

Investigation and Design

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ABSTRACT

1. Introduction

The problem of how best to relate design activities to the world in which its results are embedded is a longstanding one. Designed products of whatever kind by definition constitute a potential intervention in the world. Nevertheless and of course, we do not and cannot know in advance what that intervention will look like in any detail since that will be the product of the feasibility of both technological and organisational changes and of the deliberations about such matters which go on both in and between organisations. This has not precluded a variety of attempts to characterize potential futures. They typically

involve a strategy for describing what the world looks like now and understanding whether and how the deployment of new technology might bring about the changes intended. A range of epistemological commitments can be discerned in respect of this difficult and complex agenda. They include, for brief mention, an ‘engineering’ paradigm associated with structured design; the analysis of goals and means hierarchies (associated with some versions of cognitive science) for the purposes of interrogating ‘usability’, and a more sociological/anthropological (and humanistic psychological) perspective allied to concern for the ‘situated’. Some paradigms, if not all, recognize that design inevitable involves choices. That these choices may be ethical or political in nature is not always equally recognized. This has led to what we might term a ‘critical’ response and is evident in such perspectives as participatory design (see Wagner, this book); value-sensitive design (), ‘critical design ethnography’ (see for instance Barab et al, 2004) and reflective design (Sengers et al, 2005), to name but a few. Understanding what motivates all these broad stances and their relative merits at both a theoretical and a methodological level would require a much more extensive treatment than is possible here and I do not attempt to do so. My interest is more specific. It lies precisely in the ‘turn to the social’ and what it might mean as the ‘ethnographic’ stance is deployed in wider range of contexts and, not to put too fine a point on it, in circumstances which could scarcely have been envisaged at the outset. That is, it has to do with the degree to which interdisciplinarity in relation to design entails a need for new methodologies, concepts, theories, etc, or conversely whether it makes more sense for the various disciplines that have concerned themselves with human behavior more generally- psychology, sociology, anthropology, social psychology, and so on- to colonise such terrain (see e.g. Forsythe, 1999; Dourish, 2006) The main thrust of the argument in this chapter is as follows.

Firstly, I aim to examine the relationship between disciplinary interests and ‘interdisciplinarity’ in the design context. I argue that investigation of present circumstance, or context, does not require the *conceptual* work of disciplines- anthropology, sociology, or what have you- that is sometimes argued for. If, as we suggest, the problematic is a genuinely interdisciplinary one, then a careful consideration of what that might mean is necessary. As Harper et al intimate, “This [would] apply equally well to the methodological concerns of any discipline (and reflects the fact that many cross disciplinary exchanges are dialogues of the not-listening-very-carefully). These concerns would include what kind of data is viewed as relevant, what kind of concepts best organise that data, what kinds of theory can be developed from it, and so on ... these developments take place ‘... to date with surprisingly limited trading of ideas across disciplinary boundaries.’ (Crowley and Zentall, 2013:1) Why is this? What limits do the disciplines set for themselves such that this trade is so difficult to establish and maintain? Why is it that where such

attempts are made, they are routinely challenged, or worse, ignored by those entrenched within particular frameworks? What is the history of the concepts that the disciplines hold so dear and why do they persist?" (Harper, Randall and Sharrock, 2016)

Rather, what is required, and as various commentators have suggested, is a turn towards 'practice based' computing. That is, firstly, where Reckwitz (2002a) suggests that the concept of practice allows for sociology to resolve many of its epistemological problems, we suggest that 'practice-based computing' does some similar work in design-related contexts. Secondly, a feature of the current obsession with disciplinary tropes is the view that 'ethnography' is a method, a notion which a proper reading of original texts would quickly dispel. The consequence has been a certain methodological 'fetishism' (see e.g. Burman, 1997)¹ which I suggest, unnecessarily problematises investigative effort. The 'turn to the social', as it has been called, does not, I will argue, require us to have a 'purist' approach to our studies for the simple reason that the problem space associated with interdisciplinary work is (or at least can be) very different from that which defines anthropology or sociology. It follows that, considered appropriately as relevant to the problem of design, what is termed, 'ethnography', encompasses a number of so-called 'methods'. It also follows that the range of possible concepts which might be deployed in order to relevantly explain one's observations might also be different. All, however, can be subsumed under an analytic commitment to the examination of practice. An evidently related theme has to do with the theoretical and conceptual choices made in order to turn these observations into design-relevant material. We will attempt to characterize the different methodological choices under the umbrella of the 'turn to the social' that have been made in recent years and say something about what motivates them.

Thirdly, therefore, and associated with this eclectic view of investigation, we need to adopt an equally eclectic view of 'design' and show how these moves can be associated with varying conceptions of what the design problem might be. Thus, the possible ways in which investigative work may relate to design might include the following: understanding, delineating, characterizing or scoping the design space; understanding how objects and operations relate to the categories inherent in specific practices, comparing settings with a view to establishing similarities and differences, evaluating the role that specific artefacts play a role in work practices and their evolution, comparing across domains. The point is that this is an entirely non-trivial, though rather under-examined, issue. While it may be true that academic research

¹ The term was originally applied to the notion that all features of social life can and should be subjected to quantitative analysis. Here, I am arguing that the same tendencies are to be seen in some versions of qualitative analysis. The notion of 'coding' as a sine qua non in grounded theoretical work is a prime example.

projects and even many commercial undertakings may involve a specified design outcome, this is not universally true. Moreover, it would seem reasonable to argue that the more complex the setting under investigation, the more open the design possibilities are.

