Bringing the everyday life of people into design

Froukje Sleeswijk Visser

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Dit proefschrift is goedgekeurd door de promotoren:
Prof. dr. P.J. Stappers
Prof. dr. E.B.-N. Sanders

Copromotor:
Dr. ir. R. van der Lugt

Samenstelling promotiecommissie:
Rector Magnificus, voorzitter
Prof. dr. ir. P.J. Stappers, Technische Universiteit Delft, promotor
Prof dr. E.B.-N. Sanders, Ohio State University, promotor
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Froukje Sleeswijk Visser
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Preface

This thesis describes a research journey in which I developed various communication tools and a theoretical framework for making user experiences useful for designers in the very beginning of the design process. From the start of my Industrial Design Engineering studies I was passionate about this subject. Unfortunately, there was little of this subject in our curriculum. People's routines and motivations were a great inspiration source for me in my study time. I was eager to learn more about methods and techniques that support designing from a people-centred perspective. Towards the end of my studies I focused more and more on this topic by taking elective courses in this direction. Finally, in the graduation project, I explored a new research technique 'generative techniques' (Sanders, 2000) that investigates the everyday experiences of people as inspirational input for designing a product. This project took place in collaboration with a user research company and focused on the 'shaving experience of men'. It was a project close to my heart, as it allowed me to investigate how people experience a routine in their everyday lives and how this information can be used in design. No wonder that my interest continued in a PhD project about communicating experience information to designers.

At ID-StudioLab in the faculty of Delft University of Technology, I became part of a research group that focuses on the development of techniques and tools to research the user experience and prototyping in the early phases of the product development process. Our first experiences with new research techniques such as generative techniques (Sanders, 2000) and cultural probes (Gaver et al., 1999) originated from 2002, when we applied these techniques in design projects. We were all positively surprised by the outcomes, especially the way of approaching users and the engaging power that these techniques provided to users as well as designers. A research programme was set up to develop these techniques further and this resulted in the procedure 'contextmapping', which was developed in collaboration with Liz Sanders (Sleeswijk Visser et al, 2005). Contextmapping literally means creating a map of the context of product use. It is a procedure for generating information about people's experiences in everyday lives for design purposes. The fundamental perspective of contextmapping is that every user is an expert in his experience domain. For example, the men involved in the shaving study of my graduation project were addressed as 'experts of their shaving experiences'. Contextmapping tools and techniques provide them with a means to explore, reflect on, and express their experiences. They produce data and insights that address the functional, personal, cultural and social aspects of their experiences in everyday life. The outcomes are full of anecdotes, containing the feelings, values, needs and dreams of people.

The initial research question for my PhD project was how this type of information can be useful for industrial design practice. After one year of PhD research I focused specifically on the *communication* of the generated information to designers, since I observed that in design practice designers are often not involved in conducting the research. The communication aims at supporting designers **to achieve empathy** with the users, **to get inspired** for new product ideas **and to be engaged** with the cause. I conducted several studies in collaboration with industrial practice to explore new ways of communicating the information and I placed the findings in a framework, which evolved along these studies. The result of my PhD project is a filled in framework, describing the qualities, mechanisms and means that play a role in successfully communicating such information to designers and a set of guidelines which practitioners can apply when aiming for these qualities.


Ti-Page

THANK YOU!
Now that this thesis is here, I would like to thank the people who have provided essential support during the research journey.

First of all my supervisors. Pieter Jan, this thesis would not be here with your great support from the beginning to the very end. You were always ready to help, full with new ideas, and encouraged me many many times. It is a real gift to have such an engaged professor! I also enjoyed the pleasurable company of you and Maya during trips such as in Kuopio. Remko, it has been great to work with you and spending the first two years next to each other in StudioLab. It is a pity that you left halfway this project, but your feedback on drafts have been so valuable in getting the story clear! Liz, you inspired me with your vision on everybody's creativity and its use in design and supported me with valuable feedback during the writing of this thesis.

The studies in this thesis took place in close collaboration with practitioners. I would like to thank all of you! Marlies, Gavin, Slava (study 4), Pim, Maartje, Onno (study 5), Boris (study 6), Anton, Don (study 7), Alard, Karin, Diana & Jonas (study 8) and the many others who participated in the idea generation sessions. Thanks to the many students who have added to this research project by collaborating, assisting and numerous discussions along the way. Also thanks to all the 'users' who particpated in the contextmapping studies, and shared their personal experiences with us to benefit the design of new products.

StudioLab is my favorite place to work. This multidisciplinary, international, dynamic and colorful environment is the prefect place for a project like this. I cannot wait to get back in that colorful space after summer. Thank you to all! Helma, Nynke, Walter, Gert, Aadjan, Thomas, Bea, Miguel, Erdem, Jasper, Carolien, Rob, Carlita, Corrie and the oldies as well; Ianus, Aldo, Aernout. I enjoyed the company of many more people in this faculty; Elif, Marijke, Armagan, Annemieke, Mathieu, Rudolf, Onno, Marielle, Marc, Dirk, Vikram, Satish, Mathieu, Daphne, Stanley, Coby and many more.

I have not written this thesis alone. Annemarie, thanks for your great ideas and work on the final lay-out. Many people, besides the supervisors, have helped me by reviewing and discussing the drafts of chapters. Thanks to Jonas Piet, Helma van Rijn, Marieke Sonnevelt, Erdem Demir, Marielle Creusen, Jan Buis, Paul Hekkert, Marc Steen, Christine de Lille, but most of all to my mother and Jeske. Especially Jeske, besides the many in-depth discussions with you about user centred design, you have been a very true and supporting friend in the turbulent year of 2008.

