Experience Models: Where Ethnography and Design Meet

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This paper contributes to the ongoing debate about the role of ethnography in design. Whilst I believe that the contribution of ethnography to design has yet to be fully explored and articulated, I also hold the view that ethnography has a more effective role to play in "informing design" that goes beyond developing design guidelines, and yet involves a very different type of activity to specifying requirements. In this paper, I begin to outline the roles ethnography currently assumes in design. I explore existing ways that ethnographic research is involved in design and identify the need for a clear process. I suggest that developing an experience model would add great value to transitioning from ethnographic research to designing concepts. Though not new, experience models are not widely known nor practised. I believe that as practitioners we need to adopt experience models into our broader practice to make our findings actionable.

Introduction

In this paper, I focus on the role of ethnography in innovation and design. Tight couplings between ethnographic research and design have been viewed as successful by design teams and the academic community (such as the air traffic control research carried out at Lancaster University, Hughes et al, 1993). Large design consultancies, such as, IDEO and Smart Design, and R&D departments in large technology organisations, such as Microsoft and Intel, have set up ethnographic research groups over recent years. However, there is an ongoing debate both within these groups and in the broader EPIC, HCI and CSCW (Computer-Supported Cooperative Work) communities, as to the role played by ethnography in design. In part, this is to clarify and justify the value of ethnography, and in so doing seek appropriate evaluation criteria with which that value can be judged, and in part, to establish the role of ethnography within an organization.

The role of ethnography in design is generally viewed as one of "informing design". Plowman et al. (1995) ask the question what are workplace studies for? In their review of workplace studies in CSCW, they conclude that there have been very few attempts to translate research findings beyond the provision of a few general design recommendations.

In software development, "informing design" has sometimes been construed as one where ethnographic findings are used to identify system requirements, and ethnography is viewed as an activity that is situated as part of the requirements elicitation process (Somerville, 1998). Bridging the gap between descriptive, ethnographic accounts, and

reductionist system entities, such as data types, architectural components and data flows, is problematic. The problem has been perceived as one of poor communication and the response has been to develop tools, such as the Designers Notepad (Hughes et al., 1994) and a pattern language (Erickson, 2000).

Others have sought to reconfigure the relationship that gives rise to the problem. Dourish (2006) argues that the focus on implications for design is misplaced and in so doing misses where ethnographic inquiry can provide major insight and benefit to HCI. From an ethnographic perspective, technology is a site for social and cultural production. The gap between ethnographic description and the design of technology is where many interesting things happen and is of itself of interest to ethnographers. Therefore, ethnography per se does not accept a conceptual separation between research and design; ethnographers view the gap as not one to be narrowed or bridged but to be understood. Dourish (2006) believes that ethnographic research has much to contribute to HCI design. He says that "the value of ethnography is in the models it provides and the ways of thinking it supports… This may be as much in shaping research strategy as in uncovering constraints or opportunities faced in a particular design exercise."

Whilst I believe that the contribution of ethnography to design has yet to be fully explored and articulated, I also hold the view that ethnography has a more effective role to play in "informing design" that goes beyond developing design guidelines, and yet involves a very different type of activity to specifying requirements. By effective, I refer to ethnography playing a more formative role in design, and one of facilitating strategic action. (I realise this interpretation could be different to one that considers the broader success of an intervention.)

I aim to make two contributions to the ongoing debate about the role of ethnography in design in this paper. Firstly, I begin to outline the roles that ethnography currently assumes in design, and secondly, I suggest we adopt a representation that would help ethnography play a more effective role in "informing design", the experience model. Though not new, experience models are not widely known nor widely practised. In this paper, I identify the role played by experience models, illustrate the importance of such representations, and advocate extending our practice with such representations in order to make ethnographic research more actionable.

I begin the paper by outlining the roles ethnography currently assumes in design. I then explore existing ways that ethnographic research is involved in "informing design" and highlight the need to research best practice. I explain the essence of an experience model, how one is developed, its benefits and its unknowns. I give some examples of experience models that are available in the public domain.