2. *The ‘turn to the social’*

The ‘turn to the social’, marked initially by work such as that of Suchman and Wynn (1984); Suchman (1987); Hughes et al (1992) and Heath and Luff (1991) is often associated (for no good reason) with an ethnographic preference. As has been pointed out before (see Randall et al, 2007), properly considered, the term, ‘ethnography’ originates in a peculiarly sociological/anthropological version of ‘fieldwork’, but became popular in an interdisciplinary context (such as CSCW) from the late 1980s onwards as a means to examine work in a detailed and contextual fashion.² Relatively little has been said about whether the different purposes associated with interdisciplinary work have consequences for the character of ethnographic work and that will be the theme of this chapter. The ‘turn’ mentioned above was predicated on a critique, one which ranged from artificial intelligence to photocopier repair, and which owes its presence in CSCW, of course, to Lucy Suchman. The gist of Suchman’s (1987) argument was that the ‘planful’ conception inherent in most design methodologies was not sufficient to explain human conduct in whatever context nor the actual use to which technologies might be put. There was an analytic contrast, that is, to be made between ‘plans’ and, as we all now know, ‘situated action’. The remedy for the neglect of context was the careful, detailed examination of human conduct through a ‘situated’ analytic lens. Over twenty years and more, this view came to enact a powerful vision of how studies might be conducted such that they in some way support the work of design. In sum, Suchman and others might be read as suggesting a radical reinvention of the description- analysis- prescription procedures that, at a very general level, can be said to characterise the design process.

Some version of ‘ethnography’ was seen as a potential remedy. Nevertheless, and as the distinction between ‘ethnography’ and other forms of fieldwork implies (see Randall et al, 2007), ethnography is and was never a specific *method* in the sociological canon (or elsewhere). What actually distinguishes it is a distinctive *analytic* stance. Hence, as Clifford Geertz (probably the most famous anthropologist of the last 50 years), says: “*And it is in understanding what ethnography is, or more exactly what doing*

² As Bannon et al point out in a recent paper (2011), there is a long European tradition of fieldwork under a variety of perspectival auspices that has remained, in some part, subterranean in CSCW/HCI communities.

ethnography is, that a start can be made toward grasping what anthropological analysis amounts to as a form of knowledge. This, it must immediately be said, is not a matter of methods." (C. Geertz. *The Interpretation of Cultures*). In a similar vein, James Clifford and George Marcus (equally celebrated anthropologists) have argued that ethnography is a necessarily partial and incomplete project. Thus: *"Ethnographic truths are thus inherently partial- committed and incomplete. This point is now widely asserted- and resisted at strategic points by those who fear the collapse of clear standards of verification"* (Clifford and Marcus, 1986:2) Again, we do not have the space to examine a subtle argument in detail. Suffice it to say that it implies at the very least that ethnography is inevitably conducted from a viewpoint, that the 'cultures' we purport to examine do not have the homogenous existence our writing suggests, and that our descriptions of settings are rhetorically constructed. Now, we do not have to accept a radically subjectivist vision of ethnographic practice in order to see the consequences of such a position for design- related work. At a minimum, it means that our findings will

1. always be a function of our analytic purpose (which will include decisions about the problem space we choose to inhabit)
2. that our writing will reflect our identification of what are- for us- the relevant problems within that space and
3. that relevance should be made evident to the audience for our work in what we write, and that audience is, in some part, designers.

It also follows that decisions about appropriate methods (including such matters as degree of 'immersion' in the setting, what observer 'role' to adopt (see Gold, 1958; Spradley, 1980; Adler and Adler, 1994, and so on) are a function of decisions about the problem space in question and how it is determined (and just as importantly how such decisions might be transformed over time and/or in consultation with our 'audience'). It is likely, then, that our conception of the 'problem space' will be an emergent one. This does not necessarily mean that it will emerge directly from ethnographic findings. It may well mean, and arguably should mean, that it will emerge from the constellation of interests and practices that we can think of as being to do with 'design'.

This point is often ignored or at least misunderstood. It is part of our argument that 'method' has become something of a fetish, such that it is argued that only professional anthropologists/ sociologists have the requisite skills to conduct observational work, acquired after a substantial and rigorous period of training. Just as importantly, of course, only those disciplinary experts will have the skills to develop appropriate conceptual and/or theoretical formulations. This could be why the 'methods' section in conference papers has become obligatory in a way that is directly analogous to Dourish's observations about 'implications

for design' (2006). Put another way we will assert that, while there are good grounds for carefully interrogating method when statistical or similar devices are deployed in order to validate findings, such interrogations are less appropriate when applied to qualitative findings. This is an extremely important, if somewhat controversial, point. Having said that, it is not new. Glaser and Strauss, and we use their work merely for the purposes of exemplifying, were arguing in 1968 that, '*These critics, in their zeal for careful verification and for a degree of accuracy they never achieve, have forgotten both the generation of theory and the need for carefully appraising the **different standards of plausibility** necessary for sociology's **diverse tasks.***' (1967:223 our emphasis) They go on to say, '*The theory that emerges from the researcher's collection and analysis is in one sense equivalent to what he knows systematically about his own data.*' (ibid: 225). Now, this is not an excuse for lying or laziness. It is specifically an argument for careful comparison of selected data. Their enterprise can loosely characterized as being an effort to answer the charge from critics in the 'quantitative' camp of sociologists that case study methods provided no means for generalization. By definition, then, such work is conceptual and/or theoretical. It does not entail a commitment to specific forms of coding procedure or any sequential order. Thus, as Corbin and Strauss observe, '*... as any experienced researcher will tell you if pressed to think about the matter, research really is a rather "messy affair."*' (1990, 32). Indeed, if it did require such a commitment to methodical procedures then Glaser and Strauss (who originally formulated the approach) were not in fact doing grounded theory- despite their evident belief that they had invented the term.³ Now, in making this point, we recognize that a very significant body of work has developed around this original formulation (e.g. Charmaz, 2006; Bryant and Charmaz, 2007) and much remains contested. Regardless, our point is that the importance of such matters as coding in grounded theory, according to its originators, is not to reveal the details of a method but to aid the researcher think systematically about their *analysis*.

