



Studying what people do

The ethnographic camera 42

Capturing experience 55

- *Method: Situated*

Interview 60

- *Method: Shadowing* 65

- *Method: In-situ Acting* 72

- *Method: Self-recording* 76

Co-exploring 78

JORIS IVENS

*“The film’s art begins when you choose
where to place the camera.”*

2

Studying what people do

When designers create new products for people whom they do not know, they need to engage in activities that render the use context visible to design. This can be done with video studies of users, where the video camera is employed as a tool to construct relevant material that both informs and inspires design. This, however, is not the full story as to why designers benefit from using a video camera. Insightful use of video in user studies turns the enquiry into a constructive dialogue about what is seen and how people see it. Video studies foster the collaborative construction of a design-focused understanding of the users' reality.

Traditionally ethnographic research has sought to describe the cultures studied in a detailed manner. From such descriptions ethnographers have identified patterns and built theories that have the power to explain the phenomena on a more general level. In contrast, designers with a video camera look for facts and inspiration, and they strongly affect other people's reality, impacting people on both sides of the camera. Essentially, video provides a means to engage different people in a collaborative learning process. At times the use of the video camera may present a credible "excuse" for mingling around the user site and observing the activities. Nevertheless, rather than seeing video-based fieldwork as a means to collect rich user data, this

The ethnographic camera

An increasingly popular approach to studying users for professional design is design ethnography. Ethnographies are written descriptions based on fieldwork, where an ethnographer participates in people's daily lives for an extended period of time, observing, interviewing and collecting data within the focus of the study. The primary method associated with fieldwork is participant observation, *i.e.* being there in the natural setting and observing what goes on. The time spent in the field varies from a few months to several years. Ethnographers tend to build close personal relationships with their informants, to the extent where ethnographers talk about "going native".

Video use in design ethnography originated in the work of visual anthropologists, who began to utilise video in the 1980s. They praised the convenience, economy, durability and utility of video compared to film. Video made it possible to record people's activities continuously for several hours and enabled reviewing the material instantly after capturing. The capability of instant review enabled ethnographers to gain more detailed views on the activities captured on video with the informants (Pink 2001).

What is "practice"?

During the last two decades a transition towards understanding "practices" has taken place both in the discussion of academic knowledge as well as in the theories about and methods for user-centred design. What is this "practice" that designers need to study in order to design products that fit? Practice is something people construct themselves, which becomes part of their identity. Etienne Wenger (1998, p. 6) has shown how people fundamentally learn in organisations:

Workers organise their lives with their immediate colleagues and customers to get their jobs done. In doing so, they develop or preserve a sense of themselves they can live with, have some fun, and fulfil the requirements of their employers and clients. No matter what their official job description might be, they create a practice to do what needs to be done.

A practice is inherently bound to the local conditions of context. Indeed, it is not possible to understand practice without understanding the local conditions, argues Andy Crabtree (1998), a social scientist who has studied the value of ethnography for systems design:

43

2 *Studying
what
people do*

...enacted practice is highly localised, contingent, and (above all) subject to continuous enquiry and discovery for practitioners themselves in the course of work's accomplishment. Thus, enacted practice is, to some significant extent, intransigent to explication in alternate contexts; hence the need to "take a closer look".

Moreover practice is fundamentally social by nature. Lucy Suchman (1987) identified four main reasons why previous theories and methods were not sufficient to grasp reality for design in a suitably sensitive manner. First, mutual intelligibility of interactions is always the product of *in situ*, collaborative work. Second, the general communicative practices that support that work are designed to maximize sensitivity to particular participants, on particular occasions of interaction. Third, face-to-face communication includes resources for detecting and remedying troubles in understanding as part of its fundamental organisation. Fourth, every occasion of human communication is embedded in, and makes use of, an unarticulated background of experiences and circumstances.

For example, Hughes *et al.* (1994) observed how ubiquitous technologies for networked and distributed activities generated unforeseen effects in collaborative practices, because the widely employed methods for eliciting systems requirements were unable to address the social organisation of work. Moreover, practice is not stable. Hughes *et al.* (1994, p. 435) describe how "human beings have an extraordinary ability to 'make do' with the technology with which they are provided". Human practices evolve rather rapidly in response to changing conditions, for instance as a result of new interactive products becoming available – regardless of it being work or leisure. Hence, for the study of these phenomena designers need methods and tools that enable them to address the processes of the social organisation of action in people's native settings.

How video helps

Paul Dourish, a researcher of computer-supported cooperative work, contends that people may not actually do what they say they do, or they may do

many things that they omit when asked to talk about what they do. Often it is the case that “the ways the work gets done are not the ways that are listed in procedural manuals – or even accounts that the people themselves would tell you if you asked” (Dourish, 2001, p. 19). There are numerous reasons for this: first, when things begin to happen automatically, conscious awareness is not necessary. Actions become automatic, slip to the background of consciousness, and may thus escape any attempt at listing or recognising them without having the context to support recall. Second, formalised practices are basically always too rigid to represent real social behaviour in people’s everyday settings. The former head of Rank Xerox Research Centre, Bob Anderson, explored how the issue propagates to product specifications. He argued that “requirement specification”, which refers to the formal description of product properties, cannot address the details of the dynamic and complex everyday reality in which the designed products ultimately need to fit, and another approach (namely ethnography) is therefore necessary.

What the user is held to know about and to orient to in the daily routine of their workaday world is the practical management of organizational contingencies, the taken-for-granted, shared culture of the working environment, the hurly-burly of social relations in the work place, and the locally specific skills (e.g., the “know-how” and “know-what”) required to perform any role or task. Formal methods of requirements capture, or so it is supposed, are incapable of rendering these dimensions visible, let alone capturing them in the detail required to ensure that systems can take advantage of them. In our view, ethnography is at least a method that will provide access to these dimensions. (Anderson, 1994, p. 154)

Ethnography is becoming commonly acknowledged as an apt approach to building the design understanding of people’s real social practices at an appropriate level. For example, Hughes *et al.* (1994, p. 432), who reviewed experiences from numerous ethnographic studies, affirm that:

What the ethnography especially provided was a thorough insight into the subtleties involved in controlling work and in the routine interactions among the members of the controlling team around the site: subtleties which were rooted in the sociality of the work and its organisation. The vital moment-by-moment mutual checking of “what was going on”

by the various members of the team had been missed by earlier cognitive and task analytic approaches to describing controlling work.

45

2 Studying
what
people do

In particular, *video ethnography* has proven an invaluable means to address the details of everyday activities. For example, the outstanding work by Christian Heath and Paul Luff (2000) to study technology in social interaction was completely grounded in the detailed analysis of video recordings. Video is *the* tool to capture the production and coordination of real-life activities in their native settings. According to Heath and Luff video has three qualities that make it especially suited for the analysis of interactional organisation of workplace activities: first, video provides access to the details of talk and visual conduct, enabling a detailed scrutiny of the activities, if necessary, with slow motion; second, video recordings enable researchers to share the data with colleagues and thus enable discussion on the materials on which the analysis is based; and third, video enables the public display of the findings, thus subjecting the findings to public scrutiny. Based on experiences in a design project preceded by an extensive ethnographic video study, Crabtree *et al.* (2002, p. 269) also promote this capacity of video:

In practical day-to-day details of “getting activities done”, video ethnography furnishes investigators with fine-grained and phenomenally intact in vivo recordings of everyday family life. In contrast to a mass of notes, anecdotes, vignettes, and disembodied conversations which characterize traditional ethnography, video footage becomes the primary resource enabling direct investigation of the domain.

For designers, video is capable of capturing activities in a manner that holds the contextual aspects intact rather than delivering de-contextualised generalisations of the issues encountered. However, despite these benefits, video ethnography is highly problematic. The main problems relate to the relevance, scale and quality of the studies.

Once descriptions of social interactions are made, they turn into frozen artefacts merely depicting history. Any change introduced to the scene is likely to affect how things become accomplished. Social interaction with technology is dynamic and responsive to the technical interventions that designers create. Hence, it is questionable how much designers need to know about current practices in order to facilitate a new technology-mediated configuration of future activities.

Ethnographic studies for design have largely focused on rather constrained areas, such as control rooms. Such a study enables the detailed scrutiny of the micro interactions within that space. However, when the scale is expanded to functions across departments and organisations, the difficulties in capturing the details of interaction will explode, and, moreover, the likely relevance of the diverse details of micro interactions on the whole will abate. According to Hughes *et al.* (1994, p. 431):

Scaling such inquiries up to the organisational level or to processes distributed in time and space is a much more daunting prospect in raising issues of depth and representativeness.

In addition to these issues, what designers will face are scarce resources for conducting ethnography. The main resource design ethnographers do not have is time. In industrial organisations user field studies need to align with the rapid product development cycles of a few months. Hughes *et al.* (1994, p. 431) continue that:

As one of our computer science colleagues expressed it, ethnography is a “prolonged activity” and in the context of social research can last a number of years, certainly time scales which would be considered a joke in software engineering. Added to this are the problems, noted earlier, of communicating ethnographic findings to designers. The output of ethnographic analyses are typically discursive and lengthy, looking nothing like the blueprint diagrams which are de rigeur in systems engineering.

