INTERNATIONAL CONFERENCE ON ENGINEERING AND PRODUCT DESIGN EDUCATION
5 & 6 SEPTEMBER 2013, DUBLIN INSTITUTE OF TECHNOLOGY, DUBLIN, IRELAND

ETHNOGRAPHY AND DESIGN, UNDERSTANDING EVERYDAY USER-PRODUCT RELATIONSHIPS

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ABSTRACT
The range of methods used in Human Centred Design for understanding behaviour is wide and not yet stabilised, which may explain divergent levels of integration in design teaching. The speed at which design disciplines are changing means that the palette of possible user research tools is also evolving, making an overview difficult. This article questions which user-research methods should be considered essential in design studies at university level. We explore lasting everyday user-product relationships as a possible test case relevant to evolutions in user research towards understanding the detail of product related emotions and experience. As well as creating a focus for method choice, we discuss why studying lasting subject-object relationships may be particularly relevant for designers. We assess and discuss some current design research tools appropriate for understanding the detail of user experience, usable by designers rather than human science specialists.

Keywords: User research, ethnography, lasting user-product relationships, attachment

1 INTRODUCTION

The beginning of the 1990s saw design integrate more human-centred design. New ways of exploring consumer behaviour, in particular applied anthropology, were adopted by the design profession. Christina Wasson [1] wrote that her study area gave designers a view not just of what consumers say they do, but what they actually do. By the end of the 1990s ethnography was part of design vocabulary, for reasons identified as; helping designers link to users; helping companies remain competitive in an increasingly difficult marketplace; helping design move towards "strategic design" and enhancing designer's creativity [2]. To this we can add the growing imperative for designers to consider the environmental impact of their work [3] demanding products more adapted to users' needs and the growth of interaction design and service design reinforcing the need to focus on user-experience. Students today need skills for exploring users in the context of everyday life [5].
The 1999 Methods Lab [4], listed 51 different User Research methods and by 2006, E. Sanders, a user research specialist, admitted this is an exciting and a confusing time for design research, with researchers and designers getting into each other's domains and misinterpreting or misapplying the other's methods and tools [6]. But what should the user research skill set in design studies be? In this research we assess which design research tools may be most effective for understanding lasting subject-object relationships and attachment. By focussing on a specific product behaviour question we hope to narrow the scope of this paper and look at methods relevant for designers. An object-based or "material culture" subject may also be a tangible way of introducing user observation methods to design students. We conclude with a discussion of a non-exhaustive selection of methodologies.

2 DESIGN RESEARCH ON USERS

Design research is one of the foundations for 'robust design' [7] but today much of this research is done by researchers with social science backgrounds. The idea that research is not done by designers is relatively new. Paul Rothstein [2] quotes Henry Dreyfuss, in 1955, who considered field research as fundamental to successful industrial design, studying people in the environments in which they eat, work, sleep and play. Robert Probst, another advocate of field research, feared that "industrial design attracts a lot of surface people interested only in cosmetics" [2]. Since the 1990s, few designers would admit to being surface people and the need for design to be human-centred, based on observing and working with end users is no longer questioned. The emphasis of human research in design has moved

from evaluating design outcomes and product testing to targeting the collection of information about people and products to inform creative decisions [8]. This human centred focus led to integrating more structured research methods. Ethnography methodology was a key choice [9] typically consisting of living with people, speaking their language and participating in mundane activities. Part of Daniel Miller's definition of an anthropologist is someone who seeks to demonstrate the consequences of the particular for the universal by equal devotion to the empathetic understanding and encompassment of both [9]. Empathy and focusing on the particular of human experience make ethnography central in design research. Besides anthropology, the research field now includes sociology, behavioural psychology and cognitive sciences with each discipline introducing its unique perspective, concepts and research methods [8].

In the last 10 years, design research has moved towards understanding emotional responses and user experiences. Desmet and Hekkert [11] write that growing interest in user-centred design has stimulated a shift of focus from users' behaviour and cognition to the users' affective experience of human-product interaction. The product experience area may push the multi-disciplinarity in design research even further, resulting in a research agenda with a multitude of experiential concepts differing in theoretical backgrounds, research purposes, and design possibilities [11]. This is a difficult context for understanding and identifying methods adapted for designer use. This has lead to the creation of online resources with structured lists with method descriptions [12],[13]. Whilst very useful, these resources do not really provide an overview and therefore we discuss below possible ways to create an overview or classification of design research methods.

