Understanding and Designing Human Data Relations

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# 1 Methodology

In the previous chapter, I described three research areas this thesis seeks to explore: how people think about data and what they want from it, how data fits into people’s relationships with organisations and how they want it to be used, and how could people’s desires for the role data plays in their lives be brought closer to reality. In this chapter I will explain my approach to conducting research in this area, detail the types of methods used, and explain how the different research activities I carried out contribute to those three research aims.

## 1.1 Forming a Research Paradigm: Ontology & Epistemology

To develop a research paradigm it is important to begin with reflecting upon your outlook on the nature of reality (ontology) and your beliefs on how knowledge of that reality is formed (epistemology) (Guba, [1990](#ref-guba1990)). It will already be evident from the literature review and the framing of this thesis so far that individual human perspectives are at the centre of my research questions. This is a reflection of my ontological stance which is that everyone experiences their own reality, informed by their own concepts and mental models of the world. This is known as *constructivism* (Guba, [1990](#ref-guba1990)), as distinct from the positivist view that there is a single universal reality that needs to be uncovered. However, people’s realities are constantly shifting and changing, especially when it comes to the rapidly changing technological landscape we live in today reality – consider that today our reality includes concepts that did not exist in our youth, from “feeds” and “posts” to “link sharing”, “syncing” and “blocking”. As new technologies and practices emerge, we develop new mental models to help us make sense of, and find value in, new capabilities. This idea of reality as something constantly renegotiated by the individual is known as *pragmatism* (Campbell, [2011](#ref-campbell2011)). To me this is an overriding truth about reality and this focus on understanding change, as perceived by individuals, is a key motivation. Where constructivists may focus more upon deeply understanding an individual’s reality at a moment in time, I am more interested in understanding the ways in which people’s understanding of the world, and of themselves, changes as a result of their lived experience. At this point we must consider the individual’s motivation for constructing and pragmatically changing their concepts of the world, and to understand this we can look to *objectivism* (Peikoff, [1993](#ref-peikoff1993)), the philosophy put forward by Ayn Rand, which is a belief that the mind, informed by the senses, is a means of discovering truths about the world, and it does so by forming concepts and using *inductive reasoning* (Smith, [2011](#ref-smith2011)) (in essence, “if these things are true then what else must be true?”) to acquire knowledge - in essence, people’s conceptions of reality are constantly tested and re-evaluated by their experiences of the world. Objectivism also states that individual’s motivation in life is the pursuit of one’s own happiness and wellbeing, and that this self-interest is what drives his pursuit of deeper knowledge and understanding about the world; in essence, everyone wants to improve their own life, and they need knowledge to do it, and for me this view of understanding the nature of reality, so that one might be able to change it for the better is also a key driver behind my research. As a final element to incorporate, I also look to *Deweyan pragmatism*, which states that our knowledge and thinking are tested by actions, not just reason, and that this is how we learn - and that communication and interaction with others is a key part of that learning. Dewey recognises that every individual is not solitary, he exists within a society; he “is a social being, a citizen, growing and thinking in a vast complex of interactions and relationships.” (Dewey and Archambault, [1964](#ref-dewey1974)) People create systems and meanings through those interactions which they can then use to understand everyday life; this is particularly important in the social world, as unlike the physical, natural world.

My established ontological stance, then, is that individuals construct concepts, and continually update them through sensory experience, action, social interaction and inductive reasoning in order to maintain a pragmatic knowledge that they can practically apply in society and in the world in order to pursue their own happiness and self-interest.

