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Published in:
Proceedings of the 2nd International Conference on Research into Design - ICoRD'09

2009

Document Version:
Publisher's PDF, also known as Version of record

1 A SOCIAL PERSPECTIVE ON THE INTERVIEW TECHNIQUE IN DESIGN RESEARCH. PART I: INTERVIEWS IN DESIGN RESEARCH

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Many studies focusing on design activities use the interview technique as part of their investigation. Nevertheless, methodological discussions about the interview setting as the locus of a social interaction between the interviewer and the respondent and its implications for the interpretation of the data obtained are rarely found in publications within our design community. Part I of this publication reviews the positions taken on that matter in different studies of design research. Part II presents the social aspects affecting the interviews on the theme of design activities and the means to identify and deal with these factors. Systematically taking this set of social aspects into account when analyzing interview data makes it likely that the bias induced by social factors can be identified and dealt with. The two parts can be read independently.

Keywords: Interview Technique, Social Factors.

1. INTRODUCTION

Nearly every empirical study that focuses on design activities uses the interview technique at one step of the investigation or another, be it as a primary tool or as a means of triangulation (e.g. post-experimental interviews). Interviews are needed to acquire knowledge about past events or non-accessible data. However, the flaws and limitations of the interview outcomes applied to design science studies have rarely been discussed in depth. Of course, there is no doubt that guidelines to "good interviews" are observed: avoid ambiguous questions, make the respondent comfortable, structure the interview themes etc., thus ensuring that the conditions are optimal to obtain the desired information. Moreover, the design scientist is not a "naive" interviewer ready to take any of the respondents' answers for "true" ones, but an "informed" researcher who uses his or her specialist knowledge to interpret the data.

Nevertheless, it seems that an interview is assumed to be a situation where the interviewee is a competent person, ready to give us the data we need about design activities or any other phenomena we are interested in. This view has been challenged by several different streams of thought in the field of social sciences. The integrity of the interviewed designer is of course not questioned, but the interview is viewed as a complex social interaction between the interviewer and the interviewee rather than as a simple source of information about reality "out there". This perspective provides new explanations regarding the nature of the data obtained and can help us to interpret them in a larger and more systematic way. Models of interaction between the interviewer and interviewee cast a new light on how to consider the data: as "objective" facts or as socially constructed statements that only make sense in the context of the interview?

The researcher must then scrutinize the interviewee's statements and ask her/himself whether they are significant only within the interview situation (i.e. do not reveal anything about the design activity) or whether they provide a glimpse of reality "out there".

An illustration of the potential benefits of using this perspective for the study of human behaviour in design is presented below. The different uses of interviews in design research are reviewed in Section 2. The social aspects affecting the interview and the means to identify and deal with these factors are presented in the second part of this series of two papers.[1]

2. AN EXAMPLE

In a study of the design activity of a mechanical engineering designer, Visser[2,3] had observed that this designer presented his activities in a structured way while the activities observed were opportunistic in nature. Let us examine Visser's example from a social perspective. This interpretation of the data is a highly speculative and exaggerated one, as the primary source of data (the interview) was not at hand, but this interpretation has an illustrative purpose only.

The initial interpretation of this observation might be that mechanical design engineers *do indeed think* that they are following a structured plan while, in actual fact, they are not. But as Visser suggests, the interview situation may have forced them to "present a much more structured representation of their activity than the actual structure of the activity to which they (think they) refer" [3, p. 22]. The social perspective would confirm this explanation in several ways. First, based on theories of local interaction, it might be suggested that the interviewee adapted to what the interviewer wanted. Since the researcher requested the designer to describe his activity before performing it [2, p. 258], the designer delivered a description. Would he have done so if he had not been asked to? Another explanation at the interaction level might be that the designer wanted to appear as a structured and reliable person and thus delivered a rigorous activity plan. At a higher level, this is no more the designer as an individual talking to another person, but rather the representative of a community who delivers a description of the community(ies) he belongs to. If the community of mechanical design engineers is seen as a community of rigorous people, every mechanical design engineer will act as such. Would an industrial designer or an architect have produced a detailed list of design activities? Finally, the interviewee may have reproduced the standard behaviour of the company he or she belongs to (in this case, a large established firm with bureaucratic procedures rather than a start-up.)