Design ethnographers count their field studies in days rather than months. In response to this, a research group at Lancaster University’s cscw Centre introduced the term “quick and dirty ethnography” to describe the type of studies required in development projects (Hughes *et al.* 1994). Such studies are characterised by a fair rather than exhaustive understanding of the studied practice. Some of the techniques for conducting “quick and dirty” ethnography are presented later in this chapter.

Videotaping reality?

Designers need to understand the users’ reality. What, though, is reality? How can someone say something about what reality is? Anderson (1994, p. 155) warns us that:

...the supposition that ethnography conveys an overall impression of “what life is like” or “tells it as it is” is profoundly mistaken.

47

2 Studying
what
people do

The question of reality is one that philosophers have debated for millennia. When we take a constructivist position, *i.e.* acknowledge that the influence of people’s subjective and shared perceptions of reality constitute their consciousness of it, we must accept that no one can state purely objective truths about reality. Even the most purist documentarist who captures real life with the film camera acknowledges that movies are far from objective. To understand this we need to go a bit deeper into the discussion.

During the last century documentary movie authors developed theories of presenting claims about *reality*. When technical advances in cinema technology revolutionized documentary making in the 1960s, portable cameras and audio recorders enabled documentarists to descend into and move with people’s everyday activities. This approach was coined direct cinema (in Canada and the U.S.), *cinéma vérité* (in France), and later observational documentary (in Britain) (MacDonald and Cousins, 1996). Central to the new approach was immediacy, intimacy, and “the real”. Films in this style distanced themselves from the polished, professional aesthetics of traditional cinema and accepted images that were grainy and sometimes out of focus. Despite the new opportunity to approach the real, the film-makers soon realised that they were faced with new problems and advanced but little in the discovery of “the real”.

How was this possible? Direct cinema and *cinéma vérité*, despite similar intentions, were rather different in how the films were created. *Cinéma vérité* was based on the view of Russian pioneer Dziga Vertov that the “camera eye” is more perfect than the human eye in revealing what reality is about. He provocatively juxtaposed images to create completely new meanings (Ellis, 1979). This way of creating films particularly emphasised the active role of the author. *Cinéma vérité* was a direct translation from the Russian *kino-pravda*, by the French sociologist Edgar Morin and anthropologist Jean Rouch. Their approach was openly interventive. They used interviews and asked the people in the film to participate in the process of film-making. For example, they would ask one of the “actors” to hold the microphone.

Direct cinema in the U.S. opposed this interventive approach. Robert Drew, who was also a developer of portable film equipment, believed that with lightweight equipment his film crew was so unobtrusive that they could record reality without influencing it. Drew, and his followers, focused on

people who were so involved in what they were doing that they apparently forgot the presence of the camera.

Frederic Wiseman, one of the “purists” in direct cinema, however, strongly objected to the entire idea of being able to represent life as it is. When interviewed about the *Titicut Follies* – his first documentary film from 1967 – he described his film as “totally subjective” (Winston, 1995, p. 161). He claimed that:

The objective–subjective argument is from my point of view, at least in film terms, a lot of nonsense. The films are my response to a certain experience.

In the same vein, Bas Raijmakers *et al.* (2006, p. 230), who as designers employ video to create “design documentaries”, say:

Representations such as film are inherently opinionated because they are inherently incomplete; it is impossible for filmmakers to avoid making choices about what is important. At the same time, filmmakers’ biases are constrained by the material they have to film: documentaries cannot simply invent the material they use.

The question “what is reality?” appears to be an unresolved issue, which no documentarist or scriptwriter can objectively address and settle. So, rather than discuss if designers are able to capture “reality” with video, a more relevant question is how designers employ the video camera in learning about the practice of users, and how this affects the type of material they are able to collect.

Fly on the wall – fly in the eye

How a video camera affects people’s behaviour is the topic of ongoing debate. Some researchers claim that the camera quickly blends in with the background (*e.g.* Blomberg *et al.*, 1993; Muller, 1992), while others suggest that one should rather utilise the camera as an active agent to which the observed can relate (*e.g.* Shrum *et al.*, 2004). The debate is largely coloured by the backgrounds and intentions of those who have participated in it. For example, on the side of ethnographers the influence of the video camera on activities seems to fundamentally conflict with the aspirations of the ethnographers – to capture life as it is. The camera and explicit orientation towards it are conceived as biasing the truthfulness of the ethnographic data. (This

is not entirely correct of all ethnographers. Some are *very* conscious of their own role in participant observation and how they learn by actively engaging in the situation.) On the other hand, designers employ video to provoke a response in people, whereby their relationship with the tool often seems to be completely the opposite. However, as designers' intentions may also vary from studying what people do at present to understanding the opportunities for changing situations, we need to understand the limits and possibilities of video with regards to both kinds of aspirations.

Brigitte Jordan and Austin Henderson (1995) noted that people's behaviour is influenced by video at various levels. Depending on how automatic or conscious the activities are that people engage in, they may change their behaviour to differing extents. Video may provoke some people to make faces, others to clean up their speech, and yet others to move cautiously in front of the camera. This effect – what the scientists call bias – may wear off as people become familiar with the presence of the camera. Jordan and Henderson (1995) claim that: “Where people are intensely involved in what they are doing, the presence of a camera is likely to fade out of awareness quite rapidly.”

Designers, on the other hand, may bring the camera into the explicit focus of activities. For example, Shrum *et al.* (2004) placed the camera in the middle of the table where the users were interviewed. Whenever someone had an idea to share, they would turn the camera towards themselves. Jordan (2000) describes a self-recording method, where the users walk to the camera in a separate location to speak intimately about their ideas and experiences. The video camera turns into the central focus of the activities rather than into a piece of furniture to which nobody pays explicit attention.

The role of video and its influence thus depend on if and how attention is drawn to the camera and video recording. The designer can choose to observe as a proverbial “fly on the wall” or, at the other extreme, to actively encourage people – with the camera as a “fly in the eye” – to reflect on their own practice, and how it might change in light of a proposed technology. However, rather than turn these options into a discussion of right or wrong, a pragmatic attitude must be in place, as Anderson notes (1994, p. 154):

This may seem a trivial point to make, but it is not. Once one is aware of it, all the emphasis is thrown onto understanding the processes for patterning observations and their interrelations rather than the methods for recording and summary.

50 Even if designers want to use the “unobtrusive camera”, their inquiry is always a constructive activity, which seeks to build understanding about a topic. Joris Ivens (1969, p. 228) states that: “The film’s art begins when you choose where to place the camera.” So, rather than perceiving video recording as data collection, it is more effective to consider case by case how the employed methods will best contribute to the development of relevant understanding and provide resources for exciting inspiration.

The dilemma of relevant focus

User-centred design aims to create products that serve their users. When discussing what needs to be taken into account when designing such products, we are faced with the question of relevance. Roughly said, the users’ point of view, and thus design ethnography, is only important to the extent that it is relevant to design. Relevance is a broader topic transcending user studies. Anderson (1994, p. 155) expresses the issue thus:

What we will be asking of ethnography is not that it should be a way of getting to know and articulating the user’s point of view or whatever, but the analyses it offers us should be directly germane to the interests and issues that confront designers.

Anderson’s statement underlines the importance of analysing the materials constructed in the user studies. It is the analysis and interpretation that renders the material (or parts of it) relevant to design. The following example by Crabtree *et al.* (2002) illustrates the fundamental paradox of relevance. They had the opportunity to utilise over 6000 hours of video material to ground their design of new technologies for domestic environments. The material was captured during a period of over two years. It consisted of recordings from sixteen volunteer households, which had up to five inhabitants each. The cameras captured activities over a period of ten consecutive days in each household. Despite the extensive material, Crabtree later held the opinion that even this abundance of user material was of little help compared to the effort of creating it.

The case is a brilliant example of the fundamental dilemma in conducting user studies for design: the relevance of the material becomes known only afterwards, but the study must be planned in advance! How then can designers ever argue for conducting user studies? In the above example, however, the video material was not captured with designing in mind. More-

over, all the material was captured with a rigid focus. The process lacked the intermediate activities of analysis and interpretation with regards to design intentions, which would have helped guide the study. Thereafter, what the designers needed to do was to browse through a mountain of video in order to discover any interesting themes that could inform design. When Andy Crabtree was asked how he would conduct a study for designing, he confirmed that it should be made iterative.[†]

51

The key to the solution thus resides in the activity of *iterative framing* of the focus. An open focus makes an enquiry diverse; the sharper a design objective the more focused becomes the user study. During the early phases, the focus is usually open and blurry but clarifies in the course of action through the engagement of various stakeholders in the iterative design events. The focus also becomes partly framed by the project's intentions and possible specifications of earlier models of similar products. Hughes *et al.* (1994, p. 438) also emphasise the value of iteration, which in their study was facilitated by a "quick and dirty" approach and tempered by stakeholder needs:

† The question was posed to Andy when he was visiting the University of Art and Design Helsinki in autumn 2006.

