TOWARDS A MANIFESTO FOR METHODOLOGICAL EXPERIMENTATION IN DESIGN RESEARCH

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ABSTRACT

This paper argues that design research may benefit from investigations, explorations and innovations in the means of conducting and of conveying design research from qualitative methods in the social sciences. The paper examines how inter-disciplinary and inter-methodological experimentation as a mode of knowledge building. At the end of the paper we draw out a manifesto that proposes potential actions concerning design research methods which ought to be applicable for designers and design researchers, but also for social scientists engaging with the changing nature of production-related inquiry and critique in which design increasingly features

INTRODUCTION: LOCATING THE ISSUES

EPISTEMOLOGICAL MATTERS

This paper offers an epistemological prompt to design researchers to consider a number of core issues concerning methodological experimentation. The prompt is to draw together design techniques from designing and innovations in research methods in qualitative social science research so as to expand and enrich innovation in methods in design research.

Much design research applies research methods from subject discipline domains from outside design without much experimentation. The paper argues that design research may benefit from investigations, explorations and innovations in the means of conducting and of conveying design research from qualitative methods in the social sciences. However, what is seldom seen is mention of techniques used in designing (sketching, video prototyping etc.) that is central means to the generation of new products, interactions, services and experiences.

The paper offers a meta-level discussion concerning inter-disciplinary and inter-methodological experimentation as a mode of knowledge building. At a methodological level, we see a need to more fully consider the production of knowledge by designing and via the acts of constructing of design artefacts.

In addition we see a need to more fully unpack for design research the resources for methodological experimentation offered by developments in some social science disciplines in recent years. This includes fields such as sociology, anthropology, human geography, media and cultural studies. We argue for a methodological and dialogical mix of these differently situated and generated approaches. This mix itself needs to be seen as a mode of experimenting with knowledge production relating to design. There is considerable epistemological and methodological diversity as well as experimental variation within and between different disciplinary domains in the social sciences. Such a mix also offers the social sciences an additional design centred view and techniques that may serve to enrich experimental modes of constructing and communicating aspects already taken up in post-structuralist inquiry (presentation-mediation, voice-identity, indeterminacy-messiness etc.).

In the next section we focus specifically on matters of method and methodology. Then we cover and illustrate constructive design techniques and qualitative research methods in the section data and methods. Thereafter follows a section that reflects on the hybrid mode of experimental methods we propose. The argument, illustrated with references to projects and publications in design research and in qualitative inquiry, leads towards a three-part manifesto for considering and realizing methodological experiments in design research. Finally, we discuss this manifesto with respect to potential actions concerning design research methods and their contextualisation in the complexity of today's world. We close by arguing that the assertions of the manifesto ought to be applicable for designers and design researchers, but also for social scientists engaging with the changing nature of production-related inquiry and its critique in which design increasingly features.

LITERATURE AND THEORY: FOCUSING ON METHODS

EXPERIMENTAL RESEARCH

The practices of thinking and doing that fall under the category of experimentation do not comprise a unified body of work and definitions of the experiment are still open to contestation. To date, definitions range from the more scientific interpretation of the experiment as a testing of theories through a carefully crafted and monitored environment, albeit with room for the unexpected, to the less formalised "experiment as a trial or a venture into the unknown" (Gross 2010: 4). However what most social and cultural researchers agree on is that experimentation should "push the limitations of current conventions of representation and knowledge-making. There is a desire to move away from what is considered 'safe', orderly and established, whether it is by searching for methods that meet the imperatives of new theories, existing complexities or desired accessibility." (Last, 2012: 708). This effort is connected to the desire to take knowledge of the social beyond the prescribed environments and to bring it into dialogue with new disciplines, spaces and audiences (Massey 2008; Pratt and Johnson 2009; cited in Last 2012). Experimental Research Network (http://experimentalnetwork.org/) make the argument that 'traditional research methods can be used creatively' and situate them within experimental research by including 'people who are using creative, innovative, novel or risky research practices in their work' (Gallagher and Prior 2010).

