved the municipality, businesses, third sector organizations as well as residents and designers to address local concerns through collective prototyping of issues.

In short, the field of PD started with a political commitment to workers' rights in organizations, which has expanded to a more general desire to involve people in the design of new technologies by rethinking this as designing new sociotechnical sytems, while attending to the organizations and policies shaping how they live and work. PD has developed strong, practically oriented methods and techniques that enable such participation, and conceptualizes such participation as "design games". The emphasis on participation leads to a realisation that nothing can ever be fully determined by design, but particular practices can be designed *for*. However a tension that exists too in CSCW is also evident in PD, about how to make present the implications of future designs in meaningful ways, or put another way, how to join up design and use.

4.2.3 Activity theory

Another tradition within the social sciences, although with different roots, has also been engaged with productively within software and systems design. It

offers several concepts, which have been taken up within the design of human-computer interaction which start with the premise of collective action. Activity theory developed from early 20th century psychologists working in the former Soviet Union who were concerned to describe how children learn with an emphasis on understanding this within their whole environment, not just what was going on in children's minds (Engeström and Middleton 1996; Wasson 2000; Kaptelinin and Nardi 2006). Key concepts include the hierarchical structure of activity; object-orientedness; internalisation and externalisation; mediation; and development. In activity theory, the unit of analysis is the entire activity, which is distributed across possibly several people, technologies and artefacts.

Activity theory works on several levels within software design (Redmiles 2002). It offers a way to describe tasks and activities at a basic level. It describes the social organization of users, stakeholders and others in a design project. It has a strong focus on the objectives of users (like UCD's tasks). As with researchers working within actor network theory, those describing activity systems invest in making detailed, close observations of the workplace (eg Engeström and Middleton 1996). These descriptions view material artefacts as playing roles in constituting these activities. Maps of activity systems can provide a way to analyse a system and engage participants in redesigning it (Sangiorgi and Clark 2004).

Activity theory and ethnography are not directly comparable. Ethnography is a research method, that starts with situated observation and analysis of a

sociomaterial world. In contrast activity theory starts with a theory of that world to understand how action takes place. As a strand of psychology, the former is more concerned with the development of individual consciousness and intentions, in contrast to ethnography's emphasis on collective meaning, social practices, and the sociality of world-making. And whereas ethnographic accounts are always specific to one or very few detailed cases, activity theory offers a set of core concepts, which researchers seek to deploy in a research context (Nardi 1996a). Finally, activity theory, with its emphasis on the importance of motive and consciousness, which belong only to humans, sees artefacts and people as exhibiting different kinds of agency. In contrast, within STS-informed ethnography, humans and non-humans are considered symmetrically, and in ethnomethodologically-informed ethnography, categories of human or technology are not considered as pre-existing, but are understood as constituted in practice.

4.2.4 Ethnographically-informed product and interaction design

One of the first overviews of the adoption of ethnography within industrial and digital design practice is by Christina Wasson (2000), an anthropologist who worked at the US consultancy E-Lab in the late 1990s. Wasson describes E-Lab as one of the first firms involved in forging a new kind of design practice with teams equally made up of designers and anthropologists. The firm was from the outset concerned with understanding and making manifest accounts of the sociomaterial world, and using these within designing.

Wasson's account of E-Lab describes the emergence of ethnography as a resource for industrial design. She offers detail about how a design consultancy began explicitly to describe, analyse and design for a world in which there are diverse actors. For example, she describes the firm's AEIOU framework as "a heuristic device to help interpret observations. It was used both to code data and to develop the building blocks of the models that would ultimately address the client's issues" (Wasson 2000: 382). Table 3 shows the components of the AEIOU framework developed at E-Lab.

Element	Definition
Actions	Goal directed sets of actions – things people want to accomplish
Environments	The entire arena where things take place
Interactions	Between a person and someone or something else; the building blocks of activities
Objects	Building blocks of the environment, sometimes put to complex or unintended uses, changing their function, meaning and context
Users	Consumers – people providing behaviours, preferences and needs

Table 3 AEIOU - Elements of the world used at E-Lab (adapted from Wasson 2000: 382).

Arguably, it was the success of anthropologists and sociologists using ethnography in systems design and HCI that lead to its adoption within industrial and product design consultancies and firms. Ethnographic practices spread through conferences and other meetings, as well as journal papers. For example Salvador et al (1999) described their use of ethnographic research in the design of future products and services in global marketplaces. Molotch (2003) developed an anthropology of consumption that revealed how products exist as "lash-ups" of multiple social actors and how design practices play into creating these. Bate and Robert (2007) describe the application of what they call "experience based design" in cancer services within the UK National Health Service. Shove et al (2008) linked theories of consumption and product design, and proposed practice-oriented product design. More recently, the emerging field of service design (Kimbell 2009; Stickdorn 2010; Meroni and Sangiorgi 2011) takes as a central proposition developing an understanding of users' practices and uses this to inform design. Practitioners working on the design of public services also routinely deploy ethnography as a means to legitimate their design proposals (eg Cottam et al 2006; Parker and Heapy 2006).

4.3 Challenging encounters

Thus far, this account of the expansion of ethnography into design has presented few wrinkles. It tells of the incorporation of an approach and set of methods into systems, product and digital design that led to important changes, leading to a shift in designers' cosmologies and changes in professional practice as teams of designers (at least in theory) included anthropologists and their theoretical

commitments, accountabilities, and modes of practice, into design projects as having something to contribute – even if what they did contribute was then marginalised through dominant rationalities within organisations and projects. Viewed through the lenses of the social sciences, the naïve conceptions of the world of design within design studies and user-centred design were no longer tenable. Design was not "user"-centred, but those involved in design had a richer understanding of design as a collective, situated, emergent activity involving many actors.

But the growing importance of, and intersections between, ethnography and PD as a way to design new systems, has not been an entirely smooth trajectory. For a discussion about the implications of the encounters between design and ethnography it is helpful to turn to Paul Dourish's (2006) paper discussing the implications of ethnographic research for design. While there are several others who have also stood back to reflect on these intersections (eg Mogensen 1991; Hughes 1993; Shapiro 1994; Suchman et al 1999; Hartswood et al 2002), Dourish's (2006) tightly-argued laying out of these issues is extremely useful. To this is added more recent contributions including research in PhD theses by Joachim Halse (2008), Alex Wilkie (2010), Jonas Moll (2012) and Tariq Andersen (2012).

4.3.1 The role of social and cultural theories

One of the noticeable differences that emerges in the encounters between design disciplines, and those rooted in the social sciences, is the role of theory: concepts,

frameworks, models and the underlying epistemologies and ontologies, which shape approaches to research, analysis and action. The institutional histories and sites within which ethnography and design have developed might lead us to summarize that until recently, design fields operated with hidden theories of the social world in which designing takes place, whereas for those trained in sociology and anthropology, not only are theories of the social world explicit and contested but they are also primary, that is, theories precede research and action. This section shows that this comparison is overly simplistic. But like Anderson (1994), Dourish (2006) and others, the argument made here is that until recently, theories of the social world have remained marginal in design projects, missing what ethnography can bring to them.

If we return to the reasons that ethnography was taken up in systems design, we find accounts that systems designers became increasingly concerned to understand the workplaces they were designing for. In an early review of ethnography in systems design, Hughes et al (1993) describe the benefits of incorporating the approach with reference to designing for future forms of air traffic control.

> [T]he ethnographic portrait of the activities as part of a socially organised setting avoids some of the pitfalls in treating tasks as discrete, isolated chunks of behaviour as if they were representations or descriptions of how the work and its tasks is actually done. Identifying the skills, how they are deployed, how work activities are sequenced and how they are made to connect accountably and recognisably as 'controlling activities' is

important to any aspiration to blending systems with working practices. The sensitivity to the place activities have within the totality of activities that constitute controlling work highlights their interdependencies in ways that are not always obvious. (Hughes et al 1993: 136-137).

In short, via fieldwork, systems designers accessed richer pictures of the social worlds in which their future designs would be used, but that does not mean they wanted a side-order of social theory alongside.

But this emphasis on data-gathering from the field as a resource for design, misses much that is of value in the ethnographic project. As anthropologist Suzanne Kuechler puts it (Kuechler, personal communication), ethnography is firstly a theoretical activity that proceeds by repeatedly asking "what difference does [the object of study] make?"

For Dourish (2006), the value of ethnography is not the data produced by fieldwork but in the models it provides and the ways of thinking that it supports. He makes a distinction between the "scenic fieldwork" that sometimes passes as ethnography, which takes the form of descriptions of "moments" describing what happened. In contrast, he argues, what ethnography does is provide models for understanding social settings – not simply accounts of what happened, but the explanatory frame by which this account can be organized and the narrative that connects historical moments. The impact is often diffuse, he says, but nonetheless important, providing new ways to imagine the relation between

people and technology, not just helping design better technologies. Similarly for

Halse (2008) the value of ethnography is that it decentres familiar rationalities.

This picture is complicated by the influence of ethnomethodology among some

social scientists working on the design of systems (eg Suchman 1987). Macaulay

et al (2000) argue that even within ethnography, there is considerable debate

about how important theory is because of the influence of ethnomethodology. It

was Garfinkel (1967) who argued that researchers should account for human

activity purely as social action,

> that is, to treat the describable properties of activities in a social setting as
>
> the 'outcomes', 'accomplishments', or 'achievements' of those
>
> participating in it using their practical commonsense, mundane
>
> knowledge of how the work and its activities are organised (Hughes et al
>
> 1993: 130).

This approach to understanding human behaviour by careful, close observation

of the world claims that description is not the precursor to analysis, *but the

analysis itself*. For these researchers, analytical frameworks can obscure rather

than reveal concrete lived experience. What matters is accounts that describe

how a social world is articulated in practice, without reference to pre-existing

theories. This is not just what people say about what they do, but rich

descriptions of the socio-technological organisation of lived practice. As an

analytical orientation, ethnomethodologically-informed designing highlights a

need to design to support emergent, future forms of socio-technological organisation in practice.

To summarize, two or more decades of using ethnography in the design of systems has lead to an understanding, that using this approach is of value in the design of new things understood as collective sociotechnical practices. On the one hand, ethnographers have highlighted the nature of the social worlds for designers and produced theories of what is going on. On the other, ethnomethodologists have emphasized that all sites of social action are local and situated accomplishments, and how design should be open to the unfolding of future practices. However ethnography-as-data-gathering can miss some of the important background in which ethnographic practice takes place – a questioning about lived practice, how it is made up and what matters to who and why.

4.3.2 Gaps between research, design and use

A tension that emerges in CSCW and PD literatures is between *understanding* a world and *intervening* in it (Halse 2008). This plays out across the research in various ways, partly in response to the different traditions within the social sciences and in design and engineering. Although this is a *conceptual* distinction, it often plays out as a *temporal* distinction when research about users is followed by designing, and is then followed by seeing what happens when designs are instantiated in practice.

As CSCW and PD literatures have emerged, cross-fertilised one another and intersected with other fields, this has lead to the emergence of concepts which different kinds of researcher and designer pay attention to more than others. These divide up as *research* (understanding current use practices), *design* (exploring and proposing future use practices), and *use* (practices that exist following the release of a design into a social world, which may also be studied). Clearly these are not pre-existing domains or temporal phases but rather act as placeholders serving to hold the attention of different communities. Within these distinctions, then, traditionally, research about use is the domain of specialist (social) researchers who have methods to understand practices, whereas design is the focus of designers. In response to these specialisations, however contingent, both design and ethnography are invoked as bridges between these domains.

On the one hand, design is seen to bridge the gap between current and future uses. In CSCW ethnographers helped designers understand that

> the 'design problem' is not so much concerned with the creation of new technical artefacts as it is with their effective configuration and integration with work practices. The key issue for a re-specified IT design and development practice is therefore not only 'design', but also 'use' (Hartswood et al 2002: 12).

On the other hand, in workplace studies, ethnography was seen as bridging the gap between current use practices and design (Dourish 2006). Hughes et al (1993) describe why.

> Users often find it difficult to articulate what it is they know since the knowledge that enters into the skilful execution of working practices is not easily summarised as lists of decontextualised propositions, be they formally specifiable or tacit, but is highly localised and a matter of constant enquiry and discovery. … It is not that users cannot talk about what it is they know, how things are done, but it needs bringing out and directing toward the concerns of the design itself. In this respect, the ethnography can serve as another bridge between the users and the designers. (Hughes et al 1993: 138)

Attempts to bridge these "gaps" have continued to preoccupy researchers. PD was initially preoccupied with designing for use before use, that is, trying to anticipate or envision how people would use things, during the design phase of a project (Redstrom 2008).

Researchers who tried to combine aspects of PD and CSCW began to break down these distinctions. For example Hartswood et al (2002) proposed a principled recombination of the two fields as "co-realization", which involved researchers becoming more like designers and vice versa and working together throughout a project. "It requires that we as designers engage in the unfolding performance of [users'] work as well, co-developing a complex alignment among organisational

concerns, unfolding trajectories of action, and new technological possibilities."
(Hartswood et al 2002: 13). Ehn (2008) made a distinction between
conventional PD focussing on design at project time, and what he called "meta-
design", a kind of design that focussed on the kind of designing that happens
after design projects are over (or what CSCW ethnographers would call research
into use).

Other researchers too have challenged whether these gaps, and the underlying
specialist domains they exist between, need exist. Halse consider it "a central
principle to impose estranged views on local practice, in order to create
openings for design" (Halse 2008: 30). He proposes a role for what he calls
"design anthropology" that is committed to the performative act of articulating
possible alternative realities from the very outset of an inquiry (Halse 2008:
195). Elswhere, Andersen (2012) notes that social scientists such as those
working within STS reject dichotomies between description and intervention.

In summary, many CSCW and PD researchers have made distinctions between
doing research about use, and designing, and found ways to bridge gaps between
research and design. Some researchers, however, have tried to bypass these
distinctions by seeing use as unfolding and by deploying ideas of performance.
The underlying distinction between understanding the world and intervening
into is no longer maintained in contemporary research. For example, in
ethnographies of diagnostic work, diagnosis and treatment are intertwined.

4.3.3 Accounting for and to

Thus far, this narrative has glossed over something important: the incorporation of an intellectual project committed to empirical exploration of self and world in diverse cultures with a commitment to reflexivity, by a professional practice tied to, and largely dependent on, the movement of global capital. The discussion of CSCW and PD has focussed rather narrowly on the incorporation of ethnographic approaches in the design of new information and communications technologies, but ignored the wider implications of these developments. Cefkin (2009) and earlier Wasson (2000) and Macaulay (2000), all point to the questions that emerge when anthropologists, even those willing to work in applied contexts, find themselves hired by companies involved in designing and delivering products and services that may not serve societies well, now or in the future. But there is a larger issue at play here, beyond personal ethical codes, that needs closer inspection: how PD and CSCW have explored accountability and power.

PD's commitment to involving workers in the design of new systems marks it out as explicitly political from the outset. The basic idea here is that processes to design future systems should involve those who will be affected by them. Researchers in PD developed concepts and methods that try to put designers and users on an equal footing, at least theoretically, both as participants in language games. For example PD researchers developed methods to involve participants in prototyping and practical workshops, which render both designers and workers as having different kinds of expertise that need to be brought together to design the new system. More recently other researchers in PD have started to

focus on the practicalities that make such workshops possible – the messages, personal interactions, posters, phone calls and other ways that participants are enrolled in and become available for design work (eg Andersen 2012; Moll 2012). Another recent development is the use of resources within Actor Network Theory within PD, specifically the idea of non-human agents in co-constituting the socio-material world. For example Latour's (2005) description of assemblies or hybrids of people and things, through which "matters of concern" are constituted around issues, has lead to acknowledging the collectives that PD designs with and for (eg Ehn 2008; Binder et al 2011).

Within CSCW, there is less of an explicit focus on the politics of involvement. Instead, there are two theoretical drivers that shape how researchers think about and practically engage people in their work. Firstly, anthropology's long-standing post-colonial commitment to reflexively asking where a researcher stands in relation to his or her work means that ethnographers (should) have some awareness of their own commitments in producing analysis (eg Anderson 1992) or as Suchman (2002) puts it, their locatedness. Secondly, the influence of ethnomethodology emphasizes that all are members of a social world. For ethnomethodologists, for whom workers and users and designers are all members of a social world, the theoretical drive is to describe richly the ever-changing, yet recognisable, production of social orders in and through people's everyday practices, rather than reducing such lived practice through abstract theoretical models.

Thus far, these approaches have served for projects within stable, structured, often hierarchical, organizations. But with the incorporation of participatory approaches and ethnography into design for service and for social innovation, and in relation to complex contested issues such as climate change, it's not clear how mobile these concepts and methods are when projects involve multiple organizational actors and kinds of expertise. There are at least three sites of potential conflict. Firstly, increasing the number and kind of stakeholders begs the question of which stakeholders are to be attended to and involved, and which are to be sidelined? Andersen's (2012) and Moll's (2012) descriptions of their efforts to sign up medical staff and people with heart conditions to participate in a trial, shows how hard it is to get people to participate, and the practicalities involved to make prototyping work. But with every inclusion of a willing participant, who is not included? How do methods that involve the active participation of some stakeholders exclude others? And to what effect? It is not possible to involve all members in a design activity, which highlights the boundary work done when some members of a social world are involved, and others are not.

A second issue is the power relations between disciplines as Dourish (2006) has suggested. Dourish says there are three issues in common structuring of ethnography as being an activity that creates "implications for design". Firstly, he says that seeing design as the end-result of an ethnographic inquiry, constructs designers as gatekeepers for research. Secondly, it puts ethnography outside the design process. Thirdly, this view puts the people that ethnographers

study outside the design process too. So adding more and different participants and their perspectives into projects, is likely to complicate this further.

A third issue is the temporalities in play during designing at project time, and in the unfolding of use practices. Future impacts are usually rather badly understood. Despite good intentions, the designs of products and services can lead to unknown consequences, both positive and negative, that play out over years, or possibly generations. This raises the question of over which timeframes a project and its after effects should be thought about. If teams designing a new system think of themselves and the users as involved in collectively understanding use, over how long should they do this? One month, one year, one decade, a century? Or several centuries?

To summarize, researchers working in PD and systems design have tried to involve people as active participants in design, not just thinking of them as "users". Designers working within these orientations have become aware of their own role and locatedness in research and design work. But as design has moved into an expanded field including into the design of services and social innovation, this has lead to expanding the numbers and kinds of participants to be involved. The impossibility of involving *all* actors who are members of a sociomaterial world, and the different temporalities over which projects and designs can be analysed, challenge the claim that designing can ever be fully or sufficiently accountable. Further, the scope and scale, distributedness and unevenness of unintended consequences on these actors, present complex challenges for research and practice.

4.3.4 Making and gathering representations

An early focus in both CSCW and PD was how to represent the worlds of users, in ways that make them available to designers and to users. Numerous papers, presentations, books and seminars have offered examples of how data can be captured or created about what goes on in a social world including a range of methods and media including interviews, participant observation, photography, scenarios, video and collaborative workshops (eg Ehn 1988; Binder 1999; Gaver et al 1999; Buur et al 2000; Kensing 2003; Loi 2007; Binder 2007; Sanders 2010; Wilike 2010; Andersen 2012). While some researchers have focused on methods and media for producing artefacts that somehow make available the worlds of others, attention has also been paid to what such artefacts do when introduced into practices.

Within CSCW, anthropological and ethnomethodological traditions gave researchers an awareness of the tensions inherent in making representations of others (cf Clifford and Marcus 1986). Influenced by that reflexivity, CSCW researchers discussed both how to convey field results to engineering teams (eg Hughes et al 2000) but also to think through what was happening in so doing. As Suchman (2002b) puts it, design work should become located rather than design from nowhere. Leigh Star's term "boundary objects" (Star and Griesemer 1989) showed how artefacts had different meanings for different groups working together. This rejected fixed meanings inherent in an artefact, but rather highlighted the social processes through which they came to be useful for

different users. Dourish (2006) points to the limitations of conceiving of ethnographers as producers of scenic descriptions that supply "implications for design" to designers. Instead he argues that the encounters between ethnography and design can serve to help shape research and decide what not to design, as much as uncovering possibilities and limitations of particular design opportunities.

Within PD, researchers resisted the idea of sanitised representations and instead developed methods and skills in collective prototyping that instantiated the future use situations. For example in co-design workshops, users were involved in collective acts of sketching or making or bricolage. However unlike in CSCW, where the validity and reliability of representations was thought about a matter of concern methodologically, in PD, representations are useful in how they *don't* fully work. Kyng (1995: 48) explains: "Most representational artefacts work so well not because they mirror that which is represented, but because they do not; that is, the representation captures a few intentionally selected qualities of that which is represented and nothing more." The way I understand this echoes Winograd and Flores' use of Heidegger's idea of how things come into view through breakdown, when they are not ready-to-hand. By creating representations that provoke breakdowns-in-use, researchers and designers can access the worlds of the people they are designing with and for.

Recent developments have suggested new directions that think differently about representations in design work. One way of addressing this is Halse's (Halse 2008; Halse and Clark 2008) use of performativity in STS and in performance

theory. Andersen (2012) developed an approach that tackled some of these challenges by combing PD with resources in STS such as Law's (2004) work on method assemblages, to argue for prototyping assemblies or collectives of people and things as ongoing performances. Through describing a research project involving the design of web-based personal health records for cardiac patients and health professionals to use, Andersen defines prototyping a collective as performing socio-technical arrangements.

> The object of design and research is not to make a prototype that is useful to its users or to make an account of what the problem is – it is both at the same time, because a useful prototype can only be useful if it is used and making an account of what the problem is can only be made by intervention and attempts at solving it. (Andersen 2012: 109)

Developing in a different direction, Ehn (2008) and Hillgren et al (2011) have suggested carrying out prototyping as a way of generating *agonistic* spaces "where different stakeholders do not necessarily reach a consensus but rather create an arena that reveals dilemmas and makes them more tangible" (Hillgren et al 2011).

In summary, the representations and artefacts created during a design process are not simply neutral carriers of information or meaning, to be deployed in design or existing outside of it. On the one hand, they necessarily shape and reveal perspectives, depending on where researchers, designers and others are located. On the other, interactions with artefacts in practice can offer

opportunities to bring into view a sociomaterial world, when things go wrong or unexpectedly. Another way of thinking about representations, however, sees them as performed or unfolding within social practices that are agonistic, not consensual.

4.4 Conclusion

To conclude, this chapter has summarized – and necessarily simplified – over two decades of work representing important encounters between design and sociology and anthropology, in particular in relation to systems design and HCI. The fields described above developed several ways of understanding and making available the sociomaterial worlds that come into being during designing. The active involvement of anthropologists and sociologists significantly expanded the conceptual possibilities for designers for whom concepts such as individual "users" and their "context" were now clearly insufficient. Although in some cases the same word is used as in other conceptualisations – "designer" and "user" being two important ones – in these encounters between design and social and cultural research in CSCW and PD, they mean something different. Instead of an individual who has goals and needs and performs tasks, for which the designer designs systems and interactions, users and their needs emerge in a collective, situated activity. A person's engagement with designed things is embodied and not necessarily available discursively. And a designer is not outside of this, looking into some "context" but definitely produced by and located somewhere within the activity, making observations, interventions and judgements, and

being shaped too by his or her interactions with these users and artefacts in a process of mutual elaboration.

In short, the encounters between design and social and cultural research have expanded the entities and interrelationships that designers need to take account of. In addition they require a new attention to temporality, for example, in the distinction between project time and use time, or between understanding and intervention. They pose important challenges about handling the unintended consequences of designing. At best, the collisions between concepts and theories and methods from anthropology and related disciplines with design, can expand the possibilities for understanding new designs, users and practices, and the ways they come into being. Further, the legacy of anthropology's attentiveness to difference and locatedness raises challenges for designers about their theoretical commitments as they do design work. Adding reflexivity to design work, social researchers have highlighted the importance of having theories of the sociomaterial world and how knowledge of it can be created and made sense of, and how these practically impact on designing.

Interstitial

The opening chapter argued that design is operating in an expanded field, in particular in relation to services and social innovation. One way of thinking about this is to see design, the discipline and practice, as operating between traditional object-based design, implicated within the strategies of designers, engineers, managers and entrepreneurs, and through what emerges as designs-in-use "in the wild" in people's day-to-day lives.

This dissertation now shifts towards reviewing some of the issues that emerge from this. In particular it opens up some of the history and contemporary practices associated with the terms "design thinking" and "service design" by research described in three solo-authored papers published in peer-reviewed journals during the period of undertaking this study. The papers bring into view recent debates about design thinking and suggest new ways of understanding how designing in the context of services takes place, through an ethnographic study of service design practitioners.

By reading these papers in the suggested order, located here after the literature review, rather than in an appendix, readers are invited to gain a deeper understanding about how contemporary design is being mobilized. The concepts discussed in these papers are then further elaborated and remixed in the following two chapters, moving towards a novel way of conceiving of the relations between people and things, in design for services and design for social

innovation. In some places, direct quotations from these three papers will be used, which are clearly marked typographically. This helps readers chart the development of the argument, in particular where the author's contributions from these papers are recombined with the work of others.

Paper 1, the first of a series of two, provides a review of literatures that have attempted to describe what is distinctive about a designerly approach, at a time when management practitioners, educators and others are turning to design thinking as having something to offer them. It reviews the origins of the term design thinking and finds three accounts: a cognitive style, a general theory of design, and an organizational resource. The paper suggests that there are at least three problems with these versions: a merging of thinking and doing, that ignores historical and cultural differences between different kinds of designers, and which privileges the designer as the main agent in designing.

Paper 2, which continues from the first, introduces a pair of concepts, *design-as-practice* and *designs-in-practice*, as a way to rethink designing. Combining research in anthropology and STS, this conceptualization helps researchers see designing as a situated accomplishment, involving diverse actors, including non-human ones, resulting in a de-centring of the designer as the main agent in design. This view of designing recognizes the contingent practices through which designs come into mattering.

Moving from a general account of designing, to an emergent niche practice, Paper 3 offers ways to understand the field of service design. Combining design

and management literatures, it outlines different ways of thinking about services and about design. It then uses an ethnographic study of consultancies practicing service design, to provide more detail about designing for service, that is, an exploratory approach to doing designing, in which services are seen as social and material configurations which create value in practice.

Together, these papers outline some of the difficulties in research about design and designing, and suggest some ways forward that help address long-standing conceptual challenges. They help readers understand how design for service and design for social innovation have emerged over the past decade, why it is hard to describe the object of design within them, and what characterizes a distinctive designerly approach.

Paper 1

Kimbell, L. (2011). Rethinking Design Thinking: Part 1. *Design and Culture*, 3(3), 285-306. Berg Publishers, an imprint of Bloomsbury Publishing plc.

Paper 2

Kimbell, L. (2012). Rethinking Design Thinking: Part 2. *Design and Culture*, 4(2), 129-148. Berg Publishers, an imprint of Bloomsbury Publishing plc.

Paper 3

Kimbell, L. (2011) Designing for Service as One Way of Designing Services.
International Journal of Design, 5(2), 41-52.

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Rethinking Design Thinking: Part I

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ABSTRACT   The term *design thinking*
has gained attention over the past decade
in a wide range of contexts beyond the
traditional preoccupations of designers.
The main idea is that the ways professional
designers problem-solve is of value to
firms trying to innovate and to societies
trying to make change happen. This paper
reviews the origins of the term *design
thinking* in research about designers and
its adoption by management educators
and consultancies within a dynamic,
global mediatized economy. Three main
accounts are identified: design thinking
as a cognitive style, as a general theory of
design, and as a resource for organizations.
The paper argues there are several issues
that undermine the claims made for
design thinking. The first is how many of
these accounts rely on a dualism between
thinking and knowing, and acting in the
world. Second, a generalized design
thinking ignores the diversity of designers'

practices and institutions which are historically situated. The third is how design thinking rests on theories of design that privilege the designer as the main agent in designing. Instead the paper proposes that attending to the situated, embodied routines of designers and others offers a useful way to rethink design thinking.

KEYWORDS: design thinking, practices, designers, innovation, organization design

Introduction

Professional design is now operating within an expanded and increasingly complex field. Some design professionals take solving complex social issues as their domain, often but not always working in close collaboration with specialists in public services from healthcare to those working with disadvantaged families to policing. Other designers and their ways of working are welcomed into business schools to teach the next generation of managers and leaders. Concepts and language that used to be associated with designers now enter other specialist areas: policymakers are told that public services should be more user-centered (Parker and Heapy 2006); businesses engage with customers by offering new meanings for things (Verganti 2009); the US Army is considering the role of design in warfare (School of Advanced Military Studies n.d.). Professional design, in particular design as practiced within the studio-based tradition of many art schools, is taking a new place on the world stage.

For design firms working for global clients in relentless pursuit of new markets, new offerings, and new kinds of value creation, design itself is being remade (Tonkinwise 2010). Design as design *thinking* should provide more than mere design. And yet, this re-assembling of some of the approaches, knowledge, and practices of professional designers, first within academic design research, and then within business schools and consultancies, has not brought a happy synthesis. Indeed, industry observers are beginning to question its most fundamental assumptions. Working within different contexts and at different speeds, from the slow pace of academia to the fast-moving worlds of consultancy and blogging, some of its key proponents are beginning to question design thinking, even calling it a "failed experiment" (Nussbaum 2011).

While much of this critical discussion is beginning to take shape outside design circles, this article will examine design thinking from within. Now, at a time when design and designers are working in challenging new contexts, we must engage in discussions about the place of professional design in the world. If we explore design thinking by using theories of practice, we may better understand designers' work within the social worlds in which it takes place.

Rather than viewing design thinking as a disembodied and ahistorical cognitive style, we must clarify its function. Design thinking may have failed; instead we should understand design as a situated, contingent set of practices carried by professional designers and those who engage with designers' activities.

Asking What If: The Designer as Cultural Interpreter

When design thinking emerged more than a decade ago, it offered a response to the ebbs and flows of a global, mediatized economy of signs and artifacts; in this context, professional designers play increasingly important roles, less as makers of forms and more as cultural intermediaries (Julier 2008) or as the "glue" in multidisciplinary teams (Kelley and VanPatter 2005). They are interpreters of changes in culture who then create new kinds of cultural form. Some designers have always seen design as playing important roles socially and politically as well as economically – William Morris, the Arts and Crafts movement, and Italian groups such as Superstudio and Archizoom are examples (Julier 2011); what is distinctive about the development of design thinking is its adoption within managerialist discourse, in particular business schools, over the past decade.

In just the last five years, the term is more and more ubiquitous. It found its way into conversations at Davos, the annual meeting of politicians and senior executives from global firms (IDEO 2006); at TED (TED 2009), a conference series that attracts leading figures in business, technology, and entertainment; and into the pages of the *Harvard Business Review*, an influential (although not peer-reviewed) academic journal (Brown 2008). Design thinking and the designers who say they practice it are associated with having a human-centered approach to problem solving, in contrast to being technology- or organization-centered. They are seen as using an iterative process that moves from generating insights about end users, to idea generation and testing, to implementation. Their visual artifacts and prototypes help multidisciplinary teams work together. They ask "what if?" questions to imagine future scenarios rather than accepting the way things are done now. With their creative ways of solving problems, the argument goes, designers can turn their hands to nearly anything. Design is now central to innovation and since organizations[1] are under pressure to maintain or grow market share, or if in the public sector, increase user satisfaction and effectiveness, then designers and their thinking have something important to offer.[2]

The Creative Class and the "New Spirit" of Capitalism

To understand this move requires attending to wider developments over the last few decades that have been shaping what goes on within and between societies, organizations of different kinds, and political institutions. To address these topics fully would require more space than is available but I want here to highlight particular themes.

The first is a view of capitalism which sees it as unstable, fluid, and dynamic (Lash and Urry 1994; Thrift 2005). Boltanski and Chiapello's description (2005) of a "new spirit" of capitalism captures some of the energy in the shift from hierarchies to networks and from bureaucratic discipline to team-work and multi-skilling, as capitalism absorbed its critiques and remade itself as offering managers both autonomy and security. A second theme shaping the product-saturated developed world is the importance of the economy of signs that ignore state borders and in which the value of a commodity cannot be separated from its symbolic value (Lash and Urry 1994). A sophisticated effort to engage diverse audiences or stakeholders in establishing the meaning of these signs marks out those commercial firms which at some level understand this (Verganti 2009). A third theme is the rise of what Florida (2002) calls the creative class, for whom work and professional identities are caught up in creating meaningful new forms. For Florida the word "creative" is not just reserved for designers, musicians, and visual artists but also computer programmers and opinion-makers such as columnists. These professionals find meaning in work which is characterized by flexibility, autonomy, and creativity and which blurs their professional and personal lives, as they move across national borders without being anchored to industrial modes of production and consumption.

A fourth theme is the ongoing, but recently re-energized, questioning about the role of business schools and their place in the world as centers of research and education (Harvard Business Review 2009). As the global financial and economic crisis of 2008 showed, neither MBAs nor their professors have all the answers. On the contrary, some of the practices associated with the world of high finance and its emblematic product, the derivative, carry with them important and yet unanswered questions about governance, accountability, and values. Interest within business schools in how designers go about engaging with problems pre-dates the crisis (e.g. Boland and Collopy 2004) but rests on the idea that established ways of thinking about managing and organizing are not adequate to deal with a fluid business environment (Tsoukas and Chia 2002), let alone any number of global challenges from climate change, to resource inequality, to peak oil. What this has meant for managers and policy-makers is that the urgent quest for innovation and novelty has new resources – a creative class who have a privileged place within contemporary capitalism.