Much of the effort of ethnography was in determining this focus through a series of "quick and dirty" ethnographic studies. An existing focus was also provided by the initial design intentions within the shared object service and the existence of a previous specification within the building society.

Ethnography as a "thick description" of human culture is an activity that professional anthropologists may spend years writing. Design ethnography is bound to use only a rough version of ethnography, since design projects will not practically allow designers to invest such amounts of time on field studies. Hughes *et al.* (1994, p. 433) again state:

The phrase "quick and dirty" does not refer simply to a short period of fieldwork but signals its duration relative to the size of the task. The use of ethnographic study in this category not only seeks relevant information as quickly as possible but accepts at the outset the impossibility of gathering a complete and detailed understanding of the setting at hand.

Rapid ethnographic research has gained some resistance since it is perceived to produce overly insensitive material, which may cause a design project to move ahead on the basis of an immature understanding, *i.e.* without a proper

understanding of the human communities of practice that will be affected by the designers' work. Acknowledging that designers need to cope with time pressure, Hughes *et al.* (1994, p. 437) assert that design ethnography essentially provides a means for designers to learn about issues of importance for designing, also in a rather short time:

A charge often levelled at ethnography is that it is a "prolonged activity". As we have suggested, this is not quite the problem that it is imagined to be. Depending on the purposes of the design, much can be learned from relatively short periods of fieldwork.

The use of interpretation models in contextual design (Beyer and Holtzblatt, 1998) is one solution to the intense time pressure. Here, pre-formulated schemas for interpretation help designers to focus on relevant issues, especially regarding the design of an information system, and to describe their findings in an easily communicated way. Moreover, the schemas help to synthesise findings across a variety of user sites. At the same time, as these models build on abstracted and pre-designed structures it is likely that they are insensitive to the flexible ways people actually go about pursuing their practices. This is where the "quick and dirty" approach may turn out to be more valuable. As Hughes *et al.* contend (1994, p. 434):

... "quick and dirty" ethnography is capable of providing much valuable knowledge of the social organisation of work of a relatively large scale work setting in a relatively short space of time. [...]

What the "quick and dirty" fieldwork provides is the important broad understanding which is capable of sensitizing designers particularly to issues which have a bearing on the acceptability and usability of an envisaged system rather than on the specifics of design.

Ignoring ethnography's value could be much more costly in terms of inadequate systems and dissatisfied customers. For this reason, practical methods have been developed to tackle the time issue in design ethnography. David R. Millen (2000), a research scientist at AT&T Labs Research, named the approach to cope with a limited time scale in the field "rapid ethnography". Millen has identified several techniques for quickening the process, while keeping focused on design-relevant issues. The main ideas underpin three fundamentals (Millen 2000): study fewer but better chosen

people and activities, use interactive observations, and use collaborative and computerised analysis methods. Along similar lines of thought Werner Sperschneider and Kirsten Bagger, at the User Centred Design Group at Danfoss A/s, have identified several techniques for rapid ethnography with video (Sperschneider and Bagger, 2000). Their techniques – situated interview, simulated use, acting out, shadowing and apprenticeship – intend to move beyond data collection into design-in-context, thus serving tight schedules.

The issue of relevance is two-fold. On the one hand, the materials created during user studies should be relevant for designing. On the other hand, the designs that designers propose should be relevant to the users. Jeanette Blomberg *et al.* (1993) outlined four valuable principles to guide the framing of relevant focus and developing useful materials in design ethnographic studies:

- ▶ Natural settings: *Studies should be conducted in field settings rather than in laboratory experiments.*
- ▶ Holism: *Particular actions can be understood only in the everyday context where they occur.*
- ▶ Descriptive: *The accounts of the human practices describe how people actually behave, rather than how they ought to behave.*
- ▶ Members' point of view: *The descriptions aim to create an insider's view of the situations and describe the activities in terms that are relevant and meaningful to those who are studied.*

While these principles are very helpful in guiding the design of a project's ethnographic activities, they come short in how they connect to designing itself. Missing from the list is what the art and design documentary authors Raijmakers *et al.* (2006, p. 230) express:

Design teams may thoroughly research the people and situations for which they are designing, but they must also develop a perspective – a prioritised view – to direct their work.

Participant intervention

Design anthropologists Mette Kjærdsgaard and Gregers Petersen (2007) have coined the term participant intervention to describe a designerly way of engaging with the field through mock-ups and experiments. Their idea

stems from their observation on shifting the focus in design anthropology from data collection into a constructive and dialogical process with users. With the advent of design catalysing and mediating devices, such as design probes (Mattelmäki, 2006) and design props, designers may provoke an open-ended dialogue with users. These tools are fundamentally future-oriented, and they act as mediators and placeholders of commonly negotiated meanings. Hughes et al (1994, p. 431) emphasise that designers aim to reconfigure the world that they study, and extensive studies of the current would a waste of resources:

Ethnography insists that its inquiries be conducted in a non-disruptive and non-interventionist manner, principles which can be compromised given that much of the motivation for IT is to reorganise work and, as part of this, often seeks to displace labour.

Sperschneider and Bagger (2000) also ask: “And what about when your goal is not to study social interaction, as in the case of ethnography, but to study change, as in the case of design?” The goal is then the placing of ideas on future technologies (*i.e.* the intended changes) into the practice of people, and then experimenting with changes in the practice and in the design. Design changes the context (including the practices of people), and the context governs what kind of design is appropriate. Hence, designers must find methods that help to discover what it is in current practices that may be changed and how, and what will persist in future. This underlines the need to utilise methods that are able to address current practices as well as to project the possible changes in practices onto the visions of change.

Practices evolve in a discourse with available resources and constraints. When communities are provided with new resources, they may reorganise their practices. These changes are relevant phenomena for a design project, which is likely to trigger such changes. Hence, in order to ensure the creation of good products, these changes need to become the subject of the designers’ study.

When designers aim to change situations into preferred ones, they must understand what *needs to be* changed, and what should be maintained. Moreover, they must understand what actually *can be* changed and what will persist. The fact that people’s practices evolve through long periods of time enables designers to foresee how things may be in future. Dewey (1910, p. 15) described how artefacts may help to project future issues:

...things are records of their past, as fossils tell of the prior history of the earth, and are prophetic of their future, as from the present portions of heavenly bodies remote eclipses are foretold.

55

2 Studying
what
people do

Hence, the issues can be addressed by designers by entering the sites of people's everyday activities with the video camera. Through the scrutiny of materials concerning interaction, the researchers may create so-called "thick descriptions" of the activity (as we learned from Ryle, 1968), and they may start to gain a deeper understanding of what forces are at play.

Seeing the activities is, however, not enough. Merely seeing what someone is doing does not relate what affects the work, let alone decide whether the activity is desirable or not. Is it instructed by someone, or by some rules, or is it done for sheer pleasure? Martin and Sommerville (2004) emphasise the relevance of explicit descriptions of a practice as regulating devices:

On the one hand it is easy to state that plans and procedures do not capture the full details of work or activity as it is played out but the more crucial point is to examine the relationship between these and the actual "work" undertaken. Where do they (and in what way) guide, constrain, and drive action and interaction?

For developing such a versatile understanding of the studied community of practice, the use of multiple methods of inquiry may be necessary. For example, Kjærdsgaard and Petersen (2007) use provocative design tools in combination with interviews, field studies and other design tools.

Capturing experience

Ethnography focuses on behaviour, but subjective experience is also important. In ethnographic user studies the focus is usually on users' practice in terms of observable behaviour. Heath and Luff (2000) observed that methods based on ethnomethodology and conversation analysis do not address the issues of meaning and representation; they are not concerned with cognition and learning; nor do they focus on how the situations shape human experience and activities. Instead they focus on the "procedural, socially organised, foundations of practical action" (Heath and Luff, 2000).

Designs are, however, in important aspects related to how people experience and make sense of situations. During the late 1990s and at the begin-

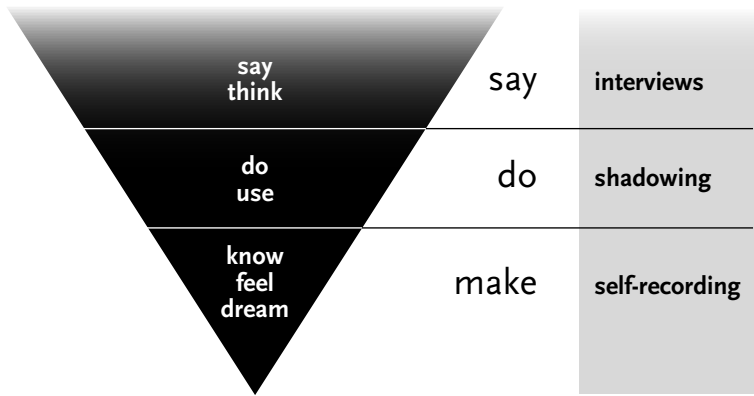


Figure 2.1
Sander's
(1999) "say,
do, make"
framework
and how
video study
methods
relate to it. A
refined model
is presented
in Visser *et al.*
(2005)

ning of the new millennium, emphasis in user-centred design has moved into "user experience". Several academic dissertations have been written on the issue (see, *e.g.* Desmet, 2002, and Battarbee, 2004). Basically the underlining aspiration throughout the user experience literature is the attempt to adopt a phenomenological position in designing, and to include the subjective meanings that are related to products. Such a position promotes the sensuality, meaningfulness and pleasure that are related to the encounters with products.

