

Probe studies with professional designers to explore the role of people-based information and empathy

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Abstract: This paper will report on a probe study that examined current practices, resources and thinking processes of a group of self-defined user-centred designers. The study formed part of a larger engagement with professional designers used to understand the role of people-based information and empathy within their design processes, which contributed to the eventual development of a new framework and resource to support these elements. The study included in this paper demonstrates how probes were successfully used to provide rich context and develop upon themes for in-depth follow up interviews.

Key words: empathy, information, probes, interview, people-centred

1. Introduction

The reported study alongside other empirical studies formed the basis of a larger investigation carried out towards facilitating the specification for a resource framework named Means of Human Information Representation, Retrieval, Organisation, and Reflection (MHIRRO). This paper will present an initial study carried out to examine people-based information practices within professional designers' studio environments through probes. The study informed in-depth follow-up interviews used to further examine and develop themes established through an earlier literature review. The outputs from the probes and interviews eventually being combined, coded and categorised, leading to the production of high-level themes and a framework for designer's human information processes, highlighting the importance of information and empathy combinations in people-centred design development.

2. Probes to explore the habits of designers

Probes were selected as a method for exploring designer habits as they have struck a chord within the design community; they can be considered a form of design ethnography [1] used by designers to build textural understanding of those being designed for. The probe approach was adopted in this study as designers are noted as finding it particularly inspiring [2], which suggests that at some level it meets designers' information collection needs. Hence it was a method of interest to the larger study, and was considered more likely to engage designer participants if well designed, increasing the likelihood of participation in the follow-up interviews. The development of a probe is a creative process in itself, attempting to engage users in appropriate ways to elicit rich self-authored feedback through a combination of items (e.g. diaries, cameras, post-cards etc.) The original purpose

of such probes (e.g. cultural probes) was that they be used outside the domain of ‘scientific’ problem solving (i.e. towards detailing user requirements) instead they were intended to be more playful, exploratory and inspirational [3]. However, although the original technique is well established, the nature of the information generated has often met with modification [4] leading to techniques utilised in cultural probes being adopted for different purposes by many designers and researchers, such as the Empathy Probe [5] and the Informational Probe [6]. In the case of the probes used in this study exploratory feedback was required, hence the probe kits included a visual survey, disposable camera, and a mapping exercise. Follow-up interviews were carried out to clarify the material returned and further explore the designer’s opinions on information and empathy.

2.1 Process

Robson [7] states that for surveys (which the probes were equated to), samples should be drawn on a representative or sample basis; the sample chosen was designers with over 3 years of professional design experience and with knowledge of inclusive design (this was judged upon recommendations from experts and design portfolios) and that they be UK based. The UK focus was chosen to allow more controlled comparison free of additional external geographic influences, in addition to making face-to-face interviews more straight-forward to arrange.

The kits (see Figure 1) were dispatched in mid-December, in order that they be in place prior to Christmas. It was felt this timing would be a particularly suitable period as there should be a more relaxed workload at the start of the New Year, and during this period of self-reflection and resolution the kits would be particularly appropriate. The participants were contacted in mid-January of the following year with a reminder to return the probe kits, and again at the end of January. By mid-February five probe kits had been returned; due to the limited response a second round of probes were distributed. This time the selection method was based upon recommendations from Julia Cassim of the Helen Hamlyn Centre and from the original participants, and as such took the form of snowball sampling [8]. Another 10 kits were compiled and dispatched and again the response rate was 50 percent, the tenth probe being returned in late March.