Understanding Design Thinking

Even on a cursory inspection, just what design thinking is supposed to be is not well understood, either by the public or those who claim to practice it. As Rylander (2009) points out, it's hard enough understanding design and thinking, let alone *design thinking*. So it is not a surprise that those who support its application to business or more

broadly to public services or social problems, have trouble articulating what it is, whether all designers can do it, whether it is something new or just a different name for what good designers have always done, and why it might be a good thing that non-designers can learn it and do it too – or perhaps they do it already. Decoupled from any one field or discipline of design, design thinking is meant to encompass everything good about designerly practices. Given the reach and appeal of these claims, it is time to explore the origins of design thinking. Above all, we must examine what it is and understand how it is being mobilized within contemporary conversations about change and innovation.

In this study three things come into view. Firstly that accounts of design thinking often rest on a dualism that makes a distinction between "thinking" and "doing" and between designers and the worlds they do design in, rather than acknowledging the situated, embodied work of design thinking in practice. Secondly, attending to the diversity of designers' practices and the institutions in which they work makes it questionable to generalize about a unified design thinking exhibited across all of them. Thirdly, descriptions of design thinking rest on sometimes contradictory views about the nature of design and, for all the claims about being "user-centered," still emphasize the designer as the main agent within design.

Design and Its Problems

No doubt thinking has always been part of the work that designers do, but the term design thinking that became prominent over the past five years emphasizes the intangible work done by designers. Several recent studies (Badke-Schaub et al. 2010; Cross 2010; Dorst 2010; Tonkinwise 2010) highlight how recent popular accounts of design thinking ignore the extensive research on designers' ways of working over previous decades since the first Design Thinking Research Symposium in 1991 (Cross et al. 1992), let alone earlier events such as the Conference on Design Methods of 1962 (Jones and Thornley 1963). Although much of the recent public presentation of design thinking is tied to one design consultancy, IDEO (Brown 2008; Brown 2009; Brown and Wyatt 2010), the history of design thinking is more complex. In this section I will outline some of the main contributions and then summarize these into three broad positions in Table 1. Although any such synthesis reduces diverse research into overly simplistic categories, it can advance understanding by making clearer different approaches and their implications.

A stream of research originating in the 1960s focuses on how designers do designing. What began as the design methods movement (Jones 1970; Buchanan and Margolin 1995) gradually shifted towards investigations into design thinking (Cross 1982); researchers sought to understand the processes and methods by which (successful) designers went about design activity. This exploration also lead them to study the nature of design problems in more depth.

But to understand how design thinking emerged, we must go back a little earlier to understand how design itself was understood at this time.

Design's Fragmented Core

To this day, design remains a fragmented discipline. When in 1971 Christopher Alexander argued that design is about giving form, organization, and order to physical things, he acknowledged an entire school of thought. For Alexander, "the ultimate object of design is form" (1971: 15). The idea that form is a physical arrangement remains a dominant view of what designers do: they make things. Visitors to professional design studios are likely to note a disorderly arrangement of objects on work surfaces, walls, and floors. Such clutter reminds us how professional design still involves doing things with and to objects, even for those designers who see their work as designing intangible services or experiences (Figure 1).

Writing contemporaneously with Alexander, Herbert Simon was also trying to understand and describe design. Having already made contributions to economics and organization theory, Simon turned his attention to the organization – or in his terminology, "design" – of human action in the realm of the artificial. In *The Sciences of the Artificial* (1969) Simon identifies design as the knowledge that is in the domain of professions such as engineering, management, or medicine.[3] He believed that these fields all concern "what ought to be" and contrast with the sciences, which are concerned with "what is." He saw design as a rational set of procedures that respond to

Figure 1
View of teaching studio at the Royal College of Art, London, during a visit by the author and her MBA class. Photograph: Lucy Kimbell.

a well-defined problem; solving this problem involves decomposing systems as well as searching for and choosing alternatives. He argued that his approach worked for ill-defined problems too (Simon 1973). Simon assumes that it is possible to determine a desired state of affairs and thus, he writes, "problem solving requires continual translation between the state and process descriptions of the same complex reality" (Simon 1969: 112). Although Simon was also concerned with form in the sense of the boundaries between internal and external worlds, artifacts did not feature strongly in his view.

The tension between these two conceptions of design remains evident today and informs the discussion about design thinking. On the one hand, following Alexander's thesis, designers give form to things; they are privileged makers whose work is centrally concerned with materiality. This is the tradition of craft and professional design fields that create specific kinds of objects, from furniture, to buildings, to clothing. Simon, on the other hand, suggests that designers' work is abstract; their job is to create a desired state of affairs. This way of thinking about design is the core of all professions, not just the work of engineers and designers of artifacts.

Both Alexander and Simon were concerned with describing what design is, and how to do it, but neither emphasized design thinking. Similarly while Jones's (1970) work on design methods emphasized the importance of changing how a problem was thought about in order to develop a new solution, it was only later that the term design thinking emerged. Peter Rowe's *Design Thinking*, originally published in 1987, provides one of the earliest discussions of the concept. Based on Rowe's teaching of architects and urban planners, the book offers both case studies and discussion about the "procedural aspects of design thinking," including descriptions of the design process, and then introduces generalized principles. Two main ideas emerge. Rowe argues that design professionals have an episodic way of approaching their work; they rely on hunches and presuppositions, not just facts. But he also argues that the nature of the problem-solving process itself shapes the solution. For Rowe, discussions about how designers actually design are necessarily shaped by wider conversations about the nature of architecture itself. "We need to move directly into the realm of normative discourse about what constitutes architecture and urban design in order to clarify the inherent nature of the enterprise and the direction in which procedures are inclined" (Rowe [1987] 1998: 37). Although Rowe is rarely cited in more recent texts, these topics frequently reappear in subsequent literature.

Researchers working in several fields, including engineering, architecture, and product design, continued to study how designers think and what they know as they solve problems. Key contributors include Nigel Cross, although he generally prefers to use the phrase "designerly ways of knowing."[4] Cross sees designers' mode of problem solving as solution-focused as they tackle ill-defined

problems and situates this within a larger argument about design as a coherent discipline of study distinct from the sciences and the humanities (1982; 2001; 2006). Donald Schön introduced the idea of framing and making moves when problem solving during professionals' reflection-in-action (Schön 1983). Bryan Lawson, on the other hand, studied the practice of designing in a context of multiple constraints (Lawson 1997). Nigel Cross and Kees Dorst developed the idea that problems and solutions co-evolve (Dorst and Cross 2001), and Cross suggested that designers treat all problems as ill-defined, even if they are not (Cross 2006). Attempting to explain designers' tendencies to generate new solutions, many researchers have emphasized abductive reasoning (Cross 1982; Dorst 2010). Dorst (2006) noted that since a designer's understanding of a problem shifts during a design process, other concepts might be better employed, suggesting instead that designers construct designs that transcend or connect paradoxes. Burnette (2009) describes different kinds of thinking within a design process. One focus has been to discern different levels of expertise among designers, from novices to visionaries (Lawson and Dorst 2009), although without much reference to sociological work on professions and institutions. In short, while there has been a sustained effort to understand and describe what professional designers do in their design work, this has not yet generated a definitive or historically-informed account of design thinking, nor any explanation for why they might have a particular cognitive style.

While this body of research focused on designers and what they think and do, others continued to take forward work defining the field of design. Buchanan's (1992) paper "Wicked Problems in Design Thinking" shifted design theory away from its legacy in craft and industrial production towards a more generalized "design thinking." This concept, Buchanan argues, could be applied to nearly anything, whether a tangible object or intangible system. Drawing on Pragmatist philosopher John Dewey, Buchanan sees design as a liberal art, uniquely well-placed to serve the needs of a technological culture in which many kinds of things are designed, and human problems are complex. For Buchanan, design problems are indeterminate or wicked problems (Rittel and Webber 1973). The designer brings a unique way of looking at problems and finding solutions. He describes four orders of design which approximate the artifacts that design practitioners tend to work on: signs, things, actions, and thoughts. This version of design thinking is less concerned with individual designers and how they design, but rather seeks to define design's role in the world. Similarly, Rylander (2009) also compares design thinking to a Pragmatist inquiry and concludes that Dewey's work on aesthetic experience provides a useful way to explore designers' special skills and examine the claims made for them in more detail.

Design Thinking: De-politicizing Managerial Practice

The books and papers that have done most to popularize the idea of design thinking mostly ignore this literature. While the term design thinking originated with academics who conducted research within design disciplines, today the phrase most often situates design thinking in terms of the challenges facing organizations, especially businesses (Figure 2). Concern with design's place in the world and thus with larger social or political questions is lost when design is mobilized within a managerialist framework. As Sam Ladner (2009) puts it: "Design is attractive to management because it is a de-politicized version of the well known socio-cultural critique of managerial practices."

Two main proponents have recently reconfigured design thinking. Tim Brown leads one of the world's most influential design consultancies, IDEO, and is the author of *Change by Design: How Design Thinking Transforms Organizations and Inspires Innovation* (2009). The other, Roger Martin, is Dean of the Rotman School of Management in Toronto, with a background in management consulting, whose book is titled *The Design of Business: Why Design Thinking Is the Next Competitive Advantage* (2009). Although each describes design thinking somewhat differently, both explore its role within organizations. Their work can be seen as part of a growing interest in design in management academia including multiple journal special issues (e.g. Bate 2007; Jelinek et al. 2008), tracks at major conferences (e.g. EURAM 2009; Academy of Management 2010;

Figure 2
MBA students using design approaches during an entrepreneurship workshop led by the author in a lecture theater at Saïd Business School.
Photograph: Lucy Kimbell.

EGOS 2010), scholarly workshops (e.g. Case Western Reserve University 2010), and experiments in teaching design to MBAs and executives including at the Fox School of Business (Temple University 2011); the Rotman School of Management (University of Toronto 2011); Saïd Business School (Kimbell 2011); and the Weatherhead School of Management (Case Western Reserve University 2011).

Presented as a way to balance organizational tensions between exploration and exploitation (Martin 2009) or as a loosely-structured organizational process that stimulates innovation (Brown 2009), these accounts of design thinking do not draw extensively on research in either design studies or management and organization studies. Despite the lack of a wider research base, books by Tim Brown and Roger Martin widely disseminate an idea of design thinking that is gaining legitimacy among designers, organizations, and government bodies. In the UK, for example, the government-funded national Design Council argues that design thinking plays a key role in innovation (Design Council 2009). In Denmark, a cross-ministerial innovation unit called MindLab uses a form of design thinking to combine design-centered and social science approaches to create new solutions for society (MindLab 2009).

Brown's accounts of design thinking present the concept as an answer to challenges facing organizations wanting to innovate but also societies grappling with complex public issues. Brown has published widely. In addition to *Change by Design* (2009), his writings include an essay in the *Harvard Business Review* (2008), and the *Stanford Social Innovation Review* (Brown and Wyatt 2010), as well as his blog on the topic (Brown 2011). To some extent these echo earlier publications by designers from IDEO such as David Kelley (2001). While Brown never claims that his contributions are academic, he nonetheless rehearses many of the findings from research, for example seeing design thinking as a fundamentally exploratory process (Brown 2009: 17). Design thinkers know there is no right answer to a problem. Rather, he argues, through following the non-linear, iterative design process that he calls inspiration, ideation, and implementation, the design process can convert problems into opportunities.

Brown places particular emphasis on design thinking as a human-centered activity (Brown, 2009: 115). Underpinning this approach is the idea of empathy: designers are perceived as being willing and able to understand and interpret the perspectives of end users and the problems they face. In doing so, Brown suggests, they more or less feel their way through to a new solution. According to Brown, a successful design outcome exists at the intersection of three concerns: what is desirable from the users' perspective, what is technically feasible, and what is commercially viable for the organization (Brown 2009). In so doing, this approach introduces a key, if often ignored, paradox. On the one hand, designers are positioned

as key interpreters of what end users "need." They are expected to do this by using ethnographically-inspired techniques that help them understand the user's perspectives and situated actions. On the other hand, in practice this process shows little of the reflexivity of the social science traditions. In contrast to much contemporary design practice and education, social scientists are trained to question what theoretical, political, or other commitments they bring to their work and how these shape their research findings. Construed in this way, design thinking fails to reference wider theories of the social and misses opportunities to illuminate the context into which the designer is intervening.

In *The Design of Business* (2009), Roger Martin presents a different way of thinking about design thinking.[5] Martin argues that design thinking gives business a competitive advantage. In contrast to Brown, who does describe what professional designers do and make and what they are attentive to, Martin focuses on methods used by successful managers he interviewed and examines how firms as a whole function. His version of design thinking deals less with individual cognitive styles and doesn't present sets of material practices; rather, he focuses on systems of organization. In this way he echoes arguments put forward by others teaching and researching in a business school context (e.g. Boland and Collopy 2004). Design thinking as practiced by good designers, Martin says, has something important to offer managers, enabling them to shift from choosing between alternatives to helping them generate entirely new concepts. Martin sees design thinking as combining abductive, as well as inductive and deductive, reasoning. This is particularly of value to businesses tackling the well-established challenge of focusing on either exploitation or exploration (cf. March 1991). Those that have mastered questions of scale and routinization by developing capabilities to produce and distribute lots of the same things, at the right quality and cost, are not so able to innovate. Finding a better balance between exploration and exploitation, and between abductive as well as inductive and deductive reasoning, is what Martin calls design thinking.

Other researchers have begun to study design thinking and are extending this argument further. Robert Bauer and Ward Eagan (2008) also site their discussion of design within a larger critique of what goes on within many organizations. For Bauer and Eagan analytical thinking is part of, and not the opposite of, design thinking. Reviewing and synthesizing much of the research on design thinking, they insist that the subject cannot be reduced to aesthetic judgments or cognitive reasoning; instead, they perceive several epistemic modes that come into play at different points in a design process. Although analytical thinking provides the epistemic underpinning of capital, they believe that design thinking represents the epistemology of creative work. Like Martin and Brown, Bauer and Eagan then offer design thinking as an organizational resource

to make up for some of the shortcomings of management and its over-reliance on analysis.

More recent discussions of design thinking have followed this trend, locating designers' knowledge and thinking within the contexts in which they work. For example Robin Adams et al. (2010) study what it means to be a design professional and how designers become professionals. Their analysis avoided dualisms that separate cognition and action; instead they propose a framework in which knowledge and skills are embedded in an embodied understanding of practice. Their findings deflate simplified versions of design thinking and instead highlight differences in knowing, acting, and being among designers.

Comparing Approaches to Design Thinking

To summarize, design thinking has been used to characterize what individual designers know, and how they approach and make sense of their own work, as well as how they actually do it. In addition to describing the practices of designers, the term also offers a theory of design that extends Herbert Simon's ideas. In this context, design does not give form to things; instead, it concerns action and the artificial. More recently, the term has been mobilized with some success by design consultancies, management educators, and other scholars. In this context it suggests an approach to business or even social innovation. (See Table 1.)

Given the diversity of these approaches, there is still no clear description of design thinking. On what principles is it based? How different is it to other kinds of professional knowledge? Do all designers exhibit it? What are its effects within the worlds where design takes place? How can it be taught? Further, these descriptions present several issues which need to be addressed by researchers studying professional designers, as well as the managers and educators who apply these practices within social innovation or management education. In the next section I identify three such issues and then suggest how design thinking might be reconsidered.

Acknowledging the Cultures of Design

Many studies in design thinking replicate a dualism within research fields; they reflect important differences in the underlying ways the world is understood and what can be known about it. Researchers who focus on the individual designer and his or her cognitive style rarely study the world within which the designer works (cf. Bourdieu 1977). Such researchers usually cultivate objective rather than subjective knowledge; moreover, their research assumes there are clear boundaries between the designer and the world s/he is in; further, the researcher is construed as remaining outside this world. These studies describe what designers do and trace how their thinking develops in the course of a project, but they often ignore key aspects of the designer's world. For example, several studies of design thinking

Table 1 Different ways of describing design thinking.

	Design thinking as a cognitive style	*Design thinking as a general theory of design*	*Design thinking as an organizational resource*
Key texts	Cross 1982; Schön 1983; Rowe [1987] 1998; Lawson 1997; Cross 2006; Dorst 2006	Buchanan 1992	Dunne and Martin 2006; Bauer and Eagan 2008; Brown 2009; Martin 2009
Focus	Individual designers, especially experts	Design as a field or discipline	Businesses and other organizations in need of innovation
Design's purpose	Problem solving	Taming wicked problems	Innovation
Key concepts	Design ability as a form of intelligence; reflection-in-action, abductive thinking	Design has no special subject matter of its own	Visualization, prototyping, empathy, integrative thinking, abductive thinking
Nature of design problems	Design problems are ill-structured, problem and solution co-evolve	Design problems are wicked problems	Organizational problems are design problems
Sites of design expertise and activity	Traditional design disciplines	Four orders of design	Any context from healthcare to access to clean water (Brown and Wyatt 2010)

Source: Lucy Kimbell

as a cognitive style rely on protocol analysis based on recording and then analyzing what designers say about what they are doing. This is usually monitored during an artificial exercise in which the designers are given a problem to solve. While these studies may produce interesting findings, this approach sometimes presents a version of design thinking as a simple form of information processing with inputs and outputs (e.g. Badke-Schaub et al. 2010). Alternately, design thinking can be presented as a process that is supposedly applied to an organization (e.g. Brown 2009), though this approach never clarifies how easy it is to import it from one context to another.

In contrast, some ethnographic accounts of design thinking do not make distinctions between designer and world, or between researcher and object of study and produce "thick description" (Geertz 1973) of what goes on during designing. These accounts attend to the situated, embodied ways that designers go about their work and the artifacts they engage with and make (e.g. Bucciarelli 1994; Henderson 1999). Given extensive research in design fields (e.g. Winograd and Flores 1986; Suchman 1987; Ehn 1988; Ehn 2008), not to mention sociology, anthropology, and organization studies,

in which embodiment and being in the world are perceived as a condition of knowing and action, it seems reasonable to explore how this approach might describe and explain designers' approaches to their work and the nature of design thinking. Drawing on Dewey, Buchanan (1992) and Rylander (2009) do not rely on this separation between knowing and world; instead, they offer an understanding of the act of designing by studying designers in the world. However, they do not share the close attentiveness paid to the role of artifacts found in material culture approaches influenced by anthropology, nor do they situate their accounts of design within larger historical frameworks. A future direction for research into designers' thinking and knowing, therefore, could take as a starting point practitioners' being in the world and their relation to other social actors including artifacts and other social practices and institutions. To understand what happens in designing, it remains important to explore how political, socio-cultural, and economic developments have shaped design practice over time.

Without extensive comparative data, we may wonder how useful it is to generalize across design fields as different as, say, architecture and computer science. Much of the work on design thinking has tried to generalize what designers do, think, and know, implying that this is different to what non-designers do (Cross 1982; Buchanan 1992). The recent interest in design within management may destabilize the idea of designerly ways of knowing. Some studies, for example, suggest that medics exhibit qualities associated with design thinking. Such assertions implicitly undermine design's claim to uniqueness (Cross 2010). Although research accounts typically specify what type of design professional has been studied and identify their level of expertise, popular efforts to understand design thinking rarely make clear which design field is being discussed. Much academic research on design thinking ignores the particular context of knowledge-intensive consultancy and its place within a fluid and dynamic economy; this environment demands that designers manage and account for their work in particular ways (e.g. Julier and Moor 2009). But a recent shift in studies of design acknowledges the field's cultural and sociological basis. The move from a visual to a cultural perspective in design history (e.g. Julier 2008) as well as the field's growing focus on practices and consumption (e.g. Shove et al. 2007; Crewe et al. 2009) both recognize this change.

This approach might usefully be introduced in studies of design thinking too. Instead of focusing on individual designers and their cognitive styles, or on a methodology that can be applied in organizations, work on design thinking could attend to the cultures of design. In several professions and disciplines practitioners refer to themselves as designers and they conceive of their work as design. Rooted in distinct educational traditions that legitimize students and practitioners in different ways, these approaches are shaped by national and regional influences over time. In the UK, for example,

architecture and engineering have strong professional bodies and authorizing procedures. These can be contrasted with design professions based in art schools. Here, product, communication, and fashion design, for instance, are typically taught without the need for extensive professional accreditation and with limited domain-specific bodies of knowledge (Wang and Ilhan 2009). Engineering is often linked with formal theories of design, but fails to account for the generation of creative ideas (Hatchuel and Weil 2009). Nevertheless, engineering designers have an identifiable visual and material culture (Bucciarelli 1994; Henderson 1999). Emerging fields such as service design (e.g. Meroni and Sangiorgi, forthcoming) often sit uncomfortably between academic and professional boundaries, concerned as they are, not just with the design of objects but also systems, processes, and social arrangements. In this context, several different types of professionals do design work, not just "designers" (Figure 3). Acknowledging the cultures of designers and understanding the different kinds of practices that have developed within various institutional arrangements would help publics and scholars alike better understand and employ design thinking. Such clarifications would also allow researchers to identify if indeed a particular kind of knowledge practice can be shared across all design fields.

As Rowe points out ([1987] 1998), describing how designers do design, how they think, and what they know forces us to examine our assumptions about what constitutes design; it forces us to define design itself. Not surprisingly, many accounts of design thinking identify the designer as the main agent in design; these approaches
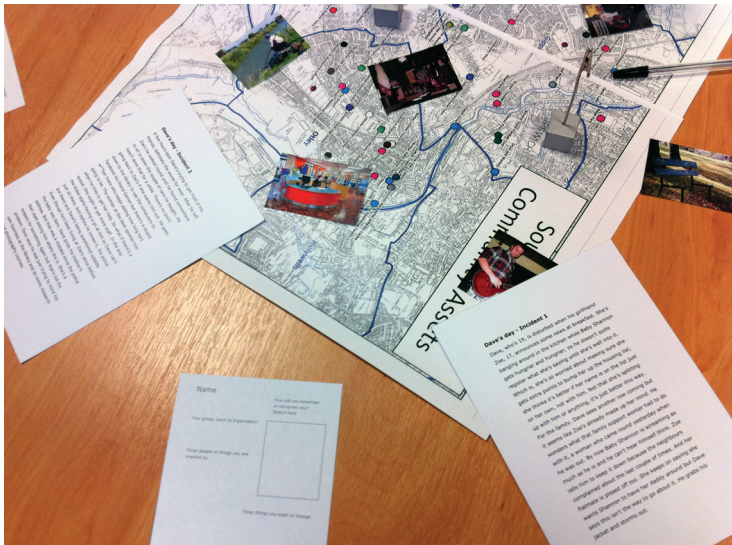

Figure 3
Bringing an attentiveness to material artifacts and the experience of services in practice during a workshop for managers of public services led by the author.
Photograph: Lucy Kimbell.

also explore individual cognitive styles, although some versions also reflect the influence of stakeholders other than the user or customer (e.g. Bauer and Eagan 2008). Even when design thinking involves designers having empathy with users, the designer (or manager practicing design thinking) is presented as an agent of change within an organization or project. This perception starkly contrasts with extensive work in fields such as anthropology, sociology, and consumption studies. In the latter context, users, stakeholders, and consumers of designed things all act in ways that can challenge or disrupt the intentions of designers. For example, Lucy Suchman (1987) showed how people using photocopiers ignored the plans of designers, by not following instructions displayed on the top of the machine fully and therefore being unable to use the copier, which did not know they had made a mistake. Combining consumption theory with studies of science and technology, Elizabeth Shove et al. (2007) argue that innovation in products often requires innovation in practices. Suchman, Shove, and other researchers have rethought design, presenting it as a distributed social accomplishment within which artifacts and other humans play important roles; they help constitute the meaning and effects of a design. In contrast, accounts of design thinking continue to privilege the designer, however empathetic, as the main agent in design. But such ideas may limit research, education, or practice. Like anyone else, designers can be attentive to some things, and not others. We must acknowledge that design practice is shaped by designers' own theoretical and political commitments (Fry 2009); we must make such knowledge part of practice and research analysis.

Is Design Special?

This essay assumes that designs, knowledge, and research are constituted in practice. As studies of design practice are gathering pace (e.g. Suchman 1987; Ehn 1988; Julier 2007; Shove et al. 2007; Ehn 2008; Fry 2009; Tonkinwise 2010), the field is increasingly positioned as part of a wider turn within contemporary theory (e.g. Schatzki 2001). But design thinking has captured the imagination of practitioners and educators in a range of fields; this widespread interest leads to a discussion of design based more on anecdotes and claims than theoretically or empirically robust arguments. These accounts of design thinking rely on descriptions of designers' doings and sayings, the things they make, what they know, and how they act in the world. By focusing on situated, embodied material practices, rather than a generalized "design thinking," we may shift the conversation away from questions of individual cognition or organizational innovation. Instead, design becomes a set of routines that emerge in context. Such explorations help clarify designers' material practices. They also force us to decide if design is a special way of engaging with and acting on the world, unique to designers, or shared by others such as managers too.[6]

Although this body of research is based on a range of theoretical orientations, it raises important issues. Firstly, accounts of design thinking often make a distinction between thinking and action and between the designer and the context in which they are designing; secondly, they propose that there is something shared by all designers while not acknowledging important differences in how design professions and their institutions have emerged; and thirdly, they emphasize designers as the main agents in design. Instead, an alternative approach is proposed. This alternative draws on extensive work in anthropology, sociology, history, and science and technology studies. Moreover, these attend to the routine practices of those involved in design; they include not just designers, but also known and unknown users and other stakeholders. Design thinking is hardly the "failure" described by commentators like Bruce Nussbaum (2011): the practices of designers play important roles in constituting the contemporary world, whether or not "design thinking" is the right term for this. Design thinking does, however, remain undertheorized and understudied; indeed, the critical rethinking of design thinking has only just begun.

Acknowledgments

Notes

1. The term organization is used here to refer to formally and informally constituted entities that come together to work on a shared purpose, rather than being confined to businesses.
2. It is beyond the scope of the paper to explore claims that designers have an entirely distinct way of working in comparison to other professionals, let alone to assess whether applying a design approach leads to increased effectiveness and efficiency and "more" innovation, and hence to organizational value. Asking such a question is of course already framed by assumptions about how value is thought about and assessed.
3. Simon's views developed over the three editions of *The Sciences of the Artificial* and his work remains open to a diversity of interpretation. A recent paper in the field of management, for example, identified three main approaches to design in Simon's work (Pandza and Thorpe 2010) whereas for Hatchuel (2001), Simon's version of design is best thought of as problem solving.

4. A book with the title *Design Thinking: Understanding How Designers Think and Work* by Nigel Cross is now available from Berg.

5. Although there are closer links to Brown's version of design thinking as discussed in Dunne and Martin's (2006) study of business education.

6. I should draw attention to my own stake in this conversation: I teach in a business school. While it is somewhat overshadowed by the rather older university of which it is a department, as a young school founded in 1996 it has tried to chart a path that offers a vision of management education that draws on several disciplines and on critical discussion, including among its specialisms science and technology studies. Having come from an art and design practice background, I have taught a version of design and design management to MBA students since 2005. My MBA elective is taken by up to 50 students a year, giving them a brief exposure to the material practices of design, opportunities to collaborate with designers, and an orientation to the artifacts and arrangements within organizations as sites for design inquiries, idea generation, and intervention. In developing my curriculum, I try to help students make sense for themselves of the claims made for design thinking, while at the same time encouraging them to explore the possibilities and limits of design's material practices and cultures to the projects, organizations, and ventures in which they work. See my teaching blog at Kimbell (2011).

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Rethinking Design Thinking: Part II

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ABSTRACT   This paper uses resources from anthropology and science and technology studies to propose understanding design expertise and activity as constituted materially and discursively in practice. Introducing a pair of concepts – design-as-practice and designs-in-practice – as an analytical device for discussing design solves a number of problems facing researchers working in design studies. First, it helps researchers see design as a situated, local accomplishment involving diverse and multiple actors. Second, it acknowledges the roles of objects in constituting practices. Third, it de-centers the designer as the main agent in designing. This approach moves away from a disembodied, ahistorical design thinking to a situated, contingent set of practices carried by professional designers and those who engage with designs, which recognizes the materiality of designed things and the material and discursive practices through which they come to matter.

Introduction

Accounts of design *thinking* often hinge on descriptions of the ways designers *do* things. Researchers do not have direct access to what goes on in designers' minds, so they are left with what they believe is going on as they seek to describe and explain designers' thinking. One striking story comes from management researchers Dick Boland and Fred Collopy (2004), reflecting on their experience of working with architects from Frank Gehry's firm designing the new building for their business school. Having spent two days with the architects revising the arrangement of space in the new building, Boland and Collopy describe how the project lead Matt Fineout tears up the plans they have just agreed on. He suggests they start again, now they know they can solve the problem (Boland and Collopy 2004: 5).

Even in this short description, Boland and Collopy draw our attention to practice: the architects' tacit and embodied knowledge, their bodily and mental activities, what structures their professional work and makes particular behaviors possible, and how it feels. These ways of working startle the management professors, since tearing up plans is not part of the routines within their work culture. Boland and Collopy's account draws attention to the embodied, shared experience of working around a table on sheets of onionskin, making marks, and discussing how the building should be designed. Reading it, one can feel the authors' visceral response to seeing the architect destroy what they have all just created together. For this architect, design is not simply problem solving since in this story, he tears up a viable solution. For Boland and Collopy, this experience helps them identify a distinctive "design attitude" to describe how designers do not just choose between alternatives, but generate entirely new concepts. But this account also captures the material and discursive practices in contemporary design professions. It may be possible to identify a distinctive kind of "design thinking." But perhaps more interestingly, we might attend to the material and discursive practices in which designers of particular kinds do, know, and say particular things and how they come to do, know, and say these things but not others. In so doing we might develop a richer understanding of professional design and its effects.

At a time when the term design thinking has become more common outside of professional design, in particular within management fields (Brown 2009; Martin 2009; Kimbell 2011), this paper explores what theories of practice can bring to understanding professional designers and the cultures in which they have expertise. The main contribution is to propose a new analytical device for discussing

design based in theories of practice. It conceives of design activity as linking both what designers do, know, and say, with what end-users and other stakeholders do, know, and say, acknowledging the materials and objects involved in practices and at the same time attending to the discursive practices that make possible particular ways of doing, knowing, and saying. A decade after Victor Margolin's (2002) call for studies of design as a cultural practice, the paper's distinctive feature is to propose shifting the level of analysis in re-search away from individuals to practices, conceived of as a nexus of minds, bodies, things, and the institutional arrangements within which designs and their users are constituted (Reckwitz 2002).

First I review research influenced by anthropology, science and technology studies, and philosophy that views the world in terms of practices. Drawing on the work of Wanda Orlikowski (2000), Theodore Schatzki (Schatzki et al. 2001), Andreas Reckwitz (2002), Mark Hartswood et al. (2002), Lucy Suchman (2003), Elizabeth Shove (Shove 2011; Shove and Pantzar 2005), Karen Barad (2007), Tony Fry (2007, 2009), and others, I identify concepts that help illumi-nate the material and discursive practices within which professional design is constituted. I then propose a new way of conceiving of design activity. This highlights the practices that constitute designs, designers' work, and their expertise. I introduce a pair of concepts to describe designing: design-as-practice and designs-in-practice.

This pair of concepts solves a number of problems facing researchers analyzing design activity. These include maintaining dualisms between thinking and doing; ignoring the particular contin-gencies that shape the emergence of design practices; and relying predominantly on the agency of designers to understand design even though other factors, such as non-human actors, are involved in constituting practices (Barad 2007; Harman 2009). I then briefly il-lustrate the two concepts using research from an ethnographic study of professional designers. The paper concludes with a discussion of the implications for researchers and educators with an interest in design and designers, and limitations of the approach.

Although the term design thinking may be moving on from its time in the spotlight according to some commentators (e.g. Walters 2011), there remains an important task: to describe and explain doing and knowing within design and the particular expertise of de-sign professionals (e.g. Cross 2004, 2006; Lawson and Dorst 2009). We need to understand what effects designers can have within the different projects, organizations, and communities within which they work. The paper's contribution is to use theories of practice in order to advance understanding about designers' work, moving away from a disembodied, ahistorical design thinking to a situated, contingent set of practices carried by professional designers and those who engage with designs, which recognizes the materiality of designed things and how they come to matter.

Reconfiguring the World in Practice

Theories of practice (e.g. Bourdieu 1977; Giddens 1984; Schatzki et al. 2001; Reckwitz 2002; Shove and Pantzar 2005; Warde 2005) draw on the attention paid in anthropology and sociology to what people do in their embodied, often mundane, situated interactions with other people and with things. Practice theories shift the unit of analysis away from a micro level (individuals) or a macro one (organizations or groups and their norms) to an indeterminate level at a nexus of minds, bodies, objects, discourses, knowledge, structures/processes, and agency, which together constitute practices that are carried by individuals (Reckwitz 2002). Examples of this perspective outside of anthropology and sociology include studying technology use (e.g. Orlikowski 2000; Barley and Kunda 2001); organizational strategy (e.g. Whittington 1996); knowledge in organizations (e.g. Brown and Duguid 2001); product development (e.g. Carlile 2002); service innovation (e.g. Dougherty 2004); and design (e.g. Du Gay et al. 1997; Shove et al. 2007; Balsamo 2011).