Method follows purpose. Many, if not all, of the significant debates in the CSCW and CHI arenas over the last few years have actually been debates about purpose (see Dourish; 2006; Crabtree et al, 2009). What is puzzling, we suggest, is that such debates take place in a design vacuum. That is, and despite the recent rise of 'design research' as a distinctive project (see e.g. Hevner and Chatterjee, 2010; Rohde et al. 2016), there has been little serious examination of how ethnographic analysis might relate to different kinds of design agenda. Large scale cooperative systems design, after all, is likely to be quite different

³ We might note here that substantive work by Glaser and Strauss such as 'Time for Dying' (1968) contains no examination of coding procedures at all.

from consumer product design. Design, it will be argued here, has been singularly underspecified.

Ethnography remains a contested site. It has been used for a variety of theoretical and analytic purposes, including structural-functionalist; Marxist, feminist, ethnomethodological, interpretivist and so on. In the specific context of CSCW and CHI, it has been used in association with participatory design, activity theory, distributed cognition, actor network theory, ethnomethodology, and so on. In design-related communities like CSCW and CHI, the ethnographic project has tended towards (although not exclusively) a certain kind of analytic focus. Roughly speaking, this entails a commitment to the point of view of the actor; some kind of preference for study of the way actors order their activities; an interest in the skills, competencies and ‘artfulness’ that actors bring to their efforts, and an interest in the use of artefacts. It presupposes no particular data collection techniques (we should remind ourselves that the classic anthropologists had no recourse to the recording methods we possess today and seldom bothered themselves with anything resembling, for instance, a transcript), no rules concerning time taken and no uncontested position concerning truth and objectivity. It can also, and sometimes does, have a relationship to political or moral positioning (see e.g. Marcus, 1995; Dourish, 2006), such that ethnographers can be seen as ‘circumstantial activists’. It is, however, no part of this paper to adjudicate these competing views of what the appropriate theoretical auspices of ethnography might be. It is rather to examine how it is that new circumstances have led to new methodological and conceptual choices and to further examine how this ramifies in relation to design activities. If we accept that method follows purpose, as we have been at pains to suggest, the task is to examine the burgeoning eclecticism of method and approach under the wide umbrella of ‘ethnography’ in order to understand better what purposes are in play. Below, then, we examine some of the dimensions along which these purposes might vary. The first of these has been the move to new domains of enquiry.

2a. The Domain

We might anticipate that an interdisciplinary field like CSCW and its cognates would have seen a massive expansion in the number and range of studies conducted. And, in a sense, we have. If Hughes et al (1994) are to be believed, the early studies were largely concerned with ‘control rooms’ (see Heath and Luff, 1992; Hughes et al, 1992). While this was probably never true- white collar office work was already a topic of enquiry, as was manufacturing- it certainly characterized a body of work which focused on small,

self-contained, face-to-face working environments. The reasons for this were obvious- time, money and effort are limited resources and such investigations are self-evidently more 'manageable' than long-term studies of complex environments. They also (arguably) favoured attention to cooperation over coordination. Nevertheless, the evolution of new technologies- the large database; the Internet; mobile devices; social networking and so on had a number of consequences for ethnographic work. While the authors of this paper have been and remain skeptical about the claims of 'virtual' ethnography, some evident methodological shifts are attendant on these technological and social changes. These are that the 'site' of any given ethnography is arguably less self-evident than previously supposed; that the specific methods employed by ethnographers might need adjustment, and that we might need to rethink our orientation to 'work' as the distinction between work and non-work (arguably) becomes more permeable. Again, this has not been without controversy. Schmidt (2011) argues, for instance, that the move to studies of social networking, mobile phone use, technology in the home, etc., are less well founded than they might be, often being based on some casual acceptance of a number of sociological tropes that are, in fact, contested. Regardless, the fact is that where CSCW quickly moved 'out of the control room', it now seems to have radically expanded its remit. One of the simplest comparisons we might make is between the domains being investigated in the early years of CSCW under ethnographic auspices and those under investigation today. Many studies have moved 'out of the work site' altogether. There are arguably just as many, if not more, studies of settings which do not involve paid work as studies of settings which do. For example, an increasing number of ethnographic studies have concentrated on domestic and leisure activities (see e.g. Harper et al, 2003; Crabtree and Rodden, 2004a; Neustaedter et al, 2010; Ogonowski et al 2013); on mobilities of one kind or another (see e.g. Palen and Saltzman, 2002; Meurer et al. 2014); and gaming (see e.g. Brown and Bell, 2010; Crabtree et al, 2004b; Randall, 2011). Just as strikingly, the rise of the internet has produced a remarkable expansion in studies of 'online' behaviours of one kind or another.

Now in and of itself, this eclecticism does not matter a great deal. Ethnographers will go where they wish to, or are allowed to go and/or are funded to do so. However, it does raise the issue of what a foundational concept for practice-based computing might look like. This is not because I strongly favour research into domestic environments; game playing; the 'mobile' life of teenagers, and so on, but because I favour an indeterminate view of the relationship between technology and social life. To the degree that Web and mobile technologies are blurring boundaries, this raises problems both for the relevance of the domain and for the scope of the technology. If this blurring is taking place and if it is also true that digital

technology is mediating more and more aspects of our lives, then certain questions are raised, questions which certainly impinge on the analytic auspices of ethnographic enquiry and its relationship to design. In turn, and as a result, another source of variation lies in new strategies which we consider to be ethnographic.