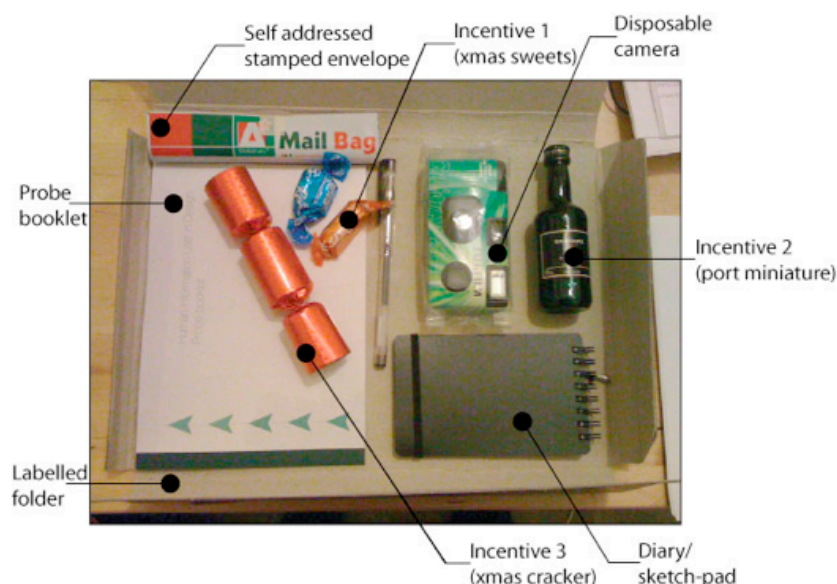


Figure 1 – Probe kit

2.2 Material development

The probes contained seasonal ‘incentives’ as a way to lighten the mood of the study and hopefully encourage better response rates. The proposition to designers was that the probe would allow them to reflect upon their work in the year just passed and think about their approaches taken towards human information, and how this may have influenced their design processes and outputs. The completed probes would present insights into habits, approaches, outlooks and opinions.

2.3 Probe booklet

The designer probe kits were designed following a similar format of the original ‘cultural probe’ [9] and included the equivalent of postcards in the form of an exercise booklet which made up the main tool for information capture. This was in addition to a disposable camera with photographing prompts. The booklet tasks were designed to be simple and intuitive and included a degree of flexibility in order to encourage designers to express some individuality and creativity through text, drawings and photographs. Specifically participants were instructed to address issues that had been highlighted through an earlier literature analysis. The booklet contained a variety of visual and textual prompts to pose a variety of questions relating to human information in the design process, specifically the probe booklet prompted response to the following topics – ‘user diversity understanding’; ‘approach to design’; ‘user data sources’; ‘how you make your decisions’; ‘human insights for inspiration and information’; ‘human information needs during design development’; ‘your thinking approach to design problems’; ‘2009 project reflection sketch’

3.0 Probe Findings

Upon the probes being returned, the responses were documented, organised and interpreted. The following are examples of the feedback received and how this was interpreted.

3.1. User diversity understanding and approach to design

To explore the approaches designers might take to understanding those they design for, one worksheet provided examples of five different user types of differing ethnicities and other obvious traits (i.e. reduced mobility teen in motorised scooter; young man using crutches; business woman, middle aged and visually impaired; older traveller with luggage; senior woman jogger). Participants were asked to list how they would attempt to understand these various users’ needs. There was some variation in what was suggested by each designer; however, most designers listed a set of approaches then repeated them identically for each user type regardless of individual characteristics. This seems to indicate that designers will tend to investigate a variety of users using the same approaches. An additional trait of note was that there was a significant variation between what the participants considered to be an ideal scenario to understand the users, and what was the typical scenario. Their responses were compiled, listing the words and statements used. The resulting list of words was put through a word counter (<http://www.wordcounter.com>) to assess frequency of the words/terms used and tabulate in a descending table. It was clearly demonstrated in the responses that engaging with people in a variety of ways is considered the ideal, with “work with user groups”, “ethnography/observation/shadowing”, and “interviews” being the top three ‘ideally’ responses. However, the actuality was shown to differ considerably from this ideal as can be seen in the

‘typically’ responses, with “interviews” being the only user engagement to feature in the top three. Apart from “interview” the most typical information gathering approaches consisted of methods that do not directly involve end users, such as “internet”, which was the highest rated approach, also included were other non-interactive approaches such as “mimic/simulation”, “research existing products/benchmark”, and “scenarios”.

3.2 User data sources

In another task designers were asked to rank a selection of information sources in respect to how often they would consult such sources to obtain human based information for use in their work. From this it could be derived that ‘measurement/experiment’ was ranked highest, followed by ‘internet’, and the least consulted sources were ‘ergonomics literature/software’ and ‘friends and family’. The full results from this question were plotted in the pie chart (Figure 2).