Core concepts in theories of practice include bodies, minds, things, knowledge, discourse, structure/process, and agency (Reckwitz 2002). For example, Elizabeth Shove and Mika Pantzar (2005) describe the practice of Nordic walking as an interweaving of competence and skills (how to do Nordic walking), symbolic meaning and images (what it means to do it), and equipment (the material stuff that is part of doing it). While theories of practice may vary, there are, however, two important common ideas. Firstly, practices cannot be considered by taking any one of these elements in isolation (Reckwitz 2002; Shove 2011). Secondly, practices are understood to be produced dynamically through the interplay of these diverse elements in relation to one another (Shove and Pantzar 2005; Barad 2007). Or, as Carsten Østerlund and Paul Carlile (2005: 92) put it, "subjects, social groups, networks, or even artifacts develop their properties only in relation to other subjects, social groups, or networks."

The variety of approaches within this theoretical orientation means that practice perspectives are not necessarily coherent with one another (Reckwitz 2002). For example, Østerlund and Carlile (2005) identify seven distinct attributes within practice theories, including delineating the differences between the entities being studied, or specifying the empirical practices presented by a particular theory. For the purposes of this discussion on design thinking, this paper follows Reckwitz in his definition of an ideal type of practice theory in which practice is understood as "a routinized type of behavior which consists of several elements, interconnected to one another: forms of bodily activities, forms of mental activities, 'things' and their use, a background knowledge in the form of understanding, know-how, states of emotion and motivational knowledge" (Reckwitz 2002: 249). Here I will emphasize four aspects of practice theory.

The first highlights how practices are understood as "(re)configurings of the world through which the determination of boundaries, properties, and meanings is differentially enacted" (Barad 2007: 148). A practice is a dynamic, local accomplishment in which multiple and different kinds of actor are woven together in "artful integrations" (Suchman 1994). For Karen Barad (2007: 152), "the material and the discursive are mutually implicated in the dynamics of intra-activity." This approach avoids established dualisms between subject/object, nature/culture, and body/mind. Instead, for Barad, the primary ontological unit is "phenomena," which she defines as "produced through complex agential intra-actions of multiple, material-discursive practices or apparatuses of bodily production" (Barad 2007: 140). In this way of thinking about what makes up the world (ontology) and how we can know it (epistemology), Barad and others start from a position in which it is *through practice* that the sociomaterial world is constituted. Practice theory offers a way to see design activity as distributed across a number of different people and artifacts that together enact designing and designs.

A second aspect is how structures – such as designs – are constituted in practice, as described in numerous studies of technology design and development (e.g. Suchman 1987; Hutchins 1995; Barley and Kunda 2001) but also media (e.g. Hall [1977] 1992). In her study of the use of Lotus Notes software, for example, Wanda Orlikowski (2000) showed how technologies are constituted in different ways by users' practices. She found that, as they interact with a technology in their ongoing practices, people enact structures which shape the emergent and situated use of that technology. She found that "technology-in-practice" can vary considerably in the ways structures are routinely encoded. "When people use a technology, they draw on the properties comprising the technological artifact, those provided by its constituent materiality, those inscribed by the designers, and those added on through previous interactions" (410). The contribution of this study was to show that structure is not located in organizations, or in technology, but is enacted by users in practice.

The third aspect of practice theory on which I will draw is the attention paid to the role of objects in constituting practices, echoing work by scholars attending to the materiality, matter, and objects in a range of disciplines. Key contributions include anthropology (e.g. Appadurai 1986; Gell 1998; Miller 2010), studies of science and technology (e.g. Latour 2005; Barad 2007), and philosophy (e.g. Harman 2009). As Reckwitz describes: "For practice theory, objects are necessary components of many practices – just as indispensable as bodily and mental activities. Carrying out a practice very often means using particular things in a certain way" (Reckwitz 2002: 252). Paying attention to objects, be they objects in the natural world, instruments, or objects produced within a knowledge practice is for Karin Knorr Cetina (2001) a way of making a distinction between a

definition of practice as rule-based routines or embodied skills, and a notion of practice that is "more dynamic, creative and constructive" (187).

The fourth aspect of practice theory I emphasize is knowledge. The particular contribution of the practice perspective is to avoid the alternatives presented in theories that focus exclusively on what goes on in people's minds, or at the level of social norms, or understood through analysis of language, for example. In theories of practice, knowledge is a social accomplishment situated in the ongoing routines of bodily and mental activities. As Schatzki explains:

> The prioritization of practices over mind brings with it a transformed conception of knowledge. As indicated, knowledge (and truth) are no longer automatically self-transparent possessions of minds. Rather, knowledge and truth, including scientific versions, are mediated both by interactions between people and by arrangements in the world. Often, consequently, knowledge is no longer even the property of individuals, but instead a feature of groups, together with their material setups. (Schatzki 2001: 12)

In this brief overview, I have tried to show that theories of practice offer resources to those studying designers and their work, or what some designers and researchers call design thinking. Understanding the sociomaterial world as dynamic and constituted in practice enables us to move away from some of the difficulties presented in accounts of design thinking. It may also offer us a way to enrich our understanding of what designers do, know, and say and the effects that designers and designs have in the world.

Design-as-practice and Designs-in-practice

The paper now offers an alternative way of conceiving of design activity. I believe the attempt to try to find a new way of thinking about professional design is pressing, at a time when educators, researchers, and professionals within management and other fields are increasingly mobilizing design in their work (Kimbell 2011). I propose a pair of concepts as an analytical device, which draw on literatures in sociology and science and technology studies as well as design studies. To use terminology from design, readers are invited to see this pair of concepts as a sketch. As such, the ideas that follow are understood as tentative, and suggestive, but nonetheless may offer important new ways to change how professional design is conceived of.

The first concept is perhaps an obvious move, to conceive of *design-as-practice*. Descriptions of design thinking often rely on accounts of what designers do in their embodied, situated routines, and cannot be completed without reference to the artifacts they use, make, and work with and which are involved in mutually constituting

what design is. So how does it make sense not to explore the resources offered by practice theory? Design-as-practice mobilizes a way of thinking about the work of designing that acknowledges that design practices are habitual, possibly rule-governed, often routinized, conscious or unconscious, and that they are embodied and situated.[1] What designers know, do, and say is constituted by and co-constitutes what is possible for designers to do, know, and say (and what is not possible for them in particular places and at particular times). An attentiveness to practice orients the researcher to how knowing, doing, and saying constitute and are constituted in relation to other elements of a practice. Further, what designers do, know, and say is contingent and has changed over time, nor are the doing, knowing, and saying constituted through practice the same everywhere (Margolin 2002). Design-as-practice cannot conceive of designing (the verb) without the artifacts that are created and used by the bodies and minds of people doing designing. This way of thinking of design sees it as a situated and distributed unfolding in which a number of people, and their knowing, doing, and saying, and a number of things, are implicated.

This moves the unit of analysis away from oppositions between individual skill or knowing (e.g. Schön 1988; Cross 2006), or organizational competence (e.g. Bauer and Egan 2008), to a set of material and discursive practices which are enacted during design activity. Design-as-practice avoids the contradictory accounts of design that see it as a rational problem-solving activity (e.g. Simon 1996) or as something concerned with generating new ideas (e.g. Boland and Collopy 2004) or creating meanings (e.g. Krippendorff 2006; Verganti 2009). It acknowledges the work done by professional designers in these practices, but also opens up design to others, such as managers and employees in organizations, and also customers, end-users and others who, through their practices, also take part in design.

The second concept is *designs-in-practice*. Designing is already understood to be a thoroughly social process (e.g. Schön 1988; Bucciarelli 1994). Like Orlikowski's (2000) technologies-in-practice, this term acknowledges the emergent nature of design outcomes as they are enacted in practice. It takes the plural noun form of "design," which can mean the outputs created during a process of designing, such as blueprints, models, specifications, and what is finally assembled in products and services. The term designs-in-practice draws attention to the impossibility of there being a singular design. But it is not sufficient to study what the designers and others involved in the designing process think and say and do. Drawing on practice-oriented consumption theory (e.g. Shove and Pantzar 2005; Warde 2005; Ingram et al. 2007; Shove et al. 2007), the concept of designs-in-practice foregrounds the incomplete nature of the process and outcomes of designing (Garud et al. 2008). When the designers have finished their work, and the engineers and

manufacturers have finished theirs, and the marketers and retailers have finished theirs, and the customer or end-user has bought a product or started using a service artifact, the activity of designing is still not over. Through engagement with a product or service over time and space, the user or stakeholder continues to be involved in constituting what a design is. Designs (the noun) are constituted in relation to professional designers, customers, and identifiable, known end-users as well as other people who are not known, but also to other elements of practice such as knowledge, feelings, and symbolic structures.

There are other examples of a pair of concepts that make a distinction between the designing done primarily by professional designers and that done by end-users or customers. Within the field of Participatory Design, for example, Pelle Ehn has summarized the distinction between "design for use before use" at project time and "design after design" at use time (Ehn 2008). He proposes creating infrastructures that are flexible and open for design after design and unforeseen appropriation. Similarly, writing about digital design, Botero et al. (2010) describe a continuum between creation and design-in-use. They argue that designers can develop strategies that support different kinds of design-in-use, specifically reinterpretation, adaptation, and reinvention.

What the conceptualization offered here does that is different is as follows. Firstly, it is not primarily focused on what designers or others do, but rather conceives of designs, and designers' own working, as constituted relationally through the intra-action (Barad 2007) of several elements. Secondly, it asks how such intra-action results in specific configurations, constituting particular kinds of designs, subjects, and knowledge, and excluding others. Thirdly, it uses these ideas to discuss the design of any designed entity, not just digital configurations where ideas of appropriation are relatively easy to identify, for example in the reuse of digital code or the creation of hashtags in Twitter (cf. Botero et al. 2010).

Exploring the Practice Approach

A brief illustration demonstrates how this analytical device might be used. It draws on an ethnography I conducted during a study of professional service designers (Kimbell 2009).[2] The aim of this research was to identify the ways that designers educated in the studio-practice tradition approached designing for service. I studied service designers working for a few days over several months on a short project for a science enterprise offering a service. The designers' goal was to help the organization redesign its smoking cessation support service, then being trialed in UK pharmacies, free to individuals giving up smoking through the National Health Service. The service included genetic testing of the person trying to give up smoking, based on research that showed that genetic factors influence which nicotine replacement therapies are suitable for particular

individuals. I describe two scenes from this research, in which I was participant-observer. These activities were also filmed on video to which I had access.

Designs-in-practice

I accompanied two of the designers when they visited a pharmacy where the smoking cessation service was being trialed, along with a manager from the science enterprise and a cameraperson. While one designer made notes and sketches and took photographs, the other, a non-smoker, did a "walk-through" of the service – going through various activities with a pharmacy assistant in a similar way to how a user would sign up for the service. The pharmacy assistant took blood and saliva samples from the designer, telling him what she was doing and why this was necessary within the service. The designers wanted to know how she experienced delivering the service as well as how would-be non-smokers engaged with her during the tests and sign-up activities. During this encounter, the designers paid considerable attention to the artifacts and activities within the pharmacy they saw as connected with the service. These included a poster about the service in the pharmacy window, the layout of the small consulting room where the encounter took place, the website where the assistant signed up new service users and entered details, a large file of information about the service trial, and other things such as a hand-written thank-you note stuck on the wall.

One discussion revolved around the design of the test kit used to take samples of saliva and blood. The assistant explained how she found it useful to lay the contents of the kit out on the desk in a particular order (Figure 1). Since the time taken to do the saliva test and obtain a result was around twenty minutes, she had decided to do this activity first when meeting a person in the consulting room. She laid out the kit in a particular way to prompt her to do this. The manager agreed there was a benefit to doing this, since reducing the duration of the encounter reduced costs. Together, the manager and assistant discussed the fact that the pack did not include instructions about which order to do the two tests in. Unprompted, the assistant had analyzed how she could use it to lead to more efficient delivery of the service. Her use of the kit configured it as a more efficient kit in practice than the ways other people might use it. On its own, it would be hard to say if the kit was efficient or inefficient. But within the practices of pharmacy assistants using the kit to conduct tests to constitute a service, it could become efficient or inefficient. The packaging designers' work had been completed. But the assistant's activities as she engaged with the kit in the workplace, within particular reward structures and ways of valuing her expertise, played a role in constituting the design of the kit and potentially the efficiency of the service. An attentiveness to practice orients the researcher to how the assistant's embodied knowledge constituted a particular design of a kit that had been

Figure 1
This photograph, taken by a designer during a site visit to a pharmacy, shows how the pharmacy assistant organized the test kit when carrying out a smoking cessation service. Photograph: live|work. Courtesy University of Oxford.

designed by others, resulting in a new configuration of value to the service providers and to potential customers. The designers later built on this reconfiguring with specific suggestions as to how to improve the kit's packaging and information design.

Design-as-practice

Some days after the visit to the pharmacy, the designers spent several hours working together in their studio, which was filmed by a cameraperson and in which I was participant-observer (Figure 2). On the wall, the designers assembled photographs, print-outs from the service website, and other materials connected with the service to create a narrative of the customer journey from the perspective of the service user, a technique developed in services marketing. Overlaying this with annotated sticky notes, the two designers who had visited the pharmacy were joined by a colleague. Together, the three designers undertook a critique of the service. Their discussion ranged from considering specific "touchpoints," the name they gave to artifacts connected with the service, such as the poster in the pharmacy window, to the goals and strategy of the firm offering the service, the pharmacies involved in delivering it and their resources, and discussion about how smokers went about giving up smoking. This was an extensive although unstructured conversation drawing on tacit knowledge about what constitutes a good service experience (Bate and Robert 2007), with references to other kinds of consumption and service. Their working was shaped by these designers'

Figure 2
Video stills from participation-observation of the practices of service designers
from the consultancy live|work in their London studio. Video stills by Oxford
Academy of Documentary Film. Courtesy University of Oxford.

long-standing professional relationships and shared background
in studio-based education. Using the consultancy's templates, the
designers sat around a table and started to draw individually, all of
them filling several sheets of paper with their work. They worked
quietly, occasionally making comments or showing each other their
work. They then presented their sketches to one another. In so doing
they brought into view a service that was different to the one they
constituted with their explorations in the pharmacy visit described
above and other research.

The designers' sketching together resulted in suggestions for improvements to existing service touchpoints such as the test kit; proposals for new artifacts to be part of the service; and in some cases their sketches proposed entirely new services, for example a genetic test data bank. The activities of these three designers involved both explicit and tacit knowledge, with minds and bodies working together, sometimes in silence, with little discussion about what they should do next but rather embodied routines which led them from one activity to another. An attentiveness to practice here orients the researcher to the ways that these activities are made possible and become routinized within the cultures of designers (Julier 2008), while other ways of working are made less possible.

These two illustrations have suggested how a pair of concepts, design-as-practice and designs-in-practice, might be used as an analytical device in research about design. Although not fully developed, this analysis suggests a fruitful way of trying to account for what goes on within design, through the practices which involve professional designers as well as other elements in constituting designs. As a relational pair, design-as-practice and designs-in-practice serve to ground the practices of designers – their knowledge, ways of knowing, ways of doing, and shared routines – within the bodies they use to do their work, their minds, and the institutional arrangements and symbolic structures which make some activities possible and indeed routine in design.

The relationship between the two concepts is not temporal, with one following the other, although in my account here designs-in-practice is followed by design-as-practice. Nor is each concept at one extreme of a continuum. Instead, designs-in-practice and design-as-practice are better thought of as mutually structuring.

The practice perspective connects activities with the objects that are implicated in living and working, and, crucially, to the practices of stakeholders and others co-creating outcomes of design in the world. As an alternative to design thinking, the pairing of design-as-practice and designs-in-practice moves the unit of analysis away from the individual designer or user, or the organization or group and its norms, to a way of thinking about design that is relational, embodied, structured, and structuring. The possible implications of this are now discussed.

Discussion

In an earlier essay in this journal (Kimbell 2011), I explored interest in the term design thinking at a time when designers' ways of knowing and working were being adopted within management fields (e.g. Martin 2009). I situated this development in a context of professional designers becoming a creative class (Florida 2002) of privileged cultural intermediaries (Nixon and Du Gay 2002) within a dynamic, mediatized economy in which production, consumption,

and distribution have been reconfigured (Lash and Urry 1994). I reviewed several decades of research into design thinking and summarized three strands, although there are significant differences in the research aims, approaches, and methods used in these literatures. The first strand sees design thinking as a cognitive style; the second strand defines design thinking as a general theory of design; and the third sees design thinking as a resource for organizations. I then identified three issues. The first is that many of the descriptions of design thinking rest on a dualism between thinking and knowing and acting in the world. The second issue identified how an idealized design thinking ignores the diversity of designers' ways of doing, knowing, and saying and the specific contexts in which these have come into view. The third is the emphasis on the designer as the main agent in design activity.

In this essay I have summarized theories of practice which I believe help researchers avoid these issues. I have argued that practice theories switch the unit of analysis from individual actors or society and its norms, to a messy, contingent combination of minds, things, bodies, structures, processes, and agencies. Attending to practice offers ways to understand design activity not just as the work of design professionals and what they do or think, but sees designing as constituted in the intra-action (Barad 2007) of these diverse elements. Design thinking can thus be rethought as a set of contingent, embodied routines that reconfigure the sociomaterial world, and which are institutionalized in different ways. This helps us consider what makes it possible for professional designers to do, know, and say particular things, and not others, at particular times and in particular places. This offers a rich way to understand designing that challenges the efforts to describe a generalized (and often celebratory) design thinking.

A practice orientation also opens up the roles that other human and non-human actors play in constituting design activity, including managers, employees, paying customers, end-users, and others, possibly including those who are not yet born, but also sketches, chairs, websites, consultancies, and post-it notes (cf. Ehn 2008; Ravasi and Rindova 2008; Verganti 2009; Botero et al. 2010). Further, by foregrounding the work done by customers, end-users, stakeholders, and other actors in constituting designs-in-practice, this approach suggests that the activity of designing is never complete. With Barad's (2007) emphasis on how practices shape particular possibilities and exclude others, this orientation begs questions about how and where designers locate themselves, echoing research by Lucy Suchman (2003) and Tony Fry (2007, 2009).

I now summarize specific contributions from this approach in relation to the existing literature. Firstly, the practice orientation sees design as a situated, local accomplishment. Instead of dualisms between subject/object, nature/culture, and body/mind, practices are seen as dynamic configurations of minds, bodies, objects,

discourses, knowledge, structures/processes, and agency which can be routinized and institutionalized. The implication is that it does not make sense to try to identify specific cognitive styles among designers which ignore how designers' ways of knowing and thinking are structured and structure their wider sociomaterial context. Tony Fry (2007) is one researcher and educator who points to how the education and professional work of many designers within a context of capitalist consumption has resulted in a culture that reproduces a drive towards further unsustainable consumption. A practice orientation enriches understanding of how designers think and what they know by making explicit how their culturally specific expertise can create new possibilities, but exclude others, and how these ways have become established over time in particular places.

The second contribution is the emphasis on objects as involved in constituting practices. In a practice orientation they are not just things designers make or that people buy or use. Instead, objects and materials are crucial to the unfolding of practice. Intuitively this makes sense. It is hard to think about design professionals without considering the emblematic artifacts with which they are associated, whether they are illustrations, models, or prototypes. Ethnographic descriptions of engineering designers (e.g. Bucciarelli 1994; Henderson 1999) and architects (e.g. Yaneva 2005; Ewenstein and Whyte 2009) have shown how designers working within different traditions are entangled with objects, whether they have acquired them in the course of their work, created them, or involved stakeholders in generating them. Turning an ethnographic gaze onto design's cultures will produce a deeper understanding of how designs are constituted and the various actors involved in this.

A third contribution that follows from the previous two is that the practice orientation de-centers the designer as the main agent in designing. This may not make sense to researchers who want to focus precisely on the designers and their expertise. However, the practice orientation can support a richer, more nuanced understanding of what goes on during design activity, and indeed supports the development of new kinds of professional expertises. In fact, the de-centering of the designer has been well underway for two decades in fields which draw extensively on the social sciences, such as Participatory Design and Computer Supported Cooperative Work (e.g. Ehn 1988; Suchman 1994; Hartswood et al. 2002). What this paper offers is a synthesis of this literature with research in design studies, a potentially deep vein for rethinking fields such as product and industrial design, visual communication, and craft, not just digital designing.

Some Implications

For design research and practice, the practice-theoretical approach means that designers no longer have to make arguments about why stakeholders or end-users should be at the center of design.

In this approach, they already are. In the practice approach, design is understood to be relational and it cannot be conceived of without the practices within which designing and designs are constituted. Further, stakeholders are co-designers and designers are another kind of stakeholder. Extending the view of practices as constituting designs through a nexus of minds, bodies, objects, structure, process, agency, and knowledge challenges the claims of some designers (e.g. Brown 2009) that designing is human-centered. Schön's (1983) description of how the materials "speak back" during designing already makes a move in this direction. Barad's (2007) post-humanism and Harman's (2009) object-oriented metaphysics offer alternatives that design researchers should explore further.

Methodologically, the practice orientation raises questions about research design, methods, and the boundaries set within a study. If studying a design process, what methods are appropriate for de-centering the human designers? Social scientists, in particular those studying science and technology, have developed an array of powerful methods that often involve following the objects (e.g. Latour 1987) or studying mundane things such as infrastructure (e.g. Star 1999). Several other questions come into view. If studying a designed thing, at what point in time does it make sense to start and stop, to examine its effects in practice? Which current and potential future users, customers, and other stakeholders in which specific cultures should be studied in order to understand a particular design?

Finally, for educators introducing approaches, methods, and tools from design within management education, the research presented here raises questions about the ease with which designers' expertise can be exported elsewhere. The adoption of design thinking into management education, for example, in the form of tools and methods separated from the culture of design, may not have the desired results. Practices associated with professional designers that involve visual and performative methods and attend to the aesthetic dimensions of organization life, for example, are part of an educational tradition in which challenging established categories is institutionally rewarded. In contrast, management education rooted in the social sciences and engineering knowledge may not welcome such approaches despite frequent claims that it should adapt (e.g. Huff and Huff 2001; Dunne and Martin 2006).

Finally, I describe some of the limitations of this study. First, while the concepts introduced here as a relational pair are suggestive, they have not been fully elaborated or tested. To what extent they provide a basis for discussing design in projects, organizations, communities, and other contexts requires further research. Secondly, they rest on an experimental ontology and epistemology in which the world is understood as co-constituted relationally, rather than a realist or constructivist approach (Schatzki et al. 2001; Latour 2005; Barad 2007; Harman 2009; Latour et al. 2011). While this serves the

purposes of an exploratory essay such as this one, this analysis may not be fruitful for other research aims.

Conclusion

This paper has explored theories of practice to see how they might support a deeper understanding of design activity and designers' expertise. Practice theories see the locus of the social not at the level of individuals and their minds, or in organizations and groups and their norms but as a nexus of minds, bodies, things, institutions, knowledge and processes, structure and agency. For practice theorists, these elements are woven together into routines and structures that together co-constitute the sociomaterial world. The paper's contribution is to propose a new pair of concepts to describe and analyze design activity that acknowledge the work done by many actors in constituting designs relationally in practice. I have argued that this helps us rethink design thinking and avoid some of the problems that have emerged in previous literature. Using a practice approach re-conceives of design activity as linking both what designers do, know, and say, with what end-users and other stakeholders do, know, and say, acknowledging the materials and objects that are part of these activities and at the same time attending to the discursive practices that make possible particular ways of doing, knowing, and saying, but exclude others.

Acknowledgments

Notes

1. There are of course similarities with Paul du Gay et al.'s description of the Sony Walkman (1997), Stuart Hall's ([1977] 1992) discussion of the production, circulation, distribution, consumption, and reproduction of media, and Appadurai's (1986) object biographies. But here I synthesize these related endeavors into a formulation that focuses in particular on the relation between designers' work and designed things and the practices in which they are realized.
2. This research was supported by an award from the Designing for the 21st Century initiative of the UK Arts and Humanities Research Council and the Engineering and Physical Sciences Research Council.

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Designing for Service as One Way of Designing Services

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This paper considers different ways of approaching service design, exploring what professional designers who say they design services are doing. First it reviews literature in the design and management fields, including marketing and operations. The paper proposes a framework that clarifies key tensions shaping the understanding of service design. It then presents an ethnographic study of three firms of professional service designers and details their work in three case studies. The paper reports four findings. The designers approached services as entities that are both social and material. The designers in the study saw service as relational and temporal and thought of value as created in practice. They approached designing a service through a constructivist enquiry in which they sought to understand the experiences of stakeholders and they tried to involve managers in this activity. The paper proposes describing designing for service as a particular kind of service design. Designing for service is seen as an exploratory process that aims to create new kinds of value relation between diverse actors within a socio-material configuration. This has implications for existing ways of understanding design and for research, practice and teaching.

Keywords - Designing for Service, Service Design, Service Management.

Relevance to Design Practice - Helps designers identify which concepts of design and service are mobilized in projects. Describes designing for service as an exploratory process in which distinctions between products and services are not important. Instead, services are understood as socio-material configurations involving people, processes, technologies and many different kinds of object.

Introduction

Over the past decade, a profession of service designers has emerged and an interdisciplinary field of service design research has begun to take shape. Accounts of service design vary from those that see it as a new field of design to those that stress its origins in other disciplines and make references to existing approaches within design, management and the social sciences. Although these studies provide useful insights, they do not offer a systematic analysis of what is involved in designing services that draws extensively on both design and service literatures (Meroni & Sangiorgi, 2011). Similarly, although the services marketing and operations management fields have discussed service design, there has been little effort to engage with different theories of design (Menor, Tatikonda & Sampson, 2002; Tax & Stuart, 1997). This reflects a deep-rooted lack of attention to design within management and organization studies resulting in part from a gulf between the research and education traditions in the social sciences and design disciplines (Boland & Collopy, 2004; Jelinek, Romme & Boland, 2008; Simon, 1969).

There is relatively little literature analyzing the work of professional service designers. Two decades ago, services researcher Evert Gummesson declared "We have yet to hear of service designers" (Grönroos, 1990, p. 57). Now, a profession of service designers exists. Many service designers are educated within the art-school design tradition within fields such as product or interaction design, rather than within the paradigm of engineering design. Although the field of service design is small and fragmented, without strong professional bodies or a developed research literature, it is visible through

conferences within universities (such as the 2006 conference in Northumbria University, see http://www.cfdr.co.uk/isdn/), a professional Service Design Network (Mager, 2004) with annual conferences, books (Hollins & Shinkins, 2006; Meroni & Sangiorgi, forthcoming), and through the work its practitioners publish in reports and on websites. There has been description of the methods and tools these designers use, but relatively little theory-building (Sangiorgi, 2009). Meanwhile, there is little published about these designers within the management literature. Exceptions include Bate and Robert's (2007) study of what they call "experience-based" design, based on UK design consultancy ThinkPublic's work with a cancer treatment service; Zomerdijk and Voss's (2010) work on the design of cruises and entertainment services; and qualitative research on the material practices of service designers by Stigliani and Fayard (2010).

This paper uses an interdisciplinary approach to explore different ways of thinking about service design. It investigates whether professionals who take service design as their specialism bring something new to existing understandings of design. First, I review the literature on design and services drawing on design

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studies and management, especially marketing and operations. Then, I develop a framework to support discussion of service design that makes explicit underlying tensions in how the concepts of design and service are understood. Then, I illustrate in detail one quadrant of the framework through an exploratory study of three professional service design consultancies. Using an ethnographic approach, I analyze the practitioners' activities in three cases to bring to attention the thought-worlds of the designers and the managers they worked with. Four findings provide evidence of how these practitioners approach designing services. Two are concerned with what services are: they were approached as socio-material configurations that are relational and temporal as value is constituted in practice. Two are concerned with how to do service design: designing a service was approached through a constructivist enquiry in which the designers sought to understand the experiences of diverse stakeholders and involve managers in this activity. I then reflect on the framework in the light of the ethnographic study.

This paper adds to the literature by proposing a framework that distinguishes between different approaches to service design. It explores the least understood one in depth. I describe designing for service as one specific way of approaching service design, combining an exploratory, constructivist approach to design, proposing and creating new kinds of value relation within a socio-material configuration involving diverse actors including people, technologies and artifacts. This conceptualization has implications for other design fields, since it sees service as enacted in the relations between diverse actors, rather than as a specific kind of object to be designed. The framework may be of value to practitioners and researchers by helping identify which concepts of design and service are mobilized in their work.

Literature Review

To launch this discussion I draw on several bodies of literature. Theories of design are not found in one literature. There are several design professions institutionalized in different kinds of educational and research context ranging from architecture, engineering and computing, all of which have strong professional bodies and accreditation procedures for practitioners, to graphic, product and fashion design, for example, which are often found in art schools and which have weaker institutions (Abbott, 1988). Ideas of design also permeate management, for example in organization design, often lacking a developed theory of design. Similarly, services can be approached within several management fields, including marketing, operations and information systems, influenced by different traditions within the social sciences. I draw selectively from these fields to build up a framework that distinguishes between different kinds of service design.

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Design Literatures

Literature on design spans several fields including architecture (Alexander, 1971), management (Simon, 1969), engineering (Hubka, 1982), product development (Wheelwright & Clark, 1992) and systems design (Ehn & Löwgren, 1997). Descriptions of design often hinge on differences between underlying views of science and knowledge: positivist science or constructionism (Dorst & Dijkhuis, 1995). Ways of thinking of design range from attempts to build general theories to accounts of particular practices. For Alexander (1971), for example, "The ultimate object of design is form" (p. 15) whereas for Simon (1969), "Everyone designs who devises courses of action aimed at changing existing situations into preferred ones" (p. 55). Design can be seen as a search process for problem-solving in which the desired state of affairs is known at the outset and problems can be decomposed into smaller units before being solved (Simon, 1969), or in contrast, problem-solving is seen as a special case of design, one that is exploratory and in which the desired end state cannot yet be known (Hatchuel, 2001). Simon's influential work is open to interpretation. For example in a close reading of Simon (1988), Pandza and Thorpe (2010) distinguish between deterministic design, in which designers' agency is paramount as it is their decisions that determine the nature and behavior of artifacts; path-dependent design, in which adaptation and repetition determine the progress of an artifact; and path-creating or radical engineering design, in which novelty emerges through individual and collective agency. Schön (1987) saw design as a reflective practice in which professionals moved between different framings of problems as they went about solving them. Drawing on this earlier work, Buchanan (1992) described design as a liberal art capable of dealing with what Rittel and Webber (1973) call "wicked problems" for which there is no single solution and in which stakeholders play roles in defining the nature of problems. Krippendorff (2006) describes design as giving meaning to things, making design a "human-centred" activity in contrast to a technology-centred design focusing on functionality. Fry (2009) describes design as concerned with redirecting practices towards creating sustainable futures.

An important research focus is the process of designing. Design can be understood as designers co-creating problems and solutions in an exploratory, iterative process in which problems and solutions co-evolve (Cross, 2006; Dorst & Cross, 2001). Designing is seen as shaped by a situated understanding of the issue at hand (Winograd & Flores, 1986) in contrast to a view of design in which engineers design functions in response to constraints (Hubka, 1982). In recent years, some educators and practitioners have argued that designers share a kind of "design thinking" in which they frame problems and opportunities from a human-centred perspective, use visual methods to explore and generate ideas, and engage potential users and stakeholders (e.g., Brown, 2008).

Buchanan (1992) argues that designing is essentially indeterminate, but can be thought about in relation to "placements" situated around artifacts that a particular design professional makes, such as posters, products, computer systems or organizations (Buchanan, 2001). Sociologists and anthropologists

have shown how specific design professionals such as engineering designers (Henderson, 1999) and product designers (Michlewski, 2008) go about their work, enriching the understanding of what designers do, but not providing generalisable accounts.

Within management, interest in design has two main strands: investigating the role of design within innovation and new product development, and thinking of management as a design science rather than a natural science. With regard to the former, design is seen as key to innovation because it involves generating new concepts and new knowledge (Hatchuel & Weil, 2009), has a structured creative process (Ulrich & Eppinger, 1995) or because design-led innovation involves firms generating new meanings for objects by engaging with a wide range of interpreters (Ravasi & Rindova, 2006; Verganti, 2009). With regard to the idea of a design science, researchers argue that management should be thought of as a design activity, although this has raised questions as to which kind of design is being invoked by these claims (Pandza & Thorpe, 2010).

A number of efforts have been made to describe the activities that go on during designing services. Many of these accounts have been written by practitioners (e.g., Burns, Cottam, Vanstone, & Winhall, 2006; Parker & Heapy, 2006). An important influence on the emerging field of service design is the idea of designing product-service systems (Meroni & Sangiorgi, 2011), which has led to understanding services as socio-technical systems (Morelli, 2002). In contrast to an idea of design that focuses on designers making forms, designing services has been described as looking at services from an outside-in perspective starting with customer perspectives (Holmlid & Evenson, 2008). Service design has been seen as a subset of the field of design concerned with designing interactions with technology (Moggridge, 2006), or as having important differences to it (Holmlid, 2007).