How is experience addressed in video-based user studies? Liz Sanders and Uday Dandavate (1999), pioneers in developing novel methods for integrating user studies in design, state that: "Each route to experience reveals a different story or picture." Sanders lists three paths in order to access what people know: through what people *say*, what they *do* and what they *make* (Sanders, 2001), see Figure 2.1.

When listening to what people say, a design team may learn about people's conceptualisation of their work or leisure. They may say things that *they want* the design team to hear. Wenger (1998) asserts that in an interview activities may become explained in a way that satisfies the institutional goals of the organisation for whom the individual is working, rather than focusing on describing the real social practice. Furthermore, it is often convenient to explain one's activities on a broad, or abstracted, level that omits a great

deal of detail. As a result, in addition to filtering ideas through their verbal expression skills, people will filter their experiences through the expectations concerning the design team's intentions. This provides designers with *explicit* material about people's perceptions. However, the picture it creates is a rather distorted, biased and partial one.

Observing what people do provides a window beyond people's verbal expression into the *tacit issues* in doing. The following brief example of a possible study situation outlines how this differs from verbal accounts. In an interview a technician is asked about his normal routine in the morning at the office. He attempts to convey the details, and he explains as accurately as he can how he browses e-mails quickly, checks the calendar on the table, and then heads for a client's working site. However, when a design team goes to observe the activities at the workplace, they may find how the technician begins the day by talking to a colleague in the lobby, then makes a quick call to handle reserving some materials, writes a brief note on his mobile phone about the meeting that the phone call triggers, checks the list on the wall about the other workers' presence, *etc.* All these details omitted in the interview may be relevant to the design that will be created later, and it is precisely these kinds of details of everyday interactions that make up what practice actually is.

At the deepest level are the issues related to people's thoughts, feelings and dreams. Sanders and Dandavate (1999) assert that people are able to express their thoughts, feelings and dreams with tangible and visual tools that are based on *making*. These "make tools" enable people to express issues on a non-verbal level – yet as concrete ideas. Such concrete descriptions combined with people's explanations thereof may reveal as yet unknown and unanticipated, or *latent*, needs and aspirations.

Making, when understood as construction, is a broader topic. The study procedure in its entirety and the situated construction of new ideas is fundamentally a process of making. It seems that more essential than how one expresses ("say", "do", "make") is how to build up moments of reflection. It might be fruitful to understand "depth" as relating to the depth of reflection both on the users' side and on the interpreters' side.

Entering people's lives

Before designers enter people's lives with the video camera, some issues relating to the risks of videotaping should be considered. Even experienced design ethnographers sometimes have difficulties with real-life organisations,

58 despite knowing the ethical issues in conduct well. For example, Hughes *et al.* (1994 p. 433) write:

*Designing
with video*

...we may have been unlucky in this case and ... it does highlight an important feature of ethnographic research, namely, its reliance on being accepted in the setting and, even if this is forthcoming, being subject to the range of contingencies that are capable of afflicting all "real world" organisations.

It is surprising the kinds of damage that can be mediated by the unthoughtful use of video. Physical, mental, social and financial harm are all possible. People are often intimidated by the camera; the video recording reveals their way of being in high detail. Hence, approaching people with a video camera is a highly sensitive issue. The following list outlines some considerations before switching the camera on or even before the first phone call to the users.

Inform the participants about the forthcoming study. This might happen in a phone call. The people being studied can also have the power to affect the timing and target of the study, depending on the context. This helps them to orient to and prepare for the study. It may also help them to think about what they do and what they want to show to the design team.

Attain permission to shoot. Homes are intimate places where everything might not be public. Workplaces may contain confidential plans visible on a table, or people may be present who should not be filmed, such as in hospitals. The space may also feature some tools or arrangements, which form the competitive advantage of the organisation; the filming must therefore have proper authorisation and control by the stakeholders. It is always a benefit to ensure that the design team is authorised to use the video material for the purposes they need. This may require written permission in some cases – and it is a good idea to acquire the permission immediately after shooting, if needed, as the procedure of studying may have helped build a stronger rapport between the parties. (If the edited artefacts are shown somewhere in public, appropriate permissions should be sought so that the users know how they will be presented.)

Be open and sincere. People are expected to express personal details about their lives. Designers need to be open and share details of who they

are and what they are aiming at in order to expect others to be willing to do so. When people appreciate the people they collaborate with, and when they feel that they are respected, listened to, and feel that they are able to contribute, it is likely that the design events will succeed.

Explain the procedure. A brief moment of explanation before starting the shooting is usually enough to enable fluent collaboration, as people know what they are expected to do. For example, the user may need to be instructed to work without explaining what he is doing, if the activities will later be discussed in an interview. The user may also be instructed to explicitly point out everything worth noting to the team. Instructing the user to think aloud during the shooting might make sense when there is little time to discuss afterwards. In this phase the user should be reminded to control the shooting: what can and what cannot be captured.

Remind people to avoid physical risks. The presence of the video team may cause people to forget their usual safety routines. Hence, they may need to be asked about the safety issues related to any potentially dangerous interactions. Sometimes people work or have fun in dangerous places. Entering these scenes with a video camera might put the person in danger, which should definitely be avoided. Furthermore, the handling of the video camera might be difficult in such environments, which may endanger the video equipment itself. Thus, to ensure minimal risk to people and to the equipment, the design team needs to inform the study participants about the possible physical risks in the study and give instructions on how to avoid them, and *vice versa*.

Inform others. In shadowing studies the people being studied quite often meet other people during the video recording. When possible, it is helpful to have the others informed about the study in advance. In our procedures, we ask the person being studied to briefly explain to others the purpose of the research; how thorough the explanation needs to be depends on the person encountered. Outsiders may be edited out of the footage if they happen to be visible in the video recording.

Avoid making a fool out of anyone. Editing can turn the same person on the video into a bright-minded thinker, or an ignorant troublemaker. It is often a matter of choosing certain clips and placing them in a specific order that creates this meaning. People are precious collaborators and must be considered with care.

- 60 The above list of ethical principles applies to all video-based activities throughout this book and is helpful in avoiding major problems in a design project. When designers are fully aware of these issues, they may move ahead to study the constructive co-authoring of design-oriented video materials, which are explained next.

● Method: Situated Interview

Interviewing is a widespread method in social studies to explore what people think about things. “Being situated” means having direct access to the details of the practice within the moment of the interview. This may mean conducting the interview in the usual environment, such as at the work desk of the user, or bringing images or tools of the worker to the interview. This allows a more detailed discussion on the particular relationship between the person and the issues in focus.

Interviewing is fundamentally about someone asking questions and someone else answering them. However, the configuration may vary from intimate and deep individual reflections to group interviews. The situated interview is focused on studying the “real” person in the “real” setting. Hence it differs from the kind of interviews conducted to build an overview picture of a larger whole. These may be carried out, for example, in interviews with the workers’ superiors.

Practical guidelines

- ▶ Start with easy questions.
- ▶ Prime the interview with self-documentation, or use observation as a help to being more reflective.
- ▶ Ask open questions rather than brief “yes” or “no” questions.
- ▶ Provoke details through details: Ask concrete questions and provide a detailed context.
- ▶ Get a real practitioner: Remember that someone who thinks she/he knows, such as the superior, does not have the same relationship to the practice.
- ▶ Ensure good sound quality: Use an extra shotgun (or wireless) microphone in noisy environments.

An interview is useful when a design team wants to edit video portraits of people. A personally expressed spoken story conveys the meanings the ma-

“Could you
explain
what that
is for?”



► Case story: Ageing workers

Salu Ylirisku and Kirsikka Vaajakallio, University of Art and Design Helsinki

The schoolhouse caretaker is sitting in front of us at his work desk, his shirt sweaty after working intensely for one-and-a-half hours. Salu has placed the video camera on a tripod and is holding a sheet of paper containing roughly-structured questions. Kirsikka is preparing the laptop computer on a nearby table for the display of the still pictures captured during the shadowing done just before the interview. We aim to create a soundtrack for a user portrait that we may edit using the worker's comments on the situations presented in the still pictures. Before starting the interview Salu checks that the external shotgun microphone attached to the camera is on. We are quite excited, as this is our first interview as a team in this project.