This is one example of what could be an application of some of the social models that explain the behaviour observed during design and how this affects the interpretation of the data obtained. The added value of this example is that the interview aimed at the extraction of "facts", that is a description of reality "out there". The interviewee was neither asked to speculate about a theme (what do you think of…?), nor questioned about abstract phenomena (his or her experiences, values, identity as a designer). This example illustrates the fact that even the search for "hard" facts is a complex task in the interview situation.

This also suggests that a study of the interview data organized in a more systematic way through a social perspective filter might be necessary. This would make us more suspicious of the value of the gathered information and help us to sort the data that are exploitable from the data that require more investigation.

The social perspective applied to interviews with designers (concerning human behaviour in design) is presented in part II.[1]

3. INTERVIEWS IN DESIGN RESEARCH

In this section, the utilization of the interview technique in research projects dealing with design activities is discussed. The first part presents what kinds of study interviews are conducted, the second what kind of data is sought, the third what types of interview are used, and the fourth part, finally, reviews previous discussions about interviews within our field. The publications referred to as examples in this section are not claimed to be representative of their kind, but rather to be illustrations of the diverse ways of using interviews in our field of research.

Table 1 at the end of this section shows, for each publication quoted, what kind of study the interviews were conducted in, what kind of interview was used, what kind of data were sought and whether the pros and the cons of the interview as a technique were discussed.

Table 1. Interviews in design research

Publications	Type of study	Type of interview	Type of data	Discussion
Atman *et al.*[4]	experiments	not specified (semi-structured?)	facts	no
Bonnardel & Sumner[6]	experiments	open-ended, structured	"interior"	no
Christiaans & Dorst[5]	experiments	not specified (semi-structured?)	"interior"	no
Visser[2,3]	experiments	semi-structured (2004)	speculations	yes (2004)
Badke-Schaub & Gehrlicher	field study	semi-structured	not specified	no
Ball & Ormerod[10]	field study	informal and unstructured	not specified	no
Jagodzinski *et al.*[8]	field study	active interviewing inspired	1. "interior"; 2. "speculations" 3. facts	yes
Lloyd[7]	field study	semi-structured or structured	facts, "interior"	yes
Oxman[11]	field study	formal	"interior"	not specific.
Törlind[12]	field study	informal	facts	no
Cross[12,14a]	interviews	conversation-like	1. facts, 2. "interior"; 3. speculations	no
Cross & Clayburn Cross[12,17]	interviews	conversation-like	1. facts, 2. "interior"; 3. speculations	no
Darke [1213]	interviews	conversation-like	1. facts, 2. speculations; 3. "interior"	yes
Downing [12,20]	interviews	not specified	"interior"	no
Lin [12,21]	interviews	not specified	facts	no
Robertson [12,19b]	interviews	not specified	facts, "interior"	not specific.

[a]This publication comports as well the report a verbal protocol analysis, which is not taken into account in this study.
[b]Robertson conducted interviews as a preliminary to his ethnography. Only these preliminary interviews are considered here.

3.1. Types of Studies

Interviews of designers related to studies of human behaviour during design activities are nowadays mainly used as a secondary source of information. In empirical studies inspired by the cognitive sciences, the primary source of information is the verbal protocol issued of controlled experiments, where the designer or the design team is asked to think out loud or converse while designing. The interview conducted afterwards by the researcher consists of, for example, clarifying some doubtful points observed during the experiment, commenting on their performance (design process or design results), or getting feedback from the experiment e.g. Ref. 4, 5. These data may typically be used in order to help in making decisions in case of problems in interpreting the verbal protocol, or to confirm some results obtained by means of the verbal protocol analysis. Bonnardel & Sumner,[6] for example, conducted post-experimental structured interviews that were used to reinforce or confirm research findings (see p. 237 and p. 240).