In other circles the idea of interdisciplinarity itself is thought of as a main form of experiment, as experimentation is often driven by the perception of discipline-specific methods as being limited (Davies, 2011). Some disciplines share significant theoretical and methodological overlaps with others, while others are separated by significant difference in outlook. This makes different demands on the researcher in terms of producing analytical accounts. However, the negotiation of differences between fields continues to be regarded not only as a powerful means of generating novelty, but a useful way of seeing one's familiar approaches in a new light (Driver et al. 2002: 8)

Reflexivity is another key attribute that characterises most approaches to the experimental in social science research. Here there is recognition of the researcher's implication in the construction of spatio-temporal practices and interrelations as well as their amplifications and mobilization. Reflexivity involves understanding the assumptions, biases, and perspectives that constitute the basis of research. It includes epistemological questions and contextual conditions of understanding that are implicated rooted in practices of collaboration, and in the choice of perspectives.

Ian Kerr suggests that "'to act/research is to be involved in change – experimental change. We need to recognise that acts of knowing are forms of change' (Kerr 2008, p. 65). Active, participatory experimentation is taking on manifold forms. Gail Davies observes that what is at stake is less ' what can be known through precisely controlled conditions, and more about creative forms of world-making' (Davies 2011). Last (2012) observes that active participation in this "world making" mirrors the desire by many researchers to move beyond "mere critique" and to affect the spaces and relations of concern through non-traditional means, with the hope of being more effective in reaching relevant audiences.

The search for alternative research practices or representation is often guided by the desire to align the dissemination of research findings more with the ethical and aesthetic imperatives of research subjects. Last (2012) outlines some questions that have been posed among researchers such as: How can researchers include the nonhuman in their practices and analyses (Hinchliffe et al. 2005)? How can we engage with the precognitive, with emotion (see Anderson and Harrison 2010)? Should concepts be followed formally in writing (Massey 1997) and certain impressions be rendered as poetry (Lorimer 2008)? Should writing on experimentation result in experimental writing? Such questions, Last argues, underline the intertwining of aesthetics, ethics and ways of knowing and representing. Such a line of reflection forces us to ask what aspects of the social world can be known or represented, and what kinds of options are available to be engaged with the potential for the unknowable and unrepresentable through experimentation.

THE EXPERIMENTAL IN DESIGN RESEARCH

Koskinen and his colleagues (2011) have identified three main modes through which design research in Europe at the doctoral level has approached experimentation. The first mode that they identify has historical foundations in the natural sciences, but

usually comes to design through psychology. The goal of such methodologies is to identify relationships that might serve as a basis for design. In such research we can find questions such as, for example, how the limits of human cognitive capabilities affect error rates in the use of tablet computers. If such relationships were found, they could be turned into mathematical formulas that would provide a solid ground for design. In such research, epitomes of analysis are artefacts such as a prototype. It crystalizes theoretical work, and becomes a hypothesis to be tested in the laboratory.

Other perspectives on design research build on interpretative social science, where the stress is on the need to study people in their everyday life settings, rather than in the laboratory. Interpretive methodologies have a long history in design and have been used by companies like IDEO and Xerox PARC. This methodological approach has also been widely used by design researchers especially in Helsinki Milan and Copenhagen. This research has addressed issues such as garbage collection, health practices in favelas, and housing services for seniors. This approach makes use of action research and builds on notions of co-design.

The third perspective builds on the relationship between design and art. A lot of this work was done at the London College of Art in the nineties where Anthony Dunne and Fiona Raby coined the notion of "critical design" (Dunne and Raby, 2001). The main aim of critical design was to question the dominant commercial ethos of design. They drew inspiration from cultural studies, critical theory, radical architecture, and Italian *controdesign*.

Another key figure that used this approach is Bill Gaver, the chief ideologue behind cultural probes (Gaver et al. 1999) that developed an art based methodology drawing on Guy Debord's Situationist idea of *psychgeographique* and on Nicholas Bourriaud's notion of "relational aesthetics". Recently, critical design has focused on the politics of science by trying to make the implications of science an object of discussion by making them tangible long before true applications hit the market. Dunne's (1998)'post-optimal' object, for example, critiques product semantics and the human factors preoccupation with the ergonomic and psychological 'fit'. Instead, he applies strategies of defamiliarization and estrangement from modernist aesthetics, as 'user-unfriendliness' and 'para-functionality' to discourage unthinking ideological assimilation and promote scepticism by increasing the poetic distance between people products.