The Konkari project was part of a two-year EU-funded research project (2004–2006) to improve the well-being of ageing workers. The project was conducted at the University of Art and Design Helsinki, and the ageing workers were employed by Palmia, a company owned by the city of Helsinki. Palmia provides catering, security, cleaning, and technical maintenance services. Our study focused on the latter two of these. The participating ageing workers as the focus of the study were all over the age of 50. The workers' interviews were conducted to study the workers' thoughts about their work,



Video
example
**Interview at a
schoolhouse**
2'58"

terial world holds for people – as conceived by them. When such a story is combined with the activities captured during a shadowing event, a portrait that conveys a person's values effectively is rather easy to create. The "Ageing workers" case provides an example of a situated interview conducted with the idea of creating material for video portraits in mind. A completely different approach to situated interviews is presented in the "Freeride

the opportunities to develop the work and also to construct engaging video material to drive design.

We contacted the workers some two weeks before the site visit. We asked the worker to choose the time for the study, and said we would be observing the real work practice. The observations and interviews were conducted in schools during the daytime when the pupils and teachers were present. We thus also needed to attain permission from the headmaster of the school for the study.

When we arrived at the work site, we first met the worker and briefly explained the idea of the day: first we would shadow one and a half hours of continuous work, after which we would conduct a half-hour interview. We also explained that we would be like proverbial "flies-on-the-wall" during shadowing, and that we had the chance for discussion afterwards.

After the shadowing was over we moved to the interview. We had a four-point structure: (1) the person's background, (2) today's activities, (3) future opportunities, and (4) the personal message for future colleagues. The observation phase combined with earlier activities in the project had familiarised us with each other quite well. It was thus not particularly difficult for the participants to give a relaxed interview. We thought this would be helpful in the construction of the video portraits. The overall aim of the project was the well-being of the ageing workers, and this was seen to be influenced by the ways people understand their role in the organisation. The user portraits that we aimed to create underlined the value of the ageing workers.

The interview questions combined with the still photograph "playback" of the situations provoked brilliant material for the later editing of the videos. Moreover, the observation session combined with the interview enabled us to gain access to the real-life interaction as well as the workers' thoughts about the work. ■



► Case story: Freeride skiers

Salu Ylirisku, University of Art and Design Helsinki

A cold sea breeze from the Arctic Ocean blows dark clouds above the horizon from behind a smooth ridge, where six freeride skiers together with two members of our research team are hiking in May 2003. The camera will survive the snowfall, though, since I have some plastic bags and sticky tape with me to protect it from getting wet.

I am a bit worried about the weather getting worse, since I may not be able to see the skiers, and I may get nothing but a white curtain of snow on the videotape. I am standing in a pit that I have dug to protect myself against the cold wind while waiting for the skiing to start. I keep the extra batteries for the camera in my pockets close to my skin to keep them warm. The snow is hard up there, so it was relatively easy to get the tripod to stand firmly on it. I am wearing woollen gloves with open fingertips under thick leather gloves, which I will remove when videotaping.

Finally the skiers appear from behind the peak far above me. “Salu, do you read?” I hear from the radio. “Yes, I do,” I reply. “We’ll start from here with Jani. Tell us when you are ready with the camera,” says Antti, who is a member of our research team. The others continue further up on a steep crag. Despite zooming in as close as possible, the frozen and slow LCD screen displays the skiers as tiny black spots on the texture of the mountain-side. I wonder if it makes any sense to videotape these dots.



Video
examples

**Show
your stuff
interview**
1'34"

**About to
ascend**
2'14"

**Distant
shadowing**
3'28"

**On the
mountain**
2'06"

skiers” case, where video was employed in various situations in a rather exploratory manner. These events, however, provided useful material for authoring video artefacts about freeride skiers’ attitudes, as presented in Chapter 3.

Interviews are most useful for design projects when they are utilised to complement other methods, such as observation and participation in the exploration of users’ reality. Interviews may be conducted with provocative materials that help to orient thinking towards design opportunities. Such an approach is presented in the case “Ageing future” later in this chapter. In a sense, such an interview is situated in the context of ideas about the future. ■

The Luotain project (2002–2006) aimed to develop user-centred processes for product concept design with an emphasis on user experience. The project, which was mainly funded by the Finnish Technology Agency **TEKES**, included in total seven case studies exploring particular methods and tools to capture and represent user experience for design. The freeride skiing case was one of these. It aimed to construct an image of freeride skiing sport equipment for the Suunto Corporation in order to help design interactive sports instruments for skiers.

The process included expert interviews, a literature study, and a probes self-documentation period of two weeks with six freeride skiers before we went to observe the actual skiing with six skiers on the Lyngen fjord in north Norway. We lived for four days in the skiers’ hut and during this time we had plenty of opportunities to videotape the activities. However, we found that the videotaping of the informal conversations was a bit problematic. We wanted to maintain a casual and informal atmosphere, but the camera in our hand tended to turn the discussions into interrogations rather than lively debates. Hence we adopted a strategy to leave the camera aside for the chatting and instead wrote notes after discussion. Our research team, which consisted of me (the design researcher) and three Suunto personnel (one product manager, one concept designer and one usability specialist), were able to discuss the findings and reorient the focus when driving to the skiing locations. Some of these we captured with video as records of the key findings.

The rather long period with the skiers allowed us to try out different ways of capturing the activities on video. In the hut we had several organised interviews,

Shadowing is a method for observing people while they move. The metaphor of shadowing originates from detective stories. Like detectives, the designers with the video camera try to build a record of what a person does, where she goes, which equipment she utilises, and who she encounters. Unlike the subjects of detectives, the studied people know well who are observing them and for what purposes. This allows close cooperation in building material that is valuable for design.

As mentioned earlier, many work activities are automatic and are thus difficult to verbalise or to detail, or may even escape conscious awareness

“May I follow you to see what you do?”

where we had some prepared questions based on the findings from the previous phases. A couple of the skiers were present in these. We had the chance to observe how the skiers prepared for a hiking trip, how they planned where to go, how they packed their bags, what they ate, how they observed the weather, *etc.* During the skiing we had three cameras running in parallel. Two of the cameras were held by the research team, and one of the cameras was lent to the leading skier with the instruction to record and think aloud what he was thinking in various spots on the mountain. This worked surprisingly well in this case, perhaps because the skier had some background in videotaping. When we watched the video recordings in the evening together we also had the chance to hear the skiers' comments on the day's activities.

One of the most interesting bits of video material that we captured was a situation that might be called the “show your stuff interview”. One of the skiers spread out all the skiing equipment on a blanket and he explained the purpose of each piece of equipment while I was recording the interview. It provided us with a condensed information package on how the skiers think their equipment relates to their activities.

The case study provided us with extraordinary video material with highly engaging content. Despite not having a fixed idea of what to shoot during the trip, the presence of the camera allowed us to discover new uses while we were there in the field. Based on this experience it seems important just to have the camera available. Utilised with an exploratory mind it may prove to be quite useful. ■

altogether. Shadowing produces material on the details of everyday interactions in people's usual environment. When shadowed (and usually all the time) people tend to make their acts intelligible and somewhat predictable in advance through hints, such as orienting towards something, nodding and pointing with their eyes. A designer who follows these clues is able to move the camera according to the focus of the subject and build a video that becomes a sensitive rendition of a person's characteristic way to go about things.

In shadowing the signalling of intentions is a two-way activity. With the ability to control where the camera is pointed, the designer constantly signals users as to the areas that are interesting for design. This often provokes users to show things to the designers with the video camera. Hence shadowing is a method that calls for sensitivity, quick response, skill in reading the subjects' focus of attention, and the ability to inspire collaborative exploration in order to orchestrate the interactions towards a design-driving result.

Some practical issues when shadowing

- ▶ Keep the person in the picture at all times.
- ▶ Follow what the user is doing and where his/her attention moves.
- ▶ Use your feet to zoom.
- ▶ Keep up with the pace of the user.
- ▶ Remember that if you cannot hear, neither can the camera.
- ▶ Let the video run continuously (do not stop the camera when surprised).
- ▶ Allow the "user" to control what can be videotaped.

In multi-camera shadowing, a design team approaches the user site with several video cameras. This makes sense in cases where several users are interacting with each other across a distance. Such cases may occur when a working group consists of several people whose physical areas of work are separate. Multiple cameras were utilised in the "Plant operators" case, which focused on exploring the way wastewater treatment is conducted by the operators of the process. With such video material designers may edit stories that convey how the procedure unfolds with multiple persons involved. These multi-camera videos provide a "God's eye view" on the interactions, which no single person is normally able to achieve. ■



► Case story: Plant operators

Jacob Buur, Danfoss User Centred Design

Monday morning often means trouble. It is Monday morning at the Himmark wastewater treatment plant. Flemming, the lab technician, is going about his daily routine in the small chemical lab. He is analysing samples taken this morning from various basins of the plant, to check the level of pollution. Christina and I have been permitted to follow Flemming's work with our video camera for one day. Christina is a PhD student from Aarhus University, and I work with the Danfoss User Centred Design group. Right now we are with Flemming at a bench with lab equipment, I with a handheld camera, and Christina next to me, trying to find a balance between when to ask questions and when not to interrupt the work.