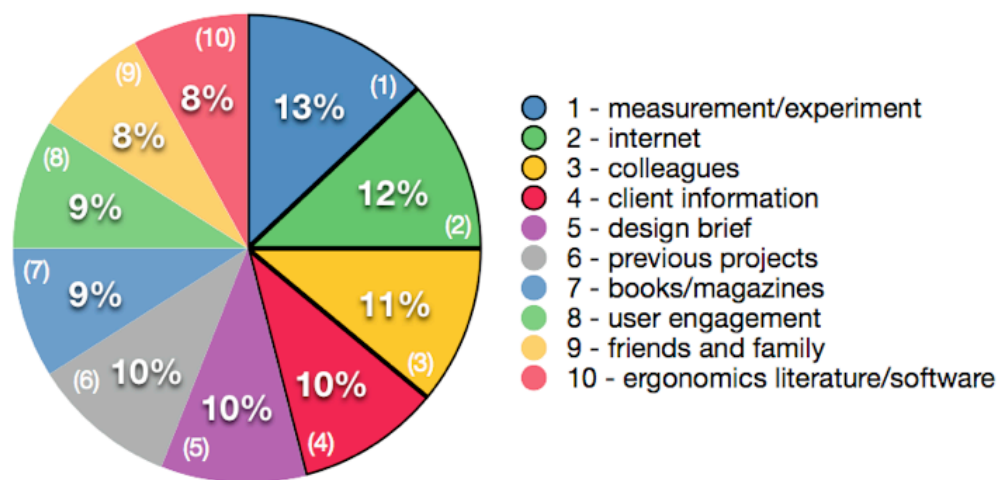


Figure 2 - Frequency of user information sources consulted

3.3. Thinking approaches

The probes, on the whole were intended to produce a more general qualitative insight into designers’ practices; many questions/tasks were posed in order to obtain responses that could be further processed. For example a question posed about thinking approaches, allowed designers to shade in areas they believed applied to their design thinking given the artistic options of ‘intuitive’, ‘emotional’, ‘empathic’, on one chart and the logical options of ‘process driven’, ‘rational’ and ‘systematic’ on another. These classifications emerged from an earlier literature analysis, and were considered by the researcher to be broad yet provocative, which would encourage completion. Although this task was open to variations in how it was shaded, it allowed some quantifiable analysis. To further and more clearly visualise this data individual participant responses were collated onto separate bar charts (Figure 3), representing both the logic and artistic choices they made (examples of participant 1 and participant 2’s charts are shown). These charts demonstrated that the designers had a slight tendency towards a thinking approach with ‘empathic’ and ‘systematic’ characteristics; however, on the whole all participants believed they had some level of balance between the various stated characteristics, and none placed themselves solely within one artistic or logic segment.

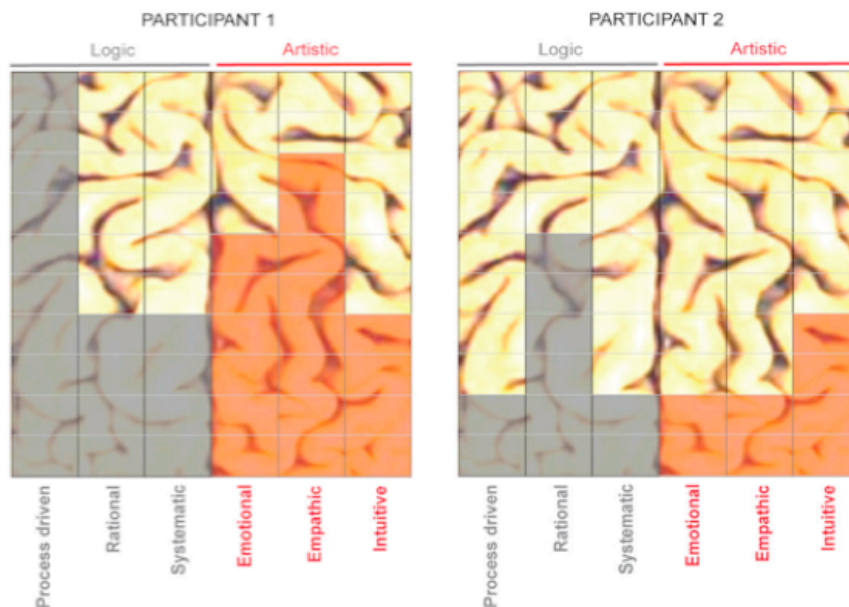


Figure 3 – Individual designers' 'thinking approach to design problems'

3.4. Project reflection sketch

One of the booklet tasks asked for a reflective mapping of a recent project to be completed, highlighting where end-user information influenced the process and thoughts. The responses to this varied in both content and approach, but were useful pictorial examples of each participant design process, and the role of user data in their process. 20% of the designers indicated testing at the prototyping stage as the only user input (see example in Figure X.X); 60% indicated some early user input in addition to later testing (see example in Figure 4); and 20% noted user input as happening only early in the design process, and not later in testing.