I would like to thank my paranymphs Daniel Saakes, king of Typage, and Marieke Schellart, queen of Imsouane. Daniel, you are a great fellow PhD, friend and support during the entire project. You are the only possible person to start the writing of a PhD thesis in a landhouse in the middle of nowhere in Bretagne and repetitively enjoying Kim Foei after work with me. I miss you now that you are in the US, but I am happy that you are here for the defence. Marieke, we both share the same ideas about life: it is one big adventure. In the middle of finalizing the thesis, you were the only possible one to end up in a caravan on a mountain and just stay there for several days with shrimps and moustaches.

Finally, and most important of all I want to thank my lovely and supportive family; my parents Els and Siemen, my sister Wieke and my brother Duco. Els & Siemen, your continuous support and belief in me has been so wonderful and encouraging! I am so happy to share so much with you.

1

Introduction

Take a moment to recall how you, yes YOU (the reader of this thesis), experienced drinking your first coffee this morning. Did you enjoy the moment? Did you drink cofee or something else? Was it a delight or maybe disappointing? How did you feel? Were you still sleepy or already awake? What did you do just before your coffee, and after? Did you have time for it? Were you in a hurry, or still a bit lazy? Was someone with you? Was the sun shining? Was there sound around you? Where were you; at home, on the way to, or at work? Is this a routine? Is it different from yesterday? How would you like it to be?
Your personal coffee drinking experience is determined by an infinite amount of details relating to the moment, the context and your state of mind. The product, e.g., the coffee itself, is just a small part of this experience.

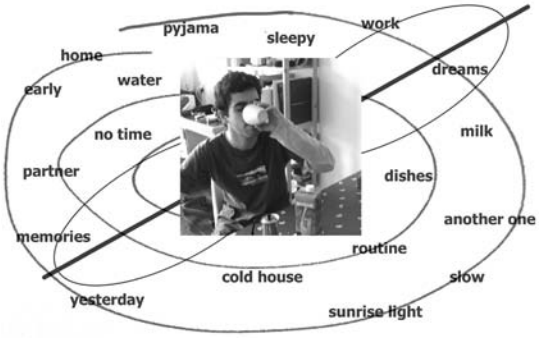


Figure 1.1 Possible elements of the experience of drinking your first coffee this morning.

This thesis is about communicating these personal experiences people have in their everyday lives to designers, as suggestively illustrated in figure 1.1. Information about the details of how people experience specific situations and routines is a valuable source of information and inspiration for designers, in order to create products which fit the richness and complexity of the everyday lives of people. Communicating such 'rich experience information' about people is becoming a specialized activity in design. This thesis describes a journey in which I developed and tried out various communication tools and developed a theoretical framework. In this introduction I set out the basic notions: how experience becomes important for designers, what precisely I mean by the term experience, and how it can be researched, described, and communicated. At the end I formulate the fundamental questions of my research, which deals with this last stage: communicating rich experience information to designers.

1.1 PEOPLE IN PRODUCT DESIGN

When designing products for people, designers need to gain insight into the people they are designing for. (I use the term 'product' to include both consumer goods and services and their combinations. The products I refer to in this thesis cover a wide range: from fast moving consumer goods to durable products). Attention paid to people in product development has been growing during the last decades. This is reflected by the names of emerging design approaches such as people-centred design (Wakeford, 2004), user-centred design (Vredenburg et al., 2002), customer-centred design (Chandler and Hyatt, 2002, Beyer and Holtzblatt, 1998) and human-centred design (ISO, 1999). These approaches claim that involving people helps to get a better insight into what would delight or serve people, resulting in products that better fit their needs, and that products have less chance to fail when they hit the market (Laurel, 2003).
The variety of names also suggests that the field doesn't have a single use of words. People who use products, experience using products, buy products, or participate in user studies are variously referred to as (end-)users, customers, participants, etc. Although the terms can refer to the same individuals, it indicates that they do not always play the same role in product development.
The term 'user' suggests that the involved people are 'handling' the product, whereas they might have the product, but are not 'using' it (think of your phone which is probably in your pocket), or someone else is using it (watching TV when someone else has the remote control). Moreover they cannot yet 'use' a product, when it still has to be designed. Although the term 'user' is not always appropri-

ate, I refer to the people being served through design as 'users' in the remainder of this thesis. I subscribe to the currently emerging view that 'the person being served through design' should be regarded as a complex human being, and that designers can influence and therefore should attend to the many facets of his experiences.

Development of user and product experience notions in design

New technologies offer new possibilities and are often the driving force behind new products. But many of these products, especially consumer products, are used by everyday people and should support their needs. That is where the user comes into the design. Products are not always well designed in terms of user friendliness or fitting the user's needs, e.g., the first personal computers were not so user-friendly and intuitive in use. Various approaches to pay attention to the user emerged. It started in the mid-1940s with new disciplines such as the Ergonomics and Human Factors, which focused on the fit of technology and human performance. During the Second World War, a considerable body of knowledge about human performance in aviation was generated, when engineers and psychologists worked together for the first time. Participatory Design emerged in the 1970s (Schuler and Namioka, 1993), aiming to involve various stakeholders in the product development process in order to integrate more aspects, e.g., the user's needs, beside the technology alone.

In the Human Computer Interaction (HCI) field, the 'user experience' (often abbreviated as UX) appeared and soon became a main focus for designing websites and product interfaces. The user experience in the HCI field consists of all aspects of a product or service as perceived by its users. The user experience in the HCI definition is centred around the product, focusing on task related issues, e.g., the ease of use, attractiveness and appropriateness of a product such as a website (Norman, 2005).