Flemming has been animatedly describing in detail why and how he analyses the samples in the small glass caskets, but suddenly he is very still – one of the glasses has taken on a dark blue colour, much darker than



Video
example
**Plant
operators**
2'30"

the other samples. Flemming gets up, and strides quickly out the door. Should we follow suit with the camera? Or wait here? Is he simply going to the toilet? We decide to chase after him as he calls down the hall for the head plant operator:

– Ole?

As Flemming rushes to meet Ole in the corridor we suddenly find ourselves facing Kirsten and Ingrid, who have their video camera pointed at us. They are part of our design team, shadowing Ole. What now, should we turn off one of the cameras, to preserve tape? Better not.

– It's all wrong out at Holm, says Flemming to Ole.

– Really? How high is the level?

– It's above 7 at least, more than I can measure.

– Well, I'd better go out and check, then.

Flemming returns to the lab, while Ole prepares to drive the five kilometres to Holm, an unmanned satellite plant. This little incident starts a string of events, much like the Three Mile Island disaster, only much smaller in scale, of course. And we happen to be there with three video cameras running!

The water vision project. The wastewater treatment plant field study was part of a vision project on new technology for the water business segment, organised by the corporate User-Centred Design group of Danfoss, a major Danish manufacturer of industrial controllers. Danfoss has several business divisions that develop products for wastewater plants: pump controllers, flow meters, pollution sensors, automated valves, *etc.* The goal of the project was to study the water treatment field from a user's perspective and suggest a vision for Danfoss products and user interfaces. As in many other industrial plants, the situation for operators is changing rapidly, with more and more computer control being embedded in the products, and products being linked in networks.

In the project team we were ten in all: user-centred design specialists, developers from business units, management trainees, and university students. In total the project took ten months with two months spent on user studies. It was organised in collaboration with two other research teams from the Universities of Aarhus and Malmö, which allowed comparative field studies at three wastewater plants.

To study the people who work at wastewater treatment plants posed quite a challenge. Plants are large installations with walking distances of up to several

kilometres. They are manned by a staff of eight to ten operators, who work with mechanical, chemical and biological processes, which were all new to the team.

Our initial contact at the local wastewater plant was with the head plant operator, Ole. At our first visit (two of us), he kindly explained the good a plant does and how it works. It must have been all too obvious that our engineering and HCI training had not prepared us for understanding wastewater treatment at any professional level, for Ole comfortably switched into his school children routine, explaining everything in simple, pedagogic terms. He had a map ready, showing the complicated flow of water and sludge, and even a little pamphlet that listed who works at the plant, and what they do. Then he took us on a tour of the facilities, in what we later found out was his daily morning routine. We noticed the walking distances, the smells, the machinery, the abundance of chemical terms, and also the subtle cues Ole apparently took notice of. We were kindly allowed to videotape the tour, and thus had material to show the rest of the team.

The first video recording started quite a discussion with the team and colleagues in Aarhus and Malmö about how we should go about the user studies. How much time should we spend? How many of us should go? (We all wanted to!) Where should we start?

We badly wanted to observe work revolving around Danfoss products, but to stand and wait at any one product for something to happen was clearly not a workable strategy, as they are not operated on a daily basis. We decided to use an ethnographical approach, studying the activities of several operators as they unfolded simultaneously. Based on the overview of employees, we asked permission to shadow three employees for a full day. As we had heard that Monday was often the most stressful day (after a long, unmanned weekend), we specifically made the appointment for a Monday. Similar appointments were made in Aarhus and Malmö for days within the same week, and we decided on a rotation scheme, so that someone from the two other teams would always join a local study.

Shadowing three operators simultaneously. At 6 am that Monday morning in late September the team assembled in the parking lot outside the plant. The six of us divided into pairs, each ready to video shadow our operator. We synchronised the camera clocks to make later analysis easier and checked batteries and tapes one last time before entering the plant. The three operators welcomed us,



had a little laugh about their future careers as Hollywood stars, then set out to start their work in their respective areas of the plant.

Ole, the plant operator, started his day with a plant walk-through, checking on all the running processes. He used his eyes, ears, hands, and nose to sense any abnormalities in the plant operation. Then he was called upon for a variety of activities through the day, and finally sat down at his desk to complete administrative tasks.

Flemming, the technician, first took samples at several locations in the plant, then spent all morning analysing them in the chemistry lab. He also performed tasks related to the computer monitoring system.

John, the electrician, started his day working on a new pump controller installation (with a Danfoss product), then was called to fix a problem elsewhere. He also had routine maintenance on his agenda.

One lesson we quickly learned when video shadowing is: Never stop the camera recording! For one thing, it is difficult to synchronize three cameras later, if there are gaps in the recordings. More importantly, one cannot anticipate what events will come and which ones will be important for the study. In the lab, for instance, if we had stopped the camera, we would not have been able to trace back what actually happened, or which event led to which.

When two shadows meet. With multiple cameras following people, surprising instances may occur. Sometimes, when two operators – with their shadows – met for a brief talk, we suddenly found ourselves videotaping another crew who was videotaping us. In this way we also learned how well-developed the operators' sense of each other's presence is. At one point, for instance, *Ole* leaves his office and walks to the top of an outdoor staircase to shoot a question at

John, who moments later happens to pass by at the bottom of the stairs. How could he know? Another instance that happened a few times while we were at the plant was that one operator would call another on the phone for a short discussion – and we would have a camera at each end of the line! Ole, for instance, when arriving at Holm and finding a polluted basin, calls Flemming back at Himmark, asks him to log into the control system, and guides him to shut down a pump station to prevent more wastewater being pumped into Holm, while they investigate what is wrong.

The Holm breakdown. That particular Monday proved to be just as stressful as we had been warned – or even more so. Flemming's lab sample turned black, and Ole was alerted right away: an unmanned satellite plant (located at Holm) had an unacceptably high pollution level. This required immediate action, so a series of events unfolded over the next couple of hours, involving problem diagnosis, replacement of a defective dosage pump, repair of a short-circuited power line, and a report to the local environment authorities. Incidentally, it even involved a problem with a Danfoss component.

To reconstruct the course of events took a good deal of hard work, because it involved activities covered by all three cameras. One might say that we were awarded a kind of "God's eye", a perspective on the events more complete than any of the involved themselves would ever be able to have. Just like in a directed theatrical movie, we were able to cross-edit the activities of three people to show a more interesting story.

Feeling, watching, controlling. One may assume that unmanned plants are the key to rationalising wastewater treatment in the future. For a number of reasons, we learned that this is not the case. As a result of the user studies, we found three keywords that nicely summarise the work at wastewater plants: operators feel the state of the subtle processes using all their senses, not just computer displays. They watch the industrial components, because they know from experience that they are potentially unstable. They control the control system, because automatic systems are really designed for "normal" operation. When special conditions eventuate, a human has to take over with the experience of years of work. Based on the understanding achieved through video shadowing, we were able to generate ideas to support operators in those tasks. ■

“Show us
how you
would do
it”

In-situ acting is a method for studying people’s practices in their native settings. *In-situ* acting developed partly as a response to the difficulty in observing real activities of real users in their real setting within the tight schedules of design projects. Another reason for its development was to overcome the barrier of the differing professional languages of users and designers. However, perhaps the most important reason to employ *in-situ* acting is the flexibility that it allows for designers and users to explore and experiment with situations (both current and potential) that are considered relevant to the design project in question.

Fundamental to user-centred design is placing designs into the context of use and evaluating the value of the ideas there. *In-situ* acting aims to construct the context as accurately as possible in order to ground exploration and possible ideation to the details of real practices. It uses the same presentation format in which the practices exist in everyday life, which enables interpretations to be built on records unfiltered by the abstractions of language. Even though acting out does not directly correspond to real activities, it does provide opportunities for learning about the details of the users’ practice – details that would remain silent unless provoked. Moreover, the delightful atmosphere that the idea of acting out instigates is helpful when people explore radically new opportunities.

Acting out is also employed in the realm of documentary film-making to co-create detailed illustrations with people about their practices in their respective cultures (Raijmakers *et al.*, 2006):

...[C]o-operation ... makes people participate in the film differently; they are more involved. Building on participation and co-operation, Rouch [as a key example] pushed the boundaries of cinema and anthropology resulting in what he calls “ethno-fiction”, fusing description and imagination in anthropology, and realism and fantasy in film. Chronique d’un Été contains several scenes where a protagonist is role-playing and being herself at the same time. The point is not whether she is acting or being herself. The point is that it is not relevant one way or the other: in everyday life, “role-playing” and “being oneself” co-exist, and the relationship between them is more important than either one of them.

- ▶ Frame the situation in a proper environment with appropriate tools.
- ▶ Prepare props if future-oriented acting is desired.
- ▶ Establish a relevant orientation: When, who, and what are usually good facilitating questions.
- ▶ Use video in the same way as in shadowing.