Some of the emphasis has been on the design of the physical artifacts and encounters with service personnel that are part of a service, often called touchpoints. Researchers have explored methods to research end-users and customers and to involve them in design using ethnography and activity theory to understand their perspectives, goals and practices (Sangiorgi & Clark, 2004). Aspects of Participatory Design have been explored to examine design practitioners' claims about co-creation, participation and emancipation during service design (Holmlid, 2009). Service design has been seen as a way to address issues of sustainability in contrast to a perceived emphasis in product and industrial design practice on creating aesthetically-pleasing novelty (Manzini, 2003) by being attentive to designing in time (Fry, 2009; Tonkinwise, 2003).

Some literature in the design field has made explicit links to management research. Pinhanez (2009) proposes thinking of services as designing customer-intensive systems emphasizing ownership and means of control in the production process. Edman (2009) explores the overlaps between design thinking and service-dominant logic (Vargo & Lusch, 2004a) and concludes that design offers tools and methods to help managers develop service-based offerings. Glushko and Tabas (2009) argue that the differences between the "back office" and "front office" orientations of different kinds of specialist are not productive; instead designers

should think of back and front stages as complementary parts of a service system. Morelli (2009) discusses the tensions between the distinct origins of service design within management and engineering, and within (non-engineering) design practice and their implications for conceptualizing the field. Evenson and Dubberly (2010) describe designing for service as conceiving of, iteratively planning and constructing a service system or architecture to deliver resources that choreograph an experience that others design.

This brief review highlights key ideas in research about design, ranging from general theories of the design process and practice to accounts of particular design professions. Important tensions exist, making it difficult to generalize about design and hampering efforts to find strong foundations on which to discuss service design. A key tension exists between a deterministic view of design (Pandza & Thorpe, 2010) that sees it as a problem-solving activity that aims to work towards a desired state of affairs that can be determined in advance, or as an exploratory enquiry during which understanding of an issue or problem emerges (Dorst & Cross, 2001; Buchanan, 1992). In the latter case, a diverse group of people can be seen to be involved in constructing and interpreting the meaning of a design (Krippendorff, 2006; Verganti, 2009). The paper now turns to research in management to provide additional foundations with which to understand service design.

Management Literatures

Within management literatures, research on services is predominantly associated with marketing and operations. Underpinning this research have been efforts to define services, often in opposition to goods. However, it has proved difficult for researchers to agree what they mean by services. Four characteristics summarized by Zeithaml, Parasuraman and Berry (1985) from a survey of existing research - intangibility, heterogeneity, inseparability, and perishability - have since been shown to be not generalisable across all services and to be applicable to some goods (Lovelock & Gummesson, 2004; Vargo & Lusch, 2004b). Further developments in conceptualizing services have lead to what is currently an unresolved question. Either (a) everything is service, based on Vargo and Lusch's (2004a; 2008a) articulation of a service-dominant logic, which draws on earlier work in services marketing and management (Grönroos, 2000; Normann, 1991; Normann & Ramírez, 1993; Ramírez, 1999), suggesting that the conventional distinction between goods and services does not matter; or (b) new ways need to be found to understand the specific qualities of organizing for and consuming services, such as highlighting ownership and access to resources (Lovelock & Gummesson, 2004). Vargo and Lusch (2004b) distinguish between *service* in the singular, as a fundamental activity of economic exchange, and *services*, in the plural, as an economic category in contrast to goods. For Vargo and Lusch, service involves dynamic processes within which value is co-created by actors within a value constellation (Normann & Ramírez, 1993) or service system (Maglio, Srinivasan, Kreulen, & Spohrer, 2006).

Despite this lack of agreement on how to define services, researchers have advanced knowledge about how organizations manage them. However, discussion about how organizations *design* services has not drawn in detail on design literatures and researchers have rarely made explicit links to theories of design. The design process has been seen as part of a process of new service development (Scheuing & Johnson, 1989; Zeithaml & Bitner, 2003) or the redesign of existing services (Berry & Lampo, 2000). Design is seen as a phase that comes after concept generation and testing and business analysis in contrast to definitions of design introduced above that see design as generating new concepts and new knowledge. Although operations management researchers have paid attention to the design of the service delivery system and the service process (Edvardsson & Olsson, 1996; Fitzsimmons & Fitzsimmons, 2000; Ramaswamy, 1996) or bringing modularity to service architecture (Voss & Mikkola, 2007), overall new service design and development are not well understood (Menor, Tatikonda, & Sampson, 2002). Studies of manufacturing processes such as in the car industry (Womack, Jones, & Roos, 1990) and business process engineering (Hammer & Champy, 1993) with important foci on quality, continuous improvement and benchmarking (Zairi & Sinclair, 1995) may apply to service operations. However, it is possible that experiential services might present new challenges for knowledge based in manufacturing. Recent work within information systems has led to calls for a "services science" combining engineering, management and the social sciences (Chesbrough & Spohrer, 2006). An analysis of these developments identified enhancing service design as a research priority, seeing it as a site for cross-disciplinary research (Ostrom et al., 2010).

Shostack (1982; 1984) was a pioneering advocate of the idea that services could be designed intentionally, proposing that documenting and monitoring the service delivery process was the key methodology behind designing a successful service offering. Shostack proposed creating a visual representation that she called a "blueprint" of a service design. She argued this was an important way to specify what a service ought to be like. A blueprint represents what happens in front of the customer engaging with service personnel and service "evidence", and behind a "line of visibility" where others supported service delivery.

Complementing this emphasis on managing the service process, researchers in service marketing point to the importance of the service encounter, understood as a person-to-person interaction (Solomon, Surprenant, Czepiel, & Gutman, 1985) or an interaction between customers and human and artefactual service evidence (Bitner, Boons, & Tetreault, 1990). Parasuraman, Zeithaml and Berry (1985) developed ways to study service quality. The service encounter creates a "moment of truth" at the interface of service providers and their customers (Normann, 1991). Alam and Perry (2002) emphasize a customer-orientation in new service development. Berry, Wall, and Carbone (2006) argue for the importance of designing service "clues" when "engineering" service experiences. Carbone and Haeckel (1994) claim that paying greater attention to the details of the material artifacts involved in a service experience will result in greater customer satisfaction. Further extending the understanding of

what is involved in constituting a service, Bitner (1992) argues that what she calls "servicescapes" – the physical surroundings in which service is provided and experienced – play an important role in determining the perceived quality of consumer services. Hence Stuart and Tax (2004) draw on theatre as an approach to designing memorable service experiences.

Efforts to bridge the gaps between marketing and operations perspectives on service design include developing service concepts (Goldstein, Johnston, Duffy, & Rao, 2002) and a proposal to create a new function called customer experience management, responsible for ensuring that organizational service delivery aligns with marketing promises and customer expectations (Kwortnik & Thompson, 2009). Others have taken forward Shostack's work on blueprints and shown how creating experience blueprints helps design multi-interface services delivered using different channels and technologies (Patricio, Fisk, & Cunha, 2008) and how such activities help multi-functional teams generate opportunities for innovation (Bitner, Ostrom, & Morgan, 2008).

Recent empirical work that studies professional designers' approach to designing services includes Bate and Robert's (2007) study of designers using an ethnographic approach to understanding users' experiences in their own terms and involving them in co-designing cancer services. Voss and Zomerdijk (2007) study professionals involved in designing experiential services such as travel and entertainment. They find that these professionals approached design from the perspective of the customer journey, resembling Shostack's blueprints, and that these designers have relatively informal methodologies shaping how they design. Blomberg (2008) illustrates the importance of focusing on how proposed service users negotiate the meaning of a service. Zomerdijk and Voss (2010) develop six propositions about the design of experiential services and test them empirically in 17 case studies, which highlight the importance of context in designing service experiences. Holopainen (2010) finds that the emerging concept of service design is extended to cover almost entirely the development of new services.

Together, these concepts – the design of the service delivery system, continuously designing processes to improve quality, the service encounter, blueprints, evidence, clues, serviscapes and the management of customer experiences – represent importance advances in understanding how organizations design services, although lacking clarity about what is meant by design. There has been research into how professional designers who see their work as service design go about doing it, but further work is needed. It remains unclear at a conceptual level if the distinction between goods and services is important and how designing for service might be approached if, as Vargo and Lusch (2004a) suggest, service is understood as dynamic processes within which value is co-created.

Different Ways of Approaching Service Design

This review identifies that two areas in which we might expect to find research on service design – within design literature and within services literature – have not produced a developed body of knowledge. Rather, what emerges are two important tensions.

The first is between understanding design either as problem-solving that aims to realize what has already been conceived of, or as an exploratory enquiry involving constructing understanding about what is being designed, involving end users and others in creating meaning. The second is a tension between the view that the distinction between goods and services matters significantly, or that service is better understood as a fundamental activity with multiple actors within a value constellation. Figure 1 summarizes these perspectives.
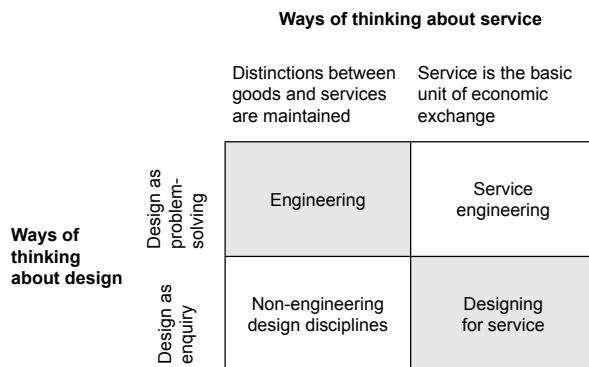
Ways of thinking about service

Figure 1. Approaches to conceptualizing service design.

The framework in Figure 1[1] has two axes: one concerns how service is understood, the other concerns the nature of design. Together, the quadrants propose distinct ways of understanding service design. In the top left quadrant, design is seen as problem-solving and the conventional distinction between goods and services is maintained, a view that underpins work in some management fields (e.g., Shostack, 1982; Ulrich & Eppinger, 1995). This quadrant is labeled "engineering" as its focus is the design of new products and services that can be specified in advance using systematic procedures; services are one particular category of artefact to be designed. Below, design can be understood as an exploratory process of enquiry that can be applied to different kinds of artefact such as products or services and where the distinctions based in industrial manufacturing between types of designed things matter (e.g, Buchanan, 2001; Burns et al., 2006). Within this quadrant sit the conventional fields or sub-disciplines of design in the art or design school traditions, with their focus on particular kinds of artefact such as furniture design, interiors or interaction design. This quadrant is labeled "non-engineering design disciplines".

The top right quadrant sees design as problem-solving, but views service as a fundamental process of exchange (e.g., Chesbrough & Spohrer, 2006; Kwortnik & Thompson, 2009) influenced by the service-dominant logic (Vargo & Lusch, 2004b). This quadrant is labeled "service engineering" since the emphasis is on service, but the underlying design tradition is engineering. Finally, the bottom right quadrant sees design as an exploratory enquiry, but does not make an important distinction between goods and services (e.g, Bate & Robert, 2007). This quadrant is labeled "designing for service" rather than designing services, echoing work by several practitioners and scholars in

the use of the preposition "for" (cf Meroni & Sangiorgi, 2011; Kimbell & Seidel, 2008). As Manzini (2011) similarly argues, talking of designing *for* services rather than *designing services* recognizes that what is being designed is not an end result, but rather a platform for action with which diverse actors will engage over time. Designing for service, rather than designing services, points to the impossibility of being able to fully imagine, plan or define any complete design for a service since new kinds of value relation are instantiated by actors engaging within a service context. Designing for service remains always incomplete (cf Garud et al, 2008).

This framework makes explicit differences in how people think about design and service, shaping how service design can be understood. It helps illuminate the underlying concepts about design and service that practitioners bring to their work as they engage in service design. The paper now turns to an empirical study of professional designers working within the exploratory design tradition. As practitioners who say they design services, the ways they approach their work will add depth to the framework.

Research Design

Three professional consultancies offering service design took part in the study.[2] Each was paired with a small firm offering a service focusing mainly on business customers. These were small enterprises without well-established processes and routines. Each offered a service based on a novel technology or recent scientific research. I chose the firms to explore what service design might mean in a context with little previous exposure to design professions, in contrast to consumer, entertainment or hospitality sectors from which concepts in services marketing have been drawn. Exposing technology-based firms unfamiliar with service design to professionals advocating it created conditions in which the designers were likely to make efforts both to reflect on the relevance of their approach to this context and to invest resources in communicating what they were doing. The designer-firm pairs worked together for six days over five months, for which the designers were paid a fee. All the designers and managers attended five workshops over one year. Around 20 researchers from several management fields and from design also attended the workshops, which generated a multidisciplinary conversation about designing services.

Written up in three cases, the study focuses on how the designers practiced service design by describing what they did as they began their relationship with the firm they were asked to work with when the latter did not have a clear idea what service design was or what it might do for them or with them. Given an open brief to "do some service design" and with limited resources, the designers engaged with their temporary clients in similar ways although each case is written up to highlight differences between them. The cases aim to illustrate the framework in more depth by connecting the literature discussed above with fieldwork.

An ethnographic approach was taken to bring into view what the designers and managers thought was involved in doing such design work. This was done for two reasons, one theoretical and one methodological. Firstly, the theoretical underpinning to

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the research is theories of practice that place everyday activities as the locus for the production and reproduction of social relations (Reckwitz, 2002; Schatzki, 2001). In research into practices it is important to be able to observe what people do, the objects they create and work with, what they say and the nature of their work as they go about it (Carlile, 2002). To better understand how designers structure their work, it was important to specify the empirical practices involved in their work. Secondly, the ethnographic approach offered methodological benefits (Neyland, 2008). Observing designers as they went about their work provided better access to their thought-worlds than relying on survey data or on interviews. Data were gathered both by observing some of the encounters between the designers and the managers, and in one instance of the designers working together in the studio, and by watching video recordings of these meetings made by a third party, as well as recording on video the five project workshops. In total, I had access to 40 hours of video footage as well as my notes from my observations of the designers and the artifacts created by the designers and by workshop participants. One of the challenges has been to represent such a large collection of data in three short cases. The data were collected between December 2006 and October 2007. Analysis was shaped abductively by the multidisciplinary conversations that emerged in the workshops and by reviewing the literature (Blaikie, 2000).

Sampling

The study involved three design consultancies of different sizes and with existing clients in service design. The three firms involved were selected on the basis of being growth-phrase small enterprises offering services based on a technical or scientific innovation in which the service(s) had been designed without the benefit of working with a professional service designer. They are shown in Table 1.

Case A

The project began with one designer from IDEO visiting Prosonix and meeting firstly with the CEO and later with several members of the team to find out more about their technologies and services. As a result of this discussion, the pair agreed that IDEO would help the company create an "opportunity map" for their services. This lead to another designer accompanying the manager of business development to a first meeting with a potential client to observe the discussion and description of services. The next step was a day spent at IDEO's London studio in which both designers and the business development manager generated the opportunity map

based on what the designers referred to as "insights" gathered by the designers at their meetings and further input from the manager. In this workshop, the designers provided a structured yet informal way to generate ideas including creating "what if" scenarios each focusing on particular industries within which the organization's services could be exploited.

In this workshop, one of the designers created a sketch representing the problem facing Prosonix's customer in which a small human figure is seen trying to push a large object up a hill. This sketch crystallized the problem facing the business manager and his role in communicating the enterprise's service to potential client organizations. It became a motif used repeatedly in subsequent conversations and at project workshops by the manager and the designers. Another visualization used repeatedly in the project was a Venn diagram of three overlapping circles labeled desirability, feasibility and viability. It represented the consultancy's criteria for a successful service design (Jones & Samalionis, 2008), which another colleague from the consultancy had presented at both of the first two workshops in the research project. One designer explained "Often when we're talking about innovation or trying to get businesses to do new things we're talking about desirability; which is what do the customers want, the human side of it and then we've got viability and feasibility… How can we make money out of it? And how can we make it?" The manager seemed to accept this framework as a way of organizing the decision-making during his work on scenario generation with the designers that day. In later discussions at the project workshops, both he and the CEO referred several times to these three criteria and commented that their organization paid insufficient attention to desirability. Finally, the designers and manager prioritized which scenarios to take further and agreed on the next piece of work the consultancy would undertake.

Working in their studio with a colleague, the two designers created four elements for what they called a toolkit for the company. They presented it to the business development manager at a final meeting in London. Each of these artifacts linked to the prioritized scenarios and used high production values. They included three visual artefacts the designers called "adcepts" (advertising concepts) in the form of fictional advertisements in glossy magazines, communicating to Prosonix's potential clients the sorts of innovations possible using the company's particle engineering services. One, aimed at potential pharmaceutical clients, showed an imaginary asthma inhaler. Another showed an imaginary perfume product and a third a fictional cosmetic product. Finally, the designers presented a prototype folder they had created to help the business development manager customize

Table 1. Organizations involved in the study.

Case	Service firm	Design consultancy
A	Prosonix. Firm specializing in ultrasonic crystallization and particle engineering.	IDEO. Multidisciplinary consultancy established in 1991 with over 550 employees in nine international locations in 2011.
B	g-Nostics. Firm offering personalized medicine based on analysis of genetic markers.	live|work. Dedicated service design and innovation consultancy founded in 2001 with 20 people in three countries in 2011.
C	Oxford Gene Technologies. Firm offering micro-array services for genomic research.	Radarstation. Design-led management consultancy founded in 2003 focusing on service design.

the service for existing or new clients by organizing information about them and prompting him to consider particular aspects of the service in relation to their needs. At the meeting, the manager seemed satisfied with these artifacts. There was also a discussion about how the enterprise might act on these ideas beyond the scope of the study.

Case B

Consultancy live|work began their work with two designers making a trip to the offices of g-Nostics with the aim of getting to know the organization and its service. The enterprise asked the designers to help with its Nicotest smoking cessation service then under trial in some UK pharmacies. The service supports people trying to give up smoking by using genetic testing to identify appropriate levels of nicotine replacement therapies. During their meeting with the CEO and the business development manager, the designers focused on learning about the experience of the customer using the service, while the service managers talked on a more abstract level about strategy, marketing and the industries in which they were working. One of the designers repeatedly turned the conversation back to the experience of using the service, using phrases such as "From the user's point of view…" as he persuaded the managers to describe the service in detail. During this meeting, the designers were also attentive to the artifacts that the managers showed them and wanted to take them away. They also successfully requested permission to access the website that formed part of the service.

The designers' second activity was visit to a pharmacy where the service was being trialled in the company of one of the enterprise managers, a cameraman and the author. Here, one of the designers conducted a walk-through of the service involving the pharmacy assistant taking blood and saliva samples from him as part of the test and conducting an online registration, as if he were a customer. During this, the designer asked the assistant to explain what was going on at each stage and her views on the service as a whole. The other designer documented this with photos, notes and drawings with a particular focus on the assistant's work practices and what kinds of artifacts were part of the service encounter, such as the test kit, but also attending to other artifacts such as a hand-written thank you note on the wall of the small consulting room and marketing literature produced by other organizations.

Their next activity took place in the consultancy's London studio where the two designers assembled on the wall what they called the "customer journey", combining photographs they had taken at the pharmacy and pages from the service website, again observed by the author. Grounded in one designer's experience of undertaking the test, this visual representation followed the would-be non-smoker as they engaged with what the designers called the service "touchpoints" over time. These ranged in material form from the graphic design of a poster in the pharmacy window to the website for customers to connect with other people trying to give up smoking. The designers appeared to go about this in a relatively unstructured way, although as they built up the customer journey, they distinguished between phases they labeled awareness, access and joining. A third colleague joined them

who had attended the first two workshops in this study. Together, the designers critiqued the service, jumping repeatedly from the detail of the design of the touchpoints to the enterprise's goals and the customer proposition. As they talked, some of them wrote on sticky notes and stuck them on the assemblage on the wall, building up a detailed, layered analysis of the customer journey for the existing service. One designer began to draw a "stakeholder ecology" diagram, which showed organizations, artifacts such as computer servers as well as people involved in constituting the service, with arrows showing links between them.

Next, the three designers sat at a table, individually sketching in response to issues they had identified in assembling the customer journey on the wall. Using the company's own template, which included "user need" as a category to fill out, the designers quickly generated simple sketches for improvements to existing touchpoints (e.g., the test kit pack), proposals for new service components (e.g. a website targeting would-be quitters) and proposals for entirely new services (e.g. a genetic test data bank).

Later, the designers produced a digital document representing the customer journey that organized the timeline, touchpoints, issues and opportunities into phases of the service engagement. The final activity involved one of the designers visiting the enterprise again, taking their sketches, the customer journey diagram and other artifacts and talking through them around a table. This lead to a more structured conversation in relation to a poster the designer brought with them and placed on a wall. The managers' responded very positively to the designers' suggestions, both those at the level of improvements to an existing touchpoint as well as those proposing a new way of conceiving of the service. This lead to a discussion about how the enterprise might take forward these ideas beyond the scope of the academic study.

Case C

In their engagement with Radarstation, the OGT managers decided to focus on their custom service creating micro-arrays, enabling researchers to understand genetic information gathered from research subjects and processed by OGT. After an initial meeting at OGT's offices in which the designers sought to understand the enterprise's activities by meeting the COO, the designers decided they needed to know more about the enterprise's customers, typically research managers in companies or university researchers. They conducted face-to-face interviews with one existing, one past and one new client, taking notes and photos. The designers then generated three visual representations of the customer journey, arranging in a linear sequence the touchpoints through which each client engaged with OGT over time, such as emails, phone calls and contracts.

The next stage involved the designers organizing what they referred to as a "co-creation workshop" attended by the COO and another manager. During this workshop the managers and designers first sat round a table studying the customer journeys for each client and hearing what the designers referred to as "insights" based on the interviews they had conducted.

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On a flipchart, one of the designers drew a two-by-two matrix with cost and value as its two axes. The COO filled this in as he discussed the firm's positioning in relation to its competitors. The participants spent time writing and drawing on copies of the consultancy's touchpoint template, which included sections for user need, OGT's approach, customer benefits and alternatives. These were then assembled along a wall in the sequence of the customer journey, discussed and annotated with sticky notes.

Back in the studio, the designers further analyzed the customer journey and sketched and annotated possible solutions. As their final outputs, the designers created a generalized customer journey and a presentation that summarized much of the discussion in the co-creation workshop; it also included recommendations for ways to "realign key touchpoints". These recommendations were driven by making the process more visible and streamlined, handholding new customers and extending OGT's relationship with the customer. The document focused mostly on touchpoints in the service and proposed an improvement to each existing touchpoint, practices around it or made suggestions for entirely new ones. Each of these included comments about the user need, approach and benefit; some included a comment about competitors. These recommendations were presented at a project workshop and later sent to the organization by email.

Findings

Looking at the cases together, four main themes emerge, two connected with what these designers understand themselves to be designing when they are doing service design and two connected with how they go about doing it.

Firstly, these designers paid great attention to design of the material and digital touchpoints connected with the firm's service, to people and their roles, knowledge and skills and where these service encounters took place. In contrast to an idea of service as being intangible, a key definition of service that has recently been questioned (e.g., Lovelock & Gummesson, 2004; Vargo & Lusch, 2004b), these designers' work practices focused extensively on studying and then redesigning the artifacts they saw as part of the service and participants' practices as they engaged with the firms. In some cases, this included studying artifacts that had not been created by the service organization (e.g., Cases A and B), suggesting that the designers have a broad view of the artifacts and interactions that constitute a service. However, while they paid attention to many artifacts within the services, the distinction between products and services did not seem important in their work. Far from being intangible, a service can be thought of as both social and material. Thus the designers seemed to conceive of service in a similar way to Vargo and Lusch (2004a), who propose that material objects (such as "goods") play roles in constituting value-in-use, but that service is the fundamental activity of economic exchange.

Secondly, the designers in this study understood service as both relational and temporal as users and stakeholders of different kinds interacted with the service firms through practical engagement with artifacts and people over time and space. Echoing discussions about meaning within design (Krippendorff,

2006; Verganti, 2009), the designers seemed to see the value of service as constituted in practice involving a wide array of material, digital and human actors (Normann & Ramírez, 1993; Vargo & Lusch, 2008a). In their visits to the firms, conversations with managers and during their analysis of the firms' websites and other materials, the designers repeatedly sought to understand the nature of each firm's offering and the creation of value through the practices of end users and others such as employees, instead of attending to pre-defined categories of science, technology, product or service. During a workshop, one designer from live|work emphasized the temporality of service by describing organizations as being "in perpetual beta", a process of ongoing change as services were repeatedly redesigned and constituted in practice. The designers tried to represent the relational and temporal nature of service in visual form, for example by creating two-dimensional documents showing touchpoints in the customer journey (e.g., all cases) or as a service ecology visualized from a bird's eye view (e.g., Case B).

Thirdly, the designers approached their work as an enquiry in which they and others would construct an understanding of what the service was and how they might approach design or re-design. In all three cases, they were involved in considering existing services in operation that had been assembled by the firm without the help of specialist service designers. All the designers invested the limited resources available to them in this study in trying to understand the service from the point of view of customers and end users, as well as the service organization's perspectives, accessed by interviewing managers. This emerging understanding shaped how they went about their work. In the documents they created such as visual representations of their design processes and during their presentations at the workshops, they emphasized an iterative process during which they conducted their research, developed insights and generated ideas through sketching or prototyping to be assessed by the firm. In Cases A and B, they also generated entirely new service concepts that did not draw directly on knowledge about existing customers and users (Verganti, 2009). In contrast to descriptions of the new service development process in which design is a phase (Scheuing & Johnson, 1989), these designers saw their entire activity as design, consistent with Holopainen (2010).

Fourthly, the designers created opportunities for the managers of the firms they worked with to take part in this enquiry and invested resources in creating material artifacts and situations that enabled this. Rather than mostly working on their own and presenting a final deliverable to the firm, these consultants spent time and effort to organize and facilitate workshops with the managers they worked with. The designers described how they preferred to include end users and customers in such workshops when resources allowed. These activities suggest a view of service design as a constructive process involving both professional designers and managers, but also other stakeholders such as present or past customers and service personnel. The designers made an important part of their work the construction of artifacts to make visible and comprehensible the complexities of the service, ranging from prototypes (Case A) to sketches (Cases A and B) to the customer journey diagrams (all three). These

boundary objects (Star & Griesemer, 1989; Carlile, 2002) played an important role in all three cases as the designers tried to make the practices of service stakeholders visible to the managers to help with decision-making about the redesign of the services. This finding is consistent with Stigliani and Fayard (2010).

Discussion

This paper has explored different ways of understanding service design. Secondly, it has considered what we can learn from professional designers who say they practice it. The framework in Figure 1 identified important differences in the literatures on design and on service on to which it is possible to map different professional and disciplinary emphases as to how design and service are understood. The findings from the three cases draw attention to two aspects of service design – what is being designed in the design of services and how designers go about service design.

The research found that the designers attended closely to a wide range of material and digital artifacts and practices within services. For these designers, a service is both social and material. They saw service as relational and temporal as value was created in practice. In addition, the research showed that these designers approached designing as an open-ended enquiry in which part of their work involved creating boundary objects that served to make visible these actors within a service, as both they and the managers constructed an understanding of the service. Combining these suggests that what these professional service designers are doing is focused on the bottom right quadrant in Figure 1: they are *designing for service*. The analysis of the cases suggests they combine a constructivist approach to doing design, with a view that the distinction between goods and services is not important. Rather, the designers' efforts to understand the strategies of the businesses they worked with and to rethink these highlighted how they saw service as relational and instantiated in practice. In their research and proposals to redesign aspects of the enterprises' services, the designers focused on how the various actors involved in the service were configured to create value.

By referring to this as *designing for service*, rather than service design, makes clear that the purpose of the designers' enquiry is to create and develop proposals for new kinds of value relation within a socio-material world. The paper's contribution is to describe a distinctive way of approaching service design, that is, *design for service*, which has not thus far been presented in either the design or management literatures.

I now turn to the possible implications of this research for managers, designers and researchers. The framework makes a distinction between different ways of thinking about service design and may help designers and managers navigate the complexities they face in organizations, whether working as consultants or in-house and whatever their originating discipline. The designers in this study attended to practices and value relations involving artefacts as diverse as posters, websites and staff training manuals, suggesting that designing for service is a strategic kind of design activity that operates at the level of socio-material configurations or systems, rather than being framed within pre-existing design

disciplines. Some literature on service design sees it as a new sub-discipline of design (Meroni & Sangiorgi, 2011). However, this study suggests that designing for service offers an opportunity to rethink professional design and its role in organizations and societies more broadly by making clear how underlying concepts such as service are mobilized. Evenson and Dubberly (2010) and Manzini (2011) also make this argument. For researchers, the diversity of research used in this paper, from design studies to operations, marketing and practice theory, offers a new perspective on service design that joins up literatures at a time when calls for interdisciplinary research approaches have been made.

Finally, a discussion of the limitations of this study is required. The framework in Figure 1 connects important conceptual and empirical research in design and management fields. However, the use of a 2x2 matrix simplifies and reduces any such wide range of contributions. Secondly, the fieldwork focused on only one quadrant of the framework. It helps clarify what is distinctive about the approach of self-titled service designers, but further work is needed to test the framework's relevance by exploring in depth the other three quadrants. Thirdly, in this study the use of an ethnographic approach to generating data for cases was appropriate for an exploratory study in which the phenomenon is not well understood, but this limits how these findings might be generalized. Fourthly, the study focused on service designers working for technology-based small enterprises. This may have produced findings that are not generalizable to other contexts such as those in which notions of customer experience are more common. Finally, there was no attempt to assess whether the approach practiced by these designers would lead to better designed services. The emphasis was on describing the approach. Further work is needed to assess its effectiveness.

Conclusion

This paper aimed to explore how the work of service design is understood. It developed a framework through which service design can be discussed and explored it by analyzing the work of designers who say they design services. Two approaches have been combined: an examination of literatures in design and management fields and an exploratory study of three design consultancies specializing in service design. In doing so, the paper has highlighted different ways of thinking about service design. In design, I noted a distinction between seeing design as problem-solving in which the desired state of affairs is already known or as a process of enquiry during which meaning is constructed with diverse stakeholders. Within research on services, I highlighted contrasting positions that either see important distinctions between the ways goods and services are designed and managed or which see the distinction as not important, but which instead sees service as the fundamental basis of creating value. From three cases, I presented four findings that add depth to one quadrant of this framework. Using the theoretical perspective of practices helped focus the research on the thought-worlds of the designers showing how they enact service design in their day-to-day work. By combining the literature and findings, I add depth to one specific way of thinking about service design. I called

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this approach designing for service and argued it is rooted in a constructivist approach to design in which designers and diverse others are involved in an ongoing enquiry and in an understanding of service that does not rest on the distinction between goods and services from industrial manufacturing, but rather sees service as the fundamental basis of exchanges of value.

Acknowledgments

Endnotes

[1] Like any framework this one reduces the diversity of literature in the field, such as different ways of characterizing different design fields such as engineering design or product design.

[2] This is the first comprehensive report on this research, part of which has been described in Kimbell (2009) and Kimbell and Seidel (Eds.) (2008).

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Chapter 5   Designing as inventive practice

I wouldn't say the big questions are cosmological questions, but rather

cosmopolitical questions. Bruno Latour (Latour et al 2011: 50).

5.1 Introduction

The previous two chapters presented some of the encounters between designing

and different kinds of social and cultural research. They demonstrated that, as

design researchers and practitioners have engaged more deeply with social and

cultural research, so too have sociologists and anthropologists found

opportunities to work more directly in relation to the worlds of change and

action or, as Simon (1996) would say, design. This chapter contributes to a better

understanding of designing in the context of services and social innovation, by

drawing on some of these resources and others, to explore how to conceptualise

the designing of relations between people and things.

To do this, the chapter goes into more detail into some of the debates within the

design studies literature, introduced in Chapter 2, and uses research from

Science and Technology Studies (STS), to rethink some of the underlying issues.

These include ways of thinking about inventiveness, methods and ignorance,

based on understanding the sociomaterial world as co-constituted by

heterogeneous actors in practice. Concepts developed in three of my own solo-

authored, peer-reviewed publications, presented in the interstitial between

Chapter 4 and this chapter, are also mobilised. This chapter expands, deepens and synthesizes across these contributions, thinking of this as kind of *remixing*. Thus the writing of this chapter includes direct quotations from some of the authors cited, mixed with some of my own work, to construct an argument that connects ideas about designing with ideas about how designing and using unfold. Quotations from Papers 1 to 3 are presented visually like this to highlight where this work is combined into the larger argument in this chapter.

The way this proceeds will separate the object of design from how practitioners do designing. This choice needs explaining, since a theoretical base used here is ethnographically-informed theories of practice that would say this dualism is false. But it is useful to maintain this analytical distinction, because it is found in design studies literatures and in practitioner and researcher claims about "design thinking", which remain influential in contemporary conversations about design.

This chapter is divided into three sections. The first is concerned with attempts to understand and describe what it is that people doing design are working on or in, when they do something they call design (what we might reduce to the "what" of design). The second section focuses on the ways designers approach the doing of design (or the "how" of design). Both sections begin by outlining some of the key tensions and contributions, and then introduce resources from STS that open up new ways of thinking about these issues. The third section remixes these ideas, and presents an inventive practice perspective on designing.