Another great group of empirical studies aiming at studying human behaviour in design is ethnographies or ethnography-inspired studies. Ethnographies are conducted in order to obtain more knowledge about the design process — the interactions and behaviours of designers and design teams in a real framework. The interviews are then used to help in acquiring "an overview of a person's formal role in the organisation" [7]; to perform triangulation with other sources (observations, documents); to clarify some issues.[7,8] Since the interviews are mostly conducted during the study (unlike post-experimental interviews), they are used to guide the researcher and illuminate important aspects that might influence the research agenda. More generally, in any study employing observations (that is, field studies conducted without an explicit reference to ethnography), the interview technique was used to assist interpreting the phenomenon and complementing the empirical data.[9–12]

Finally, some studies rest heavily on interviews. The "value" of the extracted data (these are artificially obtained empirical data, as opposed to e.g. observation) and the way they are interpreted is thus very important. Some examples of such studies are presented below. Darke's[13] concept of "primary generator", referred to in numerous publications, was the result of an analysis of interviews with architects. In the same vein, Cross[14] presents a descriptive model of creative strategies adopted by "exceptional designers" based on a protocol study and two interviews. Purcell & Gero[15] utilize the findings of Lawson[16] and Cross & Clayburn Cross[17,18] who conducted interviews among designers: The "big, simple idea" reported by the designers and around which their design is developed is explained in cognitive terms as "another way in which the load on working memory can be reduced" [15, p. 410]. As a preliminary stage of his ethnography, Robertson[19] conducted a series of initial interviews that helped him to orient his research study. Studying the importance of remembrance for the architectural design activity, Downing[20] interviewed more than a hundred designers. Lin[21] decomposes the different tasks of the design process retrospectively described by the industrial design team leader.

3.2. Type of Data Elicited

The number of examples referred to above demonstrate that the type of information desired by means of interviews ranges from "facts" to what Alvesson[22] calls the interviewee's "interior" and to "speculations".

Facts, for example depictions of actions taken, of formal procedures and of objects, have to be understood. The purpose of the interviews in Atman *et al.*,[4] in Lin,[21] and partly those in Lloyd[7] and Darke [13] is to obtain facts.

Alvesson uses the term "interior" for what relates to experiences, values or attitudes. Christiaans & Dorst's[5] post-experimental interviews were conducted "to establish the attitude of the subject towards […] his/her own design" (p. 133). Downing[20] asked the interviewees to describe the reasons why some physical places were important for their design activities.

The term "speculations" is employed here in a non-pejorative sense: it embraces those interview questions where designers are asked to give their opinion, their plans, their thoughts about a past, present or future situation.[2] Most studies, however, are looking for several, or all, types of information. Moreover, the bulkheads between these different types of information are not watertight. Cross and

Clayburn Cross[17] sought "insights into the design processes of someone who has a long history of being a successful, highly-innovative designer [Gordon Murray]" (p. 92). This also included acquisition of facts: "I know it's a cliché, but I did have a lot of good ideas in the bath, I really did" (p. 93, Murray speaking); of experiences: "you're desperate to try and think things all the time […]. I can't tell you how hyper it is…" (*Id.*), as well as of personal judgments (here about CAD in a collaborative working setting): "You can only ever talk to one person at once — you stay behind and look over somebody's shoulder, which is not very good for a boss-designer relationship anyway, to have somebody standing behind you is never a good thing. To look over somebody's shoulder at a tiny little screen, it's just wrong, it's totally wrong" (p. 102).