Based upon this, we can now look to epistemology - how can knowledge be acquired? Having a constructivist rather than a positivist stance means that this is best done not through direct observation of the world and empirical testing of hypothesis, but though interacting and communicating with with individuals so that we can interpret how they view reality; this is known as an *interpretivist* epistemology. Most of the techniques used will therefore be *qualitative* (understanding perspectives and collecting non-numerical data) rather than *quantitative* (measuring behaviours and collecting numerical data). The focus of my research is to acquire understanding of people’s views and mental models around data and digital living, so that I can further these concepts in order to develop theories - powerful explanations that can be understood and benefitted from by ordinary people - to fill the knowledge gaps in existing research that I have identified. Given my strong focus on pragmatism and interpreting people’s constructed social realities in terms of practical usefulness to them, I will not be deeply analysing their words through language analysis techniques like discourse analysis, but will instead focus on the social, interpersonal level - understanding how people navigate the world of data and change their understandings as they seek to achieve their goals in practice; how they are affected by the systems, relationships and society they exist within. It is this practical focus, recognising that within a society there are objective truths that will affect all individuals that means the methods used will not be solely qualitative, but rather a *mixed methods approach* where I will adopt the most appropriate methods, usually qualitative but sometimes quantitative, as appropriate to the particular research context and question being explored.

## 1.2 Research Approach: Action Research & Experience-centred Design

As we move away from general research approach to the specifics of this study, it is important to be clear about what it seeks to achieve. The purpose of the research is to formulate theories that can facilitate change - to map out a research and development agenda that might help the the world to move from a data-centric (see section 2.1) to being human-centric (see section 2.3) operating paradigm. By learning about people’s understandings of their reality, this will inform my own thinking, and using by an inductive research approach we can identify patterns common to multiple people and form theories that might explain these patterns. As a student of *digital civics* (Vlachokyriakos *et al.*, [2016](#ref-vlachokyriakos2016)) I believe that research can surface the ways in which current service provisions fail to meet people’s needs, and through research we can show how the world might better empower citizens if it were configured differently with services closer to what they desire. The role of the researcher is to understand the world and to figure out how to change it. It is an accepted view that research cannot be value-free, but in fact we can go further, the researcher can be an activist, seeking to correct an imbalance in the world through their research. As such, the design elements of this research can be considered as political, this is *adversarial design* (DiSalvo, [2012](#ref-disalvo2012)) and I view this as necessary to counterbalance the strong forces outlined in Chapter 2 that are acting against individual interests; by creating space to reveal and confront power relations and influence, we can identify new trajectories for action (DiSalvo, [2010](#ref-disalvo2010)). Therefore the purpose of the research is to inform myself as adversarial designer, with the acquired insights from the experiences of research participants helping me to develop my own understanding, models and designs.

When designing for people and trying to incorporate their views, there are traditionally two schools of thought: *user-centred design (UCD)* and *participatory co-design (PD)*. In UCD design is carried out by experts, who have undertaken user research to build up understandings of user needs (Norman and Draper, [1986](#ref-norman1986)). This approach places a high value on expertise, but it carries the risk that certain user needs may be overlooked, especially those that are less common (and therefore less likely be present in a designer’s concept of ‘the average user’). UCD is the most common approach used by technology companies today, not least because commercial motives must be incorporated into designs, and therefore design can never be fully democratised. UCD as implemented in modern software development practice does however recognise the importance of representing the user perspective in the design process, and uses processes such as focus groups, user experience testing, user persona development to include their perspectives. However such perspectives may ultimately be ignored or diluted in favour of expert designs or organisational motives.

Recognition of this inherent problem - that users carry less influence than designers and that this imbalance must be tackled head on - lead to the ideas of co-creation and PD. PD is based upon the idea that those who will use or be affected by technology have a legitimate reason to be involved in its design (Kensing and Blomberg, [1998](#ref-kensing1998)). PD is seen as an attempt to design in a more democratic fashion. PD proponents argue that it is not sufficient to study users and go away and design in isolation - instead the users and technologists work together in design workshops, with users bringing their lived experiences and perspectives and technologists bringing their expertise on technical and market possibilities and constraints (Bjerknes *et al.*, [1987](#ref-nygaard1987); Björgvinsson, Ehn and Hillgren, [2010](#ref-bjorgvinsson2010); Smith, Bossen and Kanstrup, [2017](#ref-smith2017)) so that a collective, democratic design is created, taking into account all perspectives. In the 2000s, PD grew in popularity across public and private sector organisations, coincident with the growth of internet and social media into its “Web 2.0” phase (Hosch, [2017](#ref-hosch2017)) which began to reframe digital technology as something to be harnessed for users’ own ends (Jenkins, [2006](#ref-jenkins2006)).