In all these research programs and in more recent work on design research, the discourse of experimentation has been widely adopted. This has been seen in examples from contextual inquiry, co-design (Johansson & Linde, 2005); cultural probes; and design games (Brandt 2006). However in these contexts, experimentation is seen in terms of "design experiments". In this case, the innovative thrust of experimentation takes place during

the during the design process and not in research. The focus is more on design methods rather than on research, and often with little theoretical grounding (Laurel 2003). In other cases the methodological reflection takes place mostly in the early stages of the design process.

Increasing social science is expanding the repertoire of materially innovative methods and addressing the limits of the phenomenal. Christena Nippert-Eng suggests that social sciences can offer design such disciplinary skills as a distinctive conceptual, analytic framework, ethnographic skills, writing skills, contextual information via substantive areas of interest including a way of looking at the relationship between people, objects and activities – especially the politics of design (Nippert-Eng 2002: 213).

These reflexive stances have been categorised as baseline, tool, location, and position (Marcus 1996). John Law and John Urry (2004) argue that the social sciences are relational or interactive. Social scientists *participate in*, *reflect upon*, and *enact* the social in a wide range of locations. They see research methods as *performative*. They mean by this that these methods have effects, make differences and enact realities. They can help to bring into being what they also discover.

Lucy Suchman (2002) suggests that one strategy for successful collaboration between designers and researchers in technology corporations is to establish new bases for technology integration, not on the basis of universal languages, but in what she calls *partial translations* (Suchman 2002: 101). Suchman also proposes that we value heterogeneity in these systems rather than "homogeneity and domination". Critical perspectives from cultural studies, feminist theory, and post-colonial theory, social studies of science and technology (STS) might provide useful "tricks of the trade", methodologically and theoretically, to think through problems of universal languages and standardized practices. They can offer detailed accounts of local practices, different understandings, and explore the relationships between marginal experiences and mainstream discourses.

DESIGN TECHNIQUES AND DESIGN RESEARCH
Numerous design textbooks exist on techniques for designing, whether connected to engineering, fashion, interaction and product design, to mention only a few domains of design. These books, and now websites, are usually written and illustrated to assist students of design to learn how to engage creatively and also productively with generating ideas, design works and processes of arriving at designs of their own, for specific interest groups, users and stakeholders. They have traditionally been developed for use in the studio of the design school but naturally they are also resources that designers in everyday professional practice also draw upon.

As Ilpo Koskinen and colleagues (2011) write, the contexts for designing, of inspiration and of making, of use and usage, have shifted from the studio to also include other locations, that in their terms now can covered by the field and the showroom. This implies that the activity of designing is now also spread more widely, contextually, culturally and in practices of work and innovation, including ones that are emerging. Such design is implicated within work that takes place outside the studio setting, once remote from the grittiness and transformative power of the street and the demands of retail.

Today design is increasingly embedded within popular and commercial cultures, and contexts of personal and corporate use. It has extended more recently to diverse areas such as smartphone 'app' development and civic protests arranged by communication design strategies enabled by social media such as Twitter. Important too is the emergence of co-design as an alternative to the earlier romantic notions of the lone gifted (male) individual. Matters of gender, special needs, universal access and cultural sensitivity have become key issues to consider.

Important also in understanding how design works as an activity, not just the generation of products or indeed even services, is to acknowledge the needs for spaces for design This extends to phases, iterations and the ways these are mapped, timed and cognitively articulated in teams and to clients. A great range of techniques often mixed and matched depending on need, in abductive relationships, as wranglings, tinkerings and maverick moves, are also selected, put into play and applied. The techniques include amongst others conceptualising, sketching, paper and video prototyping, patterning, evidencing, mediating, probing, the use of props, gaming, scenarios, mock ups, mood boards, role allocation, temporal boundedness, user narratives, walk throughs, protocols, shadowing, cards, stakeholder maps, storyboards and demos.