Readers who persevere will then find that, after the apparent separation of the *what* and the *how* of designing, these two are wound into a conceptual pairing of *designs-in-practice* and *design-as-practice*. This opens up ways of understanding the nature and impact of design-based practices in the design of services and in the context of collective issues. Chapter 1 showed there is a lack of clarity about the object of service design and design for innovation. It is therefore timely to re-consider what is central to the doing of designing – whether this is called design thinking or something else – and what, if anything, is distinctive about the ways that people practicing within design traditions do it and what this offers those working in design for service and design for social innovation.

5.2 Design's objects

5.2.1 Designing objects or designing for change

What is designing concerned with? What is its object? And how is this object or set of concerns different to those of other kinds of professional expertise and practice? These questions – which surface regularly in panel discussions and at presentations by design practitioners, whether talking about strategic design, social design, service design or design thinking – are not easy to answer, even for researchers familiar with design literatures. There exist some important and long-standing disagreements about what people who think of themselves as designers, are doing when they do something they call design. In what follows I

briefly review some of the issues presented in Chapter 2, summarise these tensions and show how other researchers have tried to address them.

The starting point for many designers and researchers is to think of design as concerned with artefacts.

> When in 1971 Christopher Alexander argued that design is about giving form, organization and order to physical things, he acknowledged an entire school of thought. For Alexander, "the ultimate object of design is form" (1971: 15). The idea that form is a physical arrangement remains a dominant view of what designers do: they make things. Visitors to professional design studios are likely to note a disorderly arrangement of objects on work surfaces, walls and floors. Such clutter reminds us how professional design still involves doing things with and to objects, even for those designers who see their work as designing intangible services or experiences. (Kimbell 2011a: 290)

In contrast, for Herbert Simon (1969) design is about changing existing situations into preferred ones, which means it is not primarily focussed on the creation of new artefacts. Hatchuel (Hatchuel 2001; Hatchuel and Weil 2008) extends Simon, but argues that designing is not just problem-solving, but rather new concepts emerge through what Hatchuel calls an "expandable rationality". More recent developments often follow Simon, especially design thinking – the idea that designers' approaches and methods can be applied to a wide range of situations. This shift in design from being primarily concerned with giving shape

and form to tangible objects, towards trying to create change, is particularly evident in the conversations in contemporary practice around design thinking and service design and is in part shaped by the academic and practitioner social and cultural research traditions presented in Chapter 3.

This tension – between design as concerned with objects, or concerned with change – has surfaced many times in design literatures. For example, Findeli and Bousbaci (2005) describe an eclipse of the object in theories of design, from the qualities of the object to the experiences of its users. One response is found in the work of Buchanan (1992). This influential paper aims to take forward Simon's claim and combines it with Rittel and Webber's (1973) ideas of "wicked problems" and a discussion of John Dewey's experimental and empiricist pragmatism to see design (or as he calls it, design thinking) as a kind of expertise that is located in four placements – signs and symbols, material objects, activities and organised services, and complex systems and environments. Calling these "four orders of design", Buchanan says that these do not limit designers, but provide a starting point for design work to proceed. They seem to map on to the conventional object-based distinctions between specialisms found in many design schools. For example, at the Royal College of Art in London, there are currently post-graduate programmes in areas that fit pretty neatly within Buchanan's four orders of design: communication design, product design, service design, and architecture.

Echoing Buchanan, the design consultancy Humantific also has a quadruple set that divides up design practice. However for Humantific's co-founder GK van

Patter (2009), this is tied to a historical narrative as to the kinds of problems designers take as central to their work. He casts design as progressing in complexity in almost a linear fashion from design 1.0, concerned with creating new products, to design 4.0, working towards social transformation addressing systemic issues.

But these contributions tend not to engage with the large body of research outlined in Chapter 4, written mostly by people with a social sciences training, which challenged and enriched conceptualisations of the relations between people and objects in designing. Further, an interest in Science and Technology Studies among some researchers, has resulted in efforts to think differently about the object of design and what designers do including publications (eg Binder et al 2011), recent PhD theses (eg Wilkie 2010; Moll 2012; Andersen 2012; Singleton 2012; Botero 2013) and conferences and workshops (eg Ehn 2008; PDC 2012). This coincides with a related interest among researchers working within STS to engage with design including Bruno Latour's keynote at the Design History Society Conference (Latour 2008), and panels on design at conferences such as EASST in 2010 (EASST 2010) and 2012 (EASST 2012) and recent publications (eg Yaneva 2005; Wilkie and Michael 2009; Michael 2011; Lury and Wakeford 2012).

One contribution that does explore some of these intersections is a book authored by a collective of well-established researchers who call themselves A. Telier (Binder et al 2011). This combines work in PD, CSCW and STS to propose the object of design as "design things" ie social and material entities formed of

human and non-human "constituents" (Binder et al 2011: 57-63). Over the successive chapters, which draw extensively on the authors' close participant observation of what happens in teaching studios, in particular within architectural and interaction design, Binder et al propose understanding design as a collective material practice. They show how designers approach designing, where it can take place, the objects of design, and, using terminology from PD, how *designing* relates to *using*.

Relevant to this section is Binder et al's description of the design of "*things*, projects, objects, artefacts, devices, materials, places, infrastructures, designers, users, stakeholders, publics, and so on, in collectives of human and nonhumans performing and transforming the object of design" (Binder et al 2011: 6; emphasis in original). Borrowing Latour and Weibel's (2005) use of the term "thing" to describe collectives that are matters of concern, Binder et al mobilize this concept to argue that what designers design are *sociomaterial design things* (Binder et al 2011: 6). "A turn towards things can ... be seen as a movement away from 'projecting' and toward design processes and strategies of 'infrastructuring' and 'thinging'" (Binder et al ibid). They distinguish two perspectives on the object of design: an "engineering" approach which sees the outcomes of design as providing access to functions (eg a chair provides opportunities for sitting) and an "architectural" perspective in which an outcome of a design process is a thing that aims to change the experience of its users and which is "rich in aesthetical and cultural values, opening new ways of thinking and behaving" (Binder et al 2011: 51). Further, relevant to the context of design for services and for social innovation, Binder et al see opportunities for creating design things in contexts

"outside the box" in sites not usually associated with design (Binder et al 2011: 183-193).

Fruitful as it is, Binder et al's argument does not connect strongly with debates on design thinking or design for services and for social innovation. So what this chapter does is join up several research traditions – researchers in design studies, on the one hand, and researchers in CSCW and PD, on the other. A second thing this chapter does is to extend Binder et al's characterisation of sociomaterial design things. This draws inspiration from some of the same sources as Binder et al, but enriches and develops their work, by using additional resources such as theories of practice and research on inventiveness in STS.

5.2.2 Co-articulation of the material and the social

The first concept to mobilise is *co-articulation* (Marres 2011*)*, the idea that the world is not divided up into the social *or* the material (often expressed as a human-centred approach in contrast to a technological approach), but rather the social and the material are brought into mutual relation with one another in practice. This view – though controversial for some social scientists and philosophers – is one of the key pieces of intellectual scaffolding for the interdisciplinary field known as Science and Technology Studies/Actor Network Theory (STS/ANT). Many researchers who associate themselves with this field have made contributions to this core concept including Latour and Woolgar (1986), Callon (1986), Akrich et al (2002a), Akrich et al (2002b), Mol (2002), Barad (2003), Law (2004), Latour (2005), Barad (2007), and Callon (2009).

For the purposes of this thesis, which is located in design studies rather than STS, it is important to rehearse the main ideas, without being bogged down by some of the internal complexities of this field. So in the interests of retaining a focus on the topics discussed here, this summary draws only on the most prominent relevant contributions[6].

In *We Have Never Been Modern* Bruno Latour (1993) argues that the modernist project of separating the domains of human and world, and nature and society, has not been successful. Latour describes how modern thinkers tried to purify the messy worlds within which humans are implicated and maintain distinctions between what is "natural" and what is "social". For Latour, this effort it pointless since these categories are groundless. The modernist project of maintaining these distinctions could not ever be successful or a complete failure. Latour's criticism applies as much to the anti-modern and post-modern thinkers as to the modernists. He sees all of them as making the same mistake as Kant of dividing up reality into two distinct realms of human and world. As Harman (2009: 59) puts it,

> If Kant's Copernican Revolution placed humans at the center of philosophy reducing the rest of the world to an unknowable set of objects, what Latour recommends is a Counter-Revolution. Nature and culture are

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[6] A key foundational resource for this summary is the work of Garfinkel (1984) who proposes seeing the social world as a provisional, collective accomplishment and emphasizes close empirical study of what is. For an introduction to STS see Sismondo (2011).

not 'inextricably linked', because they are not two distinct zones at all (Harman 2009: 59).

Instead, for Latour, the things that make up the world are *hybrids* of people and stuff, in complicated sets of relations. A thing is only known by what it "modifies, transforms, perturbs, or creates" (Latour 1999: 122). Actants are constructed in numerous trials of strength with other actants, resulting in hybrids. Trying to identify an essence in an actant that can be termed nature, or culture, is pointless. Instead the approach Latour recommends is to trace a network and study how actants are connected to and transform one another (Latour 2005). It is through their mutual constitution or co-articulation that actants come to have the capacity of agency.

Latour's unravelling of the human/world dualism has been influential. Another researcher, who has advanced similar ideas which are complementary, but which offer a different emphasis, is Karen Barad. Barad works from a feminist perspective within science studies and is unusual in also having a doctorate in physics. Much of Barad's focus in her book *Meeting the Universe Halfway: Quantum Physics and the Entanglement of Matter and Meaning* (Barad 2007) is on the ideas of physicist Niels Bohr, known for his work on understanding the atom, and leading a shift from particle to quantum physics. Barad combines her close reading of Bohr's writing with literature in the humanities and social sciences including Michel Foucault (1980) and Judith Butler (1993). Barad identifies what she sees as important advances that each of these has made. She argues that it is the combination of these with Bohr's work that offers a different

way to conceive of how we think about the world: *agential realism*. Her way of understanding the world recognizes that matter actively constitutes the world, alongside humans. Both are real but they come into being through relating to one another.

Using Bohr as her starting point, Barad points to his finding that "the nature of the observed phenomenon changes with corresponding changes in the apparatus" (Barad 2007: 106). Experimental results are not a mirror that reflects reality but are experienced *through* the instruments. This is a challenge to "the epistemological assumption that experiments reveal the pre-existing determinate nature of the entity being measured" (Barad 2007: 106). For Barad, things do not pre-exist an experiment or, more accurately, measurement during an experiment. Instead, determinate entities emerge from their *intra-action*, a term she introduces to make a distinction with *interaction* between pre-existent entities. For Barad,

> the material and the discursive are mutually implicated in the dynamics of intra-activity…Neither discursive practices nor material phenomena are ontologically or epistemologically prior (Barad 2007: 152).

Barad describes "phenomena" as the primary ontological unit. This is similar to Latour for whom the world is made up of actants entangled within hybrids. For Barad

phenomena are differential *patterns of mattering* ('diffraction patterns')

produced through complex agential intra-actions of multiple material-

discursive practices or apparatuses of bodily production, where

apparatuses are not mere observing instruments but boundary-drawing

practices – specific material (re)configurings of the world – which come to

matter (Barad 2007: 140; emphasis in original).

Thus far, this sounds like Latour. For Barad, objects do not precede their intra-action; rather, objects emerge through particular intra-actions. Similarly for Latour, objects are always hybrids and exist only in their relations. However what Barad adds is an attentiveness to the ethical and political effects of particular sets of relations and how these come to be. Barad further develops this by saying the "apparatuses are the material conditions of possibility and impossibility of mattering: they enact what matters and what is excluded from mattering" (Barad 2007: 148). An apparatus is a sociomaterial means to constitute something as observable and meaningful. A feminist attentiveness to embodiment leads Barad towards Judith Butler's (1993) work (cf Haraway 1991, 1994). Butler's idea of performativity draws attention to the material, embodied and discursive practices which constitute subjectivity. However where Barad goes beyond Butler is to not limit this to human subjects, but recognize matter as co-constituting practices and apparatuses. Barad's stance is that because specific practices of mattering have ethical consequences, and thus exclude other kinds of mattering, onto-epistemological practices are always in turn "onto-ethico-epistemological" (ibid).

This feminist acknowledgement of the ethical and political effects is particularly relevant to this study. Whereas Latour *is* interested in how actants form alliances with other actants in their mutual elaboration, he often appears less interested in the effects of particular kinds of networks which have weak alliances. In his discussion of the French sociologist, Harman hints that Latour does not seem particularly interested in actants that are unsuccessful in forming alliances. Harman comments: "The more interesting distinction is between the deserving and the undeserving among both winners and losers" (Harman 2009: 49). In contrast, Barad remedies this with an attentiveness to what comes to matter, and her poetic linking of *matter* and *mattering*. Adding a Baradian attentiveness to the political and ethical dimensions of a sociomaterial arrangement, such as a service or social venture, highlights how design's discursive and semiotic practices co-articulate particular kinds of issue, in particular ways, with particular consquences. Her attention to locatedness prompts researchers to consider what possibilities are constructed, at the same time as other configurations are made impossible, and the consequences of this.

To conclude, a key ambiguity that arises in accounts of design, describing the object of professional design, can be addressed by drawing on work in STS/ANT. It allows a reconceptualisation of the object of design. If objects and humans come into being agential through their mutual intra-action, then the object of design can never be understood as a stand-alone artefact. The design of a shoe necessarily links that shoe to many other actors in the sociomaterial world in which that shoe will exist and it is through these alliances that the shoe comes to have its characteristics. As Binder et al put it

the properties and forms of entities (things, objects) are acquired in

relation to other entities, human as well as non-human... [T]hey are

performed and emerging" (Binder et al 2011: 14).

Returning to the original sources within STS/ANT adds greater depth to this

formulation. Research by Latour and Barad explains how co-articulation or intra-

action is not merely a way of seeing things as connected to other things. Rather,

STS shows how artefacts come to have properties and qualities through their

discursive and material intra-action. Further, Barad shows that how particular

arrangements come to be, is a matter of ethics. In the context of design for

services and for social innovation, political and ethical considerations are not

optional, but part of how sociomaterial design things come to be. In summary,

efforts to describe the object of design as creating artefacts, or creating change,

are both partial views. Rather, change results from the mutual intra-action of

objects as they form alliances with one another, through the unfolding of practice.

An example of what these concepts might mean for understanding design for

services comes from Paper 3, *Designing for Service as One Way of Designing

Services* (Kimbell 2011b). This paper makes a contribution to the emerging field

of service design, in a way that relates back to the arguments just presented. The

paper examines different ways of approaching the design of services, firstly

through a literature review in design and management fields, and through an

ethnographic study of professionals who call their work service design.

> The research found that the designers attended closely to a wide range of material and digital artefacts and practices within services. For these designers, a service is both social and material. They saw service as relational and temporal as value was created in practice. (Kimbell 2011b: 49).

Methodologically, the designers observed in this study "tried to represent the relational and temporal nature of service in visual form, for example by creating two-dimensional documents showing touchpoints in the customer journey (e.g., all cases) or as a service ecology visualized from a bird's eye view (e.g., Case B)." (Kimbell 2011b: 48). Although this paper focuses on service design, it highlights the enduring ambiguity at the heart of design that this section grapples with and similarly concludes that the object of design is not either material/digital or social, but all at once.

5.2.3 Remixing designs-in-practice

To further develop this argument, a related question must be addressed that shares the view that the sociomaterial world is performed through the intra-action of heterogeneous actants. The topic that now requires elaboration is how to conceptualise, in more detail, the ways social and material worlds are re-configured in practice, and how to relate this to concepts within design literatures. This section draws on Papers 1 and 2, which made use of theories of practice.

Rethinking Design Thinking: Part 2 (Kimbell 2012) highlights some of the main contributions from research that starts from looking at the sociomaterial world as constituted through practice. It outlines some of the important concepts in theories of practice, which offer a different perspective on the topic of studying design although it is important not to gloss over some of the contradictions between them (Reckwitz 2002). Other researchers are also exploring the concept that what designers are involved in constituting are new practices (eg Shove 2006; Ingram et al 2007). For example Scott et al (2012) introduced participants to concepts of practice in a study of bathing practices, and found it was a promising way to bring out opportunities for design interventions.

> Core concepts in theories of practice include bodies, minds, things, knowledge, discourse, structure/process and agency (Reckwitz 2002). For example Elizabeth Shove and Mika Pantzar (2005) describe the practice of Nordic walking as an interweaving of competence and skills (how to do Nordic walking), symbolic meaning and images (what it means to do it) and equipment (the material stuff that is part of doing it). While theories of practice may vary, there are however two important common ideas. Firstly practices cannot be considered by taking any one of these elements in isolation (Shove 2011; Reckwitz 2002). Secondly, practices are understood to be produced dynamically through the interplay of these diverse elements in relation to one another (Barad 2007; Shove and Pantzar 2005). Or as Carsten Østerlund and Paul Carlile (2005: 92) put it, "subjects, social groups, networks, or even artifacts develop their properties only in relation to other subjects, social groups, or networks".

(Kimbell 2012: 132)

The paper then moves on to offer a new way of thinking of the object of design as *designs-in-practice*, that is, designs as constituted materially and discursively.

> …this term acknowledges the emergent nature of design outcomes as they are enacted in practice. It takes the plural noun form of "design" which can mean the outputs created during a process of designing, such as blueprints, models, specifications and what is finally assembled in products and services. The term designs-in-practice draws attention to the impossibility of there being a singular design. (Kimbell 2012: 135)

If designers are not (just) designing objects, nor are they (grandly) designing for change, how can we deepen understanding of their sociomaterial things they help bring into view? The work of Lucy Suchman, a key contributor to debates about the relations between ethnography, design and use, offers a way forward. In a recent essay, drawing on Barad, Suchman picks up on the word *configuration* to sharpen an understanding of how the social and the material are constituted in practice (Suchman 2012).

Suchman links the term configuration with John Law's concept of method assemblage (Law 2004:84). She says "configuration as a method assemblage aims to articulate method in a way that opens received and/or congealed relations to being reenacted differently" (Suchman 2012: 58). As with Barad, a

feminist attentiveness to difference brings into view the ontological politics of different kinds of configuring, how some things come to be, and not others.

> Configuration…brings things together – at once reiterating the separate existence of the elements assembled, and drawing the boundaries of new artefacts. It alerts us to the histories and encounters through which things are figured into meaningful existence, fixing them through reiteration but also always engaged in 'the perpetuity of coming to be' that characterizes the biographies of objects as well as subjects. (Suchman 2012: 50).

One of the implications, Suchman, notes, is

> recognizing the contingency and incompleteness of artefacts … both in terms of a system's description (presupposing as it does 'hinterlands' that it does not, and could not, fully specify) and of its implementation (presupposing always further practices of design-in-use) (Suchman 2012: 56).

Not only are artefacts and systems ever incomplete, they can only be viewed partially. Acknowledging the multiple realities they bring into being, through configuring things differently, can also be a resource for understanding design instead of an attempt to offer a totalizing view from nowhere. Suchman's emphasis on boundary-work draws attention to what is inside and what is outside and how these come to be agential.

5.2.4 Summary: Changing-object-configurations

Earlier, this section highlighted a problem in how the object of design is understood. On the one hand, design is seen as primarily about giving shape and form to things, but on the other, others argue that design is seen as concerned with changing existing situations into preferred ones. This is evident in the ways that designers and researchers find it hard to make a case for the distinctiveness of service design and for design thinking in the context of social innovation.

My argument is that both ways of looking at design, are limiting. The analysis presented here suggests understanding the object of design as co-articulated in practice. Binder et al (2011) described the object of design as "sociomaterial design things". This section added detail to this formulation by emphasizing how configurations of objects and humans are performed in practice.

The challenge faced in describing the object of design in design for services, or design for social innovation is addressed as follows. Designing for services or designing within social innovation involves sociomaterial reconfiguring that can result in new practices, that is, configurations of artefacts and people, *resulting in changed meanings and identities, skills and procedures, and forms, capacities and properties*. The contribution made here is to centre on describing the relations between people and things in designing for service and designing for social innovation. Both are concerned with artefacts, which come to have their forms, capacities and properties, and with people, who come into having identities and skills, through particular procedures associated with particular meanings. Any

resulting change is co-constituted by the mutual intra-action of these various actants.

To conclude, I argue for conceiving of designing as concerned with sociomaterial configurations, understood as collective accomplishments that unfold in practice. Linking back to Simon's (1969) discussion of design, this can be seen as a description of change. The term *designs-in-practice* recognizes how designs stabilize through the collective co-articulation of different objects and people that come into being agential in relation to one another. Such designs – or, to use Barad's/Suchman's term, configurations – are entities that can be studied as to how they bring into view what is *inside* and *outside*, as Suchman suggests. Thinking temporally, they can also be studied by looking at differences between configuring differently what exists *then*, and *now*, or configuring *what is* and *what could be*. As Suchman highlights, only partial and incomplete versions of these configurations are available; there is no possible bird's eye, global external viewpoint. This configuring enacts multiple realities, which is to say that a designer's vision or ethnographer's analysis or an individual user's usage, is not the only thing that comes into mattering. But rather, the collective unfolding of design configures things differently for different actors, as sociomaterial things change, resulting in the opening up of particular relations, and the closing down of others through practices of including and excluding.

5.3 Doing designing

5.3.1 Reflective practices

Having considered the object of design, this section now turns to a second, related problem that continues to animate design practice and research. As Chapter 1 demonstrated, the emerging fields of design for services or design for service innovation have raised questions about the expertise that professional designers have and its distinctiveness in relation to the capacities and skills of others, particularly when configuring artefacts within services or co-designing projects oriented towards behaviour change or social impact. Paper 1 showed that the rise of the term design thinking over the past decade is associated with increasing interest from other fields, especially management, in how designers do design, accompanied by confusion about whether there is a core set of practices designers all enact. And yet confusion remains about what designers in the culture of design (Julier 2006) can contribute.

What is the nature of design expertise or knowledge and how is it distinctive from the work of others such as managers, or people engaging with sociomaterial design things? Or in the reductive version: how do professional designers, and others involved in designing, go about doing it? Answering this requires summarizing some issues from the literature reviewed in Chapters 3 and 4. Turning to resources based in STS/ANT, helps think differently about these questions. Drawing on this different conceptual apparatus dislodges some of the ways that design researchers have got stuck, and helps address some of

the challenges associated with describing the practices in the culture of design, whether enacted by professional designers or others. The chapter proceeds by remixing these concepts along with research from Papers 1-3. What results is a way of seeing designing as a practice that proceeds through inventiveness, ignorance and opening up possibilities, which is distinctive, although not exclusive, to designers' culture and is a resource for constituting new sociomaterial configurations.

Chapter 3 and Paper 1, *Rethinking Design Thinking Part 1* (Kimbell 2011a), offer accounts of research within design studies, that aims to describe what designers do and how they think. These include "designerly ways of knowing", treating all problems as ill-defined, even if they are not (Cross 2006; 2011). Attempting to explain designers' tendencies to generate new solutions, researchers have emphasized abductive reasoning (Cross 1982; Martin 2009; Dorst 2010). Dorst (2006) noted that since a designers' understanding of a problem shifts during a design process, other concepts might be better employed, suggesting instead that designers construct designs that transcend or connect paradoxes. Michlewski's (2008) interview-based study of the culture of designers lead to identifying five distinguishing characteristics: consolidating multidimensional meanings; creating, bringing to life; embracing discontinuity and open-endedness; embracing personal and commercial empathy; and engaging polysensorial aesthetics.

One contribution to explore in more depth is Schön's (1983) description of the reflective practitioner. This has become an important touchstone for

practitioners of several kinds including designers, and for researchers trying to understand designing. Drawing on Dewey's work on inquiry and experience, Schön brought into view the ways that practitioners step back to review what is going on. Their *reflection in action* allows them to make judgements about their work so that they can proceed with the matter at hand. Their *reflection on action* when they are not in the moment of doing work, guides them to consider what is shaping their work and look at factors that shape it.

While this work is undoubtedly productive for designers and researchers, it rests on important unspoken assumptions within much design research. This is that designers are individuals. In this and other work (eg Argyris and Schön 1978), Schön highlights the social nature of how individual practitioners come to make decisions, but my reading of reflective practice is that it relies on a human-centred, atomistic model of the social. In Schön's analysis, the materials "talk back" to the practitioner, but we do not get to see the detail of what this does to the practitioner – how he or she is changed. In Latour's terms, the designer remains a black box (Latour 1987: 81-82) that is never opened up. In Schön, we see the effect on the process of doing the work but not its effect on the practitioner and how she is located. The practitioner remains a bounded individual into whose world we do not pry further.

More recent work within design research combined with research in CSCW, Participatory Design and STS/ANT departs from this, as Chapter 4 demonstrated. Instead of thinking of designers as individuals and objects as discrete, bounded entities, researchers proposed seeing design projects as sociomaterial worlds in

which designers, researchers, users and the objects of design interact. A recent articulation of the shift towards a different way of thinking of design practice is by Binder et al (2011). Binder et al propose a "deconstruction" of the individual designer and the object of design. "This deconstruction begins, following Heidegger (1971), with the *things* themselves, or more specifically in our case with sociomaterial *design things*" (Binder et al 2011: 6, emphasis in original). In their description of how designers' expertise comes to matter, they talk of how design proceeds through alignment, navigation and expansion between and among the constituents (Binder et al 2011: 51-77).

As Papers 1 and 2 demonstrate, my contribution to rethinking how to describe designers' expertise and knowledge, within the design studies tradition, is to highlight the activity of design as a social accomplishment. This shifts from understanding designers' working as a matter of individual skill or cognition, to a relational agency. Introducing a new term, *design-as-practice,* extends others' research into the cultures of designers (eg Bucciarelli 1994; Henderson 1999; Julier 2006; Shove et al. 2007).

> Design-as-practice mobilizes a way of thinking about the work of designing that acknowledges that design practices are habitual, possibly rule-governed, often routinized, conscious or unconscious, and that they are embodied and situated. What designers know, do and say is constituted by and co-constitutes what is possible for designers to do, know and say (and what is not possible for them in particular places and at particular times). An attentiveness to practice orients the researcher to

> how knowing, doing and saying constitute and are constituted in relation to other elements of a practice. (Kimbell 2012: 135)

What this does is relocate the conversations about designers and their reflective practices or their design thinking, so they are not seen as individuals with expertise. Instead they are seen as enacting a collective practice that comes into being through the intra-action of the different elements of a practice described earlier – bodies, minds, things, knowledge, discourse, structure/process and agency (Reckwitz 2002).

The section that follows investigates the possibilities that emerge from extending this trajectory. This draws on work in STS/ANT on ignorance and public experiments, and on inventiveness and inventive methods. Here, ignorance is seen as productive for design practice, and links to a mode of experimentality. Instead of producing more knowledge, design's practices are seen as constituting new sociomaterial configurations, which result in more ignorance and surprise (cf Gross 2010). This ignorance relates to another aspect of how designing unfolds. In contrast to a view of design that sees designers' intentions and motivations as paramount, a sociological approach highlights how practices open up possibilities rather than being determined by designers. As Barry puts, it

> invention should not be equated with technical change, but with forms of practice which serve to open up rather than determine possibilities for further thought and action (Barry 2001: 33).

Using an inventive practice perspective brings into view the methods that have developed within design culture. Turning to Lury and Wakeford's (2012) discussion of *inventive methods* highlights the *excess* they generate. This offers a way for people wanting to understand designerly practice, to talk differently not about what designers know, but what they don't know and why this is generative.

5.3.2 Productive ignorance and experimentality

This discussion starts with a discussion of ignorance. It may be counter-intuitive to discuss designers' expertise and knowledge by exploring what they *don't* know, but doing this offers something useful to current debates.

Buchanan (1992) argued that designers work with a "quasi subject matter" because they work with the particular and specific, rather than the general. His account of design thinking emphasizes design as a pragmatic enquiry, which proceeds through engaging with the situation at hand, rather than imposing a pre-determined structure or pre-existing knowledge on to it. This seems to suggest – although Buchanan does not quite say it – that it is designers' *lack* of knowledge that enables them to proceed even in terrains in which they might reasonably not have much recognisable expertise and where they now have ambitions to work, such as chronic disease, policy, or humanitarian challenges. This certainly seems to be the claim of the UK Design Council (2012) which has set up several design challenges in which designers are invited and funded to

work in response to issues such as behaviour and safety in emergency rooms of hospitals.

Similarly in the famous ABC Nightline TV programme in which a team from consultancy IDEO redesigned a shopping cart in five days, co-founder David Kelley says "The point is we're not actually experts at any given area. We're kind of experts on the process of how you design stuff." (ABC 1999). Elsewhere Kelley has referred to design as "glue", an activity that holds together a diverse set of interests and knowledge and brings them into relation with one another (van Patter 2005). A more academic version of this, which perhaps influenced Kelley (since the author was writing about IDEO), is by Andrew Hargadon, who describes designers as "knowledge brokers" (Hargadon and Sutton 1997). The designer-maven is recognisable not so much for what s/he knows that is core to her/his professional work, but what s/he *doesn't* know, and by her/his ability to pick up knowledge and weave it together.

Research in science studies helps open up understanding of this capacity. The finding of this research is how scientists produce knowledge as a collective process that is in relation to publics, rather than as described as progressing through paradigm shifts (eg Kuhn 1962). But far from simply producing new knowledge, they also produce ignorance.

Several strands of STS research have explored the idea of public experimentation and how the sites for conducting experiments are now not just institutionalised science but also other kinds of public context. For example Simon Schaffer's

(2005) work on the history of science revealed how what people now call the "scientific" method became accepted by developing research methods that required being done in public. Shapin and Schaffer's (1985) history of the development of experimental science in 17th England with a focus on the air-pump, showed how the scientific method emerged as something that was constituted discursively, socially and materially. Shapin and Schaffer argue that Robert Boyle and other experimental scientists believed that the foundation of proper knowledge was through creating experimental facts.

> A crucial boundary was constructed around the domain of the factual, separating matters of fact from those items that might be otherwise and about which absolute, permanent, and even 'moral' certainty should not be expected. (Shapin and Schaffer 1985: 24).

Boyle's experimental method involved creating new artefacts (the air pumps) as well as new discursive and social practices that could be mobilized to generate assent.

Another strand of science studies has also produced concepts that help illuminate what is going on in knowledge production. In his case studies of ecological projects such as the revitalisation of post-industrial brownfield sites, Gross has shown that, along with new knowledge comes – perhaps unexpectedly – more ignorance. His research demonstrates the advantages of allowing for surprises and including ignorance in design and negotiation processes. "If this is the case, handling ignorance and surprise becomes one of the distinctive features

of decision making in contemporary society" (Gross 2010: 1). One implication is that "uncertainty is not residual but immanent, or – to put it more flippantly – a feature, not a bug" (Bærenholdt et al 2010: 9). But while surprises and ignorance can be seen as accompanying knowledge production, this does not serve all actors equally. For example, McGoey (2012) proposes seeing ignorance as something that can be harnessed as a resource, enabling knowledge to be deflected, obscured, concealed or magnified in a way that increases the scope of what remains unintelligible, in particular for those in positions of power.

Moving beyond studies of science, others have argued that the idea of experimentation is now to be found in many other non-science contexts including art galleries (eg Macdonald and Basu 2007), public dialogues (Wynne and Felt 2007) and homes (eg Marres 2009). These new sites for experimentation are not just concerned with *producing* knowledge, but rather result in changes to how the sociomaterial world is understood and practiced.

> [T]he introduction of new techno-scientific objects to society involves much more than the addition of new knowledge and things to social life. It requires the reconfiguration of the wider social-material relations among which the new object is to be accommodated (Marres 2009: 119).

Two specific examples are relevant to the present study. The first is the use of art galleries and museums as sites for public experimentation, as discussed in a collection of essays edited by Macdonald and Basu (2007). Their examples include Latour's two interdisciplinary exhibitions *Iconoclash* (2002) and *Making*

Things Public (2005) (Latour and Weibel 2005)[7]. Basu and Macdonald (2007: 2) suggest that "the realms of experiments and exhibitions are not that distinct". For them, an exhibition is also a site for the generation rather than reproduction of knowledge and experience. Galleries and museums are re-imagined as a space of encounter rather than one of representation. Such experiments ask

> how to engage with complexity, how to create a context that will open up a space for conversation and debate, above all how to enlist audiences as co-experimenters, willing to try for themselves (Basu and Macdonald 2007: 16).

A second example is the "green living experiments" studied by Marres (2009; 2012), which provide another example of non-professionals involved in conducting public experiments. Such experiments tend to involve the meticulous recording and reporting of everyday practices, the attempt to change them, and the consequences of such attempts, in various media, by someone living in and writing about their attempts to live more sustainably in the home. As a kind of research, green living experiments cannot be said to perform the same tasks as object-centred sociologists, that of describing sociomaterial relations, says Marres. This is because their accounts have little to say about inescapable features such as energy infrastructures, landlords, or regulatory arrangements. Instead, they tend to highlight sociomaterial relations that can be reconfigured

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[7] My installation created in collaboration with sociologist Andrew Barry, *Personal Political Indices* (Pindices), was shown in *Making Things Public* (2005).

through individual intervention, by switching appliances off or installing saving devices (Marres 2009: 125).