Social Transitions

Roles of Ethnography in Design

Crabtree and Rodden (2002) suggest three ways ethnography could be involved in technology design:

- **Identifying "sensitizing" concepts**. Plowman et al. (1995) point out that the most prominent contribution of workplace studies to design is the identification of researchable topics, such as situated action (Suchman, 1987) and surreptitious monitoring (Heath & Luff, 1991). Crabtree and Rodden (2002) suggest these might be best understood as "sensitizing" concepts (Blumar, 1969). These concepts draw attention to important features of settings to be aware of and potentially guide future research.

- **Developing specific design concepts**. This involves studying settings that may shed light on what abstract design concepts might mean concretely in order to sketch out and work up potential design solutions. In a sense this is a highly directed activity aimed at creating form to a concept that although abstract, already exists.

- **Driving innovative technological research**. While the focus remains on the technology in use, the aim is to explore the sociality of novel design spaces opened up by radical technology in real world settings. The main outcome is again one of sensitizing concepts.

Another common way that ethnography has been involved in technology design in CSCW is the following:

- **Evaluating design**. Hughes et al. (1994) use ethnography to conduct a "sanity check" on the design. Ethnography has also been used to inform the iterative design, that is, to take a formative role rather than a summative role (Twidale et al., 1994).

In praxis, I would tentatively venture to identify ethnography's role in design, broadly adding to the above roles in the following:

- **Context awareness.** This involves immersing researchers, designers and sometimes clients in the setting, for the purpose of understanding the context in which a product will be developed. By involving the designer in the research as it happens, the designer takes a more active role in interpreting the findings. It assumes little or no analysis of the setting.

- **Identifying key emerging themes**. Themes tend to be specific to an area of study, such as understanding how people plan their social lives, and developed with a view to identifying design opportunities and influencing design solutions. Developing the themes involves analysis of ethnographic fieldwork. Themes are illustrated with

Experience Models – *Jones*

strategically chosen exemplars and are often accompanied by design or messaging recommendations and guidelines.

- **Developing experience frameworks.** Frameworks are models that identify the key components of an experience and indicate the structural relationships between those components. Robinson (1994) indicates that they are built at three levels: individual, social and cultural. They facilitate the generation and mapping of opportunities. More is said about these frameworks later.

These roles can be mapped as shown in figure 1. The transition from understanding the setting to designing the solution space is a process that I have depicted as an arch, with activities moving from left to right. Moving up the arch from the left involves deeper analysis of the setting, and moving down the arch on the right involves designing more refined solutions. Context awareness is depicted as immersion in the setting. Developing specific design concepts is seen as a focused activity, moving directly from understanding to specific concepts, without necessarily identifying or representing the key components of an experience. Emerging themes is depicted as involving further analysis of the fieldwork with a view to making design recommendations. Experience frameworks are depicted at the bridge between research and design. Sensitizing concepts are depicted as providing an understanding of the underlying behaviour, including the setting, the process and the solutions. Sensitizing concepts impact the design but do not directly inform it.

Several of these roles involve ethnography taking a formative role in design, particularly, developing specific design concepts, evaluating design, context awareness, identifying key emerging themes and developing experience frameworks. However, given that Plowman et al. (1995) conclude few studies translate findings beyond the provision of a general set of design recommendations, I want to explore if there are ways of making findings more effective for design. In the next section, I will explore ways that ethnography is involved in design and suggestions for improvements, for each role.

Ways of Involving Ethnography in Design

In terms of identifying sensitizing concepts and driving technological research, Plowman et al. (1995) propose the following ways in which to increase the impact of work studies on design:

- researchers who are directly involved in projects where system design guidelines have been determined as an outcome should consider developing hybrid and tailored forms of ethnography which can play practical roles in various phases of design and implementation