2.1 Participation

The Methods Lab proposes mapping methods on a dual axis; visual qualities-functional qualities, and designer centred-user centred. [4] This second axis refers to the external "reference" needed. Elizabeth Sanders [6] suggests mapping based on a more or less participatory mindset, but a little confusingly probes and generative tools, two methods with many similarities which we will discuss below, are at opposite ends of a participatory - non participatory mindset axis. The second axis in this map, design or research led, is limiting in the context of our research. Designing with people [13] has a tool choice based on designing for, with or by people, a classification established by Fulton Suri. Depending on wording, criteria based on the level of participant implication, independence or creativity seem useful.

2.2 Expressible

To describe the place for generative tools in design research, Sleeswjik et al propose a classification based on user knowledge from surface to deep; knowledge that is explicit, observable, tacit or latent [14]. People can act upon tacit knowledge but cannot readily express it in words. Latent knowledge is based on needs people are not yet aware of. On this mapping the surface level can be accessed through interviews, what people say and think. On a deeper level, observations can be used to see what people do or use. In order to access tacit and latent levels of user knowledge, generative tools can be used to help people express their feelings through the creation and storytelling of self-made artefacts. Placing methods on this axis objectively may be difficult, for example; an empathetic interview may uncover more than observation. Nevertheless ease of user expression could be a good classification axis.

2.3 Research aim

The aim of the 'cultural probes' tool is described [15] as being to elicit inspirational responses from people, not comprehensive information, providing new perspectives that can constrain and open design ideas. Hemmings et al adapt and re-name this tool 'informational probes' for information and insight into the unique needs of novel domains [16]. These two diverging attitudes to the same tool show the difficulty in classifying tools by research aim. Design research clearly aims for inspirational material, but not exclusively. An advantage of design research tools may be their multiple research aims, which may be to understand users; to inspire design teams; to collect detailed user information; to sensitise non-designing participants in co-design projects; or more probably a combination of these.

2.4 Intuitive or Systematic

Oygur [7] has created a map based on research approaches applied both by designers and design researchers with a single axis ranging from intuitive to systematic research. Systematic research is defined as research combining multiple methods with triangulation and data analysis requiring trained

researchers. The need for design research to be triangulated is increasingly a standard requirement, but the second notion of data analysis may be a useful indicator of intuitive or systematic research. In a meta-analysis of design research papers, Enquist and Nordgren [17] focused on the data transformation phase. Whilst the transformation of empirical material into conclusions is a critical phase, this interpretation phase was often absent in the design research papers studied. Rather than assuming that designers mainly need inspiration and intuitive approaches, our position is similar to Koskinen [19] that contemporary product design needs both "experience-near" concepts for inspiration and "experience-distant" concepts for informed argumentation and decision-making. Not less or more data interpretation, not more or less systematic/analytic research, but both.

2.5 Project phase

Hannington [8] suggests a relatively simple classification for research methods based on project phase. Here research within design process is divided into three overlapping stages; the exploratory, generative and evaluative phases. These phases are slightly different from the Design Council Double Diamond design process phases: discover, define, develop, deliver - used for method selection in Designing with people [13]. Design and emotion tools [12] uses five phases; understand user/market; explore ideas and concepts; design specification; test and evaluate; market implementation. Placing methods in this type of classification is not always clear, for example testing and evaluating tools can be used in an exploratory phase and some participatory creative tools can generate understanding of users. Although many research methods fit easily into one project phase, certain methods can be used effectively in different phases. Differences of design process model may also create problems.

2.6 Method mapping conclusion

This brief overview of some possible classifications or map axes shows the difficulty of the exercise, but as user research and the role of designers in this area is clarified it may become possible to create more robust mapping propositions. Method classification based on users seems perhaps the most useful for designers. User implication and "observability" or "expressibility" of user-related information seem good criteria. It may also be feasible to imagine a methods map covering part rather than all of the design process. Our overview of methods takes this route, focusing on the exploration phase. For Design students, who may become design researchers, it will be important to understand, use and have a critical position on design research approaches and findings, particularly for creating robust project briefs. In this context it seems useful to focus on the user understanding phase to both limit the scope of our study and help identify which research tools designers most need experience of.