In general, designers are expected to imagine new things and not just existing ones, to find new routes and means to shaping innovative products, experiences, services and interaction, and systems. Much energy, iterative work and often co-design endeavour goes into producing designs. Designers may find that as they engage in creative innovation on design, they might gain from drawing on other methodological insights and theoretical discourses some social science fields in order to better reflect over their processes, written accounts and on-going evaluations of their practices. This is not to say that this does not occur, not that is often only a matter of emphasis. Instead, it is to suggest this is a space (Sevaldson 2008) for richer design and related research activity where co-design may also be extended to means connecting design techniques with qualitative methods. In the next section we offer some examples of how this has been carried out and the types of resources they offer us all to realise such a synergy.

DATA AND METHODS: CONSTRUCTIVE DESIGN METHODS AND QUALITATIVE RESEARCH METHODS

CONNECTING ETHNOGRAPHY AND DESIGN

Drawing on an adaptation of modes of interdisciplinary research inspired by a study carried out by Andrew Barry, Georgina Born and Gisa Weszkalnys (2008), Lucy Kimbell (2008) proposes three ways in which social science methods such as ethnography might connect to practices of design and research.

The first mode she identifies in which ethnography and design engage is what she call the *service* mode. In this mode design craft is in the service of ethnographic research or ethnographic data is employed in the service of the design process. Ethnography might use design to style the tools of ethnographic research. So for example, communication design skills can help with the arrangement of text, photographs and diagrams, or the editing of video footage. Design serves a stylistic function in helping deliver the outcome of qualitative research. Seen from the other side, it is possible to think of ways that design makes use of ethnography in presenting its arguments, drawing from ethnographic research its data or analysis.

The second mode Kimbell identifies is *integrative* and *synthetic*. In this mode, ethnography might partner with design to develop artefacts that might persuade stakeholders. Design methods and processes are drawn upon to develop a critique of existing arrangements or conceive ideas for new ones, stimulated and complemented by ethnographic research. Examples are narrative devices such as scenarios or prototypes or mockups of product or service ideas. In this case design is central to the imaginative possibilities of research. Rather than just making research more visible and better understood, design synthesizes it in the creation of visual artefacts that suggest new ways of doing things, new products and new services.

The third mode is *agonistic-antagonistic*. This means that rather than coming together smoothly, disciplines engage in continual argument. In this mode design and ethnography forsake their disciplinary identities and merge into an unhappy union. Here design engages in a self-conscious dialogue with, criticism of, or opposition to, the intellectual, ethical or political limits of qualitative inquiry and vice versa. Kimbell argues that working in this way involves a kind of invention in the sense that the creative clash between design and ethnography generates knowledge in the form of methods and forms that may not make sense to either discipline.

POTENTIAL

It is this third mode that we wish to emphasize because we believe it holds the most potential for exploring the possibilities of methodological experimentation. The *agonistic-antagonistic* mode holds the most possibilities

because this mode, as Kimbell (2008: 320) describes it is "tricky, destabilizing, critical, hyper-reflexive, contingent, resistant– all virtues that are cherished in art and design and in ethnography. The third mode reassembles the social and material possibilities of disciplines."

EVALUATION OF DATA: REFLECTING ON HYBRID EXPERIMENTAL MODES OF INQUIRY

EXPERIMENTS IN ACCOUNTS

Recently, there have been shifts in the forms of scholarly communication or at least in the ecology of the present expansion of digital possibilities and how these are affecting the different genres of research and writing.

Experiments have been widespread in genres such as the ethnographic narrative since the launch of debates about representation, voice, orality and the power and poetics of writing in the 1980s (Clifford and Marcus 1986). Some of this experimentation has taken forms such as autoethnography, layered accounts, and performance texts (Downey and Dumit 1997).

The writing of accounts of design research is one area where we believe there lies potential for experimentation and where insights can be drawn from the humanities and the social sciences. What does the book or its related productions (such as the journal article or the conference paper) out of the process of design research become with this ecology? We argue that less baroque forms of design research accounts might find their richness outside established traditions of design research accounts. Alternative forms of articulating thinking, ideas, and concepts in "third spaces," archives, studios, labs, performative acts, "para-sites" and the like can provide rich avenues for exploration.