In product design the 'user experience' covers more than the functional aspects of a product in use. The user experience of any product does not exist in a vacuum, but, rather, in dynamic relationship with other people, places and objects (Buchenau and Fulton Suri, 2000). A product can enhance a pleasurable interaction, which contributes to a positive experience of using the product (Jordan, 2000). An example of a pleasurable product experience I had myself is the sleeping light indicator of my Apple laptop, which breathes like humans do. This breathing rhythm made me happy because I felt connected with the laptop: I go to sleep, the laptop does the same. Besides functional aspects, products nowadays compete more and more on the added value they can give the user (McDonagh, in print). Don Norman (2004) sees a product affecting user experiences on three levels of processing: a visceral (the initial impact of a product), a behavioural (total experience of using the product) and a reflective (the effect the use gives afterwards in terms of the owner's taste and the feeling) level. These descriptions of 'the product' integrate complex aspects of user experiences as opposed to static descriptions of products in isolation.

Some authors go even further, suggesting that design is redefined in terms of user experiences, instead of terms of objects. Hummels et al., (2001) suggest redefining 'the product' into 'the context of experience'. 'Designing for experience' is to 'deliberately influence the experiential impact of new designs' (Desmet and Hekkert, 2007). These changes in the focus of design show a clear shift from object-centred to experience-centred design (Buxton, 2007).

All authors above agree on the additional value of taking into account the experiences people have when designing products.

The attention to 'user experience' in design is appreciated in design literature because it concerns people as complex human beings, instead of 'the user with

task <X> to accomplish'. But the growing interest in user experience is also a suspicious development, because the notion of 'user experience' is widely used, treated as accepted wisdom, and does not always address the complexity it contains (Norman, 2005, Redstrom, 2006).
Moreover some designers could start thinking that they do not design 'products', but 'the user experience'. The user experience itself cannot be controlled, predicted or designed. '*The* user experience' does not exist, since experiencing is a constructive activity, belonging to individual people (Bate and Robert, 2007). Designers cannot control the effects of their designs, but they can have an awareness of the complexity of how people experience things, and use this awareness as a starting point for designing products. While designers cannot control the subjective user experience (internal states, mood, idiosyncratic associations), they can have influence (intended or not intended) on a part of the user experience with the functional and expressive qualities of the products, which are interpreted through various filters of personal, social and cultural meaning (Fulton Suri, 2003b). Expressive qualities are, for example, the formal sensorial qualities; sound, smell, mass and texture and behavioural qualities; feedback, rhythm, sequence, layering and logic (Fulton Suri, 2003b). Designers can design for experience by a sensitive and skilled way of understanding the users (Wright et al., 2003). Remember the coffee drinking experience shown in figure 1.1. Designers cannot guarantee the entire 'coffee experience', but they can design 'a product' that fits the feelings and circumstances in which people drink coffee and enhances the factors that influence the experiences of having a coffee. Then designing requires a deep understanding of the aspects (personal, emotional, sensorial, environmental, social, and cultural aspects) that play a role in the coffee drinking experience, and to envisage what role a new product could play in this context.
But designers have to take into account many more considerations beside the user experience: form, function, material, style, production, assembly, usability, use, sales, target group, etc. They make use of various sources of information, including existing product information, market information, trends, product categories, ergonomics, production etc (see figure 1.2). Regarding specifically their understanding of the user, and how the product is to function in the user's world, an important source is everyday experiences of real people. This type of information helps to create awareness for the people and their contexts in which future products could be used.

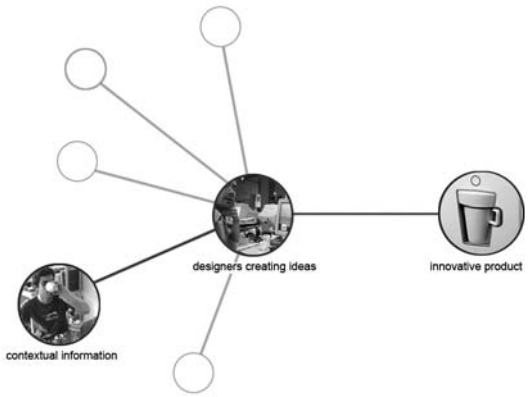


Figure 1.2 Designing is gathering and selecting information from a variety of sources, of which one is the experiences of people in their everyday lives.

The focus of this thesis is on experiences people have in their everyday lives as input for design. This information is a starting point to provide insight into which contexts a new product will be used, to expand the designer's horizon beyond his own worldview, and to enable the designer to create visions of how the product can support people in their everyday lives. This type of information is 'rich' information because it includes the variety of contextual aspects (personal, emotional, sensorial, environmental, social, cultural aspects).

1.2 WHAT I MEAN BY 'EXPERIENCE'

There is no consensus on the definition of 'experience'. Most definitions agree that experiences are holistic, situated and constructed (Dewey, 1934). This means they are multidimensional and not easily isolated, they depend on particular cir-

cumstances, and they belong to the person having the experience. Experiencing involves doing and undergoing at the same time.

The term 'experience' can be translated into German in two ways: 'Erlebnis' and 'Erfahrung'. 'Erlebnis' refers more to experiences of special, memorable events (Hekkert and Schifferstein, 2008). Examples are last year's summer holiday or yesterday's dinner. This type of experience has a clear beginning and an end. The other translation, 'Erfahrung', relates to everyday, very common, day-to-day experiences. There is no beginning and no end, and there is no clear order of cause and effect. The types of experience I refer to in this thesis are closer to the term 'Erfahrung', than to 'Erlebnis' (see figure 1.3). Rich experience information is about how people are, act, and feel in their everyday lives in a specific domain. This consists of the experiences people have in their everyday lives. Every second and every small detail can be part of this.