- researchers should be more explicit about their intentions in publishing findings, but should not feel obliged to force design implications from their material
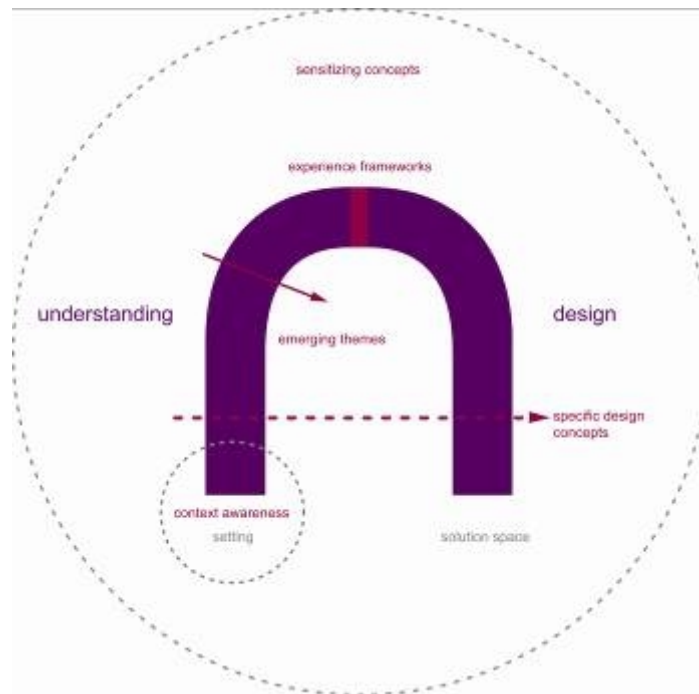
Figure 1 Roles played by ethnography in design

- researchers and designers should engage more in a continuous dialogue to help bridge the gap and misunderstandings between techno-talk and ethno-talk

In terms of developing specific design concepts and evaluating design, Crabtree and Rodden (2002) talk about developing specific design concepts as being a "polymorphous assemblage of cooperative work that takes place between ethnographers and designers" and "employing workplace studies to conjointly formulate sequences of machine-based interactions". My own experience of this activity is one of discursive meetings, in which concepts are identified and features emerge that are developed and gradually refined (Milac-Frayling et al., 2004).

In terms of context awareness and identifying key emerging themes, in a UK DTI report on US west coast organisations practicing ethnography to inform design, Paula Neal reports on mechanisms to improve the impact of research insights:

- build actionable outcomes from research with the design team. Neal says there is a need to take research one step further.
- encourage and reward research and design collaboration

- stretch the role of the ethnographer from the producer of knowledge to a collaborator in design innovation
- invest in developing new communication tools to make insights more tangible. Neal suggests using visualisation techniques.

It is not apparent that there is a clear process, or set of activities, or working practices, other than collaboration and dialogue between ethnographers and designers to facilitate the transition of understanding into design. This could be because dialogue is seen to facilitate the intricacies and finesses of the interaction required, and is perceived to be all that is needed. But one would also expect greater exploration and discussion of working spaces, processes or sets of activities, representations, analytic devices and communication tools. Interestingly, Neal, who speaks more form a design point of view, recognises the need to take research one step further and to develop visualization techniques. I believe this lack of researched best practice has an impact on the effectiveness of the transition between understanding and design, and requires greater exploration and discussion in our community. I will focus in this paper on one particular area, the lack of clear process, though its attendant practices impact upon related areas. I discuss three ways I believe a lack of clear process impacts on the transition.

Firstly, the forms of communication currently used are limited. The final outcome of ethnography is a form of reportage in which considerable attention is paid to its rhetorical form and construction. The reportage is commonly a "thick description" which is not intended to be easily accessible to designers and does not endeavour to identify the key areas of understanding that would guide strategic action. Dialogue creates a tendency to sensitize a designer to a setting but does not build on the analysis developed in the reportage.

Secondly, concepts seem to be developed in an ad hoc fashion. This creates a tendency to pursue ideas as they arise and develop point solutions, rather than remain open and explore the design space more broadly. Other factors often need to be considered that influence the design space. By moving directly to point solutions, priorities cannot be set or the impact of specific solutions assessed.

Thirdly, there are many people involved in the development of products and services that need to have a relevant understanding conveyed to them in order that they can plan or build or sell the product or service as intended. The ethnographic reportage is not generally recognized as easily accessible and so the tendency is for the understanding to become dissipated or misconstrued in dialogue from one person to another as new groups of people become involved in the development process.

I believe we need to extend ethnographic analysis and develop a representation that more tightly couples ethnography and design. This would create something tangible, which could guide the creative process and take the understanding forward into the development process. Representations already exist to guide the design and development process, such as user profiles or personas, and scenarios, but these do not sufficiently represent the

understanding of the setting. We need a different representation that captures the relevant aspects of the ethnographic research.