EXPERIMENTAL RHETORIC

Andrew Morrison (2011) has experimented with a series of design fiction narrative works as part of the *YOUrban* project at the Oslo School of Architecture and Design. In a paper presented at the *NORDES Conference* in 2011 he presented one of these fictional narratives where he described it as being aimed at motivating design research to expand styles of playful, reflective and interpretive modes and genres of research writing. He locates the first person narrative perspective used in the text in bio-cultural contexts of design fiction future use, referring to current Wi-Fi, RFID and GPS technologies. The text takes the form of an abductive design narrative that aims to escape from often "paddocked" research modes of writing about design. Instead, what is on offer is a playful, performative, reflective mode of design research writing that is allied to wider techno-societal concerns, drawing rhetorically on post-structuralist traditions in the humanities.

VISUAL DESIGN

Nina Wakeford (2003) describes how ethnographers and designers collaborate at the *INCITE* Lab in the exploration of the use of visual practices and design sessions as ways of doing cultural studies of technology. Through their work they are encouraged to think of the product of social and cultural studies of technology as going beyond textual output, or acting in conjunction with traditional fieldwork narratives and analysis. In some cases the product of their collaborative work is in the form of sketches of objects. They explore among other things the ways in which these sketches are linked to fieldwork, their analysis, the collaborative session, the culture of technology studies and the norms of design practice.

Wakeford suggests that by thinking through these issues collaboratively, they are stimulated to examine more closely their relationship to different aspects of the cultures of production of new technologies. From a design perspective such reflection might focus, for example, on what kind of reasoning sketching might represent in design practice. From a sociological viewpoint it might mean reflecting on what kind of reasoning this kind of collaborative process and output sketching might signify.

Similarly, Christine Wasson (2000) describes how in collaborative work between designers and field researchers at E-Lab ethnographic data were analysed from instances of data into patterns. These patterns were further transformed into a model that interpreted ethnographic materials and envisioned a solution for the client. As she explains:

> The model offered a coherent narrative about the world of user-product interactions: how a product was incorporated into consumers' daily routines and what symbolic meanings it held for them. These insights, in turn, were framed to have clear implications for the clients' product development and marketing efforts (Wasson, 2000: 383-384).

RECOUNTING EXPERIENCE

Recent work in human geography has emphasized personal experience and, through the parallel running of different genres of narrative tracks, played with theories, and (non) disciplinary practices (Last 2012). Some of this work merges poetry, story telling and academic writing to relay the authors' walking journey. Shiloh Krupar's narrative stresses the conflict of author investment/emotion and academic enquiry. Her 'ethno fable' runs alongside what she calls an 'academic and personal subsurface guide', a guide that takes on the form of excessive footnotes (2007, p. 194). Krupar explains her reasons for using what she calls a 'performative representational strategy' as follows:

(1) to produce a certain affect of curiosity,

concern, and outrage at the staging of nature spectacle on militarized sites by organizations that continue to produce and profit from deadly wastes; (2) to show the various discourses and representations, figures, material practices, institutions, and personal experiences of the author that have constelled in and around this site-based study; (3) to display two texts; one being the performance script that displays some of the rhetorical contrivances of the Rocky Mountain Wildlife Refuge nature spectacle, and the other, a supplementary text that attempts to contaminate the clean surface of the site and its staged unchanging wilderness, interjecting academic substrata and dumping a personal landfill of mythic histories, alternative landscape taxonomy, documentary photography, and animal avatars, or, subsurface tour guides (2007, p. 195).

Pelle Ehn and Dan Sjögren (1991) have explored the use of games as mediating tools in participatory design processes. The games are used to create imaginary situations that complement reflective understanding of practice. The games induce a playfulness that follows from non-constraining use of language. They argue against the correctness of descriptions and stress how linguistic artefacts are used rather than what they state to be true. In such a context, meaning arises not in how exactly a statement is formulated, but rather by the intertwining of different voices that shape language in the specific situation.

ENRICHING REPRESENTATION

In human geography, for example, authors have contested the content and means of production of representational modes of research in the form of visualizations such as photography, film, sketches and maps (Rogoff 2000). 'Critical cartographers' for example, have turned to artistic or participatory experiments in map-making that emphasize the subjective, the provisional, the excluded and the unforeseen (Crampton 2009; Crampton and Krygier 2006; Kitchin et al. 2009). Others have experimented with innovative methods for 'animating' the archive. These research practices in many ways try

to bring the material and documentary properties of archives into play, through an emphasis on bodily performance, the mobility of materials and the interplay between generating accounts and ongoing processes of interpretation. Such work engages directly with the contradictory processes of archiving, of giving form to the identities and capacities of past communities, spaces and landscapes, while simultaneously erasing that which cannot be so easily captured. (Dwyer and Davies 2009: 89).