Some authors define the experience people have with a product to include an awareness about the situation and their feelings (e.g., Sonneveld, 2007; Schifferstein and Hekkert, 2008). Awareness and reflection of experiences are necessary in order to be able to articulate, formulate and express them to others. The reflection (e.g., which causes have led to the experience) in that sense is not necessarily part of the experiences, since it is an interpretation of the actual experience. It includes aspects that a person is not aware of at the time of, say, drinking coffee.

There is a subtle difference between the 'everyday experiences' I refer to and 'product experience' as defined by Schifferstein and Hekkert (2008). They define the 'product experience' as people's aware, subjective experiences that result from interacting with products. In contrast, with 'everyday experiences' I refer to people's current and previous experiences in their daily lives, which do not necessarily relate directly to interactions with a particular product. But making people aware of their experiences and the many considerations that surround them is part of the user research and needed to get the rich information available for designers.

What are these considerations which are part of rich experience information? Where does one put the boundary? The scope that a study considers must be derived from the research interest of the particular user study or design project. For example, when designing new tableware, a focus of research interest about people's everyday experiences could be experiences of people drinking coffee in the morning at home. I refer to 'rich experience information' as an umbrella term for all factors that influence how a person perceives and feels about the situation he/she is in (Sleeswijk Visser et al., 2005), as illustrated in figures 1.1 and 1.4. The context can include the physical location (objects, temperature, daylight, noise), social factors (who is around and who is not around), cultural factors (values, background) and time. An experience may take place in a moment, but the moment is inextricably woven into past memories and future events. For example, the coffee drinker's experience is related to the past (for example, yesterday this coffee drinker had a more enjoyable coffee drinking moment, and other earlier events contained elements that he might enjoy as part of his coffee drinking moment). To become aware of his experience, he can relate to the past, recall memories, and review the present with increased awareness and relate this knowledge

Figure 1.3 The term 'experience' can be divided into one total experience or continuous events in everyday life. Rich experience information is closer to the latter, and framed around the topic of the study (e.g., coffee drinking).

Figure 1.4 People's everyday experiences are defined as all aspects from the context and the person's state that influence how he perceives and feels in the situation he is in.

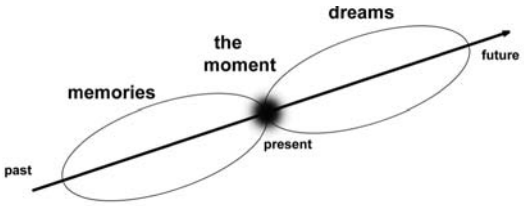


Figure 1.5 The experience domain. (adapted from Sanders, 2001)

to the future. By looking at his own past he realizes that there is often no time to drink coffee at home before work, and that it supports his waking up process. He also realizes that if he was able to drink coffee each morning, how much pleasure he would get from not having to hurry for a few minutes during the busy morning routine. Eventually he realizes that he dreams about having time for a coffee at home each day. Sanders (2001) argues that to understand people's experiences, these relations with past and present, memories and dreams, are essential stepping stones (figure 1.5). This process is well described by Bate and Robert (2007) as 'hindsight gives insight, and insight gives foresight'. Besides external factors, the state of mind of a person determines to a large degree his experiences. A person can undergo different states of mind; various emotions and arousals, which influence the experience (the coffee drinker is excited because he just received a package in the mail, has to hurry up, and has different things on his mind during the coffee drinking). This varied set of factors includes the user's values, meaning, motivation, aspiration, fears, memories, dreams, wishes, feelings etc. Some of these are closer to the surface, others on deeper layers, which are less explicit. Figure 1.6 suggests an ordering of these. I would like to point out four important attributes of the nature of these factors: multi-layered, fragmented, individual, and ephemeral:

- **Multi-layered.** The factors that determine the experience address different levels. Some factors are more explicit, or at the surface, than others; the location (e.g., a living room, with nobody else currently present) is a factor, but on a more abstract level the meaning of being in that living room for that person might determine his experience too. This multi-layered character of rich experience information induces more explanations of one element in an experience (see figure 1.6).
- **Fragmented.** An experience is built up of an infinite amount of smaller experiences (Forlizzi and Ford, 2000). A very high level of consciousness would be required to be able to be aware of all factors that influence how a person experiences a situation. The many factors are infinite and a description of an experience will therefore always address an incomplete set of these factors. 'Experience' is an elusive concept that resists specification and finalisation (Wright et al., 2003).
- **Individual.** Each person has his own subset of prior experiences, background, and culture. Experiences can only be viewed through a person (Wright et al., 2003). This determines each experience to be unique, and belonging only to that person. The way events coincide could, for example, be meaningful for one person, but not for another.
- **Ephemeral.** An experience is instantaneous, even if anchored in a longer-lasting event. How someone perceives and feels something in that moment, is the experience. The reflection or awareness of a past experience is an interpretation of the actual experience. These interpretations change over time. The next day a person can have a different subjective interpretation of that event, caused by e.g., another emotionally aroused state. The unity of any experience is itself a moving, fragile, fleeting event (Wright et al., 2003).