Nonetheless Marres claims such living experiments are a resource for social researchers because they provide a format or "protocol" for exploring and testing forms of life; exploring collective practices of researching social and cultural change, as engaged in by actors who do not necessarily identify themselves as social researchers; and because they can be taken as a challenge to social scientists to come to terms with particular social and technological changes that are currently affecting social research (Marres 2012). By describing the objects and habits that make up everyday living, these experiments aspire to bring into view the environmental and social consequences of everyday living. Further, they highlight a relation of dependency between the objects of public experiments and their publics (Marres 2009: 119).

The interesting result of such research is not that experiments produce new knowledge. Rather, as Shapin and Schaffer, Macdonald and Basu, and Marres, have shown, the work of doing experiments is concerned with bringing into existence new kinds of sociomaterial configuration, which constitute publics and bring the implications of new developments into view. Further, as Gross has argued, along with knowledge, comes more ignorance and more surprises. Together these studies point to the dynamic interplay between knowledge, ignorance and publics.

This suggests that at least potentially, designers' professional ignorance is not something to downplay. Instead, the conditions that give rise to this ignorance and the capacity for ignorance to become available to the senses and for people designing to engage productively with this, suggest re-thinking it as something to appreciate and mobilise. Linking research in design studies on design methods and designers' knowledge of the particular, with ideas of experimentality and ignorance from studies of science, points to seeing the lack of knowledge within designers' practices and cultures, as generative. What this means for the present study is that designing can be thought of as creating public experiments through discursive, social and material practices that create temporary forms of sociomaterial life. As community-based research such as the Malmö living labs (Björgvinsson et al 2010, 2012) suggest, such experiments can make manifest new kinds of sociomaterial configuration in practice, without downplaying the agonism that is part of how such relations are constituted. Such experiments involve and mutually are constituted with their publics in so doing, rather than producing knowledge for them. But alongside any knowledge also comes ignorance and surprises, which may benefit some actors only.

This helps recast some of the claims made by those using design approaches in the context of social issues through methods such as collaborative and cross-disciplinary works involving participants and diverse social actors as many service and social designers do (Design Council 2012). Rather than producing ideas or knowledge for a new service or a social enterprise, such workshops can play another role, which is creating new kinds of sociomaterial configuration, introducing new kinds of actant into configurations, marking out boundaries of

who is in or out as a contributor or constituent, and questioning claims to knowledge and authority among actants. New configurations are performed into being through the productive ignorance of design-as-practice.

Thus far, this discussion avoided going into detail describing what designers do at specific times and places, other than with reference to my publications. But the next section starts with a focus on what happens in designing, to bring into view how this ignorance is generative.

5.3.3 Inventive methods and excess

Any discussion on methods in design has to pay homage to the long tradition in studies of design, at least those conducted inside design schools, of describing designers' methods. This section briefly reviews what is usually called the Design Methods movement from the 1960s onwards. It starts with an overview of some influential methods used in design work, and then moves on to situating these within a wider context, as sociology and anthropology have turned renewed attention to methods. Finally Lury and Wakeford's concept of inventive methods (2012) is introduced, which helps clarify the possibilities that emerge in the encounters between design methods and the publics in relation to which they are deployed. In particular their discussion of the *excess* of inventive methods helps make clear how design-as-practice can reconfigure sociomaterial worlds and bring these new arrangements and practices into view.

The Conference on Design Methods of 1962 (Jones and Thornley 1963) is often cited as a key historical juncture for design studies and design theory (Buchanan and Margolin 1995; King 1995). Here was a group of people mostly working in design firms and design schools, rather than in university departments, grappling with articulating knowledge about designers' work across their different specialisms and for some of them at least, trying to mark it out as something distinctive. One way to do this was by describing the design process and designers' methods and making them more explicit, although for some this effort veered too close to trying to proscribe them. The emblematic text here is by John Chris Jones. His *Design Methods*, still in print, was originally published in 1970 and reading it today still results in recognition among designers. The argument embedded in Jones (1992) was that with increasing complexity brought about by increasing industrialisation and changes in consumer behaviour, designers needed to use a great deal of information and be more self-conscious of their ways of working to improve the quality of their design work. Its pages include topics on exploring design situations, generating ideas, exploring problem structures, and evaluating designs.

Some of the key people, including Jones and Alexander, involved in these debates later rejected a focus on *rational* methods:

> We sought to be open-minded, to make design processes that would be more sensitive to life than were the professional practices of the time. But the result was rigidity: a fixing of aims and methods to produce designs that everyone now feels to be insensitive to human needs. Another result

was that design methods became more theoretical (Jones, quoted in Mitchell 1992: ix).

Reviewing Jones' later poetic book *Designing Designing* (Jones 1991), King (1995) argues that Jones later developed a view of design processes and methods as concerned with the stimulation of collective human creativity, open to chance as much as tasked with making research useful to designers.

Within design research there remains interest in describing approaches that shape professional design work. Design studies shifted towards investigations in design thinking drawing on cognitive science, including studying designers working on projects (eg Cross 1982; Lawson 1997). Alongside this, practitioners tackling particular issues also publish their description of methods (eg IDEO 2012; Stickdorn and Schneider 2010) and sometimes there is traffic between the worlds of academic and practice. Chapter 1 showed the plethora of toolkits for design for services and for social innovation that have emerged in the past decade.

It is worth going into more detail by describing two methods associated with recent design practices, in particular those operating in close relation to social and cultural research. These are: personas and cultural probes. Each is introduced and linked with developments in social research methods.

The first method discuss is creating "personas", versions of which appear in numerous toolkits for design. This first emerged in designing for computer

systems (Grudin and Pruitt 2002). Initially shaped by efforts to build psychological profiles of potential users of a new technology, the method has also been used to explore and then summarise the characteristics of individual potential users. Although rooted in psychology, the persona method has been reworked to create users as micro-social actors understood as being located socially and culturally. However the way such artefacts are used in practice suggests a more complex trajectory for users and for others. For example Wilkie's (2010) PhD thesis includes an ethnographic study of the method of creating personas within design work, specifically a global manufacturer of computer components. His analysis shows how the user persona is not a stand-alone object used in design teams, but exists within a wider user-trajectory that resources the work of such teams. Using Law's (2004) concept of a method-assemblage, Wilkie shows how user-assemblages resource design work. For example in one case the persona brought into view a "non-user" which shaped the developing proposition.

The second method is cultural probes, which like personas, has been taken up in many different kinds of designing. Initially developed and described by Gaver et al (1999) in the context of technology design and human-computer interaction, the method of creating and using cultural probes has been adopted widely among designers working within interaction design and service design. A "probe pack" might contain several items using different media technologies for research subjects to engage with, often at home, out of the presence of the researcher, and then give back to the researcher. These could include disposable cameras with a list of photographs to take; a map asking the person to note

particular sites of meaning; or a notebook with instructions for the person to record particular kinds of impressions.

Gaver et al (2004) describe how they developed this method to engage with people to trigger inspiration for design, but note how others are now using the method to gather data. They describe the value of this method to them as being about holding a place for uncertainty, not as a kind of data gathering. More recently Boehner, Gaver and Boucher et al (2012) have emphasized the tactile and situated nature of probes and again asserted the motive of inspiring new ideas, rather than understanding existing practices. Further – and more interestingly – Boenher et al argue that using probes "would entail embracing provisional understanding, subjective engagement, particularity and ambiguity not only in the process of research, but in its presentation as well" (Boehner, Gaver and Boucher et al 2012: 200). The researchers' position seems to offer a resistance to the idea of data-gathering, to advance knowledge for doing design work, Rather they insist on not knowing much about users, emphasizing instead the opening up of new possibilities for engagement and interpretation.

These brief descriptions of some influential design methods show how, far from being techniques that designers deploy to increase certainty about what they are designing, can serve to open up questions about the expertise of designers and their capacity to know the world they are designing for and in. To think about this, it is useful to turn to social science traditions where there is recent discussion about methods for social and cultural research in the contemporary world. For example within anthropology (eg Russell 1999; Grimshaw and Ravetz

2005; Schneider and Wright 2006; Pink 2007) and sociology (eg Law 2004; Thrift 2008; Büscher et al 2011; Adkins and Lury 2011), researchers have tried to grapple with the extent to which "their" methods for capturing or describing social worlds are useful, productive or even clearly the monopoly of those working within academic disciplines, and what the material practices of other domains such as art and design offer. For example Adkins and Lury (2011: 5) situate their introduction to a special issue on changing conceptions of the empirical in sociology within a "crisis created by the expansion of data relating to the social world by researchers (and technologies) outside the university". Many of these researchers have turned to other fields such as design and the arts, to understand how these fields produce practices which resemble socio-cultural research methods.

To find a way to think through the ways that methods in the cultures of designers have this capacity, it is worth turning to a recent description of *inventive methods*, which has something additional to offer. In their introduction to their book of this title, Celia Lury and Nina Wakeford (2012) describe the characteristics of inventive methods that are oriented towards making a difference in the sociomaterial world, not (merely) to studying or attempting to represent it.

The first thing they point out is that, for Lury and Wakeford, inventiveness does not equate to *newness.* As Barry (2001) similarly argues, inventiveness is better understood as reconfiguring relations with other actors and opening up possibilities.

In short, just because an object or device is new does not make it an invention. *What is inventive is not the novelty of artefacts and devices in themselves, but in the novelty of the arrangements with other objects and activities within which artefacts and instruments are situated, and might be situated in the future.* (Barry 2001: 211-212, emphasis in original).

Lury and Wakeford's edited book is a collection of methods, devices, and patterns discussed from a range of disciplinary perspectives, some with a long history. The authors characterize the inventiveness of methods as found in

the relation of two moments: the addressing of a method – an anecdote, a probe, a category – to a specific problem, and the capacity of what emerges in the use of that method to change the problem. It is this combination, we suggest, that makes a method answerable to its problem, and provides the basis of its self-displacing movement, its inventiveness, although the likelihood of that inventiveness can never be known in advance of a specific use (Lury and Wakeford 2012: 7).

Continuing, Lury and Wakeford note the *uncertain but not unorganized* relation between the action of a method and its effects (Lury and Wakeford 2012: 9; italics in original). Lury and Wakeford identify what they believe to be a changing relation between the sensible and the knowable in the contemporary

social world. Like others such as philosopher Jacques Rancière[8] (2004), they highlight how the sensible and the knowable are intertwined, bringing into view the importance of the sensory and the material in social research, not as merely something to be studied, but as active co-constituents of social life. Lury and Wakeford claim that inventive methods offer an affordance or grasp on this world. They argue that inventive methods

> make it possible to address the complex relations between the sensible and the knowable by deploying what Serra calls 'the logic of materials,' and thus have different affordances of generalization (Lury and Wakeford 2012: 11).

This acknowledgement of the sensible and the material marks out inventiveness as such methods bring with them an "excess of specificity that is always present in the actual by making a relation to elsewhere as they make themselves" (ibid: 12).

It is Lury and Wakeford's notion of *excess* that helps clarify the distinctiveness of design-as-practice.

> …the excess that comes from the internal non-cohesion of the set within itself, from the irreducibly unstable relations between the parts that belong and the elements that are included … sometimes this is

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[8] For a discussion of the French philosopher Jacques Rancière see Beyes (2008) and Kimbell, L. (2011).

quantitative excess, the excess of data generated in transaction data sets,

but it can also be the excess of sensory plenitude, of the non-

representational and the more-and-less-than-rational. Grasping this

excess, configuring it, is one of the principal sources of a method's

capacity to be inventive, a capacity that can only be enhanced by the use

of the material-semiotic properties of material and media to expand

relations between the sensible and the knowable. (Lury and Wakeford

2012: 21).

Lury and Wakeford's focus on the non-representational, the material and the

sensory, links with the discussions on the role of representations of social and

cultural research discussed in Chapter 4. What Lury and Wakeford offer is a way

to shift the conversation away from the objects, or from designers and *their*

methods, or researchers and *their* methods, and how these might support

(provide grounds for) or challenge each other's work, as in doing research *for*

design, or studying practice after design. Instead, drawing from Lury and

Wakeford's work opens up the possibility of an inventive practice perspective on

designing, which highlights how methods configure differently the sayable and

the knowable by offering an excess of data, a sensory plenitude, that *expands*

what is there, not just studying it or describing it. The point here is that in

design-as-practice, the addressing of a method to a problem can lead to

unforeseen results that lead to changing that problem. This results in bringing

new actants or constituents into the sociomaterial configuration being

performed or brought into view. A method and its publics co-emerge and, along

with these, there is an excess of data, or the sensory, which can disrupt the established relations between the sayable and the knowable.

5.3.4 Summary: Design's ignorant excesses

To conclude, this section clarifies how these ideas contribute to issues in design research that were highlighted above. Researchers within several traditions have tried to understand designers' knowledge and methods; several have made claims about these being distinctive. Within design for services and for social innovation, the production and dissemination of "methods" and "toolkits" has been part of the early development of these fields. The importance of design methods continues to animate discussions among practitioners and those working in related fields, such as management. As design practitioners have moved out the studio and now work in relation to services, social innovation and policy, some researchers have reached out to social and cultural research traditions to analyze what is going on. Instead of studying an individual designer and his thinking based on models of cognition, another way of looking at a designer is seeing her as enacting a sociomaterial practice.

This section has added depth to this, by proposing conceiving of *design-as-practice*, using resources within practice theories and STS/ANT. The first idea to be mobilized was that experimental work produces ignorance, which offers ways to rethink claims about designers' knowledge and instead see designers' focus on the particular, and their disciplinary ignorance, as a collective inventive capacity. The second move drew out analyses from science studies, which found that

during experimentation, a public co-emerges with the methods and knowledge that are produced. This emphasizes the mutual relations that designers and their sketches, prototypes and other objects have with the publics constituted in their professional work, which can be seen as a kind of public experimentation.

Thirdly, discussions of inventiveness in Barry (2001) and Lury and Wakeford (2012) emphasise the opening up of possibilities, rather than designs being determined by designers. Lury and Wakeford (2012) highlight the *excess* resulting from the instability between the constituent parts of a configuration, and the material-semiotic properties of materials and media and their capacity to expand relations between the sensible and the knowable in sociomaterial reconfiguring. This points to the inventiveness of design-as-practice not simply as an attribute of individual people's creativity, or of an object, but as a collective practice in which non-human materials and objects play a part in exceeding their current relations. Further, there is never a singular design method, such as creating personas or cultural probes. Rather, within designing, the production of methods is specific to particular places and times, resulting in particular configurations. This is where design-as-practice connects back to designs-in-practice, and where the STS/ANT literature connects with interest among researchers in describing designers' practices. Together, these concepts offer an inventive practice lens on what is going on during designing. There is less focus on the designer and what goes on inside her head or in her reflective practice. Instead, this lens on designing emphasizes how the relations between people and things are constituted relationally in practice.

5.4 Remix: An inventive practice perspective on designing

To attempt to draw this all together requires a final move. It is here where the approach of remixing my own writing with that of others, in the slow (re)writing of this thesis, must result in a piece of text that will end up as disciplined and stable on the page. Although this text will be open to future re-interpretations, this next paragraph requires me to make clear here and now, what I think, and how it relates to the expanding field for design introduced in the first chapter. It is also where I must locate myself.

Combining literatures in design studies, CSCW and PD with research in STS/ANT has shown that design can be re-thought as an active, collective unfolding of the social and the material through which change happens and new configurations come into being, which exclude other configurations. This lead to proposing an inventive practice perspective, based on the mutual constitution of heterogeneous actants during designing. Here, the pair of terms design-as-practice and designs-in-practice, emphasize a collective imaginative and analytical endeavour that brings into view new sociomaterial configurations.

Viewing design through an inventive practice perspective, emphasizes how changed configurations of the social and the material, as people, things, structures, identities and habits are constituted and come into being agential in practice. It does not privilege the human, or the object, but rather acknowledges the mutual intra-actions between actants as they come into being material and social, producing new meanings and identities, skills and procedures, and forms,

capacities and properties. It acknowledges the multiple realities that may co-exist and interrelate in any reconfiguring work, highlighting the actors' locatedness, particularity and mutual accountability, but without imposing a single narrative. It recognises how particular accounts become privileged through activities of including and excluding, and how these are enacted within particular temporalities.

This is a version of designing, understood as a collective practice of creating and mobilising inventive methods that serves to bring into view, and act on, the sociomaterial world in novel ways that are contingent, and specific to particular times and places, and which trace particular paths, but not others. Instead design-as-inventive-practice finds ignorance about a particular configuration as productive, because inventive methods enable excess. They generate possibilities and trajectories that could not be anticipated, which figure a sociomaterial world differently into view, without aiming to create any totalising representation of it. The notion of inventive methods highlights how methods address particular problems, but can also productively disrupt relations between the sayable and the knowable.

This conceptualisation of designing focuses on the relations between people and things and is particularly relevant to the design for services and design for social innovation. It resolves issues in design literature about the object of design which raises problems for design for services and social innovation. The tension between a historic focus on objects, or on design being seen as about making change happen, becomes less important by acknowledging how designs coming

into being through the mutual intra-action of diverse actors, which come into having meanings and identities, skills and procedures, and forms, capacities and properties. A second contribution to the emerging fields of design for services and for social innovation comes from the idea of inventive methods, which shifts from seeing design thinking as concerned with design professionals and their skills and tools, and moves towards designing as being a wider set of practices in which diverse actors are involved and through which they come into being mutually accountable to one another, and which unfold over time.

The next chapter goes on to make clearer what this approach offers as a way forward to current questions and issues in fields of design practice, especially in design for services and design for social innovation. That chapter is not merely the equivalent of "implications for design" (Dourish 2006), staging theoretical research as something that pre-figures the practical enactment of doing designing. Instead it serves to translate this proposal describing an inventive practice perspective on design, into wider conversations about the role of design in the world and in particular design for services and social innovation.

Chapter 6   Remixing design-as-inventive-practice

6.1 Introduction

The previous chapter proposed attending to how designing unfolds within material and discursive practices resulting in new configurations of people and objects. The wider purpose is to address issues in understanding what is going on in the design of services and designing for social innovation. Although it drew on empirical research grounded in theories of practice, that discussion was abstract. This chapter brings the discussion back to the two emerging design fields introduced in Chapter 1, and shows how they can be analysed productively through the concepts introduced in Chapter 5.

Thus this chapter is a further elaboration of an inventive practice perspective on design through the pair of concepts, designs-in-practice and design-as-practice. This chapter develops arguments made earlier, in three ways. First, it offers a summary, or remix, of arguments developed in Chapter 5. Second, it explores their usefulness by applying them to recent accounts of designing in two case studies. Thirdly, it presents a discussion as to whether the concepts developed in this dissertation can be productive, and to specify in what ways they are.

The first case that is re-analysed through the perspective of inventive practice is a study of the use of service design approaches within the commissioning and design of healthcare services, undertaken by researchers at Lancaster University

(ImaginationLancaster 2011). The second is a re-writing of an account of using a design-based approach to designing services supporting older people in which I was involved (Kimbell forthcoming). In each case, the authors' research is summarised, and followed by an analysis that mobilises the concepts discussed in the previous chapter. Each of these discussions is therefore a remix of the core ideas advanced in this dissertation, by trying them out.

The aim of doing this is to explore if, and how, these concepts open up understanding of designing for service and designing for social innovation. This will also include for each case a speculative discussion about how this might have provided shortcuts for the project, if participants and researchers had explicitly adopted the inventive practice perspective. Arguably, the way the projects were carried out and analysed include some of the concepts associated with the inventive practice approach. So the argument here is not that the inventive practice perspective is entirely new. Rather, the question is whether the concepts developed in this dissertation can open up new possibilities, which could provide shortcuts to illuminate what was going on in such designing. In short, what follows describes an evaluation of these concepts, to see if they are productive, and concludes with a summary of what they offer.

6.2 Design-as-inventive-practice: The remix

This section offers a re-writing of the arguments advanced in Chapter 5, with the aim of making them productive in analysing recent accounts of service design and design for social innovation. To think through what such a re-writing (for the author) and re-reading (for the reader) might involve, it is useful to return to the concept of remix, an activity that appears in many parts of contemporary life, that was introduced in Chapter 2.

Conceiving of rewriting other people's work, or rewriting my own, as a kind of remixing opens up possibilities. The re-mixing in this section of the concepts set out in Chapter 5, is not merely a précis, a summary, or an overview. It involves rewriting, appropriating, referencing and incorporating new materials. The concept of remixing stimulates awareness of how the activities of textual recombination, adding features from other genres, result in new works. It prompts an attentiveness to how artefacts such as book chapters, journal or conference papers, blog posts, tweets, or PhD files, circulate and how legal and institutional practices, such as those of the academy, engage with them. By re-writing two pre-existing cases and thinking of this as remixing, provokes an interest in similarities and continuities as well as difference and the material, social, and cultural histories of each of these artefacts (cf Borschke 2012). In what follows, the concepts developed in Papers 1, 2, and 3 are reworked in relation to research within STS/ANT described in Chapter 5. This results in a conceptualisation of designing that addresses some of the challenges in

understanding designing for service and designing for social innovation outlined in Chapter 1.

The first step is to elaborate concepts and arguments developed in the previous chapter. Below, Figure 6 shows the two intertwined perspectives of inventive practice, designs-in-practice and design-as-practice, which were first introduced in Paper 2. These perspectives each offer a different analytical focus on an aspect of designing.

The perspective of *designs-in-practice* brings into view how designs, understood as sociomaterial configurations, come into being agential, producing new meanings and identities, skills and procedures, and forms, capacities and properties that emerge in practice, sometimes in unexpected or unforeseen ways. (Re)configuring designs-in-practice can be done unwittingly or consciously, as part of design-in-use or through design-as-practice, which shape and are shaped by sociomaterial practices. The perspective of designs-in-practice recognizes the actants and their mutual relations, expands sensitivity to lack of knowledge, and unfolds as existing possibilities are exceeded, creating new accountabilities and particular temporalities.

An example comes from Paper 2, which describes how the pharmacy assistant laid out the test kit for the smoking cessation service in a particular way on her desk. Over some weeks she had developed embodied knowledge of ways of doing the saliva and blood tests with customers, and gathering personal data from them. Doing these activities in a particular sequence reconfigured the

design of the kit, her interactions with customers, and her own work as efficient within the constraints of a busy pharmacy. Analysing the sociomaterial configuration around the test kit, the perspective of design-in-practice is attentive to the actants involved, and the resulting new identities and capacities, for example, how the assistant is configured as an efficient deliverer of a service, and how customers are configured as engaged productively in the unfolding of the service.

The perspective of *design-as-practice* is attentive to how designing takes place as people and objects come into being agential, producing new meanings and identities, skills and procedures, and forms, capacities and properties, and attempts to guide, facilitate and prompt particular kinds of configurations. Design-as-practice involves the unintentional or conscious (re)configuring of actants resulting in new possibilities, which remains open to emergence and how practice unfolds. Design-as-practice recognizes the actants and their mutual relations, expands sensitivity to lack of knowledge, and unfolds as existing possibilities are exceeded, creating new accountabilities and particular temporalities.

Again using an example from Paper 2, describing the designers' work in the studio, this perspective is attentive to how the human and non-human actants mutually constitute the capacity for design work to unfold and what results during this. It recognises that there are hidden pockets of ignorance to find and make use of as well as the capacity to produce knowledge about what was previously unknown. This example uses professional designers but design-as-

practice can be seen as a collective activity which many actants constitute together, which tries to configure particular kinds of emergence.

Designs-in-practice	Design-as-practice
The meanings and identities, skills and procedures, and forms, properties and materials, which emerge and stabilize as agencies are intra-acted in practice.	The meanings and identities, skills and procedures, and forms, properties and materials, which emerge and stabilize during intentional or unconscious designing that tries to configure particular kinds of emergence in practice.

Figure 6   Two perspectives within design-as-inventive-practice

Within the two perspectives of designs-in-practice and design-as-practice, five key emergent characteristics can be conceptualised by remixing the theoretical resources described in Chapter 5. These are each discussed in turn and summarised below in Table 4.

Intra-action. Barad's term *intra-action* highlights how the social and material dynamically come into being in practice. Rather than adopting the common term *interaction*, following Barad, the use of the term intra-action insists on the multiple points of engagement among and between actants as practice unfolds. As Barad argues, the discursive and the material are intertwined. Actants can include diverse artefacts, animals, trees, clouds and people, but also institutions

and concepts. Within Barad's work, a focus on matter brings into view the particles that constitute materiality as part of the co-articulation of the sociomaterial configurations. Within STS, actants can be the mundane objects of daily and organizational life such as chairs, tea bags, buttons, and questionnaires, but also job descriptions, policies and PDFs of strategic visions. "Users" and their "needs" or capacities are also emergent characteristics of designing. As Suchman has shown, marking out the components involved in a configuring a sociomaterial assemblage involves doing boundary work: deciding what it is inside and what is outside, offering only partial perspectives. Thus a practice lens on designing requires acknowledging how a sociomaterial thing, and a process of designing, are both made up heterogeneous actants dynamically constituted in relation to one another.

The implications of conceptualising the social and the material as a continually emerging effect are to shift thinking away from objects-in-themselves or indeed designers-in-themselves. Instead, rethinking design through intra-action requires recognition of the multiple others engaged in designing, and how new their mutual reconfiguring results in new meanings and identities, skills and procedures, and forms, capacities and properties. The perspective of designs-in-practice allows a focus on how new configurations stabilize, temporarily. The object of designing is understood as sociomaterial reconfiguring in practice, that is emergent, and can never be fully specified. The perspective of design-as-practice enables recognition of the diversity of actants arising in designing.

Inventiveness. When rethought through theories of practice, the inventiveness of designing is understood as a situated accomplishment emerging from the intra-action of various human and non-human actants, not as being qualities of individual humans, organisations or objects. Inventiveness is not the same as novelty. A perspective on inventiveness involves recognition of how design methods result in an excess of data, or affect, or the sensory, that reshape configurations beyond what was known or thought to be possible, resulting in unexpected consequences, which cannot be specified in advance. The perspective of design-as-practice emphasizes the collective work done by heterogeneous actants during designing, including the institutional stories and meaning, skills and competences, and materials and objects involved in the activity called designing.

Ignorance. Seeing designing as a collective inventive practice acknowledges the role of ignorance and surprise. This does not replace the importance of generating knowledge within designing, for example through developing hypotheses and testing them in some kinds of design work such as focussed prototyping. A practice perspective recognises how ignorance and surprise can emerge from and mobilize different configurations, resulting in new meanings and stories, competences and skills, and forms, capacities and properties. This is part of design's practical experimentation, which does not always produce new knowledge, but can result in new actants becoming involved in an issue and new publics co-constituted relationally with them. Nor does this serve all actors equally. Within the perspective of designs-in-practice, the kinds of ignorance that produce new possibilities include people not knowing how to participate in or

engage with sociomaterial things, or finding ways to engage in things that were not intended by designers or marketers. Such breakdowns bring into view different possibilities. Within the perspective of design-as-practice, ignorance opens up new ways of thinking and doing, as inventive methods result in surprises that prompt possibilities for further thought and action.

Accountabilities. An inventive practice perspective on design starts with an expanded set of accountabilities to the actants within a sociomaterial configuration, recognising them as constituents, and rendering them as mutually accountable to one another. A second move is to make available actants' accounts. Thus the accounts of all sorts of different actants (must) count. The processes for making this happen are part of the work of inventive practice through expanding, including and excluding, and making actants' accounts available. Together these processes bring into view the dynamic reconfiguring of competing accounts, that goes on during designing. Within the perspective of designs-in-practice, representations and accounts of how things are used are tied to use, provoking opportunities for actants to reconfigure their material-discursive engagement with objects and people. Within the perspective of design-as-practice, design methods create and bring together different accounts of the sociomaterial world, leading to contestation and debate, resulting in new ways of thinking and doing.

Temporalities. Just as the boundary work that takes place within practices marks what is inside and outside, so too, there is another kind of boundary work that involves constituting the temporalities that exist in designing. Timing is not

a given; it is the contingent production of sociomaterial actors coming together to constitute particular temporal regimes. Temporal lenses and events are produced by the collective work of several actors in practice, and come into being for intended as well as unintended consequences of designing. Each could be otherwise: they are part of the practices carried by individuals and collectives, which bring into view timeframes through and with which to attend to when constituting the object of design (a service, or community resource, or website back office) and a process to do designing. Within the perspective of design-as-practice, timespans are constructed through practice. For example, for a UX designer, this may be the day-to-day lived experience of a user. For a manager acting within collective design activity, this may be an annual budget cycle. For a facilities manager, the appropriate temporal frame for discussing a new service might be the process of commissioning, equipping, running and de-commissioning a building. Within the perspective of designs-in-practice, the unfolding of practice is constituted in different ways, depending on the locatedness of particular actors. For example for someone engaging with a mobile phone service, the focus might be on annual contracts. For someone using a car sharing service, its carbon impact on the planet might be the temporality, which is attended to.

Emergent characteristics	
Intra-action	Designing takes place through the dynamic intra-action of heterogeneous human and non-human participants, responding to, and resulting in, changes to meanings and

	identities, skills and procedures, and forms, capacities and properties, involving including and excluding.
Inventiveness	Inventiveness emerges when methods, data, affect and materials exceed possibilities.
Ignorance	Along with knowledge, ignorance and surprise produce new meanings and identities, skills and procedures, and forms, capacities and properties, which do not serve all actors equally.
Accountabilities	Designing proceeds and emerges in relation to mutually-accountable heterogeneous human and non-human participants and their accounts.
Temporalities	Designing and designs unfold over different temporalities which are constituted relationally.

Table 4 Characteristics of design-as-inventive-practice

Design-as-inventive-practice, remix

To summarize, design re-thought through the lens of inventive practice is not designer-led, nor object-based, nor user-centred. It foregrounds designing as a sociomaterial practice, carried by some individuals, institutions and projects, but already entangled with diverse humans and non-human actants. It is expansive in what it addresses, and the ways it goes about this, and through the excess it generates, and the new ways of thinking and doing that configure and

reconfigure relations between actors, resulting in new meanings and identities, skills and procedures, and forms, capacities and properties.

As previous chapters have shown, some contributors to service design and design for social innovation claim that this kind of designing is different to designing products, that services are intangible, or that such designing is about bringing people and artefacts together. They typically put the putative user and his or her needs, experiences and capacities at the centre of the design work. Design proceeds often through using co-design methods but participants' creativity supposedly resides in the minds of human actors taking part in a process. Efforts to include some participants, necessarily involve excluding others.

In contrast, the inventive perspective sees all designed-things as sociomaterial configurations, unfolding through the intra-action of heterogeneous participants. This perspective opens up how individual subjectivities, needs, identities, capacities and behaviours do not pre-exist, but rather are dynamically constituted in relation to other actants. Design-as-inventive-practice privileges the collective inventiveness that emerges when a method or material exceeds its current possibilities.

6.3 A study of service design: Towards integrated, holistic scenarios and systems

This section offers a further remix of the concept of inventive practice, by applying it to, and re-writing, an account of service design. Both of the perspectives on design-as-inventive-practice, and the five characteristics described above, are used to discuss a case of service design in a healthcare context. As suggested earlier, there is no intention of claiming an entirely new approach. The researchers involved in the healthcare service design study that follows include specialists in PD and service design, who are working within research topics very similar to the territory of this dissertation. So, what is attempted here, is a discussion as to whether the inventive practice perspective can provide some shortcuts to think through what the researchers/designers were doing in the project, more systematically and explicitly.

The first part of this section summarises a report (ImaginationLancaster 2011), which explores what a service design approach could bring to commissioning processes within primary healthcare provision within the UK. Titled *Design In Practice: Flexibility & Change within Healthcare Providers*, the report summarizes 18-months of research for the EPSRC's Health and Care Infrastructure Research Innovation Centre.

The aim of the project was to investigate implementations of the practice-based commissioning (PBC) programme in one part of the UK. "Practice-based commissioning" is the result of policy changes that aim to get clinicians, who are

closer to patients, to commission services for them. The project involved a team from Lancaster University and Salford University exploring how PBC was being carried out and governed in the region concerned during 2009-2010. A secondary aim was to explore if and how "design and other creative methods and tools could support commissioners' activities" (ibid: 3). Through case studies of different approaches, field studies, and trying out design methods, the researchers summarized different ways that PBC was being carried out. They then proposed a different approach to PBC, which they call community-centred commissioning recognising the role of clinical groups as facilitators of services, through a process of co-creation.

However before summarizing the report, it is important to clarify how the term "practice" will be used in what follows. Elsewhere in this dissertation, the term practice has been used to indicate an analytical orientation towards understanding the sociomaterial world as constituted through the activities of various actors involved (e.g. practice theory; designs-in-practice). There have been references to design-as-practice, meaning the collective sociomaterial worlds of those involved in designing.

But in the report studied here, the term practice is used in other ways including "GP practices" (a UK term meaning formally-constituted groups of clinical staff, providing primary care to patients in the community, through "general practice"), and "practice-based commissioning" (giving such organisations responsibility for commissioning, not just delivering such healthcare). To reduce confusion, I will

avoid different uses of the term practice, by referring to GP practices as primary clinical care providers, and to PBC as provider-commissioning.

In the next section, which summarises the Lancaster report, phrases that are highlighted like this are those used in the remix version that follows in section 6.3.2. As in the previous chapter, which used this same typographical device, the aim of this visual arrangement is to help the reader see where specific phrases are lifted and then re-worked. In this case, some of the phrases highlighted in grey in section 6.3.1 are directly excerpted from the Lancaster report, but some are my own reductions of that report.