In her work Kathryn Yusoff explores how the Antarctic landscape is rendered through expeditionary photography and embodied practice (Yusoff, 2007). Mixing writing techniques and photo essays, she stages an encounter between the 1970s 'Antarctic Action Man' and historic photographs and written accounts of the embodied endeavours of Antarctic exploration. The stories found here of pain, snow-blindness, exhaustion and exposure puncture the heroic play of exploration. She moves beyond the historic visual record to ask how such representations were achieved – a collision between technologies and possibilities of photographic exposure and bodily exposure to the landscape. Her artful interventions and a critical engagement with visual methodologies provide opportunities for producing 'archives of the feeling body'. Incorporating the body into the landscape and the landscape into the body introduces a different sensibility to the narratives, materialities and images of these extreme environments.

ON MATERIALITY

Another area of fruitful experimental work is that of materiality. Common to both design and parts of social sciences is a shared interest in objects. At a seminar series at Goldsmiths University held between 2009-2010 titled The *Objects of Design and Social Science*, the organizers argue that a focus on material, empirical, and conceptual objects open up possibilities for overlaps and disjuncture between the two disciplines and a rich space for dialogue.

Design is concerned with making and interpreting objects including finished products, experimental design aids (e.g. prototypes and probes), and projective representations (e.g. scenarios). Design has also recently begun to re-engage with more speculative objects whose ambiguous functionality makes it possible to explore the social and the material, the political and the aesthetic.

Some social science disciplines also work with objects as well, including categorical objects such as race, gender, and class. They have also explored empirical objects ranging from the mundane to the exotic, and conceptual objects such as the notions social scientists use to theorize the social. 'Materiality' and 'material culture' have, of course, long been key preoccupations in anthropology (e.g. Miller, 1987), an emphasis on the role of settings, instruments and devices in the production of scientific facts is the banner of science studies (e.g. Latour & Woolgar, 1986).

Using Nippert-Eng's work as an example, Wakeford (2003) suggests that objects can serve as a useful medium for reflective exchange between social researchers and designers. In researching the book Home and work (1996) Nippert-Eng discovered that the ways in which people manage their keys are linked to a series of their other daily activities around people and objects. She noticed that people who had all their keys together in one key chain tended to have an integrated

life, where the boundary between home and work is blurred, while separate key users tend to have a strong division between these worlds. Nippert-Eng writes:

> I found that one's key chain is linked to numerous other behaviours that we frequently don't even notice like commuting behaviour, appearance management, the way we talk at home and work, office and home decor, and eating and drinking habits. But key chains also are linked to trajectories as diverse as the domestic division of labour, occupational norms, the history of industrialization, family composition, and position within the organizational hierarchy, just to name a few. If we add to this links to more physical factors such as the production of metals and doors, the norms of access to building and car interiors, or even the popular culture of key chains as collectibles, you can see how easy it is to think of the key chain as a very interprofessional manifestation or hyperlink.
> (Nippert-Eng 2002: 214).

Drawing from this Wakeford (2003) argues that objects such as key rings can serve as a good data elicitation technique for qualitative inquiry on the boundaries between home and work. A qualitative narrative can be offered where key chains are positioned as objects through which to talk to designers about sociological concepts that might otherwise be difficult to introduce in other ways. She describes the idea of working with an artefact or an idea as an "interprofessional hyperlink".

Martin Johansson and Per Linde (2005) use the concept of playful collaborative exploration as ways of interacting with material from fieldwork that do not constrain analysis only to the search for objectified knowledge. Instead the ambiguous nature of such exploration nourishes a dialogue between different actors in the design process. This playful exploration can be used in the design process to create fantasy worlds (worlds of hypotheses) where designers experiment with ideas and concepts.