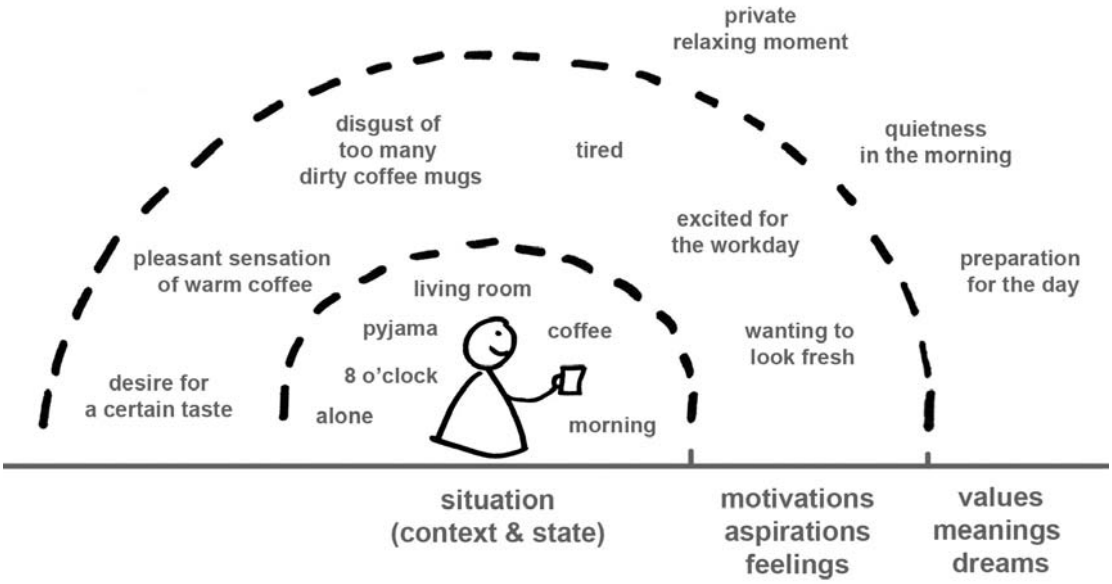


Figure 1.6 Rich experience information consists of different layers of information. The actual situation is the first layer. The second layer contains motivations, aspirations and feelings. On a higher level of abstraction it contains values, meanings and dreams.

These characteristics of everyday experiences imply that more innovative ways of communicating this information are needed. Current communication tools and processes are too limited. They can handle factual information, e.g., demographic statistics, but are less appropriate for communicating rich and incomplete sets of information with multiple layers.

1.3 GETTING THE INFO: RESEARCHING PEOPLE'S EVERYDAY EXPERIENCES

How can designers get an understanding of people's everyday experiences if experiences are so complex and holistic in nature, and our ability to describe them so incomplete in ways mentioned above? Experiences contain so many intangible factors, of which the person who is experiencing is not even aware of all these factors. Several qualitative research methods have been developed to document people's experiences for use in design (see for an overview Preece et al., 2002; Aldersey-Williams, 1999; Laurel, 2003; Hanington, 2003). Most of these methods originate from classical research-orientated disciplines (Sanders and Stappers, 2008). Methods such as observations, field visits, interviews, focus groups, applied ethnography know a long history and have been applied to a wide variety of research aims. These methods can be sources of rich experience information, if they are focused on the contexts of people in their everyday lives and if they are used to capture the richness of people's experiences (which traditionally has not been their main aim).

More recently, research methods have emerged from the design discipline itself, such as cultural probes and generative techniques (Sanders and Stappers, 2008). Cultural probes (Gaver et al., 1999), design probes (Mattelmaki, 2006a) and generative techniques (Sanders, 2000) make use of a designer's skills in order to create eliciting assignments and exercises. Users performing these assignments make use of classical 'design' techniques, e.g., collages, to explore, document, and interpret their everyday experiences. Many of these methods can be suitable for generating a holistic view of people, including people's everyday experiences in their full complexity. A prerequisite is that these people are respected as complex, rational, emotional human beings, having values, motivations and needs (Green and Jordan, 1999). Figure 1.7 shows how different methods address different types of knowledge; from explicit knowledge to latent needs (Sanders, 2001).

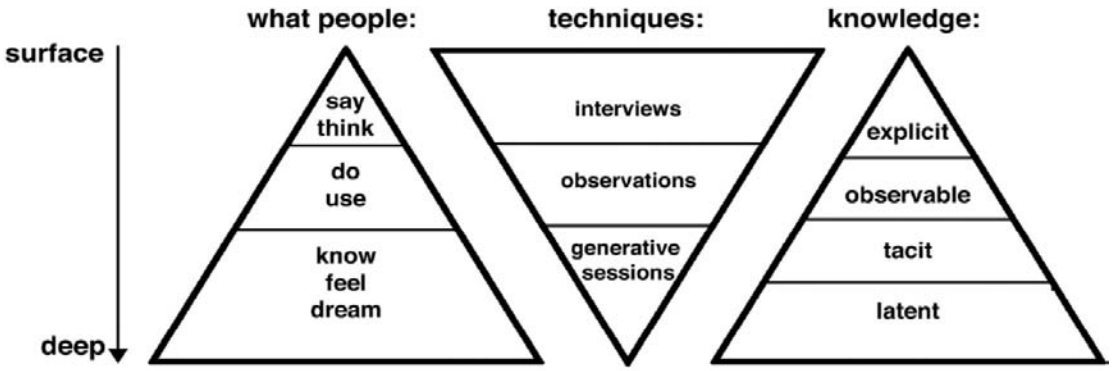


Figure 1.7 Different levels of knowledge are accessed by different methods. (Sleeswijk Visser et al., 2005)

Talking with people by, e.g. interviewing them, provides information about what people can say, which is mainly explicit knowledge. Observation studies give insight into the physical context of people, and how people do things. Generative techniques use the creativity of people to become aware and express their own experiences. Creative tools or self documentation techniques (Gaver et al., 1999; Mattelmaki, 2006a) help people reflect on their memories, feelings, motivations, create awareness about their experiences, express in a visual form, and use these representations as a basis for talking about the experiences (Stappers and Sanders, 2003). The benefit lies in the mix of experience information gained from these different types of methods. Anecdotes expressed in a generative session can, for example, elucidate the understanding of a field visit observation.
Rich experience information can be generated in a variety of ways and consequently the data has various forms, including the complexity and richness of people in their everyday life. The outcomes provide a view of the elements of people's everyday experiences; not a total overview, but a collection of glimpses into their experiences. Depending on which method used, data can consist of all kinds of fragments of people's experiences, in different forms, e.g., stories, drawings, self-made photographs, video material etc.