*2 Studying
what
people do*



▶ Case story: Ageing future

Salu Ylirisku and Kirsikka Vaajakallio, University of Art and Design Helsinki

“When should we propose that he could use the camera functionality for this?” we ponder as we are capturing schoolhouse caretaker Seppo in action. Seppo is acting out a situation where he uses the mock-up product that he has designed for his work.

– “I do not know the exact model, but it is one of the round-shaped Arabia sinks,” Seppo replies to the imaginary service attendant on the phone.



Video
examples

**Thinking
bubble**
2'01"

**Tool
reflections**
2'21"

**Reporting
a toilet
problem**
1'37"

- 74 When acting is organised at users' sites, the users tend to feel rather comfortable, compared to being invited to a design studio to act. Acting as oneself, moreover, does not entail the trouble of pretending to be someone else, which is the realm of professional actors.

The case "Ageing future" shows how the *in-situ* acting approach facilitates an open and flexible study of the potential change into the user practice. During the project video material was created both of the workers' activities as they would normally occur and of situations acted out by them. In addition,

We decide to remain silent and continue capturing how Seppo goes on with the situation. We believe that by delaying our question about the camera functionality it will help us discover something new – perhaps a nice workaround to the situation.

– "It is here on Albertinkatu (Albert Street), fourth floor, girls' toilet," Seppo explains, holding the mock-up close to his mouth.

So, the location was the next thing to communicate. He then presses a button to store the event in the memory, and then another button to transliterate the discussion into text for the automatic generation of an order form. At the same time, he continues to explain sarcastically how the form would automatically be sent to a city bureau, but as the bureau is a bit behind in technology, he would need to print the form and send it by mail.

Only now that Seppo has finished the action and is leaving the toilet do we propose the camera for communication. "Yes, you could do that. That just did not occur to me since I so seldom send photos."

The Konkari project (which is explained in the case "Ageing workers") also included a phase where the workers' practices were studied and design opportunities were explored with an interventive approach. We called the approach "situated make tools" (Ylirisku and Vaajakallio, 2007), and it takes Sanders' idea of make tools to the real activities of the workers. The situated study was conducted with 12 workers in total. In the first six studies we utilised only shadowing, and in the six subsequent studies we asked the participants to create a tool with the make tools kit that would help them feel better at work or to work more focused.

The study had four main aims:

the discussions with the workers where ideas were evaluated were filmed. The case illustrates what wonderful actors workers may be, and that the observations may greatly benefit from the imagination of the workers. When designers are looking at the practice with an “eye to change” rather than with an “eye to observe”, they begin to form numerous ideas themselves – and validate these in the real setting with the user. Combined with the wealth of ideas from the users themselves, these may provide designers with an invaluable resource in the later phases, as happened in the “Ageing future” case. ■

75

*2 Studying
what
people do*

- 1 to create concrete and relevant-to-the-worker design ideas expressed in physical, narrative and acted-out formats;
- 2 to develop insights into the workers’ needs, desires and attitudes relating to digital information and communication technologies (ICTs);
- 3 to explore how the real-action context triggers and grounds inspiration for concept design;
- 4 to gain experience in how the make tools function when used in the midst of everyday activities with ageing workers.

The study began by contacting the participants. They were asked to bring a digital tool that they use every day at work to the event. Interactions at the workers’ site began with reflections on their tool: where they would normally utilise their own digital tool, how they use it, and the kinds of situations where they had previously used it. The exercise aimed to provoke thinking towards the potential of new ICTs. This discussion and reflection lasted for a half-hour. We then introduced the make tools kit.

After hearing our instructions the workers started to figure out possible shapes that would suit them. We also gave the worker an additional instruction to explain the purpose of each piece that was included in the tool. We asked the worker to relate the purpose of each new feature in relation to a specific situation. We repeatedly asked the worker to think of existing situations and tasks where the tool might be helpful. We proceeded very slowly during this phase, to allow the worker to take the time needed to think about the work from this given perspective. Here, we considered it very important to enable the worker to relate the design to the real-life situations and to the needs in these situations in order to ensure the ideas’ relevance.

*“Could you
capture
how you
see it?”*

Self-recording is videotaping done by the users about their own practice. It is a method that allows the users themselves to decide what to capture, when, where, and how. It enables them to construct stories and material for further exploration by a design team. Self-recording may focus on documenting interactions with existing practices, capturing an individual’s thoughts, or propelling the making of visual stories about experiences with products – both current and potential.

Before starting the shadowing we instructed the worker to carry on with work as usual for a period of one and a half hours. We explained that we would be shadowing with a video camera, continuously recording the activity like proverbial “flies on the wall”. And, occasionally we would interrupt the work, if we perceived potential for using the tool that the worker had designed. We called this intervention the “thinking bubble”. This moment was geared to discussing how the tool could be utilised in the activity and to envision how the situation could be changed with the tool. Then we began the observation.

Evaluation of the ideas immediately challenged the designers’ conceptions of what is needed. For example, in one situation the worker did not accept the idea of camera-based communication for the task of repairing a water tap. It seemed evident to us that the worker would need to communicate to a plumber through images of which tools and parts were needed for a certain tap. However, the worker objected, since he had been with a plumber so many times previously, dealing with the chemistry school’s special taps, and he had needed to explain the mechanisms by physically instructing the plumbers how they functioned and which parts needed fixing. This was a surprise to the designers and helped to refine the ideas.

Ideas on site. The situated make tools approach provided us with many design ideas already at the user site. This differed drastically from the previous approach that utilised only observation. We think that the orientation of the designer towards the site is considerably different when the approach is interventive compared to when it is not. We believe that the interventive approach helps one to see the situations with a designerly “eye to change” compared to the “eye to explore” that is active during observations. ■

Since the first experiments with *Cultural Probes* – provocative self-reporting kits to involve users in design projects (Gaver *et al.*, 1999), self-reporting has established its place in the set of methods that user-centred designers may employ in their practice (Mattelmäki, 2006). Self-recording is a constructive activity (like using a probes kit) where the users build images of the issues outlined by a design project team. Raijmakers *et al.* (2006) talk about self-recording in the form of video diaries:

Video diaries are useful for user studies because they can give access to people's everyday life on a very intimate level. The dialectic between the maker and the situations she/he talks about still exists in video diaries, however. Makers of video diaries in fact perform that dialectic in front of the camera when they reflect on things they did or situations they encountered, since they choose what to present and may overlook taken-for-granted details of their lives. The video-diary is a good way to learn what people think; it may complement methods such as ethnographic observation that can reveal what people do.

Self-recording is helpful in studying processes that unfold over a long time period, such as a week or two. It allows designers to address situations in intimate places, like homes, without being there and disturbing the activities. Self-recording may also be practical in places that are too hard to access for the designers, such as in the “Freeride skiers” case. Self-reported material usually requires an interview to discuss the meanings that the users try to convey through the materials they have constructed. The material may as well be utilised as such to inspire design.

Guidelines for self-recording

- ▶ Instruct the person on the use of the camera.
- ▶ Provide a focus: describe the kinds of issues the project is interested in.
- ▶ Explain how to deal with other people that may be videotaped:
Hand out, for instance, a brief outline of the project that helps the user to explain the project to outsiders easily.
- ▶ Inform the user how the videotapes may be utilised later.

The following case story “Lemmu the cushion” illustrates the importance of providing the users with proper instructions, and shows how events may not go quite as the designers expect despite instructions. The Lemmu case

also explores the issue of documenting the experiences that users construct in their own settings. This is also in focus in the case “Mobile experiences”, which illustrates how important it may be for a design project to allow users to document their own experiences with new products. In this case it reveals how designers discovered the influence of the presence of the researcher on the ways people try out new applications.

The “Freeride skiers” described an example of self-recording in a place that was not accessible to the researcher. The mountain was simply too dangerous for a novice climber to attempt; one of the skiers himself thus documented activities during a hiking trip. The thinking aloud of the leading skier, who was filming, helped designers grasp what the skier was thinking in different spots: how, for example, he chose the route to the mountain top, what he thought about the snow conditions; and how he saw the team of skiers around him. ■

Co-exploring

A concept that conveniently summarises this chapter is that of *co-exploring*. Conducting a field study for a design project is much more than trying to capture the objective data of an undisturbed reality. For the designers, it means entering new realms of user contexts and practices, and designerly interventions may help to understand both what is there and what may change in the future. Exploring is a means to encounter the new – whether surprising or expected.

For the users, the reflective process that is triggered by the very presence of designers – and even more by their questions and suggestions for future technology – may enable them to see their practices in a completely new light. Exploring may mean an increased awareness that already in itself instigates a change in the practice of users.

Co-exploring is a particular view on field studies that helps us see the study not simply as questions asked and answers given, but as a participatory endeavour, banking on the combined efforts of users and designers to move towards a better future. The video camera is a convenient “excuse” to set this process in motion: a tool for which and with which we may explore.