Finally, it is necessary to recognise the implications of remixing a publicly-available report, which is a necessarily reduced version of the research that went on in the project involving researchers from several different fields, within the context of a funded research project. Remixing this report also requires awareness that it does not necessarily reflect equally the perspectives and contributions of all of researchers involved.

6.3.1 Service design case study: Structures and practices in provider-commissioning

The report on provider-commissioning is structured as follows. It begins with an overview of provider-commissioning, that is, commissioning of healthcare by primary care clinicians such as groups of doctors who deliver such care. A literature review summarizes issues such as: lack of clarity about roles and responsibilities between the various NHS organizations involved; bureaucracy;

poor data provision; difficulties in motivating and engaging primary care clinicians to get involved; and non-strategic approaches to designing services. The arrival of a new UK government in May 2010 lead to a controversial policy change, to shift the whole of the NHS to provider-commissioning, to reduce bureaucracy, cut costs, and improve productivity, outcomes and innovation (ibid: 7).

The next section offers three different models of provider-commissioning, based on interviews and mapping exercises of three active groups in the north west of England in 2009-2010. The report identifies three models of governance showing how the clinical providers related to the regional NHS infrastructure (ibid: 10-11). This is followed by single page case studies, showing how each of these providers went about commissioning particular services.

The report then identifies findings across the three case studies (ibid: 18-19). Briefly, these are categorised as

- Relationships;

- Motivation and engagement;

- Approach to service re-design.

The findings show how the governance, support, and expertise involved in commissioning services vary significantly across the three cases.

The next section focuses on how clinical primary care providers go about designing services, through a study of one provider. This involved participant

observation, interviews, and facilitating what the researchers called "design interventions" in collaboration with staff. The researchers focussed on how this provider approached the design of a new Urgency Care Centre. The intention was that this facility would consolidate "urgent" and "same day" appointments. The provider had commissioned an extension to their premises, with space for more consulting rooms. The researchers note: "It became clear, however, that in addition to an architectural response to the problem, there existed a service management issue with regard to administering the demands for urgent or same day care" (ibid: 20). This led to a shift from designing a new Urgency Care Centre, towards designing an Unscheduled Care Service.

The report describes how clinicians and staff approached designing the urgency service. For example they generated ideas including the idea of telephone triage, scripts for the receptionists, and a "same day" team with a duty doctor to cover the service (ibid: 22). However in the various meetings, researchers noted, "What became evident was that, together with organizational issues related to capacity management, a main design concern was related to the interpretation of 'urgency'" (ibid: 22).

Having developed ideas, staff organized a pilot to trial some of the ideas. They expressed interest in patient concerns, but did not have a clear process for inviting patients and their concerns to be involved in the service redesign. Instead patients were consulted, once the service redesign was launched (ibid: 22).

The report describes how, in response to these findings and events, the researchers introduced three "design experiments". The first focussed on knowledge about patients, and the second involved conflicting interpretations of urgency among staff and patients. The third involved a workshop to explore using a method to create scenarios of future services. The report describes these in more detail, with photographs showing how researchers collaborated with staff and patients.

The first involved staff creating personas, to understand existing knowledge and gaps in knowledge about patients. The researchers conducted a workshop with staff from the provider, providing them with anonymized photos of typical patients served by the provider. Staff were asked to create personas or creative profiles of the users, based on these photos, filling in details such as where the person lived, work and spent their time; what family or home life was like; and what health conditions they might have. Feedback from some of the staff indicated they were "horrified" at the stereotypes they had produced which seemed to rest on an attitude of "them" and "us" and were shaped by their coping strategies from dealing with work pressures (ibid: 24).

The second was a design game to explore the interpretation of "urgency" with staff and patients. "Patients, receptionists, and doctors might have different perceptions and interpretations about what is 'urgent' and develop different strategies to find out. Protocols, booking systems, and training all support this interpretation" (ibid: 24). In response, the researchers used a games method to involve participants in envisioning and experiencing future work situations. The

report describes in detail two workshops, one involving staff and one involving patients, using a specially-made game board and cards. The games revealed participants' conflicting knowledge about who had expertise in diagnosing urgency and giving advice.

The third was a workshop to create a shared vision of integrated care (ibid: 28-32). This was in response to the researchers' observation that service redesign was incremental, shaped by daily decisions and contingencies. By creating maps of providers and resources around profiles of individual patients, participants brought into view the complexity of integrated care and revealed a picture of many, often disconnected, actors.

A discussion of findings across these design interventions (ibid: 33) summarises the researchers' analysis from their process of study and engagement with the staff and patients. "Observing daily design conversations within a primary care centre on the urgency care project, showed how the act of designing is intertwined with the service management and delivery. … It was an iterative process, with ideas suggested and refined through discussion among present staff and verified through pilot implementations and quantitative (number of calls and visits) and qualitative evaluations (emails and notes from staff)." (ibid: 33) The researchers made the following observations.

1 Patient knowledge and engagement

"Patients were part of the process through formal and informal 'complaints' and 'consulted' at the end of the redesign process. …Staff mostly relied on their 'inherent knowledge of patients' but as the persona exercise partially showed their representations were often influenced by 'coping strategies' in relation to the most difficult cases" (ibid: 33).

2 Collaborative design

"Health services rely on complex diagnostic processes that are conducted by different professionals in different phases. The urgency care project showed how negotiations and interpretations over the meaning and conditions of urgency need to be made explicit and collaboratively discussed in an egalitarian and collaborative setting to allow dilemmas and conflicts to arise. Patients should be engaged as well as their contribution to diagnosis is fundamental. Peer to peer learning sessions can support useful knowledge exchange. Design games approaches can provide a structure to facilitate these conversations. In the context of our research project and its obvious limitations, design games were found useful in allowing people to share their different views on a given topic and in supporting them to have much needed conversations to come to terms with their differences" (ibid: 33).

3 Creating a vision and local synergies

"Service re-design appeared to be day-to-day activity based on emergent needs, constraints and opportunities that allow for limited radical transformations.

Systemic change needs to go beyond individual care pathways and individual professional work and consider health as the result of a wider set of conditions and contributions. Clinicians need to engage in conversations with various local actors to generate an agreed vision for change and identify potential synergies among their individual work and service offerings. Creating spaces and times for these convergences is fundamental, while scenario building activities and mapping exercises can provide useful structures and tools to facilitate these encounters." (ibid: 33)

The final section of the report offers an evaluation of the use of service design tools in public health service projects, aiming to find opportunities for clinical providers to engage with patients and create new models of healthcare services. These case studies include:

- A project on living well with diabetes, between the Design Council's RED unit and Bolton Diabetes Network, producing some cards to be used when clinicians meet patients, and a blog;

- A project promoting active lifestyles between the Design Council's RED unit and Kent County Council, resulting in a project called Activmobs, involving small self-organised local groups of people;

- A project exploring health inequalities, by designer Martin Bontoft and the North East Lincolnshire NHS primary care trust, resulting in Open Door, a health and social care enterprise providing support and challenges;

- A project between the London Borough of Ealing and the NHS Institute for Innovation and Improvement, resulting in a new service model for patients with Multiple Sclerosis.

Reviewing all these case studies, the researchers identify the following characteristics and opportunities within service design approaches (ibid: 39):

- Starting with a discovery phase.
- Applying ethnographically-inspired methodologies to produce an in depth understanding of people's behaviours, understanding and relationships with their diseases and with the service itself.
- Engaging a wide array of people as sources of information and co-designers.
- Using methods that promote different levels of engagement eg pen portraits, profiles, storyboards etc. "These materials work as 'boundaries (sic) objects' among people with different backgrounds and perspectives." (ibid: 39)
- "The four phases of Discovery, Define, Develop and Implement are, in practice, constantly repeated in the process of redefining and developing the initial insights and ideas. Designers alternate field studies and co-design sessions with work in their studios to conduct an iterative process of verification and refinement of their initial insights and ideas" (ibid: 39).
- Using visualizations to make intangible experiences tangible, representing complex systems, connecting the project with real people and practices.

- Changing people's behaviours at the same time as transforming organizations to deliver more supportive and efficient solutions.
- Designing platforms for collaborative service, meaning a system of support that people can use in various ways.
- Engaging patients and their representatives as co-designers and active researchers of their own context.

The final section summarizes the implications of these findings and suggests recommendations. The researchers concluded that the difficulties in effective provider-commissioning are related to structures, mechanisms and professional practices that resist and conflict with integrated and collaborative modes of commissioning and delivering services. The report argues that (service) design can provide support and tools in these ways (ibid: 40-41):

- Support to set up collaborative frameworks, supporting looking at things holistically and enabling imaginations eg creating scenarios to facilitate the vision of long-term futures.
- Combining evidence-based and experience-based approaches eg using ethnographic studies to provide insights and personal stories.
- Supporting patient engagement and iterative design eg through creating quick mock-ups of partially developed solutions.
- Developing integrated and community-based solutions eg through proposing accessible platforms meaning systems of support, integrated within community services and facilities.

The recommendations are for "community-centred commissioning" (ibid: 44-45). This aims to shift the attention of clinical providers towards the wider community including them in generating new service models. This mode of commissioning and designing services requires:

1. Creating partnerships that share scenarios, understood as collaborative efforts to visualise futures and which make the aims and vision of a project tangible by using scenarios of future services.
2. Creating a culture of collaboration and engagement, including building trust, changing attitudes, and facilitating on-going dialogue.
3. Building collective capabilities, such as supporting clinicians to develop skills and knowledge to engage with patients and undertake commissioning, not just developing their business skills.
4. Redesigning with a whole systems approach, going beyond individual organizations and pathways.

6.3.2 Service design case study: Inventive remix

This section analyses the same case through the lens of the concepts developed in this dissertation and expressed above in Figure 6 and Table 4. In what follows, the Lancaster report summarised above is analysed through the inventive practice perspective, in two ways. Firstly, a table presents text excerpts from the summary above and analyses them through the inventive practice perspective. This is followed by a more detailed discussion of each of the characteristics of

inventive practice, suggesting how these can be mobilised to open up new ways of thinking about what went on in that service design project.

Table 5 is structured as follows. It presents an excerpt from the summary in the left hand column. The next column identifies the inventive practice characteristic(s) operative within it. Then, that example is re-described through an inventive practice lens. The final column suggests a shortcut showing how the inventive practice lens opens up, or makes explicit, particular issues which in some cases are implicit or hidden. This post-hoc analysis serves to reorient researchers and practitioners to concepts that are important in understanding and describing design for service.

For ease of reading, the layout in Table 5 follows the structure of the report, from top to bottom. Together, the various examples from the Lancaster report, re-analysed through inventive practice, open up different ways of understanding what went on in the research, and bring into view things going on that would otherwise remain less visible. A point to re-emphasize here is that the report does indicate that the researchers working on the project were attentive to many of the issues raised in this dissertation. So this remix of their report aims to suggest ways to bring this perspective more clearly into view, not claim that it is entirely absent from their work.

Example text from Lancaster case study on provider-	Core concepts	Example re-described	Productive shortcuts from using the inventive

commissioning and service design		through an inventive practice lens	practice lens
Analysis of current designing practices at a healthcare provider			
There was a shift from designing a new Urgency Care Centre, towards designing an Unscheduled Care Service.	Intra-action	An inventive practice perspective emphasizes that any new building relates to staff and patient routines and staff-patient interactions in which the premises were embedded.	An explicit starting point is combinations of buildings, people, skills, routines, interactions, processes, meanings and other resources as co-constituting a service, rather than existing in isolation from one another.
Together with organizational issues related to capacity management, a main design concern was related to the interpretation of "urgency".	Accounta bilities	An inventive practice perspective opens up definitions such as "urgency" to include the accounts of non-clinical staff such as receptionists and patients, families and carers.	An explicit starting point is contestation about concepts embedded in a service and practices around it and how there are only partial perspectives, which can be made available as actants are revealed to be mutually accountable.
Some of the staff indicated they were "horrified" at the	Ignorance ,	An inventive practice	A shortcut is to acknowledge how

stereotypes they had produced which seemed to rest on an attitude of "them" and "us" and were shaped by their coping strategies.	inventive ness	perspective brings into view the ways that histories of interactions, and roles and locations, shape how staff think about and know patients, making affect a resource for design.	ignorance and affect can be a resource for design. Participants' lack of knowledge about how to engage with methods such as creating personas, and their underlying knowledge or ignorance about patients, foreground questions about what is known and what is not known within current organisational practices.
Design games revealed participants' conflicting knowledge about who had expertise in diagnosing urgency and giving advice.	Intra-action, ignorance	An inventive practice perspective brings into view the locatedness of diverse actors involved in the service.	A shortcut is that current understandings, viewed from particular locations, are co-constitutive of the services, and that no exterior, bird's eye view is possible.
By creating maps of providers and resources around profiles of individual patients, participants brought into view the complexity of integrated care and revealed a picture of many, often disconnected, actors.	Intra-action, accounta bilities	An inventive practice perspective makes available to participants how the intra-action of diverse actors constituted the	Maps of resources offer a shortcut that orient practitioners to the various diverse constitutive elements of a service and how they intra-act with one another.

		service.	
Findings from observing current redesign practices within a healthcare provider			
Observing daily design conversations within a primary care centre on the urgency care project, showed how the act of designing is intertwined with the service management and delivery.	Temporality	An inventive practice perspective makes a distinction between attentiveness to design-as-practice and how designs-in-practice unfold, within temporal regimes.	A shortcut can highlight how different temporal regimes within specific areas of work constitute meanings and identities, skills and procedures, and forms, capacities and properties, which might be specific to organisational roles and routines and the temporalities in which they are enacted.
Patients were part of the process through formal and informal "complaints" and "consulted" at the end of the redesign process.	Accountabilities	An inventive practice perspective necessarily includes patients' and others' accounts, whether made available as complaints and through formal consultation.	A shortcut focussing on accountabilities opens up discussion about which patients, and others such as carers and family members, are analytically present and draws attention to the inclusions or exclusions that take place.
Design games approaches can provide a structure to facilitate these conversations	Accountabilities	An inventive practice perspective	Design games are a shortcut that draws attention to the practices of different staff

(between peers and with patients).		resources ways to enrol patient and staff accounts in designing.	and designers, that shows the active work of including and excluding accounts.
Creating spaces and times for these convergences is fundamental.	Inventiveness, temporalities	An inventive practice perspective resources ways for heterogeneous actants to become active co-participants in design at different times.	The focus on design-as-practice highlights how choices about particular spaces, times and activities include and exclude participants and accounts.

Evaluation of the use of service design tools in public health service projects

| Applying ethnographically-inspired methodologies to produce an in-depth understanding of people's behaviours, understanding and relationships with their diseases and with the service itself. | Intra-action, accountabilities | An inventive practice perspective emphasizes activities of humans and artefacts within designs-in-practice, and occasions methods that make available designs-in-practice as a resource for | Ethnographic methods provide shortcuts that make available accounts of the sociomaterial worlds enacted in a service, which set up new accountabilities between actors. |

		designing.	
Designers alternate field studies and co-design sessions with work in their studios to conduct an iterative process of verification and refinement of their initial insights and ideas.	Ignorance, inventiveness	An inventive practice perspective cycles between designs-in-practice and design-as-practice.	Cycling between designs-in-practice and design-as-practice draws explicit attention to how sociomaterial configurations emerge (in practice) and how attending to this (as practice) opens up opportunities for moving forward.
Changing people's behaviours at the same time as transforming organizations to deliver more supportive and efficient solutions.	Intra-action, inventiveness	An inventive practice perspective takes as its object the sociomaterial configurations people and objects are part of and engages with organizational, patient and carer practices.	The inventive practice perspective offers a shortcut to highlight the interdependencies between behaviours and organisations in the search for solutions.
Engaging patients and their representatives as co-designers and active researchers of their own context.	Accountabilities	An inventive practice perspective resources ways to render	The focus on accountabilities draws attention to the inclusions and exclusions involved in making accounts available.

		participants' accounts in design-as-practice.	
Implications and recommendations			
The difficulties in effective provider-commissioning are related to structures, mechanisms and professional practices that resist and conflict with integrated and collaborative modes of commissioning and delivering services.	Intra-action, temporalities	An inventive practice perspective highlights how services and patient-staff interactions exist in relation to and are shaped by organisational routines.	A starting point that provides a shortcut for practitioners is highlighting the interdependencies between routines, structures, and how organisations commission and deliver solutions, and how these exist within distinct temporal regimes.
Support to set up collaborative frameworks, supporting looking at things holistically and enabling imaginations eg creating scenarios to facilitate the vision of long-term futures.	Intra-action, ignorance	An inventive practice perspective occasions ways for participants to encounter how services and futures exist through the intra-action of heterogeneous actants and methods that	The shortcut here is to offer a framework for analysis to support holistic approaches, that bring into view the various aspects involved in the whole.

		exceed current knowledge.	
Developing integrated and community-based care solutions eg accessible platforms meaning systems of support, integrated within community services and facilities.	Intra-action, inventiveness	An inventive practice perspective focuses on how artefacts are mobilised in practice.	A starting point is to understand how such platforms and actors co-constitute meanings and identities, skills and procedures, and forms, capacities and properties through intra-action, rather than pre-existing.

Table 5 Analysis of service design in healthcare case, using an inventive practice perspective

Table 5 offers a summary across a wide range of textual excerpts from the Lancaster report, but this format is limited. Some of these observations and findings from the Lancaster study are now discussed in more depth, in relation to the five characteristics of design-as-inventive-practice.

Intra-action

One of the report's conclusions was that difficulties in effective provider-commissioning are related to structures, mechanisms and professional practices that resist and conflict with integrated and collaborative modes of commissioning and delivering services. An inventive practice perspective offers a shortcut to suggest how such an analysis is relevant to the design of future services. By attending to how designs-in-practice are constituted, this analysis

focuses on how meanings and identities, skills and procedures, and forms, capacities and properties emerge dynamically through the intra-action of people and things. Further, the inventive practice perspective acknowledges the active work of including and excluding particular actors and how only partial perspectives are available. In other words, it draws attention to how particular ways of doing things, within particular material-discursive practices, are possible, and others are not. This illuminates why structures, mechanisms and professional practices resist and conflict with integrated and collaborative modes of commissioning and delivering services.

This emphasises how ways of going about commissioning, patient-staff, staff-staff, and person-artefact interactions, all exist in relation to and are shaped by the Urgency Care Service's designs-in-practice. It prompts questioning as to why particular resources are included, or why particular structures, mechanisms and capacities are enabled, while others are excluded or disabled. Thinking about design-as-practice when commissioning services, draws attention to how diverse resources are mobilised during designing. It prompts questions as to why particular people and resources are included, or why particular structures, mechanisms and capacities are enabled, while others are excluded or disabled.

Inventiveness

The report recommended generating collaborative solutions, for example, accessible platforms understood as systems of support, integrated within community services and facilities. It argued that provider-commissioning

involved a cultural shift towards collaborative, integrated and more community-centred commissioning of care. Attending to inventiveness offers a shortcut to help participants understand that such platforms unfold in practice, resulting in unexpected and unforeseen consequences, and that they cannot be fully specified in advance.

Thinking about designs-in-practice helps practitioners understand that collaborative platforms are a new sociomaterial configuration that result in reconfiguring and being reconfigured by the actants with which they intra-act. It highlights how the design of a platform does not fully determine behaviours and capacities or resource particular outcomes, and emphasizes that new configurations come into being as new practices unfold in relation to a new platform. While researchers may be familiar with these concepts, presenting this to practitioners offers a shortcut to help them move beyond their current understanding of commissioning "solutions" or "platforms" to achieve goals. Instead, thinking about designs-as-practice during the designing of such platforms, recognises that diverse resources are mobilised and can reconfigure work practices. An inventive practice perspective opens up how methods enacted during designing lead to an excess of data, or affect, or the sensory, which disrupt ways of thinking about things or doing things. Again, for practitioners, being aware of how inventive practices unfold helps shift them away from being locked into particular individuals, skills or methods when doing service design, and become more open and responsive to emergence.

Ignorance

The report describes how some of the staff involved in a workshop using the personas method, indicated they were "horrified" at the stereotypes they produced. The report says these ways of thinking about patients seemed to rest on an attitude of "them" and "us" and were shaped by staff coping strategies. Attending to ignorance offers a shortcut to help mobilise ignorance as a resource in the project.

An inventive practice lens brings into view the ways that histories of interactions, identities, roles and locations, shape how staff think about and know patients. Drawing on this analysis, a conversation about what this response means, can prompt questions as to what staff know of patients and how they know this, and what they don't know, and similarly, what patients know about staff, and how they know this, and what they don't know. Thinking about designs-in-practice draws attention to how knowledge and ignorance are produced in current organisational routines. As more knowledge is produced, for example by creating participants' accounts, describing participants' worlds, or by involving patients as participants in designing, so too is more ignorance. Thinking about design-as-practice draws attention to how some methods can create ignorance and surprise, alongside more knowledge. For example, the staff's lack of knowledge about how to use and make sense of the persona method and what it might open up within the project, prompts awareness of the wider issue of lack of knowledge among the practitioners what is involved about designing services.

The report describes design games that the researchers introduced. It says the design games revealed participants' conflicting knowledge about who had expertise in diagnosing urgency and giving advice. The report argues that such approaches can provide a structure, and a time and space, to facilitate conversations between staff members, and with patients. An inventive practice perspective involves expanding the number of actors involved and foregrounding their mutual accountabilities, which changes the relations between them. Bringing the various of accounts of such actants into relation to one another leads to contestation and debate, and revealing that perspectives are partial, resulting in new ways of thinking and doing. Thinking about design-as-practice opens up questions about how to engage staff members, patients and others in creating and exploring one another's accounts. Attending to designs-in-practice, involves tracing mutual connections between actants and identifying how accountabilities come into being. It creates opportunities for participants to reflect on the active, material-discursive engagements between people and things.

Temporalities

The report notes that within the current practices of a healthcare provider, creating spaces and times for people to work together to create visions is fundamental. An inventive practice lens offers a shortcut by recognising that these temporalities are not given or pre-determined, but contingent, resulting from the intra-action of particular actants. It draws attention to the different

temporalities enacted in the routines and practices of members of staff, patients, and through different organisational lenses, which serve to make particular ways of doing things and specific capacities possible, and others less so. A design-as-practice approach recognises that heterogeneous actants become configured as active co-participants at different times during designing. Thinking about designs-in-practice brings into view how particular events and interactions, for example, in the engagements between reception staff and patients, operate within different temporal regimes.

This section has used the characteristics of inventive practice to emphasize ways of thinking about what went on in the research documented in the Lancaster report, which to some extent were already implicit. Suggesting "shortcuts" makes these characteristics more explicit, and opens up different ways of understanding what goes on in designing for service. A fuller account of what this perspective enables is offered after the next case study.

6.4 A study of design for social innovation

This section involves remixing the concepts of design-as-inventive-practice by applying the core concepts in (re-writing) an account of service design in the context of social innovation. Unlike the previous section, which used a project conducted and written about by other researchers, this one draws on my own professional work and writing. First the case is summarised, which is a recent

example of design-based approaches being used in the context of social innovation (Kimbell forthcoming). The document is a peer-reviewed chapter from an edited book entitled *Sourcebook of Anthropology in Business* (Denny and Sutherland forthcoming), which includes diverse contributions exploring the role of ethnography and anthropology in organizations. Included in a section on emergent themes, this chapter explores what the combination of ethnographic- and design-based approaches can bring to complex collective issues such as ageing. The chapter draws on a project, which I conducted as head of social design at The Young Foundation in 2012 for a provider of housing and social care services. Permission to use this research here has been given by the anonymous organisation and some of the details have been changed.

As with the remix of the Lancaster study, some of the concepts explored in this dissertation are already implicated in the project described and in the book chapter. This is even more the case, as I undertook the project and wrote it up during 2012 and 2013 when I was writing some of the chapters in this study. Nonetheless the explicit application of the inventive practice perspective outlined in Table 6 generates new ways of thinking about this case, and about the possibilities of an inventive-practice perspective within design for social innovation.

6.4.1 Ageing case study: Changing what an issue is made up of

The book chapter conforms with many of the other cases in which design-based approaches have been applied to collective and public challenges. Having
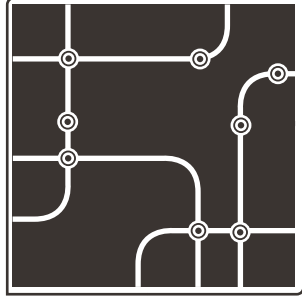
reviewed the context, it offers an account led by the author, involving the application of an approach and methods that led to some shifts in how the project was proceeding and how it was understood and written up, with some degree of reflectivity and reflexivity.

The chapter starts with an overview of some of the areas in which designers and design-based approaches are being used, arguing that typically these approaches are described as "human-centred". "People are central to design-ethnography, but they are always situated in particular worlds and in relation to other people and things and ways of living, working and caring" (Kimbell forthcoming). The chapter aims to show how "design-ethnography" can help create new understandings of what an issue is made up of and how it might be engaged with. The next step is to focus on the topic of ageing, which will present the context for the case. It describes the author's orientation as a practitioner as combining Participatory Design, Science and Technology Studies and design studies.

The consultancy project, undertaken for a UK provider of housing and support services for older and vulnerable people, is then introduced. The aim was to design a new befriending service involving unpaid volunteers visiting older people in their homes, or accompanying them on short trips outside their homes. At the stage the author's team engaged with them, the provider was running a pilot with three older people and a few volunteer befrienders. In total the consultancy involved 22 days on the project over four months.
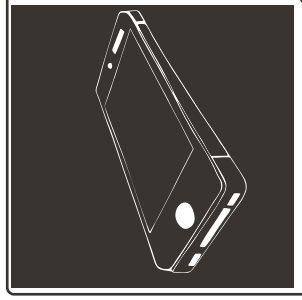
Storyworld

Use this to help you describe the user and their world

Ways of doing things

Habits

What activities are usual or habitual for this person?

What would be novel for them?

Skills

How does this person learn?

What shapes this?
What skills and knowledge does the person have?

Mattering and values

Personal object

Pick one personal object that has meaning for this person and discuss what it means to them and why

Pleasure

How does this person enjoy themselves?

(Not just special occasions but everyday pleasures)

Find or draw a picture of this person

Biography
Name
Age
Gender
Family
Living Context
Work
Play

Who are they?   **Where are they?**

Note down your assumptions

Relating and connections

Objects

What physical and digital objects is this person connected to?

How, where and when?

Connections

Who is this person connected to? How?
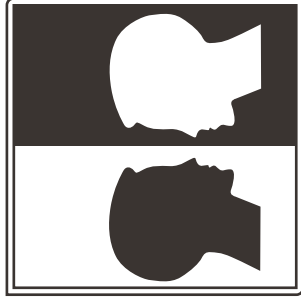
(Include people/organisations they know and don't know)

Mental models

Self perception

How does this person think about their involvement in change? What shapes this?

Thoughts

What does this person think or believe about the world around them?

Source: Kimbell and Julier, 2012. The Social Design Methods Menu

Previous page: Figure 7 Storyworld template used to create personas or guide interviews

The chapter proceeds with a description of an approach and methods used to engage in activities to support the housing provider in research and design for the service, including semi-structured ethnographic interviews with older people, volunteers and others working with them; and creating personas of older people and volunteers. The storyworld template shown in Figure 7 was used to inform the interview questions. Rather than being external providers of research and analysis, the consultancy organisation involved staff and volunteers as participants in this work. The chapter describes two workshops.

Workshop 1

The first involved members of staff and older volunteers in reviewing and adding to personas of older people derived from the research interviews. An example of one of the personas created is shown in Figure 8. Working in pairs, the staff members created four new personas based on people known to them: one person who was unable to leave their bed, another with dementia, one who was himself a carer of a son with learning difficulties, and a fourth who was an older person with learning difficulties. The participants then shared these new personas with one another, again adding layers of detail to one another's descriptions and querying or challenging aspects. In their discussions the staff made numerous references to people they worked with, drawing on their detailed knowledge of older people's lived realities from their work as support staff and service managers.

GEORGE

- George is a lively 62 year old
- He lives alone in sheltered housing accommodation
- A few years ago he suffered from cancer of the voice box, which he had to have removed (a tracheotomy) – he now has to cover his neck with his thumb when he wants to talk, and has lost his sense of smell

"I look normal, and then people realise I'm not... Deep down I'm missing something"

HOW I SPEND MY DAYS:

- George is often out-and-about, window shopping, to the bookies, or just sitting outside, *"to take my mind off things, to look at things"*
- His accommodation offers activities but he doesn't take part *"because of the situation"* [pointing at his tracheotomy]

WHO DO I SEE?

- His walls are covered with photos of his family, who he talks to a lot and sees *"every now and again"*
- George sees people regularly in his local neighbourhood but rarely engages: *"You want to engage, to join in, but I can't... I get embarrassed"*

WHAT'S IMPORTANT TO ME?

People:
- Family and children come first *"Nothing will take their place. They hold a different place in your heart"*

Objects:
- *"Anything that is nice and beautiful"* – he comments he used to like the best of everything

WHAT DO I FIND EASY?

- George is a very sociable and talkative man, engaging in conversation, but his struggle is overcoming his feelings about his tracheotomy
- He speaks of being popular in the day with the ladies – but now this is something he avoids

HEALTH & WELLBEING

- He is physically fit with quick wit and on the ball. His confidence holds him back, and prevents him from living a fulfilled life
- George used to go a cancer support group but stopped as *"everybody was unhappy there"*

WHAT DO I STRUGGLE WITH?

- The change in his life after the operation, *"My confidence never picked up... I'm isolated"*
- He used to be interested in money, but now comments *"I'm still the same...Even if I'm a millionaire, that won't change it"*

COMMENTS AND QUERIES ADDED IN WORKSHOP

- George is quite active, his key problem is his lack of confidence
- There is a definite need for more support – was he provided with post-surgery support?
- Shows how it is possible to be very lonely in sheltered accommodation

Previous page: Figure 8   Persona of older man George, derived from interviews, and annotated in the workshop (Reproduced with permission)

The chapter describes how, having reviewed and created a set of 12 personas, the next activity was to discuss themes emerging across all of them. Examples suggested by participants included making distinctions between older people who pay for services vs. those who don't; those who are active vs. those who are less active; older people who live in the community vs. those who live in supported housing; those who are isolated vs. those who are not isolated; those who benefit from one on one interactions vs. those who function better in groups; and those who have carers vs. those who live alone and have few visitors. Through active facilitation, the participants agreed on a way to distinguish between older people as follows: people with lots of meaningful connections vs. those with fewer connections; and those who are in a stable situation vs. those whose situation was worsening. Together, these activities

> brought into view their working practices and knowledge, resulting in a collective activity that made available the complex, situated lives of the people the organization wanted to work with, and posed questions about the volunteers who could support them. (Kimbell ibid).

The approach and methods in the workshop, and the research leading up to it, did not claim definitive expertise about the people the service aimed to work with. With only a minimal opportunity to undertake research, what mattered at

least as much as the researcher's knowledge from interviewing people, was the knowledge of members of staff.

> The workshop was thus a performative encounter between different kinds of knowledge – the staff members' embodied knowledge about older people, families, and the health and social care systems; ethnographic rendering of the interviewees' worlds captured in the interviews and personas which made this knowledge less familiar and more analytical; and the participants' lack of knowledge about how to use this to design a befriending service. (Kimbell ibid).

The chapter describes a second result of this approach. In the organisation's documents and in emails, phone calls and meetings with them, staff members had used language consistent with the existing care paradigm: the older people had "needs", whereas the volunteers had resources, so the task of the befriending service was to engage the latter to address the former. The workshop discussions shifted the ways that participants talked about older people and the proposed befriending service. Instead of the older people having "needs", they were discussed as having capacities and as having something to offer the (presumably younger) people coming into their homes. Instead of the volunteers being the ones with something to offer, they were reconfigured as having their own needs in relation to training, support, and peer-to-peer interactions.
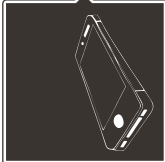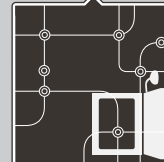
Workshop 2

The chapter describes how a second workshop, a few weeks later, moved the project onwards to an operational focus to thinking through what resources were required to deliver and support interactions between older people and others in their living environment, with the befrienders, and the organization itself. This used a version of the service blueprint template (Bitner et al 2008) that distinguished between these phases: inquiring (finding out about the service), assessment (signing up or joining it), induction (training and matching older people and befrienders), first visit or meeting, second and subsequent visits, feedback and ending (see Figure 9). Methods such as service blueprinting bring into view the multiple points of engagement between heterogeneous human and non-human actants that dynamically constituted the new service being proposed by the housing provider.

The language used by these social care professionals – terms such as staff, older people, carers, professionals (eg managers at a residential home), volunteer befrienders, and stakeholders – insists on the human dimension of their work. But this disguises other important dimensions to this sociomaterial world such as volunteer recruitment policies, forms to fill in, safety procedures, databases, door entry phones, and cups of tea.