2b. Ethnographic strategies

The sheer range of strategies associated with the ethnographic programme is striking. Briefly, ethnomethodology, conversation analysis, ,cultural‘ and ,technological‘ probes, interaction analysis and interaction design, pattern languages, ,living labs‘, contextual inquiry, as well as an array of theoretical and conceptual frameworks (some of which are mentioned above) have all laid claim to some version of ethnographic practice. In addition, the particularities of the online world have led to specific claims about ,digital‘, ,trace‘ or ,virtual‘ ethnography. All, despite these manifest variations, share the common feature that they are, in some sense, ,user centred‘. That is, some marriage between user practices, user needs or user ,wants‘ and a design intervention is the desired outcome.

Early work, and one can take as an exemplar of this position the work that has emanated over a twenty year period from the so-called Lancaster school in the UK, was largely concerned with examining what the relationship between ethnography and design might look like, rather than attempting to produce any specific design recommendations. This work (Hughes et al, 1992) outlined the way in which such ethnographies had to be attentive, in some way, to designers‘ concerns:

„... Directed toward system use and system design, this implies placing an emphasis on studying the functionalities of a technological system as they evolve from their incorporation into the socially organised work activities of those who use them; rather than, as in many cases, functionalities as the system's designers might imagine them to be.“

Nevertheless, these studies posited no strong relationship:

The emphasis here is on 'potential' since there are important questions about how such studies might be incorporated into the design process. This is not a complaint but a recognition of the fact that the alliance between ethnography and systems design is, as yet, but the nomination of an agenda rather than signifying any body of achievement.“

They insisted on a particular character for this work, the “... *rich, highly detailed, highly textured, but nevertheless partial and selective descriptions associated with ethnography*“ but, it was admitted, such studies “ *would seem to contribute little to resolving the designer's problem where the objective is to determine what should be designed and how.* “

Recommendations, in these early and somewhat naïve years, centred on the search for an ongoing engagement with the concerns of designers, in which ethnographers engaged in,

“... a dialogic process in which, initially, the fieldworker was interrogated by the rest of the research team. As indicated, this took the form of questions such as 'what happens if...?', 'how is this done...?', 'what would be the consequences of doing X?', and so on”

At the same time, designers were engaged in trying to formulate questions which the ethnographer might answer (see Hughes et al, 1992). Again, however, the thrust of these early papers lay in the difficulties of producing answers:

“From our point of view as sociologists these questions gave more directed attention as to how the ethnographic analysis of the work should be examined and analysed ... For us, such questions were not easily answerable by reference to work which is as subtle and complex as our ethnographic analysis had shown controlling to be. Our methodological point of view of treating the system as a 'motile configuration' of working practices, activities and technology, made it difficult for us to draw the distinctions necessary to provide answers to such questions. “

How, then, and in the light of a great deal of water passing under the bridge since the time of the early Lancaster work, are we to understand how the ‘motile configuration of working practices, activities and technology’ can best be understood. As already intimated, the concept of practice offers illumination.

Unfortunately, and as so often with disciplinary renderings, much effort is wasted in trying to provide definitions at some level of generality. Examples of a more or less ‘sociological’ treatment of the concept of practice can be found in Reckwitz (2002a, 2002b), who is mainly concerned with the ‘bodily and mental’ construction of routine; Bourdieu (1977) for whom practice is structured by ‘fields’ and ‘doxa’; Giddens (1984), who is primarily interested in the way in which both constrain and afford our practices; Geertz (1973), for whom practices are symbolically constructed; Knorr Cetina et al (2005),

who are concerned to construct typologies of practice (e.g. integrative vs. dispersed.) and Nicolini (2011) , who provides a synthesis for those interested in organizational studies (see Schmidt, chapter 1, this book for critique). As Miettinen et al (2009) point out, such theories are in the main deployed in the ongoing attempt to deal with the structure/ agency debate. Certainly, Orlikowski's well-known approach does nothing to dispel that view. (Orlikowski, 2000).

The question for design- oriented studies is whether such theoretical abstractions which, as pointed out, are essentially concerned with sociological matters, have any important consequences for design. It would be my contention that they do not. I am not the first to point out that sociology's perennial interest in the problem of 'order' seldom if ever translates into a concern for how order is practically managed. Now, there may be many themes which could arguably be addressed in pursuit of such an interest, some of which are rehearsed by Randall et al (2007). In an effort to characterize, rather than define, the idea that our analytic interest in practice should be design- related, they refer to issues such as the ways in which practice is ecologically determined, is sequentially organised, takes place in a working division of labour, is socially organised through awareness (or 'heed'), is typically constrained by various material factors, is coordinated, is skilful and/or knowledge- based (see e.g. Westrup, 2002) , and can be said to be constructed in rule- based routines but (sometimes) beset by 'troubles'. Practices also take place in a normative context, such that considerations of how 'things ought to be done' sometimes affect them. Such latter considerations range from assumptions about routine right though to political and moral judgements. Regardless, and to return to our point, such analytic foci are not intended to illustrate *that* practices relate in some way to work and the use of technology, but to reveal *how* such practices are constituted in relation to work.

Having said all this, whether any significant move has been made since then to bridge the gap between investigation and design at anything other than a descriptive level, remains something of a moot point. At least three ways of filling in this gap have been suggested. One is the active involvement of users in the design process. The second is to provide a theoretical grounding for the design process. The third- not separate from the first two- is to treat design explicitly as a political process.