Such a representation has been developed and is known as an **experience model.** It is a form of experience framework described earlier and shown in figure 1. It was used extensively at E-lab in the mid-90s and then Sapient, but other Chicago research and innovation agencies created similar forms. Very little is published about experience models, an exception being Blomberg et al. (2003). I could speculate this is because of its value and longevity to client organisations and therefore case studies remain confidential. It could also be that experience models take time to develop, over and above drawing out key themes, and it is hard to gain that additional time in praxis. It also requires the contribution of a multi-disciplinary team, which is rarely possible or recognised in academic environments.

I believe that taking analysis to the next stage and developing an experience model will make ethnography's role in informing design more effective. It would also lead to a process of people-driven innovation. In the next section, I describe the qualities of an experience model and subsequently give examples of its use.

The Experience Model

Experience models are visual representations depicting key analytic relationships of the underlying behavioural structure of the organization on of an experience for the people involved. Their purpose is to distil the important aspects of behaviour in a form that aids the development of concepts, prioritises and evaluates design directions, and acts as a shared reference tool for a team of researchers and designers. Rick Robinson, a co-founder of E-lab, advises that experience models should be simple enough to draw on a whiteboard in a few seconds, and use language that is memorable; simple enough that elaborate explanations are not required. An experience model not only tells a story, it is explanatory and developed in a way that has implications for strategic action.

An experience model is the result of three main activities. Firstly, a rich set of data of an insider's view of the area under inquiry is collected, in other words, solid ethnographic research data. Secondly, the data is analysed so that patterns of behaviour are identified and clear themes emerge from the fieldwork. It is important to consider different types of categories, such as, categories of users, categories of objects, categories of goals, and categories of strategies. The analysis is phenomenological in character. Thirdly, the phenomena are reduced to their essential components and structured into a narrative representation that can be visually depicted. The final representation is known as the experience model. These activities overlap, each activity builds on the one before it, and each activity is highly iterative. An experience model is the result of additional analysis to the traditional phenomenological analysis that involves conceptualisation.

The form an experience model takes varies with the aim of the research and the topic. However, commonly it consists of a set of behavioural states that are either connected by time, in which case, they represent an experiential process, or are related by an attribute of the collection, such as life stage or attitudinal perspective. An experience model can address individual experience as well as the dynamics of group behaviour. It can be of varying levels of generality, complexity and scope.

Developing experience models was an important activity carried out at E-lab to aid the transformation between research and design. Experience models were used to identify gaps in an experience for which there could be an opportunity for a design solution. They were often developed further into an opportunity map, another form of experience framework. An opportunity map is a representation that identifies the intersection or application of an experience model to existing and potential products. Experience models were used by design teams to validate design ideas and directions. At Sapient, they were used to inform business and brand strategy as well as technology and artefact design.

Experience models tend to be used by clients over long periods of time; a major household cleaning company still used their model seven years later, and BMW Designworks still refer in the DTI mission report (2005) to a model that E-lab developed for them some 5 years earlier.

Experience models have three key benefits. Firstly, the collaborative construction of an experience model facilitates the development of a shared, principled understanding of human behaviour and experience for the research and design team. By representing behaviour visually, the model becomes a communication device that makes tacit ideas and issues visible. This aids further analysis as entities and their relationships are discussed and developed, and the representation iterated. In practice, an experience model is used as an analytic device to facilitate the transition between ethnographic research and design.

Secondly, though an experience model is a descriptive representation of behaviour, it can be used as a generative tool to identify opportunities. E-lab used an experience model to identify gaps in an experience and thereby opportunities for design solutions. Instrata has developed techniques to identify additional opportunities and frame a design space. By developing a structured set of opportunities, possible design solutions can be prioritized by a range of stakeholders, and thereby a variety of issues considered that will impact on their ultimate success. Using experience models as generative devices allows organisations to adopt a people-driven approach to innovation.

Thirdly, an experience model becomes a shared reference point that goes beyond use by the initial creative team and is accessible by other groups in the development and marketing process. The model or representation can be used as an everyday, tangible reminder by other stakeholders, as personas are used in some organisations today.