3 LASTING USER-PRODUCT RELATIONSHIPS

Lasting everyday user-product relationships are the lens chosen to look at user research as we feel this subject demands tools that capture fine grain emotional user behaviour, and these may be key for future designers to master. Lasting user-product relationships are linked to 'product attachment', a multidimensional property of material object possession which represents the degree of linkage perceived by an individual between him/her self and a particular object [21]. A simpler definition; the emotional bond a consumer experiences with his/her product [22]. As attachment is often linked to "most cherished" possessions [21], we use the wider definition of lasting user-product relationships.

Beyond representing a useful test case for research methods, lasting user-product relationships may be a useful study area in design education. Product attachment can be explored from a self-cultivation and social identity viewpoint [21]. Self-expression, group affiliation, memories and pleasure have been studied as possible determinants of product attachment [24]. Rather than the term attachment, other research explores the concept of emotionally durable design [25] and the need for user-product relationships to be able to evolve. Timelessness or affective sustainability [26] includes the hypothesis that a long lasting human/object relationship is only possible when the object is designed for a human way of being rather than a human way of living (or lifestyle). User product relationship categorisations include; meaningful tool, meaningful association and living object (companion products perceived as having personality and soul) [27]. Other frameworks [23] are based on design perspectives affecting durability established by Verbeek [28]: function, symbolism and material qualities. This very brief overview of some research shows that this area includes many approaches, but may help designers to better explore the complexity of consumer products and question some current design methods.

Csikszentmihalyi and Rochberg Halton write [29]; 'the things that surround us are inseparable from who we are. They constitute the framework of experience that gives order to our otherwise shapeless selves.'; illustrating why exploring user-product relationships is relevant for design research. Daniel Miller [9] writes that the best way to understand, convey and appreciate our humanity is through attention to our fundamental materialism. Looking at our product relationships is a way of looking at human behaviour. Also asking people about objects may be an effective questioning strategy [30].
Finally, lasting user-product relationships may be a sustainable consumption strategy. In some cases it may be better not to extend product lifetime [24], but generally product longevity aids sustainability. Product attachment may also generate care and repair behaviour, optimising product lifetime [31].

4 METHOD SELECTION AND DISCUSSION

The methods in this section are selected for their relevance for studying lasting user-product relationships, and are potentially methods for research by designers. We focus on the exploration phase (see 2.6.) and use method grouping based on user implication in research data generation.

4.1 Observation

Traditional ethnography is based on observation over a long time period and whilst spending time with people, researchers can ask questions as they occur. This observation is mostly aimed at gaining a holistic understanding. In design ethnography time scales are often shorter and study focus may accordingly be narrower. The three main types of observation used in design research are natural or without investigator interference, controlled or task based and participatory, where the designer tries out actions in the user context. Observations are an accepted technique to record emotional responses, by analysing facial expression and verbal content [32] in relation to task sequences for example. The advantage of video recorded observation in this context is generating data that can be reviewed and coded countless times [32]. Brown et al [33] state that ethnography rests considerably on craft and analytic know-how and cannot be learnt from books alone. In their research on teaching ethnography they highlight the difficulties for would-be ethnographers to see interesting features, or insights in the fieldsite, which could in part be helped by a narrow user-product relationship focus. Wrigley et al [32] state that observations and their surrounding conditions and context can be varied drastically to suit study purpose. Controlled task based observation could be used in research on lasting user-product relationships, but might be more meaningful if combined with interviews or user narration.

4.2 Interviews

Interviews are a method already widely used in attachment studies, but have varied in their scope, often questioning users on a wide range of possessions. The interview is one of the most common and powerful ways to understand people. Designing with people [13] states that an empathetic interview takes an ethical stance in favour of the individual, the designer becomes an advocate and partner with the interviewee. Interviews on lasting user-product relationships by design undergraduates at the authors design school in a short exercise generated a very large number of constructive insights on the interview process. Given that interviews can be considered the foundation for many of the methods designers use this seems an essential skill for designers to practice whatever the study level. Accompanying interviews with visual supports, in the spirit of the IA card tool developed by Caroline Hummels [12], to encourage interviewees to discuss subjects more intuitively or personally could be interesting to explore in the context of user-product relationships. Supports such as the "emocard" [35] have also been used in interview context, and are an example of choosing interviews for exploring issues related to emotions in design [32]. The flexibility of interviews also allows for longitudinal research. A drawback of the interview is that what people say and what they do can be different [32], thus interviews probably need to be used in conjunction with other methods.