3. Design research

3a. Involving users

One evident feature of these studies is that they made relatively little use of users themselves, except as an object of study. A way of thinking about this is to see the relationship between ethnography and design as entailing a problematic balance between ‘what happens now’ and what changes new technology will bring. This can be seen as a problem of time in more than one sense. Ethnographic studies can both take a great deal of time (although there is no special reason why they should) and may, paradoxically, be positioned at a point in the design lifecycle such that they provide us with little or no information about the impact of interventions (although, again, there is no reason why this should necessarily be true). That is, the vision of ‘concurrent’ ethnography offered by Hughes et al does not seem, for the most part, to reflect take-up in the ‘real world’. Later work (see Crabtree, 1998; Voss et al, 2008) focused on a more active involvement on the part of users and stressed the way in which ethnography could be used in conjunction with some form of participatory design or, in a more elaborate form, could form the basis for ‘co-construction’ (see e.g. Kensing et al, 1998). Participatory Design (PD) has sought to involve users in the co-design and development of computer systems for many years. This was seen to have a number of benefits, not least the democratization of processes, the improvement of organizational knowledge and ultimately systems which ‘fit’ working life better. Latterly, PD has moved beyond the work area and became a relevant topic for the domestic context as well. Research around PD has explored various methods and tools that focus on the involvement of users in (re-)design processes (see e.g. Greenbaum and Kyng, 1991; Bodker et al, 2004, see also Wagner, this book) . Bødker et al. (2001), for instance, argue for a mutual and iterative learning process between designers and users. Participation here is seen as ongoing and continuous such that some shared understanding of problems and needs can be derived. Nevertheless, whatever co-construction seems to offer as an adjunct to descriptive work, there remain a number of issues which have to do with organizational complexity, the heterogeneity and sometimes mutually accomplished nature of tasks, not to mention the balancing of stakeholders’ rights and responsibilities. Other interventions can be mentioned here, notably cultural and technology probes. Gaver (1999), for instance, introduced the concept of cultural probes, stimuli which encourage and allow participants to reflect creatively. This concept was adopted in several ways, e.g. with technology probes that inspired design for and with families (Hutchinson et al, 2003). Crabtree and Rodden (2004a) also experimented with different techniques to explore the home and highlighted the importance of self-documentation methods compared to full-time standard recording. Lindquist et al. (2007) described the use of several self-documentation and design methods of a cross-generational long-term project and reflected on their aptitude for domestic settings. These initiatives share a common feature, which is a concern for how to develop an understanding of the possible shape and role of new

technology, in addition to the picture of current practice that traditional, and largely observational, ethnographic approaches might afford.

This shift arguably brings with it different choices and new problems concerning suitable users, time of user involvement, choice of adequate methods for the specific purpose envisaged, etc. (Randall et al, 2007). This has, inter alia, involved the deployment of ethnographically oriented investigations in order to understand the domestic context (e.g. O'Brien et al, 1999), methods for exploring new design ideas with users (e.g. Bernhaupt et al, 2008), and approaches to understanding how users appropriate new technology and its impact on users' habits. One such approach is usually referred to as the 'Living Lab'. 'Living labs' have been offered as a solution to some of the difficulties rehearsed above. The term, 'Living lab', apparently first used by William Mitchell at MIT media lab reflected a concern for real world contexts married to the provision of a means to introduce new technology. They provide a research infrastructure for *long-term* user involvement in Participatory Design processes and a test bed for evaluation procedures. Whether or not they actually do so seems to depend on the 'Living lab' in question. There are a variety of possibilities inherent in the concept. However, all directions have a common understanding of a Living Lab as an open and innovative research framework, with a strong focus on user-centric research methods, i.e. methods that can be applied in multiple real life environments for "sensing, prototyping, validating and refining complex solutions" (Erickson et al, 2006). Users take on an active role in co-creation of the design process by providing ideas and experiences from real use contexts and stimulate research due to long-term involvement. These properties, one can argue, distinguish the Living lab from other research methods (see Ogonowski et al. in this volume).

3b. Theorizing Design Research

Paradoxically, progress towards a different and more flexible standard in respect of the validity (or at least, plausibility) of our investigative endeavours has been accompanied by attempts to provide a new rigour in design. This move is often referred to as 'design research' and is associated with work by, for instance, Hevner and Chatterjee (2010), and Edelman et al (2007). Hevner and Chatterjee characterize the agenda as follows:

“Design science research is a research paradigm in which a designer answers questions relevant to human problems via the creation of innovative artifacts, thereby contributing new knowledge to the body of scientific evidence. The designed artifacts are both useful and fundamental in understanding that problem.” (2010: 5)

Proponents of the ‘design science’ paradigm are insistent that their problematic is distinct both from natural science:

“Behavioral science, which draws its origins from natural science paradigm, seeks to find the truth. It starts with a hypothesis, then researchers collect data, and either prove or disprove the hypothesis. Eventually a theory develops. Design science on the other hand is fundamentally a problem-solving paradigm whose end goal is to produce an artifact which must be built and then evaluated.” (ibid: 5)

and, with the same somewhat cavalier (not to say mistaken) assumptions, from more qualitative approaches:

“First, complex design problems can no longer be solved without prior or parallel research. It should be noted that design research cannot be equated with consumer research or variations of it that take the form of ethnomethodology, i.e. an empirical science that examines the behaviour of consumers in their everyday environments and thus refrains from carrying out laboratory research.” (Edelmann et al, 2007)

Now, we need not engage with the (absurd) view that behavioural science typically draws from natural science assumptions, nor that ethnomethodology is a form of consumer research but, instead, focus on the idea that design research is a ‘problem- solving’ paradigm. The agenda is obviously to move the concept of ‘design’ away from a naïve position towards something which is theoretically informed. March & Storey (2008) put it this way: *“Thus, a design science research contribution requires (1) identification and clear description of a relevant organizational IT problem, (2) demonstration that no adequate solutions exist in the extant IT knowledge-base, (3) development and presentation of a novel IT artifact (constructs, models, methods or instantiations) that addresses the problem, (4) rigorous evaluation of the IT artifact enabling the assessment of its utility, (5) articulation of the value added to*

the IT knowledge-base and to practice, and (6) explanation of the implications for IT management and practice.” (p. 726).