Next page: Figure 9   Service blueprint template

Blueprint

Use this to describe or imagine a participant's engagement with the service

	Aware	Join	Initial use	Use again	Finish using
Things, media and devices					
What the user does, feels, knows, thinks					
What other people do, feel, know, think					
What service personnel do, feel, know, think					
Where things happen					
What service personnel do, feel, know, think					
What supports the service					

Using this framework, staff members described in detail the imaginary encounter of one of the older people personas and one of the befriender personas, matched by the staff member whose actual job this would be, which was recorded by writing and drawing on to the framework on the wall. This resulted in rich descriptions of the people and artefacts involved in constituting the service. Participants went on to describe the teams and organizational functions they thought were required to support the service, using vocabulary they were familiar with based on a structure we proposed which distinguished between operations, human resources, marketing and communications, finance and accounting, IT and research.

The workshop activities moved them from thinking about what might happen between *this* older person, and *this* befriender (based on the personas) during a home visit, towards considering how resources within and beyond their own organization were implicated in the service in which this interaction was a key activity. This led to extensive discussion between managers and staff members about how their team and the new service interacted with the rest of their organization, and to what extent its aims were being realistically resourced. The chapter comments that this method helped the project team re-think the entity they were designing, as something in which digital and material artefacts, and the practices, played important roles and in which the inter-relationships between them were contingent and open to query.

> The shared visual and narrative activity of the blueprinting method brought into view the multiple actors involved in the service over time, as

well as important artefacts such as application forms and databases and interactions between people via phone calls and face-to-face encounters. (Kimbell ibid).

In summary, the chapter showed how an approach that combines ethnography and design, changed the way the issue is made up in practice. The older people were re-cast as having capacities and resources, and similarly the volunteers had requirements and the service had impacts on them. The methods:

- Revealed capacities and resources that were previously not evident;
- Constituted the issue of ageing in a different way, as a sociomaterial assemblage of people, organisations and things such as phones, databases, and buildings but also skills and knowledge; and
- Supported recombining these capacities and resources in new ways.

Finally, the chapter argues that the methods were not *human-centred* but rather they provide a way to understand sociomaterial assemblages involving complex political, financial, social and technological systems at human scale.

6.4.2 Ageing case study: Inventive remix

As with the previous section, this analysis uses two formats. Firstly, some of the discussion is summarised in Table 6, which indicates how an inventive practice approach is productive in understanding what went on. Then, each of the

characteristics within inventive practice is introduced, with a discussion of how this perspective opens up understanding the case. The number of items presented in Table 6 is fewer than in Table 5 in the earlier discussion on design for service. This is because the book chapter this section draws on is much shorter than the Lancaster report on design for healthcare services.

Example text from case study on design for social innovation	Core concepts	Example re-described through an inventive practice lens	Productive shortcuts from using the inventive practice lens
Description			
Methods used brought into view their working practices and knowledge, resulting in a collective activity that made available the complex, situated lives of the people the organization wanted to work with.	Intra-action	An inventive practice perspective highlights the diverse human and non-human actants, and also emergent characteristics such as users' needs and capacities that are constituted dynamically in practice.	Offers a shortcut to draw attention to the multiple people and artefacts involved in the service and how these things like "users" and "needs" are mutually and dynamically constituted through the intra-action of actants.
Instead of the older people having "needs", they were discussed as having capacities and as having something to offer the (presumably younger) people coming into their	Inventiveness	An inventive practice perspective highlights how an excess of data, affect and the sensory can open up possibilities and lead to new configurations.	Emphasises that affect and the sensory relating to the lives of older people, befrienders, carers and staff, are a resource for designing the new service.

homes.			
A version of the service blueprint template distinguished between different phases.	Temporalities	An inventive practice attends to how different temporalities are constructed in designing.	Foregrounds the service as having different temporalities to attend to eg the experiences of people during home visits, managing ongoing relationships and fluctuating resources.
Methods such as service blueprinting bring into view the multiple points of engagement between heterogeneous human and non-human actants that dynamically constitute the new service.	Intra-action	An inventive practice perspective highlights the non-human material and digital artefactual and institutional aspects of practice, which shape what can be possible.	Draws attention to the partial perspectives created by what is included, and what is excluded, in the blueprints.
The shared visual and narrative activity of the blueprinting method brought into view the multiple actors involved in the service over time.	Inventiveness	An inventive practice perspective draws attention to how the material-discursive properties of materials and methods open up new ways of thinking and doing.	Moves beyond an emphasis on the visuality and narrativity of design methods, focussing on what such devices occasion in practice through an excess of data, affect or the sensory.
Summary			

Revealed capacities and resources that were previously not evident.	Inventiveness	An inventive practice perspective brings into view how capacities and resources dynamically emerge as practice unfolds.	Shows how resources such as people's capacities and needs are not pre-existing, but become available during designing through particular configurations.
Supported recombining these capacities and resources in new ways.	Inventiveness	An inventive practice perspective occasions new ways of thinking and doing, resulting in new configurations.	Draws attention to how methods produce an excess which open up new ways of doing and thinking.
The methods were not human-centred but rather they provide a way to understand socio-material assemblages involving complex political, financial, social and technological systems at human scale.	Account abilities, intra-action	An inventive practice perspective brings into view the mutual accountability between actants, rather than privileging specific human users.	Points towards the complex practicalities and structures in which people are embedded and which they co-articulate and the diversity of actors to which they are mutually accountable.

Table 6 Analysis of case discussing design in social innovation, using the inventive practice perspective

Some of the observations and findings from the book chapter are now discussed in more detail, in relation to the five characteristics of design-as-inventive-practice.

Intra-action

The language used by social care professionals involved in the project – terms such as staff, older people, carers, professionals, volunteers, and stakeholders – insists on the human dimension of their work, isolated from the sociomaterial worlds in which they exist. But this disguises important artefacts, such as volunteer recruitment policies, forms to fill in, safety procedures, databases, door entry phones, and cups of tea that are part of the practices that people's capacities come into being in relation to. Attending to intra-action offers a shortcut to help establish the many different actors involved in a social care venture, and how their properties and forms are constituted relationally, rather than pre-existing. An inventive practice lens highlights the non-human material, digital and institutional aspects of practice, which shape what can be possible, within existing practices, and what might be reconfigured through the coming into being of new practices. Thinking of design-as-practice prompts awareness that the needs or capacities of volunteers and older people are not pre-existing, but emerge in practice during designing. Thinking of designs-in-practice draws attention how the service unfolds through the mutual participation of numerous actors beyond the organisation and its direct control and expertise. What the concept of intra-action offers is a strong emphasis on the multiple interactions between heterogeneous actors, that result in meanings and identities, skills and procedures, and new and modified forms, properties and materials.

Inventiveness

The case highlights how there was a shift towards seeing older people as having capacities, rather than merely needs. Similarly the volunteers were reconfigured as having needs, and not merely resources to offer. An inventive practice orientation goes further and attends to how the design methods deployed exceed current ways of ways of knowing and doing. It offers a shortcut to help establish that new ways of doing things emerge when data or material exceed the possibilities available. Thinking of designs-in-practice, points to how meaning, competence and material artefacts are combined in different ways, as designs and designing unfold. For example, the method of creating personas and reviewing and annotating them in workshops, brought an excess of data and affect into view. Through grappling with this excess, participants had to shift the ways they constituted the service, both in terms of the older people they thought they knew well, and the volunteers they did not.

Thinking of design-as-practice draws attention to how members of staff and service users involved with the housing provider were rendered in the workshops as having creative capacities. Their creativity was not a characteristic of individuals eg a "creative" member of staff proposing a novel process for signing up volunteer befrienders. Such inventiveness is better described as an emergent quality of design-as-practice as it unfolded.

Ignorance

The case described how the project started with only a few days of fieldwork to interview older people, volunteers and staff. The researchers/ consultants made no claims about being experts about ageing, nor about the older people and volunteers interviewed. Instead the chapter describes how the workshop process to review and modify personas, allowed participants to access their own expertise and ignorance about older people's care and how to design new service provision. Rethinking this case through the lens of ignorance and surprise, emphasizes how design-as-practice mobilizes lack of knowledge, that was produced along with the knowledge from research undertaken for the project. The practice unfolded by engaging members of staff as actors in the opening up of new possibilities. In some cases, this was as a result of staff knowledge about older people (eg correcting a persona they did not recognise, or creating new personas). But in some other cases, the staff's ignorance about volunteers, became a resource. For example, since they did not know much about why people might volunteer to do befriending activities, or how to reach people who might be willing to, this prompted the staff to identify actors to work with to get beyond their own ignorance. This then increased the capacity of the organization to create a stable configuration and practices to resource the new service.

Accountabilities

Like other design-led social innovation projects, which aim to address a collective issue, the process of designing described in the case opens up ageing, by recognising diverse actants. The book chapter describes some particular methods for doing this with the resources available. Firstly, it included members

of staff and older people working as volunteers as participants in workshops. Secondly, it involved constructing accounts of the lived experience of older people and volunteers, and making these part of the process to design a new service. What an inventive practice orientation adds is how the participants are rendered *mutually accountable to one another*. Thinking of design-as-practice draws attention to how older people and volunteers came into view, for example, in the service blueprinting method, by asking participants to describe encounters in the proposed service between a particular older person persona and a particular volunteer persona. This method engaged members of staff with imagining and analysing how, when, and where such encounters could take place and the mutual relations within them. For example, the template used asked participants to imagine how and what people would do, say, know and feel and how this linked with organisational resources.

Thinking of designs-in-practice foregrounds how the organisation's practices mediated relations between the older people, and people and resources in their worlds, and the volunteers, and people and resources in their worlds. Instead of a volunteering service *for* older people, the service was reconstituted through the possibility conflicting accounts and resources of different people.

Temporalities

The book chapter describes a sociomaterial configuration that requires a consideration of time. It involves a project to design a service which involves people visiting older people in their homes, supported by members of staff and

peer support over some months or possibly years. But attentiveness to temporalities offers a shortcut to help establish the different temporal regimes associated with different practices and their constituent actants. Thinking of designs-in-practice invites a stronger focus on how different timeframes are brought into view, through the different activities of the service. These might be individual events such as visits to old people by befrienders, emerging relationships with older people and their families and carers, and between volunteers, and with funders and commissioners. It requires the staff thinking through the points of contact various people and artefacts have with the housing provider over time, tied to regimes of design (how to create the service), operations (how to resource organizational routines and keep it running safely and effectively), and research and evaluation (how to understand and report its value and impact). Thinking of design-as-practice highlights how these different expertises and routines as associated with different timeframes, which are not given, but constituted relationally.

6.5 Making the inventive practice perspective productive

This concluding section reviews how the concepts summarised earlier in the articulation of an inventive practice perspective on designing have mobilised new ways of thinking in two descriptions of design, one concerned with commissioning healthcare services, the other concerned with a proposed venture to address older people's needs in new ways. The aim of remixing these two cases through the lens of inventive practice, was to explore whether it is

productive and describe how it is. Since in both cases, the researchers writing the reports were familiar with much of the conceptual apparatus used in this dissertation, the aim was not to make claims of uniqueness. Instead the purpose is to show how the inventive practice perspective described here, itself a recombination of other people's work, can illuminate what is going on in such design work and ways of doing and talking about it.

In short, an inventive practice perspective opens up different ways of thinking about what went on in the activities of provider-commissioning and designing new services related to ageing. Summarising across the two tables and discussions of characteristics presented above, the inventive practice perspective:

- Suggests how to reconceive what it is participants are designing and how it proceeds, by being explicit about the centrality of the relations between people and artefacts within configurations that unfold in practice, rather than the starting point being existing organisations, artefacts, services, roles, or behaviours.

- Surfaces concepts with which some researchers may be familiar, and makes them "do-able" in the context of a particular practice context, with limited opportunities for discussion.

- Brings into clearer view the unintended consequences of designing as a site for discussion and action.

- Sets up temporalities and accountabilities as problematics, not as given or pre-determined.

- Shifts away from individual capacities, skills and needs and highlights how these are co-constituted relationally, considered both through the lenses of design-as-practice and in designs-in-practice.

In conclusion, then, it is argued that the inventive practice perspective is productive. It does not replace existing modes or styles of analysis, but rather serves to combine different intellectual traditions in a recombinant formulation that opens up new possibilities, while never claiming to be definitive and final.

Chapter 7   Conclusion

7.1 Introduction

This chapter concludes this study by revisiting the elements used in weaving it together. It then offers a summary of the contribution, identifies some of the limitations within this work and outlines directions for future research.

Chapter 1 opened with an account of design operating in an expanded field. It described recent changes in the activities of people trained in the kinds of design taught in art and design schools and practiced in design teams and consultancies, some of whom are now working in relation to public and collective matters such as policy, international development, education and healthcare. In addition to professional and student designers undertaking these activities, there is also evidence that design-like methods and toolkits are being taken into projects and ventures within social innovation, international development, and entrepreneurship, sometimes associated with the term design thinking, raising questions about the particular expertise of designers and its portability, and how to engage the knowledge and skills of others such as service users, or specialists such as social workers.

Two emerging fields were summarised: the design of services, and design for social innovation. For each, some of the key sites, organisations, projects, publics, events, research and teaching were described. The argument proceeded by

identifying shared problems. These include identifying the object of design, ways to go about and involve participants in doing such designing and the kinds of expertise required. There is confusion about whether these fields of practice are new and distinct, and or whether ideas of services and "the social" can and should be woven into other kinds of specialist design practice. Further, particularly pertinent to design for social innovation, these practices raise questions about ethics and accountability.

Against this background, a research question was posed as: In what ways can the relations between people and things be conceptualized more coherently in the design of services and design for social innovation?

Answering this question led to four tasks for the research:

- To review literatures to understand how researchers have conceptualised the relations between people and artefacts within designing;

- To draw together a way to think of the relations between people and artefacts in designing, using theories of practices and resources in STS and remixing material from three published papers;

- To evaluate this conceptualisation by re-analysing (remixing) two cases on services and social innovation; and

- To discuss implications for research and practice.

Chapter 2 described the approach to this study. It outlined the ontological and epistemological commitments that underpin the research, identifying particular ways of understanding the world and how knowledge is produced. These shaped

the choice of an abductive research strategy, in which immersion and analysis proceed iteratively and the researcher is seen as co-articulating the sociomaterial world in which she and the research are located. This chapter also introduced the argument of continually reworking the analysis, by editing and by adding new textual relationships, thinking of this as a kind of remixing.

The literature review in Chapter 3 reviewed major contributions within design studies, the development of user-centred design and challenges to it, including ontological design. This leads away from a cosmology of design in which entities such as the *designer*, the *object*, and the *user* pre-exist within a *context*, towards a recognition that these entities come into being through the processes of designing and how things happen in practice.

Chapter 4 continued the literature review, highlighting where and how design and social and cultural research have intersected in several fields including in PD and CSCW, and identified issues that researchers continue to address. These are: the role of social and cultural theories in research for design; enduring gaps between research, design and use; how accounts are created and to whom actors are accountable; and how representations of sociomaterial worlds are instantiated and engaged with.

This was followed by an interstitial, that offered three published papers, two on design thinking and one on service design. The aim of presenting these papers here, rather than in an appendix, was to offer this research as a resource to be remixed and reworked in subsequent chapters. Paper 1 reviewed the origins of

the term design thinking in design and other literatures, and surfaced some of

the issues associated with it. Paper 2 introduced the pair of concepts *design-as-*

practice and *designs-in-practice,* to highlight the unfolding of designing within

sociomaterial practices. Paper 3 reviewed literatures on service design in design

and management literatures. Through describing three short cases based on an

ethnographic study of service design professionals, it proposed describing

designing for service as an exploratory activity, in which services are seen as

social and material configurations which create value in practice.

Chapter 5 expanded the three papers into a wider argument for design to be

conceived of as an inventive practice implicated in constituting configurations

that unfold dynamically in practice. This was achieved in two parts, in relation to

long-standing debates in the design studies literature. The first part focussed on

the object of design, which has variously been described as concerned with form,

or as about resulting in change, or as different kinds of entity. The second part

focussed on understanding how design proceeds, often through describing

designers' methods. Turning to resources in STS/ANT, this chapter proposed

conceiving of designing as constituted through the mutual intra-action of

heterogeneous actants, unfolding in configurations that result new meanings and

identities, skills and procedures, and forms, properties and materials. This

involved further elaboration of designs-in-practice and design-as-practice.

Design-in-practice saw the object of design as constituted through the dynamic

intra-action of heterogeneous actants, involving particular inclusions and

exclusions. Design-as-practice described how designing proceeds in ways that

result in new kinds of configuration, by mobilising ignorance and surprise and an excess of data, affect and the sensory as resources.

In Chapter 6, these concepts were further remixed. Five characteristics of inventive practice were identified which gave further definition to the concepts explored in the previous chapter. *Intra-action* highlights how designing takes place through the dynamic intra-action of heterogeneous human and non-human participants, responding to, and resulting in, changes to meanings and identities, skills and procedures, and forms, capacities and properties. *Inventiveness* sees novel designs as resulting from new configurations, which serve to open up rather than determine possibilities for further thought and action and which emerge when methods, data, affect and materials exceed possibilities. *Ignorance* recognises how during designing, along with knowledge, ignorance and surprise produce new meanings and identities, skills and procedures, and forms, capacities and properties, which do not serve all actors equally. *Accountabilities* emphasizes how designing proceeds and emerges in relation to mutually-accountable heterogeneous human and non-human participants and their accounts. *Temporalities* brings into view how designing and designs unfold over different temporalities which are constituted relationally.

This formulation was evaluated by using the inventive practice perspective to discuss two cases. Remixing the first, a report of designing healthcare services, opened up new ways of thinking about structures and practices, how these got in the way of effective provider-commissioning by clinical groups. Re-writing the second case, on design for social innovation, made available a way of thinking

about who and what could be involved in constituting the new service. The challenges associated with enacting a design approach in both of these two cases highlight the difficulties and necessity of finding better ways to describe and do designing, if the promise of design for service and for social innovation is to be delivered. This was followed with a summary of how the inventive practice perspective opened up shortcuts for understanding and describing what goes on in designing for services and design for social innovation.

What is left to do is to summarise the contributions to research and practice, and to outline future directions for both and discuss limitations.

7.2 Contributions

The aim of this section is to clarify what the arguments advanced here offer to research literatures and to practice, in relation to service design and design for social innovation. There are three contributions. However, similarly to Singleton's study on service design (2012), the result is not a framework, easily portable to the world of professional design. Instead the dissertation demonstrates how bringing together resources in theories of practice and STS/ANT addresses some long-standing issues in design studies, which are particularly acute in the design of services and design for social innovation. These resources open up new directions for research and practice, at a time when design and designers are involved in an expanded and expanding field.

Firstly, one advance enabled by the argument presented is to rethink the object of these emergent design fields. Difficulties in defining what designers of services are designing, has lead to competing accounts that often weave uncomfortably between ideas of humans, objects, society, behaviours, structures, processes, and agency. Examples are thinking of services as invisible processes around evidence (eg Shostack 1982; 1984), or the wider physical environment (eg Bitner 1992), or as platforms (eg Evenson and Dubberly 2010), behaviour change (Singleton 2012), or interfaces (eg Secomandi 2012). Similarly, researchers and designers working in support of social change also have difficulty defining what it is that is being designed. As with services, researchers and designers have described the object of such designing as sustainable ways of living and working (eg Jégou and Manzini 2008), as well as new products tied to particular social outcomes (eg Brown and Wyatt 2010).

These difficulties are not surprising. They result from a reliance on distinctions between tangibility and intangibility, in service design literatures, or on users, designers and objects, in much of the design literature. But beyond these manifestations in research, these difficulties point to an ontological distinction between people and things, as if the social is located outside of objects, usually in people. In contrast, this dissertation has made use of resources influenced by traditions within social and cultural research that attend seriously to objects and to humans and how they come to be agential through sociomaterial processes.

The research question in this dissertation focussed on understanding the relations between people and artefacts, in design for services and for social

innovation. Thus, viewed through the lens of design-as-inventive-practice, the distinction between objects and humans, or humans and systems, is not pertinent. Instead, the object of design is understood as constituted through the intra-action of heterogeneous humans and non-humans, which come to be agential through practices that are at once material and discursive, leading to changes to meanings and identities, skills and procedures, and forms, capacities and properties.

Further, the tensions in design literatures between a focus on objects, or on design being seen as about making change happen, becomes less important by acknowledging how designs come into being through the mutual intra-action of diverse actors. This helps recast the question about the object of design for services and for social innovation, not as concerned primarily with *either* designing objects (eg touchpoints in a service), *or* aiming to change human behaviour. Instead, the design as inventive practice perspective recognises the emergent and contingent results of designing in the changing relations between people and things.

Put another way, the advance offered here is to recognize that (re)designing digital or material artefacts, behaviours, policies, structures, capacities, organizations, or job roles, all result in change to an existing configuration of people and things through their mutual *intra-action*. The extent to which these new configurations exhibit *inventiveness* is contingent on the excess of data, affect and the sensory that go beyond current possibilities. Some of these consequences will of course be unpredictable and emerge as new practices come

into being. Being attentive to the *temporalities* that are operative will help orient practitioners and researchers to the timescales over which unintended consequences emerge. The expanded and mutual *accountabilities* that are brought into being during designing involve attentiveness to the diverse actors involved and their various accounts, and which are included and excluded.

Further, the inventive practice perspective shifts concepts and language away from "users" and their "needs" which, owing to the inheritance of user-centred design and its variants, continue to shape design. Instead, the inventive practice lens highlights how change in configurations result in new meanings and identities, skills and procedures, and forms, capacities and properties. Thus – to use the design vernacular – users and their needs and capacities, are constituted relationally in practice, rather than being pre-existing entities and characteristics.

A second, related contribution is to open up new ways of understanding how designing proceeds and how to characterize a designerly approach in design for service and design for social innovation. Claims about, and more recent rejections of, design thinking have insisted on designers having a distinctive approach, that non-designers, such as those commissioning or paying for design, can access or inhabit, in particular the people known as users or participants. While the popular versions of design thinking (eg Brown 2009) typically do not engage with the decades of research literature on the topic, what has become clear is sustained interest in design-based approaches including by management educators and researchers, but also social innovators and entrepreneurs. Describing designing, in the context of services and social innovation, presents

added complexity when compared with undertaking studies of, for example, solo product designers working on discrete industrial objects. It would be foolish to attempt to define a design-based approach as if it is not historically and culturally situated.

Careful to avoid any claims of universality, the contribution here builds on directions being followed by other researchers, including those working with practice theory (eg Shove 2006; Ingram et al 2007; Julier 2007; Scott et al 2011), or with STS/ANT (eg Suchman 1987; Yaneva 2005; Ehn 2008; Wilkie 2010; Binder et al 2011; Moll 2012; Andersen 2012; Botero 2013). For example Binder et al (2011)'s discussion of design objects, argues that such objects are both social and material, and how designing unfolds through the involvement of diverse participants. What this dissertation adds is additional depth to arguments that the sociomaterial world is constituted through discursive-material practices, drawing on the work of feminist philosopher Karen Barad and her concept of intra-action. Further, the use of inventiveness, as presented by Barry (2001) and by Lury and Wakeford (2012), opens up possibilities for a more radical form of co-realization as proposed by Hartswood et al (2002).

If the starting point of a design project is to conceive of the world as mutually constituted through the *intra-action* of diverse actors, rather than with pre-existing forms and properties, this acknowledges all potential actants as mutually *accountable* in designing, not merely the human ones who are currently alive. Thinking of designing as an *inventive* practice, attends to how designerly methods produce excess of data, affect and the sensory that exceed current

possibilities, which lead to new ways of thinking and doing, opening up possibilities that configure and reconfigure relations between actants. The inventive practice lens contributes to understanding designing in these emergent fields by engaging productively with both *ignorance* and surprise, not just knowledge, which can be about users, or processes, but also how to go about designing. It highlights the ways in which practices create boundaries between what is inside and outside, and between what is now, and what could be, enacted with different *temporalities*.

The contribution to the emerging fields of design for services and for social innovation comes from the shift away from seeing "design thinking" as concerned with design professionals and their skills and tools, perhaps taken up by other professionals or activists. It moves towards designing as being a wider set of practices in which diverse actors are involved and through which they come into being mutually accountable to one another. At a time when research design and prototyping are being advocated by and for non-designers, it is important to clarify that designing is not owned or shaped exclusively by any one group or set of practices.

The third advance is to broaden understanding about the nature of participation in design for social innovation. Much of the hope invested in design-based approaches for social impact is about designing new ways to understand the lived experience of, and work productively with, vulnerable and hard-to-reach individuals, families and social groups. In some accounts, designing for social innovation is presented as attending explicitly to the social (collective) concerns

of those implicated in or affected indirectly or directly by designing (eg Jégou and Manzini 2008) or as meeting people's unmet needs by being empathetic (eg Brown and Wyatt 2011). However in some accounts, such idealism is tempered by recognizing otherness and the agonistic nature of the social world (eg Ehn 2008; Binder et al 2011; di Salvo 2012).

Designers and researchers working in social innovation have been slow to draw on the literatures explored in Chapter 4, which explicitly formulate ways to understand the relations between designing and social and cultural research. But these literatures too have a history of working with a relatively limited set of participants/users, in particular people for whom new digital systems and software are being designed. For example CSCW has mostly been confined to the design of systems as part of investments into ICTs, where the participants who matter are the managers and end users of the software and hardware within specific workplaces. Within PD, there are already ongoing experiments in the form of "living labs" which attempt to bring participatory approaches towards communities addressing complex challenges (eg Björgvinsson et al 2010, 2012). Further, recent work linking PD and design (eg Andersen 2012; Moll 2012) within healthcare has also opened up existing conceptualizations of participation and who should be considered a participant from medical secretaries to posters enrolling patients.

A contribution from this study is to build on this, and make available contemporary theory and practice and recent research in design for services and

design for social innovation, which offers a much broader canvas within which to understand participation.

In summary, the account of design as inventive practice offered here rests on a view of the sociomaterial world as enacted through the dynamic *intra-action* of heterogeneous actors, not just human users of systems. Further, it recommends that such actors are rendered as mutually *accountable* to one another, although in practice they often are not or do not chose to be. The conceptualization of designing offered here is part of the wider trajectory of STS-inflected PD and design thinking, that recognize the participation of diverse actants in designing, and how work is done to include and exclude them in new configurations. It highlights that the *temporalities* over which such practices and their intended and unintended consequences come into being is not given, but are contingent. This, then, raises the bar for those involved in designing new kinds of participatory project, methods or devices. It begs questions about what unfolds from specific configurations and their consequences, within specific sets of accountabilities, over different timescales.

A fourth advance from this study is to connect research traditions that do not, as yet, have many points of coincidence and intersection, although there are some notable exceptions. Researchers working with design studies rarely cite work within PD or STS, which have developed an extensive conceptual vocabulary for thinking about the sociomaterial worlds in which designing takes place. Those working within service design have often not been attentive to the depth of work available to them within PD and CSCW to help conceptualise designing for

systems and platforms. Those working within social innovation, for example aiming to change behaviours or result in wellbeing, rarely investigate theories of practice that offer a way to understanding how behaviours are constituted and the contested meanings of wellbeing. It is unrealistic for any researcher to know any field by encompassing all the actants in a network, let alone to be easily able to navigate more than one field. But for those of us working in emerging and relatively unformed areas of research, such as design for services, and design for social innovation, it is surely essential to seek out concepts and theories from other fields that somehow address current problems we are beginning to understand.

Despite these claims, this remains an experimental piece of writing, that remixes concepts, texts, and genres from several fields. Once finished in the formal sense by being accepted by the examiners, and hard-bound, it will continue to unfold. This possibility of it never being quite finished, is not an excuse for not doing the best one can with the resources available. Instead this highlights the re-writing and re-mixing that is to come.

7.3 Limitations

Finally, it is useful to revisit the limitations associated with the approach developed in this study. Chapter 2 described the reasons for selecting an abductive research strategy and the methods used in this study, which aimed to understand dynamic, emerging forms of design practice diffusing in many kinds of site. This choice was based on a way of viewing the world, and knowledge

production, not as existing "out there" but rather as constructed through the activities and accounts of social actors. This study aims to clarify the phenomena under discussion. But rather than seeing them as existing out there for the researcher to uncover and describe, this research strategy recognises my practice and research as co-constituting the phenomena I have studied. However with this approach come some limitations, and a discussion of how they were addressed will bring these into the frame.

The first important limitation is the attempt to develop a broad conceptualization of designing that addresses not just one big field, but two. Developing an understanding of the relations between people and artefacts in the context of designing for services, and designing for social innovation is a big ask. Even a cursory investigation of designing for services, under the definition offered in Paper 3, addresses nearly any kind of design activity. The description of social innovation offered in Chapter 1, also seems to encompass a wide range of sites of designing from healthcare to education to development. These seem to suggest that using a small number of cases is not an adequate basis to offer any generalisability. The suggestion made here is to replace a desired-for generalisability of the findings, with a desire for *modifiability* (eg Glaser and Strauss 1967). Much in the same way that this dissertation has been written, by recombining existing texts with concepts from STS, so too can the account of design-as-inventive-practice presented here be assessed by its future modifiability.

A further limitation is methodological. The strategy of remixing existing studies, phenomena and analysis with new theory and research may at first glance seem unlikely to grant much validity. Extensive new fieldwork at sites of design for services and design for social innovation could have been carried out to ensure broad empirical evidence. Instead the approach taken here has been to mash-up existing cases. However following discussions in grounded theory (eg Glaser and Strauss 1967), empirical validity is less important than exploring whether the data and emerging conceptualizations show fit with and relevance to the phenomena studied, and a mash-up presents empirical phenomena in sufficient detail for the focus of this study on developing inventive intra-actions between fields of design theory and practice.

To further increase fitness for purpose, triangulation methods involved included giving participants involved in the research described in Papers 1, 2 and 3 opportunities to read and comment on early versions of the research. Participation in conferences, seminars and lectures, including co-organizing the Social Design Talks (2013) allowed me to compare and reflect on my emerging analysis with other researchers and practitioners in service design and design for social innovation.

Additionally, within the tradition of ethnomethodology described earlier (eg Garfinkel 1967), animating this research is a longer-term commitment to reflexivity about my own practices and institutional locations in co-constituting the emerging fields described here. Bringing an autoethnographic sensibility into

the author's work as a researcher, educator and practitioner highlights the mutual constitution between these differing spheres of activity.

7.4 Future directions

The aim of this section is to suggest how the concepts advanced open up new lines of inquiry in relation to research and practice in design for service and design for social innovation.

A first avenue for further research is concerned with temporalities and accountabilities, given the inevitable, unintended consequences of any designing and using. For example, the ongoing debates over the design and production of the iPhone, reliant on manufacturing capability in Chinese factories in which workers' rights do not meet international labour standards, has exposed how the emblematic products of industrial and interaction design expertise, produced by international corporations within global technological consumption practices, are implicated in wider social, political and economic networks. Thinking of the iPhone, the design-in-practice perspective highlights how the device exists within an expanding set of mutual accountabilities to the families of Chinese labourers as well as African miners and many other actants. In the context of design for social innovation, tackling issues such as ageing, well-being or worklessness, there are likely to be complex questions about accountabilities and the timeframes and scales over which users, activists, customers, managers, volunteers, funders, regulators and other human and non-human actors are rendered accountable to one another. So a major challenge facing those involved

in design for social innovation and design for services is to understand how to think about and render available the diverse agencies implicated in new designs-in-practice, and how to identify the timeframes over which to analyse how practices unfold.

A second issue is a focus on the collective competences required by organisations, communities, projects and teams in order to work in ways that support, and do not hamper, design as inventive practice. The recent interest in design thinking among management educators discussed in Paper 1, and in design for services, reviewed in Paper 3, is evidence of one of the ways that design is spreading beyond its traditional domains. Similarly, the dissemination of toolkits like IDEO's (2011) *Human Centred Design Toolkit* into development fields continues to advance the claim that design-based approaches have something to offer fields concerned with social innovation. However this take-up of design within some aspects of management, professional fields such as social work, and entrepreneurship raises questions about what organisational capacities and competences need to come into being, in order for these hopes to be realised. This can be understood as a challenge for both those involved in higher education, and variants of it that are not degree-awarding such as executive education or continuing professional development. Other ways of exploring and establishing new organisational competences such as formal training, accreditation, peer review networks, online learning and coaching, are all sites for future research about the extent to which inventive practice can be developed as a collective capacity.

A third direction for future research is understanding and evaluating impact. The emphasis in this study has been conceptualising the relations between people and things in design for services and design for social innovation. But existing alongside this somewhat abstract research are numerous examples of this practice already happening at many different scales and in relation to different kinds of challenge or opportunity. Much of the existing conversation is a kind of claims-making for and by designers about the value of their approaches. However, there is as yet very little evaluative research about the effectiveness and impact of bringing design approaches to the design of services and design for social innovation. This presents conceptual as well as methodological challenges, particularly given the diversity of actors involved, and the need to assess the consequences of designing within different temporal regimes.

7.5 End note

Having started with by offering a critical perspective on the claims made for design in the expanded field, this study has reworked existing publications and cases and recombined it with research within STS/ANT to propose an inventive practice perspective on designing. It is this practice that I work towards constituting and which co-constitutes what I do, think, make, say, know, and feel, and how and who and what I am as a practitioner and educator. It is through being part of the enactment of a version of this practice at particular places and times, that I have been able to write this text; and at the same time, through

writing this text, I have been involved in reconfiguring my own professional

work.

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