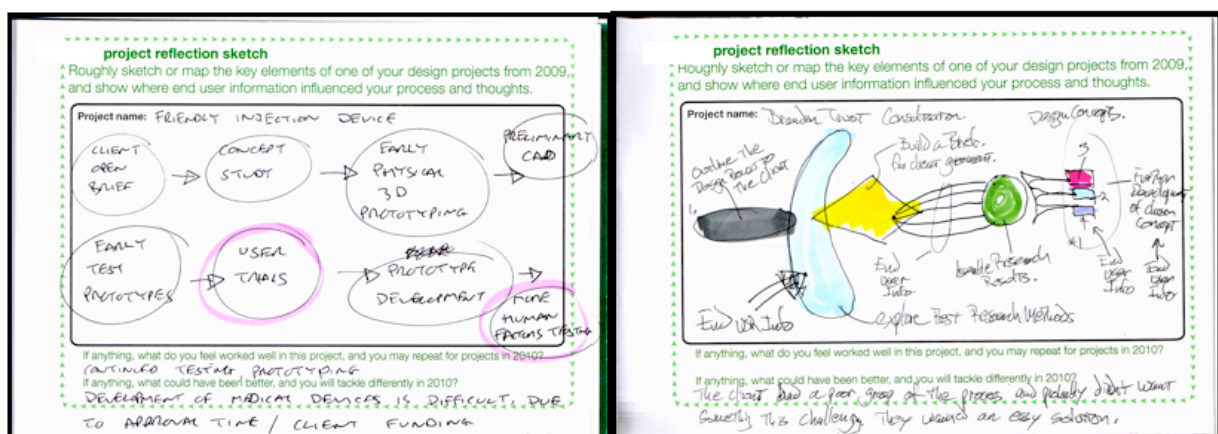


Figure 4 - Map/sketch of recent project and user information influence

3.4 Camera task

In keeping with the original 'cultural probe' format, disposable cameras were included, which encouraged the participants to take photographs to capture additional content about their environments and habits. The use of photographs added qualitative depth to the probe study by visually capturing work environments and contents. It

was also useful in familiarising the author with the setting prior to the follow-up interview (as the cameras were returned with the probe booklet by mail, and developed prior to the interviews). Prompts were given for one third of the camera spool, to give an indication of the kind of information that was of relevance to the study, the rest of the images being left to the designer's discretion/imagination. There was a 70% return rate on the disposable cameras, with one designer providing alternative 'stock' images due to confidentiality issues, a further two participants did not provide any images, again stating confidentiality as the reason.

The photograph prompts included requests such as 'a picture of you' (see Figure 5), which allowed an easy introduction to the camera task, and also made it easier to keep track of which set of pictures had been taken by which designer.



Figure 5 - Example of 'a picture of yourself'

Another prompt requested that a picture be taken of 'the book(s) you reference most often' to gain an insight into commonly referenced materials. Generally designers took pictures of a variety of books on their bookshelves. The emphasis tended to be on manufacturing based books, or books showcasing existing designs (such as 'Designing the 21st Century', or '1000 Chairs'). In three instances publications that dealt with people sizes and similar topics were photographed, these publications were 'Human Scale', 'DTI AdultData', and a 'Complete Idiots Guide: Anatomy. Illustrated'. However, later in the follow-up interview it was revealed that the 'Idiots Guide' was being used in a project specific way, as a reference to human anatomy and terminology used in discussion with medical professionals for designing representations of body parts, and not as a general people-related information source for design project. Another prompt requested an image of the 'website you reference most often'. Responses to this included images of websites such as 'flickr', 'net-vibes', 'google', 'core77' and various blogs (see Figure 6). The goal of this prompt was to get an insight into online resources that were currently consulted and preferred by

the designers.



Figure 6 - Examples of 'website(s) you reference most often'

4.0 Discussion and conclusions

The probes helped create a rich collection of insights about the participants practice, and encouraged participants to reflect upon what the role of people-based information, insight and inspiration had within their design development process. The participants were encouraged through the probe tasks to consider the themes of the research resulting in a range of detailed perspectives of the participants' day-to-day design practice. Although a lengthy process from initial recruitment, through construction, distribution and return, the probes provided a range of textured insights that would have otherwise been difficult if not impossible to gather.