Contextmapping

The rich experience information used in this thesis is mostly generated by way of a contextmapping procedure (Sleeswijk Visser et al., 2005). Contextmapping combines several research methods (interviews, observations, generative techniques and elements from probes) in order to generate rich experience information. The latter two rely on self-expression of explicit and implicit knowledge people have about their experiences. Contact with the participating users is rather intensive and personal. The number of participating users is small (6-20) in order to establish a personal contact and to value the personal stories. The procedure is composed of six stages (see figure 1.8). Users are asked to 'make' expressions and become more aware of their daily experiences (sensitizing workbooks, stage 2). Then, in 1:1 interviews or in group sessions (stage 3) they are asked to explain their creations to the researchers (and other users and designers, if present). Preferably designers who will create product ideas conduct the study. The procedure contains several design activities (e.g., creating the assignments, toolkits, and workbooks), but in practice often researchers conduct the study and try to involve the designers in each stage.
Let's look at the procedure a bit more, since this has been the procedure that produced the information in many of the case studies in this PhD project. The preparation stage involves setting a well-developed goal, how the results will be useful for conceptualisation as well as organisation aspects of the study such as people and time planning. The sensitization stage is a period before sessions take place

Figure 1.8 Procedure of a contextmapping study and involvement of designers, researchers and users.

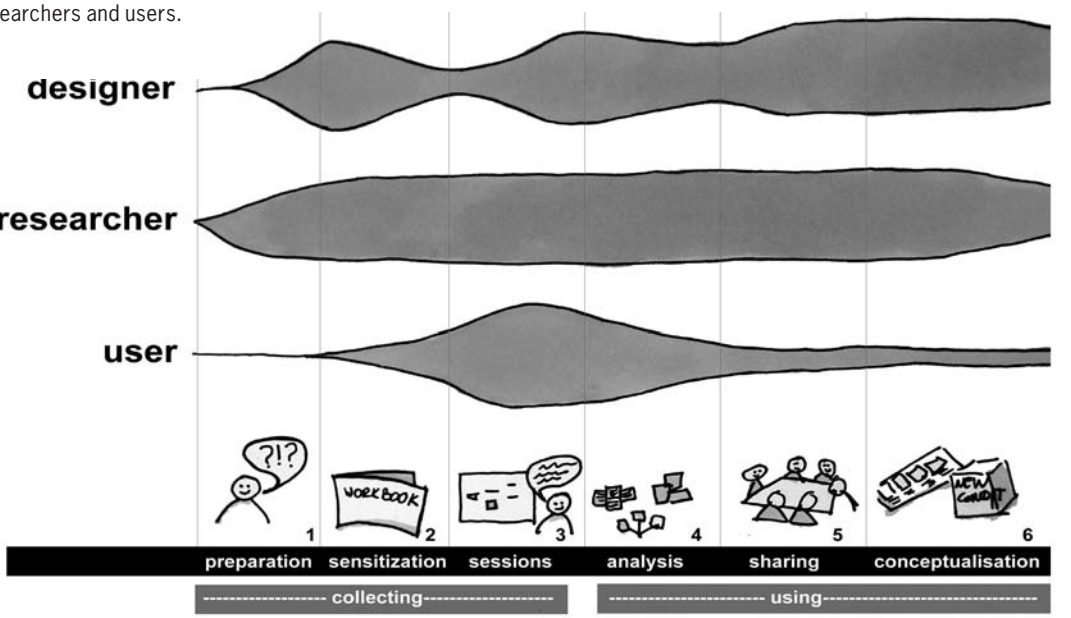


Figure 1.9 Data from a contextmapping study about retirement (see study 8 in chapter 5). Left: Material from a sensitizing package from a user. It contains photos about his daily life during that week, a diary with the things he has done, a map showing his social contacts, and a letter with advice for someone else who is about to retire. Middle: screenshot from observation in the user's home, showing how this user is surrounded by computer devices. Right: a collection of data from various contextmapping studies, containing probe materials, collages, transcripts of interviews etc.

with users. Users receive a package with e.g., a photo camera and a diary, to record some of their daily routines. This supports them in becoming more aware of their daily routines and what parts of these routines mean to them. When they arrive at the session (either in a group or individually), they have more knowledge at hand. In the sessions users 'make' things, such as collages, storylines, 3D models, in which they express their experiences and present their created artifacts to the group and/or the researchers. Usually the topic of a session is narrower than that of the sensitization, so that the participating users do not come with a finished story. In stage 4, the researchers analyze the data, form categories and models, which they document, for the 'sharing' phase, in which these are given to the design team. In the last stage the results are used as input for creating new concepts, which are based on a deep understanding of the users. Data generated with contextmapping can have various forms. It typically contains rich and diverse, often very personal, fragments about the people's everyday experiences (see for example figure 1.9).