3.3. Types of Interview

As Table 1 shows, the types of interview used in the studies reported above are neither related to the type of study (experiments, field studies or simply interviews) nor to the type of data (facts, "interior" or speculations). In most cases, the type of interview was not specified, not even for the studies that used the interview as the primary source of data.[19–21] In addition to the classic distinction between structured,[6,7] semi-structured[2,3,7,9] and unstructured interviews,[10] the interviews were described in another way in some studies: Darke,[13] Cross & Clayburn Cross[17] and Cross[14] conducted their interviews in a conversation-like form; Jagodzinski *et al.*[8] employed an interview technique inspired by the active interviewing theory developed by Holstein & Gubrium.[23] These approaches, which differ in spirit from the more conventional use of interviews, will be discussed in part II section 3.[1]

3.4. Methodological Discussion of the Interview Technique

The major empirical methods used nowadays to study human behaviour are ethnography-inspired studies (observations in the field) and controlled experiments (and simulations). Interviews as a primary source of information are not so frequent. Above all, the criticism of interviews is directed primarily at the level of precision and detail of the information that can be obtained by interviews. As Milne & Winograd[24] put it: "Indirect data collection methods such as interviews, documentation analysis, and artefact dissection result in diluted data — i.e. data that is somewhat removed from the actual activity — and often lack the resolution that direct methods achieve". Visser[3] distinguishes between tasks and activities. Tasks are the design tasks assigned to the designer, while activities refer to the way people actually perform their task on a cognitive level. Thus, "the difference between task and activity involves that interviews may provide data on somebody's 'task', but not on many aspects of their activity that are relevant for understanding this activity" (p. 21). Interviews are avoided for modelling the design activity at a cognitive level, (except for [21]).

However, the study of human behaviour in design is not limited to cognitive aspects; social aspects, in collaborative design for example, are important to understand the designers' behaviour. This is the point of most ethnographies.[7,8] Moreover, even when an individual designer is studied, some aspects of the design thinking are not available by direct observations or experiments. Studying verbal protocol analysis, Lloyd *et al.*[25] found out, among other things, that "Perception and insight are not elicited by concurrent verbalization" (p. 237).

Another kind of criticism involves the problem of acquiring the "right" information. The data obtained from interviews are often deformed, i.e. do not correspond to what has been observed. The most striking example is probably Visser's[2] study reporting the differences between what a designer was planning to do and what he actually did (see Section 2). The reason claimed to explain this phenomenon is the interview situation.[3] On the same note Magobunje *et al.*[26] go further, asserting that "Interviews and questionnaires will allow us to learn more about a designer's beliefs, motivations, and attitude, but nothing about what the designer actually does in practice".

The most complete methodological discussion about interviews was found in Darke.[13] She takes a sociological stand and considers the problem of obtaining and understanding the information coming from another subject (the respondent). Her position is that a "shared understanding" is possible, as

the interviewee and the interviewer have the same background. Concerning the interpretation of the interviewer's utterances, she advocates the use of one's subjective judgment rather than a "scientific analysis", that is, a letting down i.e. slackening the obligation of statistical proof to get a deeper insight of the phenomenon under study.

The diversity of the criticism presented above shows not only that the centres of interest differ among the authors, but also that different epistemological stands underlie these centres of interest. While, on one hand, Magobunje *et al.* [26] claim that nothing about what the designer actually does in practice" can be extracted from interviews, Darke[13] on the other hand believes that shared understanding can make it possible.

4. CONCLUSION

This review shows that the interview has rarely been considered a social situation. Nevertheless, we noticed in Section 2 that even requests for facts may be problematic. Although those who take this aspect into consideration, e.g. Magobunje *et al.*[26] and Darke,[13] they tend to take the position to regard the interview as a local interaction, other perspectives are possible.

Part II[1] presents a survey of the interview as a social situation. Different interpretations of the same data are possible, depending on the epistemological standpoint adopts. Without going deeply into the theories behind the different positions towards the interview technique, the next part presents in a pragmatic way the different interpretations of data the researcher in design science should keep in mind while working with interviews, illustrated by an analysis of interviews with three designers.

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