The use of probes was a prolonged exercise, the trend tending to be the longer the respondents delayed in completing the probe tasks the more of a burden completion was considered, and although the task should only have taken each designer approximately 30 minutes, this appeared to be considered undesirable interruption to commercial work, which was naturally their priority for obvious reasons. In hindsight if the probes were not returned within one month, it would have been more appropriate to distribute kits to alternative participants. In cases where participants could be selected with less narrow selection criteria (i.e. in this case experience in inclusive design) it would be appropriate to be more pressing, and where response was slow to recruit additional respondents. As inclusive design practitioners are less prevalent, it was necessary to be particularly flexible with participants due to the difficulty in recruiting and the limited alternatives.

Designers that contributed to this study were largely from smaller consultancies that participated in design work that could be considered 'people-centred' or 'inclusive', and had particular expertise and experiences unique to this approach. This focus influenced their process and materials they consulted, in addition to their attitudes towards human information. Hence although the sample size was limited within the constraints of this study it was

considered both indicative and appropriate.

The data collected helped inform the questions used in the follow-up interviews and the images returned were useful in providing insights into the various studio environments and contents prior to visiting them.

The probe exercise provided many qualitative insights into designers as individuals, through a collection of sketched user-centred mappings of their design processes, insights into how they alter their process to design for different people, how they categorise their individual thinking processes, and some more quantitative information which helped prioritise information traits that could be included in tool concepts. Importantly the probes also introduced the research being undertaken and created communication channels to specifically selected user-centred designers, which engaged them sufficiently to secure further consultation through follow-up interviews.

4.1 Informing interview topics

The researcher received and reviewed the returned probe materials prior to the interviews arranged to take place within the designers' studios. With the material from the probes processed, questions under the emerging themes identified in and earlier literature analysis were further developed and added to in order to develop a semi-structured interview topic outline (see table 1). Additionally any peculiarities (e.g. resources mentioned that were unfamiliar to the researcher) within the probe responses were noted for further exploration/clarification with the designers.

Table 1 - Interview themes developed

No	Theme
1	The design process
2	Understanding users
3	Designers' cultural references
4	Inclusive design
5	Diversity-centred design
6	Design ethnography
7	Human information
8	Information and empathy
9	Recording
10	Reflecting
11	Tools and resources
12	Access to information

4.2 Summary

The probes went some way towards capturing significant insights from participants, but more than this they were key in developing topic themes to interrogate issues of significance to the overall study through later interviews.

Amongst significant insights generated by the probes was the consensus that the use of conventional people based data by designers, such as anthropometric sources is very limited; with experienced designers relying largely on experimental methods such as physical prototyping and engagement with people. However, an issue of concern that was flagged up by several participants was the very limited breadth in the user groups consulted in these ‘experiments’, particularly when time or money constraints were prevalent, in which case there was a clear dependency upon subjective colleagues within immediate environments for trialing ideas and testing prototypes.

The materials collected also revealed that throughout the design process designers gather a variety of information in numerous ways, largely on an ‘as needed’ basis for each new project they undertake. Designers stated a large proportion of decision making knowledge is not derived from physically tangible materials, but derived from ‘intuition’ or prior experience.

A clear attitude from participants was that although they were aware of books and other data sources relating to ergonomics and particularly anthropometrics, there is a clear reliance on intuition and ad-hoc measurement. Previous projects were difficult to access as was the knowledge contained within them, hence it was unlikely that findings from previous projects would be considered, unless they were directly experienced and recalled by a designer within the team. The likelihood of re-exploring previous projects in any depth was low, as they tended to be dumped in no organized manner, and hence creating new data was seen as more efficient.

4.3 Conclusion

The approach detailed was effective in initiating dialogue with selected designers and as ‘primer’ to the research being carried out.

Probe kits were successfully deployed to capture designers environments and processes, exploring current resources and thinking processes that assisted in creating a clear impression of how designers go about understanding those they design for. The feedback from the probes provided a base for conversation through designer specific insights from which to tailor later in-depth interviews, and also helped refine themes of importance.

Probes were considered particularly useful in this context as they could be completed within private work settings, could capture unprompted naturalistic tendencies, habits and opinions, and could provide the basis for well informed follow-up interviews, and allowed more creative response through a combination of both visual and textual prompts and response flexibility.

In addition to producing a useful set of findings independently, the probe findings were combined with the outputs from the later interviews, which were coded and categorised, eventually leading to the identification of key themes (i.e. representation, retrieval, organisation and reflection) in designers human information processes. Hence this study was instrumental in exposing the current role of human information in design practice and a framework from which support could be offered.

6. References

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