1.4 COMMUNICATING RICH EXPERIENCE INFORMATION

When designing products for people, designers have always considered the contexts and experiences of people, but mostly they had to rely on their own experience and intuition, and information sources have often been limited.
Rich experience information as an explicit departure point for designers is quite new. The literature describes various ways of generating rich experience information, but subsequent phases such as analysing, understanding, communicating and using it in idea generation and concept development have received less attention. Most publications suggest methods for user studies, but often leave out recommendations for making it useful for design practice. In industrial practice, these activities are often left implicit; little is known about how they are done and who is involved. Companies tend to keep their knowledge to themselves, since this is valuable knowledge in relation to their competitors. On some internet forums (e.g., anthrodesign@yahoogroups.com), practitioners exchange information about analysing and implementing user experience information. But such forums mainly discuss practical issues and do not structurally build knowledge on this topic.
In practice, the contact designers have with users is often mediated by other departments, e.g. marketing or consumer research, or external parties. Although it is widely addressed in literature that close contact with the users supports the understanding of them, it is, unfortunately, not common practice that designers have direct the contact with users. As a result, designers may be little involved in the research activities, receive rather abstract outcomes without the everyday details that could inform and inspire them as stated in Porter and Porter (1999). The results of user studies have to survive several interpretations from department to department without losing their richness before reaching the designers.
In this thesis I focus on the communication by the researcher who performs the user research, and has the role of transferring, translating and guiding the designer to deploy it in generating solutions for the future (see figure 1.10). This scheme, shown in figure 1.10, is a simplification of a more complex reality, but serves to explain the main roles of the people involved, and present a working definition for these roles. In the remainder of this thesis I use the following terms to refer to indicate these roles:

- User (U): the person who participates in user study activities, and contributes by delivering his personal everyday experiences.
- User Researcher (R): the person who is responsible for conveying the rich experience information in an actionable way to designers. This includes the collecting, analysis and sending of the information, but most of all engaging designers to make fruitful use of the information in their design activities. This role can be taken by a user researcher, a human factors specialist, or by a designer. Often this role is performed by someone who is part of the design team. The challenge is then to communicate the information in an engaging way to his fellow team members.
- Designer (D): this is the person who receives the information and has to deploy the results in creating product ideas. Besides different specialists who are a designer by profession (e.g., interaction-, product-, service-, experience design), other people, such as marketers, strategists, managers and engineers, can be in this role.

Each of these roles can be fulfilled by one person or a team. These roles look like separated roles, but in practice they can overlap and mingle easily. E.g., a designer can be involved in generating the data, having contact with the user, and a re-

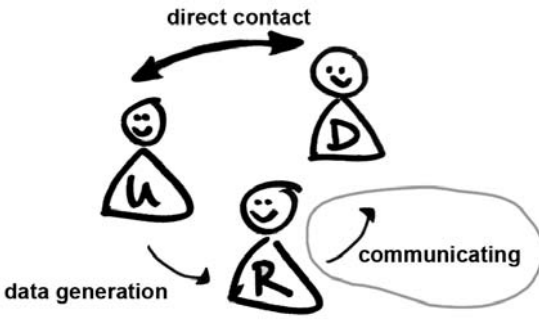


Figure 1.10 The process of generating and communicating user experience information in design. The process starts with the researcher deciding how to involve the user. The user expresses his everyday experiences to the researcher, who communicates them to the designer. This thesis focuses on the situation where the 'direct contact' arrow has been replaced by mediation through a user researcher.

searcher can be part of the design team. The interactions between the researcher and the designer can be mapped on the basic communication process, where a message is sent from A to B. In this schematic representation the researcher (sender) sends the information (message) in a specific form (carrier) to the designer (receiver) (see figure 1.11). This is the case when a researcher 'throws the report over the wall' to the design department. Even though this sender-message-receiver model of communication leaves out much of the complexity of the communication (e.g., the shaded parts in figure 1.11), the model can serve as a starting point to frame the communication challenge. In industrial practice, the user researcher usually is responsible for conveying the insights from the user studies, and for choosing the format in which these are presented to the design team.

The communication I refer to in this thesis is a more complex process than a message being sent from A to B. It is a collaborative process, involving several people and several stages. The role of 'the sender' entails much more than sending out a one-way message: it covers representing, translating, conveying, and immersing and guiding designers with the aim of informing and inspiring them. It involves being sensitive to the content at the user side, dealing productively with the responses of the designers, and anticipating on the goals toward which the designers will use the information. The communication process requires, from both designers and researchers, the skills to be able to create a holistic understanding about the people and to create actionable outcomes. Moreover, the arrow in figure 1.11 is deceptive, as it suggests that the initiative for all this lies with the user researcher. The initial request for generating rich experience information could as well start at the designers' side. Besides general information about users, designers need to be able to get a feel for the people from the information which is provided by the researcher. Imagine a designer who receives the conclusions of a user study about coffee drinking. One of the conclusions is 'people want more coffee drinking time'. This text line might not inspire the designer sufficiently. If he had met the coffee drinker during the field visit, he would have gained a much richer understanding of what is meant by 'wanting more coffee drinking time'; e.g., a little relaxing moment before going into the rat race of commuting and work.

A more encompassing communication model is needed to represent the collaborative process of making sense of the information, which is embedded in a larger process of user involvement and generating product ideas. This more complex representation is already outlined by the gray arrows and product design process context in the background in figure 1.11, and will be further developed in chapter 3.

1.5 FOCUS OF THIS THESIS

Information about experiences consists of anecdotes, interpretations, observations, photos, drawings, maps, collages, etc of real people. Considering the characteristics of rich experience information; multi-layered, diverse, fragmented, ephemeral and individual, new representational forms and new procedures need to be developed which support the communication of this information in the design process.

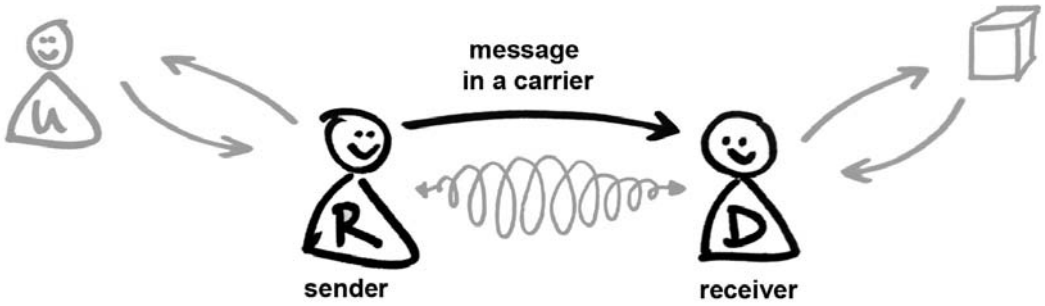


Figure 1.11 The communication challenge focuses on researchers who convey rich experience information to designers. This challenge is more than handing over a message in a carrier, but covers a collaborative process, with iterations and in a context where users and product ideas are part of this process.