► Case story: Lemmu the cushion

Katja Battarbee, University of Art and Design Helsinki

Anne Soronen, University of Tampere

The video opens with a living room scene and two small girls exploring the contents of a plastic bag that they are holding between them. Their blond heads are together and they are about two and four years old. A large, fuzzy, cowhide patterned cushion is on the floor behind the girls. The four-year-old girl gets hold of a small object in the bag, walks over to the cushion and presses the object to the cushion. The cushion emits a sudden growl-like sound, and the girl jumps up, shrieking with laughter and dances on tiptoe back to where the bag is to get something else to try.

We laugh, too, at their excitement and our own relief at having data. Many questions come to our minds as we watch the family members explore, struggle, smile and cuddle with the prototype. Scribbling notes, we pack the minidisk and set off to meet the family in person.

The Morphome project investigated issues around designing proactive technologies for the home environment. It started in 2003 as a three-year cooperation project between the University of Art and Design Helsinki, Tampere University of Technology and the University of Tampere, funded by the Academy of Finland. Lemmu, a cushion prototype used in the study, contained an **RFID** reader in a padded pouch. It was built to demonstrate that sophisticated technologies may look non-technical and cuddly on the outside. When an **RF** tag was laid on the cushion, the cushion emitted a short sound: a whistle, a chirp or a roar – depending on the tag. The prototype aimed to help explore how technology-mediated everyday experiences become constructed in homes and provoke thinking towards future opportunities.

Three Finnish families were recruited during autumn 2003 to take part in a week-long evaluation of the prototype in the home. We wanted both real footage on video as well as interviews and discussion, and chose to give the digital video camera to the family so that they could document their experimentation themselves. In each of the homes one parent took charge of the camera and prepared to document the situation as the children were given the cushion and the tags to explore.

After the first home we decided to create a small booklet with simple guidelines describing the kinds of things that we as researchers were interested in. We asked the people to avoid overdone staging and propping, and we emphasised just letting the camera roll. The booklet was helpful in sensitising people to think about the issues before the interview.

The families dispatched the video material to us after the study period was over. We looked through the videos once before the interviews that focused on how both parents and children conceptualised their use experiences. The interviews were conducted in the homes, where the family members could show us things and places that were not always clear in the video.

Video was helpful in the study of the responses that the cushion provoked, and the interactions with it. Some of these reactions were easily perceptible on the video, such as the brutal treatment the prototype received – which was actually quite a shock to one engineer in our group. Some interactions needed more work on the material, and the most interesting ones were inspected in detail. In one of the homes, where under-school-aged girls experimented with Lemmu, the transcription of the first 90 seconds of their exploration revealed a systematic, iterative testing of hypotheses on the functionality of the cushion (see Figure 2.1).

Some video stills were rendered by hand into line drawings due to privacy and permission issues to enable communication of the findings. This proved to be a surprisingly useful act. The advantage of drawings over small video still images is that the line drawings can be easily reproduced with black and white printers, also in smaller sizes; the stills were often fuzzy and would not have reproduced well. In the drawings it was also easy to bring forth relevant details and leave the rest out of the drawing. This technique provided a quick work-around for several issues at the same time: resolution, image quality and privacy. The making of the drawings also made us study the interactions, body language and positions of the children very carefully – helping to see details that would not have been perceived in a single viewing.

Creative response to the instructions. The parents followed the instructions at least during the first day of the study, when they dutifully recorded their children figuring out the prototype. The adults interpreted the cushion primarily as a children's toy, which is a likely reason for their slight unwillingness to interact with it when the video camera was recording. Our choice to give the camera to the



Figure 2.1
Girls testing
the Lemmu
cushion

Jutta leans back and lets Riina press the blue tag into the cushion.

– (Lemmu) **DOOLEE!**

Riina spins around to pick up a second tag into her right hand.

– (Riina) *now this*

Riina presses both tags in her right hand to the cushion.

– (Lemmu) **DOODAA!**

[Hypothesis: maybe if you use two tags together the sound will again be different. Result: possible, but it may just be the new tag as well.]

families and request videotaping of particular kinds of situations gave rather free hands to the participants. This meant that many situations that would have been interesting for us were not recorded for some reason or another: they forgot; the situation was over too soon; or they did not want to bother visitors by asking permission to record, or any other such reason.

The idealised image. The video material did not merely document all what happened, but provided constructs that promoted a certain image of the family. The parent operating the camera decided which room or viewing angle to use, who to record, when to start and finish recording, *etc.* Regardless of the research method it seems that the informants want to produce a particular kind of, and often idealised, image of themselves as users of technology. ■

► Case story: Mobile experiences

Minna Isomursu, University of Oulu

On a sunny and busy weekend in downtown Oulu, we give pairs of users two devices – one with the application to be evaluated and the other, a mobile phone with video recording capacity. When we watch the video clips on the following Monday, we are surprised. The clips reveal to us a completely new perspective on the use of the application. The emotional responses, especially, are radically amplified when captured by the users themselves. These expressions help us to identify the lurking design opportunities beyond the other material we already have.

The Rotuaari project aimed to evaluate context-aware mobile applications in a real-world environment with real users. The presented case took place between 2001 and 2003 in Oulu, in northern Finland. The context-aware applications evaluated were a location-aware map and a context-sensitive advertisement. The study utilised a technique called “experience clip” (Isomursu, Kuutti and Väinämö, 2004): a pair of users were given two mobile devices, the application device to one, and the video capturing phone to the other. The instructions to the observer were the following:



83

2 *Studying
what
people do*



Video
examples

**Dislocated
cultural
centre**
0'08"

**New
interactions**
0'08"

Scenario play
0'10"

**Visioning new
features**
0'07"



- Record as many clips as possible.
- Focus on use experiences: failures, success, surprise, joy, anger, *etc.*
- Aim at the user of the **PDA**, not at the **PDA** screen.

The material was captured during three weekends of the one-month field experiment period. During the experiment, a total number of 36 people acted as observers with camera phones.

Towards natural use. The influence of the presence of the researchers became clear when we compared the new experiences with an earlier shadowing study.

When the researcher was present, the users did not try out anything outside the scope of our research or intended usage of the device. They also tried to avoid situations where they thought the device would not operate properly. However, with experience clips, we saw the users seeking novel usage situations and trying to push the possibilities of the device to its edge. The example clip “New interactions” shows the user exploring how the user interface works. We did not see this kind of use when we shadowed the users, as the users seemed to try to behave efficiently.

The field experiment suffered from several technical problems, which gave us the opportunity to explore the strategies and patterns of use that the users developed to overcome the technical difficulties. Sometimes these problems were turned into jokes. For example, the example clip “Dislocated cultural centre” shows a situation where the users have noted that the positioning service is not reliable or accurate enough, and they shoot a clip where they are in the local liquor store, but the positioning service tells them they are in the youth and cultural centre.

From frustration to “short films”. The technique proved able to capture the users’ emotional experiences. The clips revealed both spontaneous emotional responses to the system as well as small performances created by the users to express their emotions. An example of a small performance is shown in the clip “Scenario play”, where the user seems to throw the device into the sea. Actually, he throws a rock, but the user continued the play even when he came back to return the device, explaining that unfortunately he does not have it anymore and showing the clip as evidence. When the observer was well-known to the user, it was natural for the user to explain their emotional responses and feelings towards the application, and they could then be simultaneously captured. Furthermore, we discovered that users expressed more lively responses and verbalised their thoughts more in the social situations with their friends compared to when they were alone or with a researcher with whom they were not familiar.

Some users seemed to want to avoid their failures being recorded. This was visible in some clips where they told the observer to stop recording. Some observers stopped filming, some continued. However, most users were quite happy to elaborate on their failures and negative experiences as well. The frustrations sometimes resulted in shooting something like the clip “Scenario play”. When the users are frustrated enough, therefore, they are not satisfied with

merely recording their true experiences with the applications, but they may begin to stage plays and shoot these on video.

New design ideas. The experience clips provided new design ideas, which seemed to emerge from the contextual influence as well as from the failures, or disappointments. For example, in the example clip “Visioning new features” a pair of our young student users were walking by a popular nightclub called “45”, and when seeing it they had the idea that there could be a web camera filming the entrance of the nightclub and they could use the mobile city device for checking how long the queue was to support the decision whether to go the nightclub now or later. There were also clips created in response to disappointments that described how the users had hoped the application would operate.

Our findings were used for initiating changes that would solve problems revealed or improve the functionality and usefulness of the application. The study helped to identify the valuable directions towards which the design was to be developed. These included clips that showed the users’ own ideas as well as those that displayed the apparently fluent and engaging interactions. The experience clips were rooted in the real-use context, which enabled a detailed study of what the users thought were valuable services while being on the move. Moreover, it helped to understand if the proposed design was able to provide the services in desirable and comprehensible form. The clips provided new ideas that resulted in added functionality and features in following design iterations.

In addition to the discovery of the potential of the designs, the study also provided us with important insights into the trouble with the application. For example, the design of the search functionality was proven be insensitive to the ways users wanted to conduct the search. ■

Designing with Video

Focusing the user-centred design process

Ylirisku, S.P.; Buur, J.

2007, XII, 244 p. With DVD., Hardcover

ISBN: 978-1-84628-960-6