Of course, the ethnographic position would be that evolving ‘clear’ descriptions of problems is precisely where qualitative work has a role to play. All of the complexities we have been at pains to explicate above require investigative procedures that are only contingently applied. Perhaps this is why they are typically underspecified at the analytic level in much the same way that ‘design’ has been underspecified in the ethnographic agenda. If so, then there is an obvious need for some sort of integrative perspective, one which both recognizes the eclecticism of method entailed in design- related investigation and which takes design seriously.

What is clear is that design-relevant ethnography needs active engagement from all parties. The actual balance of contribution from ethnographer, ethnographic record, user and designer is likely to be worked out in situ, but the principle that all need to be involved in some degree is foundational to the practice-oriented project. More fully worked- out versions of this might entail something like a ‘design case study’ methodology which links ethnographical work with the co-construction of innovative IT artifacts and the iteration of given practices (Pipek and Wulf 2009; Rohde et al. 2009, Rohde et al. 2016). A design case study covers typically three research activities: (1) it empirically analyzes the given practices in a specific field of application, (2) it co-constructs an innovative ICT artifact related to the findings of the first phase, and (3) it investigates the appropriation of the technical artifact over a longer period of time (Wulf et al. 2011 and 2015). While there is a certain logical sequentiality, the three research activities can, at least in parts, be conducted in an iterative manner. Such approaches are marked by an analytic flexibility, such that procedures are judged in relation to domain and technology-relevance rather than intellectual purity. Put simply, approaches of this kind can incorporate both careful and detailed empirical analysis and perform a critical, questioning, role as well.

3c. The Politics of Design.

A further issue is, as has been indicated by a number of authors from both the PD and from the ‘postmodern’ ethnographic traditions, one which implicates a political or moral universe. There is no question that engaging in something like the ‘processual character of interaction’, a way of describing ‘practice’, is not going to provide us with answers to questions of that kind and they may well be questions worth asking. Nevertheless, a plausible rendering of ‘lived experience’ can at least incorporate the way in

which people typically and visibly orient to politics, morality, emotional life, sentiment, and so on. What we do with that subsequently largely depends on our own commitments. Ethnomethodologists, who take a resolutely ‘indifferent’ line to such matters, are not and never were in the business of providing a vehicle for solving moral, political or social problems (whether other stances are more successful is a matter for one’s own enthusiasms), and arguably ‘postmodern’ stances are not appropriate for providing the kind of detailed, sometimes processual, data that ethnomethodologists wish to provide, nor for the kind of analytic work that ethnomethodologists wish to do. For the purposes of this chapter, we do not wish to take any sides in respect of what commitments people wish to make, but will content ourselves with a couple of observations. Firstly, the issue of what is a necessary or sufficient stance in relation to all the different design problems and policies one might encounter, including the different ways in which the protagonists construe their tasks, is not one that is solved by casting the debate in terms of the ‘replacement’ of one stance by another. Secondly, this implicates the vexed question of ‘what the designer does or does not know’. Crabtree et al (ibid) are insistent that:

“We do not dispute the need for critical reflection in design or any other technical practice as that notion is ordinarily understood ... but then we would argue that designers and users are already possessed of that faculty. As Garfinkel ... argued long ago, members - be they ‘designers’ or ‘users’ - are not in real life the cultural dopes represented in theoretical models of society and the value schemes they represent and reflect. We would also argue, as any member of the HCI community will recognize, that social responsibility has long been a core concern of designers and is a recurrent theme at CHI.”

Dourish (op cit), apparently in contrast, suggests:

“I will argue two primary points. First, that the focus on implications for design is misplaced, misconstruing the nature of the ethnographic enterprise; and second that, ironically, in so doing, it misses where ethnographic inquiry can provide major insight and benefit for HCI researchers. Sometimes, after all, the most effective outcome of a study might be to recommend what should not be built rather than to recommend what should. More to the point, an analysis of the cultural and social organization of some particular setting or occasion is often best articulated independently of specific systems, technologies, or design briefs.”

Of course, our point is that the contrast does not take a logical form (A not B), but becomes apparent when one analytic choice among many possible choices is made. I do not want to engage in a discussion about whether ‘misrepresentation’ is what is going on or what is ‘best’ might turn out to be, but it is clear that in this view design can somehow be remedied by an ethnographic engagement independent of specific

design decisions or evaluations. And so it might. The ethnomethodological critique (for that is what it is) of the notion that people are ‘cultural dopes’ or ‘puppets’ is not, however, particularly relevant here. Garfinkel’s argument traded on a specific, and entirely justified, criticism of a sociological approach which sees people merely as subject to various social influences or causes. In contrast, he wanted to point to the ways in which members are demonstrably interactionally competent, and indeed they are. The concept of ‘member’ means precisely that a set of skills and competences are displayed in the production of the setting in question. It does not problematise the idea that knowledge, expertise and even political awareness may be socially distributed, or distributed in such a way that it draws the disapproving look of the cultural anthropologist. In sum, my aim in exploring these issues is to try to show that ‘being useful’ does not entail ‘critical’ as against ‘service’ positions but can easily entail both. Moreover, this has been evident for some time (see Randall et al, 1993). Where we entirely agree with Crabtree et al that ‘replacing’ careful empirical work with cultural generalisations is not desirable. The degree to which this is actually taking place, however, is an open question.