DESIGN BOARDS

In other collaborative work carried out in the *INCITE* project Wakeford (2003) and here colleagues used "grey boards" or large foam panels which can be used to pin or stick photos or text into a story of a project. These boards were used to pin up cuttings from magazines, segments of interview transcript, theoretical ideas, and stills from video interviews. They used coloured shapes to indicate categories of ideas or the development of a line of thought. Wakeford observes that these boards were useful not only as a way of physically sorting and re-ordering ideas, but also because they became part of performative stories about the research. The grey boards became "boundary objects" used to ease dialogue between researchers used to conventional ways of working with text and analysis, and designers, many of whom are used to working visually. In workshops with computer scientists, engineers, and designers, these boards were successfully used by social scientists to describe on-going fieldwork.

Wakeford argues that these boards were not just about display. They were also a physical manifestation of a way of working. Unlike a report handed to a designer as a set of specifications, the active and embodied process of translation of the data was crucial to the collaboration. It involved explicitly producing an active and engaged anthropological interpretation for an interdisciplinary audience.

As Koskinen and colleagues (2011) point out, "design things" such as mood boards and prototypes are a prominent feature in the spaces in which designers work. They suggest that:

> They are an effective way to bring people to the same table to imagine futures together. Most important, they make it possible to probe and discuss those sensuous, embodied and social things that are central to design – like colors, how materials feel on skin and the shapes of objects. Few people have a reliable vocabulary to talk about them. Inventive methods have a place in design for this reason alone. (Koskinen et al., 2011: 139).

Charlotte Lee (2007) introduces the notion of "boundary negotiation artefacts", where she suggests that negotiating boundaries might be considered a special form of cooperative work, where actors discover, test and push boundaries. This implies that we may perceive these emerging design artefacts as challenging boundaries and notions, inviting participants to negotiate and redefine those boundaries.

CULTURAL PROBES

One device that has been discussed among designers and social researchers is the cultural probe. Originally conceived by Bill Gaver and his colleagues (1999) at the Royal College of Art in London, the cultural probe was a design method that was used to help with inspiration, and to enable the authors to create a way of thinking about a new research area. Gaver and his colleagues (Gaver et al., 2004) have commented on the way that their original idea has been adopted and adapted by other researchers, in a manner that disrupts their original intention to create room for uncertainty. The probe is now part of the toolkit of some designers, used not just for inspiration but also for data gathering and to open up conversations with stakeholders (Loi, 2007).

As Boehner and colleagues (2012) point out, probes were not originally intended to support a process of deducting definite truths and target communities in a manner more familiar with for example social scientists,

nor the problem solving process familiar to many designers. Probes were developed in and for a design process that disregards utilitarian values in favour of playfulness and exploration. Because probes are motivated by the desire to inspire new ideas rather than understand existing practices, they need not to be accountable to values such as replicability, representativeness and comprehensiveness.

Instead, it is important that they are able to help provoke new design ideas and move both designers and participants out of their comfort zones. For probe artefacts this implies emphasizing their ability to uncover surprising details while still giving a sense of familiarity with certain settings. The idea is that, in this way, they will reveal previously unexplored possibilities for design that more standard methods would mask. In order to avoid surface engagements and support empathetic interpretation, for example, probes such as the Listening Glass inspire participants to take a fresh look or a new perspective on familiar surroundings and practices. Other examples such as the Telephone Jotter Pad and the Camera provide prompts for people to produce images and text unlikely to emerge in the context of more expectable research prompts.

Seen from the perspective of Barry and colleagues' three possible modes of social science-design collaboration outlined above, it is not mode one: design used to style a data gathering method. Neither is it an example of mode two: design integrating with ethnography to create a new method. Kimbell (2008) suggests that probes can be viewed as an example of mode three: an agonistic-antagonistic intervention into discussions about what constitutes data and data gathering by doing inventive inquiry.

Kimbell argues that researchers designing and using probe packs are "reassembling the social" through paying particular attention to visual data. They are involved in constituting messy realities in which they, stakeholders, and the objects in the packs, are all intertwined. They offer an intriguing way for this community to reconceive its disciplinary boundaries.

RESULTS

REFLECTION
In considering the section above on a range of approaches to methodological experimentation, we have developed a Manifesto as a means of trying to take one more step forward the need for such experimentation into a more programme driven direction that can be realised in detail over time.