As design approaches, I see merit in both UCD and PD. The participant should play a role as an informant - one who can provide critical insights into their own perspective on a design space and help us understand how the world is to them - but also as a designer - one who can imagine how they would like the world to be. As we involve the participant, our role as the researcher is to elicit the richest possible responses from the participant, by using questions to bring them to consider new questions and by giving them stimulating materials to trigger their thinking. The researcher also often needs to *sensitise* the participant to a design space, so that they may properly engage with the questions being posed, but equally the researcher cannot arrive at a model or theory unless he has developed *empathy* for the participant’s perspective. One of pragmatism’s founding philosophers, Peirce, put forward the *pragmatic maxim*, which states that the meaning of anything we experience in the world is understood through the conception of its practical effect, and that theories that are more successful at controlling and predicting our world can be considered closer to the truth (Campbell, [2011](#ref-campbell2011)). Applying this philosophy in to the challenge of design, I find merit in the different, less political, take on involving users as participants in design exhibited in McCarthy and Wright’s *experience-centred design* (McCarthy and Wright, [2004](#ref-mccarthy2004)) framework, which emphasises the importance of understanding the user’s experience to inform technology design. It identifies six sensemaking processes which can be used to acquire user empathy:

1. *anticipating*: We never come to technology unprejudiced.
2. *connecting*: We make a judgement in an instant, without much thought.
3. *interpreting*: We work out what’s going on and how we feel about it.
4. *reflecting*: We examine and evaluate what is happening in an interaction.
5. *appropriating*: We work out how a new experience fits with other experiences we have had and with our sense of self.
6. *recounting*: We enjoy storytelling and make sense of experience in stories.

Through my research I will at times be more participatory, to understand these aspects of user experience or to co-design solutions with participants, but I will at other times act more like an expert designer. Taken to the extreme, the PD view is that designs made without the direct involvement of users are invalid, because they inherently no longer represent the desires of those people the designs claim to serve. I oppose this view, because I believe that new ideas will not always arise from participants themselves, especially for this research area where a more expert-led experience-centred design approach is the most pragmatic way to proceed, because by its nature this research involves thinking about data, information, organisational relations and interaction (topics that are not often theorised about as part of everyday life) at a level which the layman is not accustomed or well-equipped to do; therefore while I strive to always include participant viewpoints, I give ultimate precedence in design to my own position of learning that I will acquire through the research I undertake with participants and which I will develop through theoretical & design work that I will undertake by myself. In doing so, I will also be a participant in my own research, incorporating my own experiences of living in a data-centric world (and my attempts to challenge it) into my learnings.

It is important to be clear about what constitutes good research in this context; if the outcome of the research is to be my own intepretations and theories, how will we know these are sound? Firstly it is important to say that this is not about measuring the effectiveness of proposed changes upon the world. There will be no deployment of systems to test the ideas I put forward. This is not because such an activity would not be worthwhile–it would–but simply because by its nature, to develop, build and deploy a new data interaction paradigm that functions in real life with real personal data at the sociotechnical level is too large an endeavour for a single researcher (or even a single research group) to undertake. Therefore what I seek in this thesis is not to change the world, but to articulate with the greatest possible clarity discrete theories on how the world should, and could, be changed. Good evidence for the proposed changes will be achieved by ensuring that findings themes and discussion contributions are backed up by participant quotes, and where an idea is suggested by many participants or where it resonates with my own experience, that can be seen as adding weight or validation to that idea. However, each person’s experience is unique and needs to be put into context; not every insight will be shared by many participants and individual unique insights remain important.

importance of interpretations

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