Intervention

The careful analysis of ‘situated’ activity is a modest endeavour which is a useful place to start in relation to design work. It is not the only place to start, nor necessarily the best, nor is it obvious that that it will answer all the many and complex questions we choose to ask when we talk about ‘design’. Of course, a singular difficulty in any such discussion would be the difficulty (impossibility) of demonstrating the superiority of any approach to ethnography on empirical grounds. The reasons for this are obvious. We would need an agreement over what a ‘good’ design outcome was, and an agreement about the connections between the various steps that led to it and how to prove it (ie. that designers were, in fact, paying any attention to ethnographic results and that this could be demonstrated). We have none of those things. Hughes et al (op cit) suggested in 1992 that,

“we describe the dialogues involved in rendering these observations ‘informative’ for systems design, and the mutual translations implied in attempting to reconcile sociological with software engineering questions about supporting the work. We conclude by specifying some features of cooperative work which an engineering approach is in danger of overlooking”.

That there is a continuing need to engage in these dialogues and to critically engage with over-mechanical conceptions of design seems to be, even so, something that all parties in practice-based research should orient to.

Three features of late capitalism arguably demand this complex engagement with ethnographic data. The first is the fact of organizational and cross-organizational complexity, allied to the ongoing evolution of professional roles. The second is the design dynamic, such that instead of a simplistic narrative around ‚requirements‘, researchers need to recognise different forms of engagement at different times. There has to be a recognition of the various ways in which organizational (and other) stakeholders will intervene in the design process. This process must also involve, in some sense, the ‚user‘ but again, the same features of late capitalism mean that the complexities of stakeholder positions need to be recognised. ‚Co-construction‘ will not be a simple business. Thirdly, we need to recognise that, whatever design process we engage in, the process of appropriation may, to a degree, be independent of it (see Stevens, this book). We cannot, in other words, assume that we will know in advance either who will appropriate new technology, neither can we determine how they will do so. This means that ethnographic engagement must be based in some kind of action research, must be dynamic and reflexive.

Out of this work and countless other examples like it, we can glean- leaving aside the posturing of protagonists- certain principles can be seen as central to the practice- oriented project and as clear gains for design work. These are:

1. Detailed, careful ethnographic work is probably valuable in most, may be necessary in some, design-relevant cases.
2. There can be no *deterministic* relationship between ethnographic ‚thoroughness‘ or orientation to detail, sequential analysis or what have you and ‚design‘. The reason is, quite simply, that design requirements will vary according to the kind of design in question.
3. In some sense, critique is fundamental to the practice-based design project but we do not always agree on what kind of critique is most useful. As suggested above, the lineaments of dispute here have to do with the degree to which such critique should take a form appropriate to the field of practice-based design or should revert to disciplinary interest on the grounds that disciplinary specialists know best.
4. We must not forget that the main contribution of CSCW and HCI to design has been its insistence on the dialogic processes between user, designer and ethnographer. Having said that, the character of these processes will depend on a number of specific domain- related issues, including whether the domain in question is well-understood; the degree to which it is ‚bounded‘, the complexity of the stakeholder structure, and so on.

All of these questions remain largely unresolved.

4. Conclusion

The purpose of this chapter has been to argue for a non- determinist relationship between investigation and design and, closely allied to this, a non- fetishistic view of what ethnography (as one investigative technique) entails (specifically in relation to method). CSCW has without question been a vehicle for enormous gains in our understanding of, and contribution to, thinking about design. This process has not stopped. The development of digital technology, the increasing complexity of organizational life and the sheer degree of connectivity available for social purposes has meant that ethnographic engagement of some form has become a 'preferred bidder', competing with old and simplistic measures of 'task', technology and allocation of function.

Of course, system designers, and those plying similar trades, continue to do their work regardless of the critiques offered from whatever source. As such, they are much like the scientist who continues to do science, oblivious and indifferent to the critiques offered by the 'studies of science and technology' movement. We suggested above that there are a number of arguments concerning the relationship between ethnography and design, and the putative preference for one form over another, that we should take very seriously. As with so many aspects of intellectual life, the debate can be cast as one about the relative merits of rigour and imagination.

Another element that has been extensively debated by the various protagonists is the 'relationship to design'. We saw how at least two different conceptions of 'use' are in play- one which sees a tight coupling between data and design, and one which advocates a step back from that presumption (but which nowhere suggests one cannot usefully couple these two things) in order to reflect more critically on the process and thereby serve another purpose. This is the point, of course, because the argument is precisely an argument about purpose. Dourish (op cit), it can be argued, is suggesting that the links between ethnography and design need not be represented in such a way as to *speciously* couple ethnography and design, rather than suggesting no coupling at all. One obvious feature of ethnographic practice, as opposed to the way it is represented in published work, in reports, or what have you, is that any given ethnography can serve many purposes. One issue is evidently, as stated above, that no *deterministic* relationship between ethnography of whatever kind and design has ever been established in the workplace or elsewhere. How strong a relationship, however, is going to depend on the quality of the ethnographic work done (under whatever auspices), the work of establishing relevance through dialogic engagement with users and designers, and through a recognition that different domains pose different kinds of problem. This latter issue is, we

believe, extremely important, and does not directly arrive out of any perspectival stance. The commitments outlined above do not on their own produce for us relevant settings, or relevant choices about how to deal with aspects of those settings, because they must somehow be related to the design questions that someone, somewhere, has at some point in time (and there is no particular reason to suppose that design questions are only asked by ‘designers’ except in the narrow, and tautological, sense). These questions could well be the product of a critical imagination, and may well be important, but they are simply not the same questions that ethnomethodologists, or others primarily interested in descriptive work, would ask. This does not make them irrelevant. Once we have made choices about the kinds of questions we are interested in, and where we might find answers to them, of course, then we can approach them in ways recommended by various perspectival interests. In design terms, in other words, what to look at it is just as important as how to look at it.