Social Transitions

The limitations of experience models are unknown, but the following questions could begin to frame a research agenda:

- What are aspects of behaviour that cannot be modeled or are beyond the scope of what a model can represent?
- In reducing the phenomena to their essential components, how do we encompass and represent critical influences that we have left aside?
- In terms of an experience model being a reference point beyond the initial creative team, how is the model best communicated?

In the next section, I summarise a few examples of models that are available in the public domain and one we developed at Instrata.

Examples of Experience Models

Blomberg et al. (2003) presents a model that was developed for a financial services company serving individual investors. The company aimed to develop web applications that would facilitate customers' active engagement in the investment process with particular financial instruments. A model was developed that illustrated the distinctions people make between real, play and foundational money, and people were found to be more fully engaged in the investment process when they consider their money real. The model led to the identification of numerous ideas of playful learning to draw people into the financial investment process, rather than providing them with a wealth of information.

Blomberg et al. (2003) describe another project where the aim to develop an electronic medical record system to allow people to view their records and potentially take a more proactive approach to their healthcare. A number of models were developed, such as one that described how individuals in the process of adopting an active/ proactive stance in relation to health issues, move through varying stages of readiness. A more comprehensive model highlighted ways in which various factors interact in influencing a person to take action to address a health issue and mapped the role of various health care related activities (e.g. monitoring, motivating, learning, sharing, build rapport) in various stages of readiness.

Jones (2005) reports on a study of grass root campaigners for the BBC that developed a campaign process model. The model identifies four stages in the development of a campaign. It emerged that the majority of the work in a campaign is accomplished during "unsung moments" rather than manning the barricades, and campaigning is more about elective sociality rather than an extension of the political. As a result, the BBC iCan Web site that was built to support grass roots campaigning provided additional support for social interaction amongst groups.

Beers and Whitney (2006) present a study that focused on customers' financial management behaviours. They found that people did not budget and that most people did

not particularly enjoy managing their money. The managing finances experience model comprises three intersecting states and related states: react, engage and actualise. They found the key was not to attempt to convert customers into budgeters or more detail oriented bean counters, but rather to empower them by helping them consider three aspects:

- Know what they had in terms of types of accounts and their balances
- Know what they need from a task perspective or from a life
- Know what they need to do, by providing easy-to-use online functionality, as well as relevant and helpful advice.

Instrata carried out a project whose aim was to identify concepts that would facilitate people's ability to learn to use features and services available on mobile handsets. We developed an experience model that illustrated stages of learning that included playful exploration, making it their own, situated learning and reaching beyond. We used the model to provide a framework of opportunities and identified associated concepts. The concepts were prioritised and a selection taken forward into working prototypes for evaluation.

Reflections on the Praxis of Ethnography and Design

In this paper, I have outlined the existing roles of ethnography in design. I have explored ways that ethnographic research is used in design that identified there is no researched best practice, other than the strong recommendation for collaboration and dialogue between researchers and designers. I have illustrated how a current lack of process in particular, impacts the effectiveness of transitioning between ethnographic research and design, by the ad hoc development of solutions and the limited forms of communication available to the initial creative teams and to those stakeholders involved later in the development of solutions.

I believe ethnography could play a more effective role in design if we were to extend ethnographic research analysis and develop experience models. Experience models are one example of highly successful representations that offer an analytical device, a generative tool and a shared reference point. I am concerned that if we as practitioners do not adopt such representations and thus make our findings more actionable, then ethnography will become restricted to two roles: developing sensitizing concepts, which will probably carried out in academia, and context setting, which will be seen as sufficient. This appears to be the current trend.

I think there are two related areas of research. Firstly, we do not know the limitations of experience models and how they could be improved. Secondly, I believe there is more to the transitioning between understanding and design than using experience models and we need to articulate a best practice. For example, what are the work environments that are best suited to transitioning and are there other analytic devices and communications

Social Transitions

tools we could use? By exploring this area, I believe we will make ethnographic research more effective at "informing design".

Notes

I would like to thank Elizabeth Anderson, Melissa Cefkin, Paula Neal and Hayley Reynolds for their insightful comments on an earlier draft of this paper. Their comments gave me cause for reflection and helped me refine my thinking.

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