4.3 User narrated actions

User narrated actions can take several different forms and are generally linked to observations. The think-aloud protocol, originally from the field of psychology, is widely used in HCI. Although this method can provide rich qualitative data useful for analysing deeper and more complex issues regarding emotion [32] users may need encouragement to express the *why* rather than the *what*. Levitte [36] describes how a version of the think-aloud protocol used to describe an urban stroll generated a great diversity, subtlety and sensitivity of narration, but that the accompanying researcher needed to

help the stroller to liberate his subjective voice by acting as a well-intentioned listener. This research also explored incorporating eye-tracking technology, which may soon become more accessible.
Video Ethnography also fits into the category of user narrated actions, combining video footage with think-after narration by the user. This data is designed for repeated viewing by researchers to gain insights. In introduction to video ethnography in the author's school, video and editing skills were easily managed by design students, but identifying insights and interpreting data were some of the difficulties reported, in part alleviated by team discussion, argument and debate.
In durable product attachment research, user narrated actions could be relevant tools, but further research is needed to establish whether think aloud or think after protocols would be more effective.

4.4 Self documentation

This family of user research methods includes diaries, cultural probes and video probes among others.
User diaries are a research method originating in the medical field and are usually considered appropriate for sensitive areas of user need that require private disclosure [13]. Citing Csikszentmihalyi, Mattelmaki [34] writes that self documentation allows users to record context-related experiences as they occur, minimising retrospection. Cultural probes were first presented by Gaver et al [37]. The self documentation process of probes is a collection of assignments through which or inspired by which users record experiences, thoughts and ideas [34]. Probes are generally sent to participants as packages containing a variety of self recording media, often including a camera, diary and postcards. Sensitising packages developed by Sanders in the 1990s are very similar to probes. Both methods aim to stimulate users with playful supports to encourage enjoyable self-documentation. Initially experimental and unstructured, probes have been adapted and applied in a very wide range of ways and contexts. A key advantage of this tool area is offering scope for designing an attractive interface carefully adapted to the user group and subject being researched. Mattelmaki and Battarbee [18] describe the empathy building process that begins with designing the material and preparing a sensitive ear for understanding another person. A key probe design issue remains giving participants a variety of relevant expression possibilities.
Probes and diaries can be adapted to longer timeframes (Wrigley et al [32] mention a six month diary project), but this places a large responsibility on participants. The advantage is that diaries provide rich and comprehensive information regarding people's emotional experiences interacting with products in everyday life [32]. With careful tool design, diaries or probes seem very relevant to our subject.

4.5 Methods conclusions

Organising methods in terms of participant implication and independence seems useful, as this may allow selection of methods depending on the nature of the actors, the time scale of the research, and aspects relevant to researcher influence. This research shows that it is difficult to separate tools, and that there are multiple cross-overs. Equally many methods are already combinations of tools and there seems to be future potential for combinations - particularly in the use of designed supports and triggers to encourage and facilitate user self-expression and introspection. Many approaches are possible for a subject such as lasting user-product relationships, but above all we need tool combination design with detailed focus and longer time-scale. This could be a useful exercise for the design education context.

5 CONCLUSIONS

Design research can mean designing the research, designing the tools, designing the appropriate participant interface, a creative, project-like approach already familiar to designers. Future designers should be active, critical actors in user research and be equipped to design good user-understanding strategies. We should use a combination of methods, rather than aiming for a definitive "best choice", but it remains important to be informed to be able to make these choices. The choice of user research methods has to be subject and outcome based and designed specifically for the research project. This article proposes a user-based approach, taking into account the nature of all the actors. In addition, the subject of long term user-product relationships or attachment could be a suitable test case for selecting and perhaps teaching research methods.

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