We see this Manifesto as the outcome of a process of work and reflection. It may also be approached as a way of identifying potential challenges for design research to consider.

MANIFESTO
The Manifesto is not intended to be all encompassing; rather it is offered to design research as a prompt to methodological action. Methodological experimentation in design research can be developed through three main interconnected components and activities a) as knowledge building, b) by way of modes of experimental inquiry, and c) through acts of methodological innovation.

A MANIFESTO FOR METHODOLOGICAL EXPERIMENTATION IN DESIGN RESEARCH

a) Knowledge building

1. Methodological experimentation is needed as a continual feature of design research in the wider project of reflexive knowledge building.

2. A diversity of design techniques drawn from design practice can usefully inform ways design research is conducted experimentally.

3. Methods from qualitative inquiry may be drawn into design research more fully so as to enrich understanding and analysis developed through construction.

b) Modes of experimental inquiry

4. The mixing of design techniques and qualitative approaches can help support the dynamic production of an expanded and creatively extended mode of methodological experimentation.

5. The innovative making of design artefacts, interactions, systems and services together with the critical articulation of qualitative accounts provides a reflexive and combinatorial means to getting at the processes of methodological creativity.

6. The creative and abductive character and processes of designing can enhance critical and reflexive ways of presenting the social in qualitative inquiry in design research.

7. Focus on non-positivistic methodological matters accentuated in qualitative inquiry - concerning representation, voice, positionality multi-sitedness, embodied knowing, multimodality, interpretative communities, blurred boundaries, partial accounts, situatedness – allows design research to extend its methodological repertoire.

c) Acts of methodological innovation

7. Position and perspective in qualitative methods can be integrated with design techniques to enhance construction-based inquiry involving interdisciplinary teams in dialogue.

8. Working with modes of representation and technologies of mediation, productively in design and reflectively in research practice can advance and enrich

methodological action and critique that is design centred.

9. When design work is well situated, practised and understood - through culture, in its political character, by way of its social implications and force, and in contexts of embodied use - it may be effectively paired with methodological views and insights on building knowledge on design innovation.

10. Design increasingly negotiates and takes up shifts between material and intangible properties and experiences so that these transformations and the hybrid character of design products, processes and uses ask we actively develop methods to meet these states and changes.

DISCUSSION & CONCLUSION

As this paper is of a meta character, in this section we briefly point to a number of key matters we have identified and their methodological potentials and limitations.

In *Design Research through Practice*, Koskinen and colleagues (2011) write that what is particular to design inquiry is the need to understand how knowledge is built in the different locations of making, use and reflection. They archetypically term these 'lab, field and showroom'. These locations - metaphorical, conceptual, literal and pragmatic –ask us to rethink how and where design research is being constructed and the ways in which this is epistemologically framed and enacted, especially in and as practice. As design moves into increasingly complex contexts, there is a need for the nature of that complexity to also be investigated and presented reflexively. Their work points to a need to see design research as being more than research in, on and through design. What is possible to extend methodologically, in design experiments and experimental reflection, is to engage with acts of designing and critiquing that are constructions. These are acts that integrate and enrich one another through their inter-relations. These writers also argue that *practice* may be explicated more fully in design research, and that we continue to examine the connections between making and researching with reference to projects, innovations and settings of use.

The Manifesto offers ways of looking into the experimental complexity and messiness of both qualitative and creative design methods to develop richer understanding of design and design research. By no means has qualitative social science inquiry always been able to achieve this itself! Also, design and design research need to strengthen ways of tackling complex real world challenges and the messiness of understanding and engaging in actual settings. Self-reflection here needs to be connected to wider pressing political and cultural concerns so that experimentation and the application of methods are geared towards contemporary social challenges; this is to go beyond

functional and instrumental notions and practices of design.

In this paper we have mentioned the importance of methodological innovation and the need for continued experimentation that allows design research to look into its practices, academically, productively and through situated application. We have offered a Manifesto to try to encapsulate some of these developments as principles for further investigation, but done so with close reference to research methods in qualitative inquiry. We have done this by referring also to design techniques that the social sciences and humanities could also include their own on-going moves into practice-based knowledge building that is already methodologically a very dynamic domain within design research.

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