If, as we suggest, the various controversies around the ethnographic project remain largely unresolved then it behoves us to make some modest suggestions about future avenues in the field of practice-based design:

1. CSCW and HCI, as design-relevant communities (along with many other semi-discrete enterprises), need to learn to avoid endless neologism and instead build towards some modest general concepts founded in empirical studies. Such generalisations may well emanate from the way in which we conceptualise practices.
2. We, as members of these communities, need to break free of the rather casual insistence that ethnography should ‘feed’ design in any kind of deterministic way but at the same time should not reverse into sociological and anthropological critique for its own sake. The CSCW/HCI ‘voice’ can and must remain distinctive. It does so, I suggest, through the resolute insistence on enquiry into practice.
3. We also need to take a range of factors into consideration which extend beyond the immediate descriptive/analytic focus alone, whilst preserving the quality of that focus. While this is rather too readily glossed as the ‘wider organisation’, there is no question that practices do take place in a normative context.
4. The most important, and unresolved, question has to do with the status of the corpus. Assuming that existing contributions to the business of description are largely unproblematic, then debates about analytic focus and the nature of intervention/ prescription take precedence. These, we argue,

have to do with the conceptual foundations of the ethnographic project and what the status of generalization might be in relation to the corpus of work that has developed. We have not even begun to deal with this problem.

5. Embedded in the claims made by both Schmidt (2011) and by Crabtree et al (2009) is the idea that the fundamental purpose of ethnographic work in relation to design is to be useful in some way. It should, in some sense, contribute directly to the design process. In contrast, Dourish (op cit), for instance, has been read as suggesting a drawing back from this coupling between ethnography and 'design' largely in keeping with the critical claims we associate with sociology and anthropology. Now, one of the critical issues that needs to be carefully unpacked is the relationship between an ethnography (the 'hanging around'; the grasping for 'understanding', for 'interpretation' or for explanation, depending on where one stands) and the record that is produced of that activity (in respect of 'data', argument, published papers, and so on) and the purposes attached to both of these things. After all, the debate we are trying to make sense of depends on what we think is going on when someone does an ethnography for whatever purpose. The thrust of Dourish's argument, at least as we see it, is twofold: that the reporting of ethnographic results is impoverished if those results are to be considered *only* in terms of 'implications for design', and that it is a mistake to conceive of the ethnographic function as consisting in servicing a 'design brief'. To do so in his view, shared with Bell (see e.g. Bell and Dourish, 2007), is to concede too much to the mechanical, 'engineering' version of design we mention above. These would seem to be entirely sensible judgments. However, there is an important issue to be resolved before we can judge their significance. This has to do with whether such claims for tight coupling are routinely made or realised. In fact, existing practice, we would suggest, rarely fits this model at all, except at a rhetorical level. Much of the early Lancaster work can be read as a caution against such a view and, indeed, the proposal that ethnographies should, at least in the first instance, be 'innocent' and that ethnographies can both service design and furnish a critique at the same time has been around for a long time now (see Hughes et al, 1992; Randall et al, 1993)
6. In any event, we might argue that in this body of work, an invitation is being issued to designers to look at things anew (a critical role) instead of the serving up of data in some putative 'service' role. Again, there is little to disagree with about the idea that some kind of critique might be embedded in our descriptions. We might not always agree, however, about *what kind of* critique is most valuable, or for that matter *why*. Some clarification is perhaps needed here. The retreat

from realism that we see in the ‘postmodern’ literature on ethnography (see e.g. Clifford (1988); Clifford and Markus (1986) and more specifically in the context of ‘design’ (Dourish, op cit; Bell and Dourish, op cit) has been accompanied by a variety of arguments concerning the relationship of different forms of ethnography to design, some of which make more sense than others and all of which tend to be conflated. Our aim in exploring these issues is to try to show that ‘being useful’ does not entail viewing the ‘critical’ as against a ‘service’ role as mutually exclusive.

7. Lastly, it is by no means clear that a strong and necessary relationship between ethnography of whatever kind and design has ever been established in the workplace, and certainly not that such a relationship will exist in public and private spaces not associated with paid work. It is, further, by no means clear that the processes of design will remain the same across the various different domains that are increasingly subject to the gaze of ‘ubiquitous computing’, the ‘internet of things’, ‘big data’, internet-mediated social behaviours and so on. We are only at the beginning of our investigations of the phenomena that attach to them. We do not know what kinds of analytic commitment- notably the close attention to the sequential ordering of work activities- that have characterised much of our work hitherto will remain relevant because we do not yet fully understand what kinds of design problem may evolve. In addition, the problem of design cannot be considered in the absence of a consideration of designers. What is striking about arguments about ‘design’ is that they take place in a biographical and characteriological vacuum. We have no real evidence concerning the ability of designers, whoever they might be, to engage ‘reflexively’ in their work and it seems reasonable to suggest that this might depend in part on the kind of work they are doing and the cultural milieu they inhabit. One thing is certain- that the problems become more rather than less complex.

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