Problem definition
It is not well known how rich experience information can be successfully communicated in design practice. Rich experience information as inspirational input is a recent development and how designers can use this information during designing is rather unknown. There is a lack of knowledge about which elements can play a role in communicating this information with designers as well as a lack of practical guidelines for creating communication tools for the content, the form and process to guide researchers in communicating the information to designers.

Aims
This research has a knowledge aim and a design aim:
- Knowledge
  The aim is to explore and develop theory about the communication of rich experience information in the early phases of the design process by identifying elements and their relations that play a role. This knowledge will benefit the development of methods and practices in user-centred design. The result has the form of a theoretical framework, in which the elements and their relations are specified.
- Design
  The aim is to develop tools and techniques to support the communication of rich experience information in the early phases of design practice. Product development companies are then better supported in applying user-centred design methods, because they have more knowledge of how to make rich experience information useful in the design process. Practical insights of the theory are presented in a set of guidelines for practitioners. These guidelines are written for the person in charge of engaging the design team with the information, represented as the 'researcher' in this thesis.

Research questions
The focus of this research is the communication of rich experience information in design practice. This leads to two main research questions:

1. **What elements play a role in a successful communication process of rich experience information?**
2. **How can rich experience information be successfully communicated in the design process?**

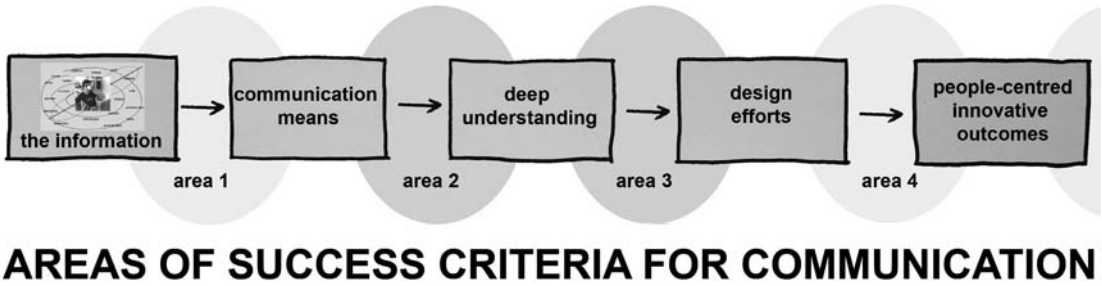
The terms in this question are clarified:

Rich experience information:
Rich descriptions of people's everyday experiences is what I refer to as 'rich experience information'. These descriptions involve aspects of the context of use and

the user's state. These descriptions have individual, diverse, fragmented, ephemeral and multi-layered characteristics. 'Rich' refers to the diverse and multi-layered character of the information. In the studies in this thesis, outcomes of contextmapping studies, such as those shown in figure 1.1, formed the rich experience information.

Successful communication:
The overall aim of the design process is to develop innovative products that better fit the users' lives and that sell well for the company. The communication is successful if designers develop a deep understanding of the user information and integrate this knowledge into their design efforts. This, in turn, should result in people-centred innovative products. Because of the many factors involved (remember figure 1.1), it is difficult to trace back if a successful product in the market can be attributed to a successful communication in the beginning of the design process (see figure 1.12). First, the quality of the collected information plays a role in the success of the communication (area 1). If the wrong data is collected, its communication cannot bring benefit. Second, the communication means, the form and the process, play a role. For example, a format which does not appeal to designers or too little time to use the information will not allow designers to gain a deep understanding (area 2). Third, do the content, form and process of communicating rich experience information support designers in their design efforts (area 3)? The task of designers is not to reproduce insights, but to use the information to create new ideas. And finally, are the outcomes of the designers' activities people-centred and innovative (area 4)? If the development of the concepts is not done skilfully enough, the earlier qualities are lost as well. Treating all of this chain is beyond my scope. I focus on areas 2 and 3: do designers develop a deep understanding of the user's life (empathy), and does it help them in creating product ideas and concept designs (inspiration). Moreover, I pay attention to the complexity of the communication within the organisational context of the people involved (engagement). Empathy, inspiration, and engagement are main aims of the communication and will be elements in the framework (described in chapter 3).

Figure 1.12 Successful communication of rich experience information aims at people-centred innovative products, but that success criteria is out of the scope to evaluate the successfulness of the communication. The success can be defined at another level; are designers able to create a deep understanding of the user and can they act upon the findings in their design activities?



The design process:
In the general statement of the questions, the communication concerns all stages of the design process, from fuzzy front end, through detailing, production, marketing, and even aftercare. However, in this thesis I focus on the fuzzy front end. The value of having access to the user's perspective is most valuable in the early phases of product development, also called the fuzzy front end (Smith and Reinertsen, 1992). Activities here include e.g., strategic planning, briefings, insight generation and conceptualisation (see p.43 Veldhuizen, 2008 for an overview of

activities) and many people with different professions are involved. In the fuzzy front end information from various resources (market, technology, government regulations, competitors etc) is gathered and used to make strategic decisions for possible product directions. The fuzzy front end terminates when the company has a plan for developing the concept and commits significant human resources to the development. The next stage is the development stage and the product enters the market in the commercialization stage.
The focus in this thesis is especially directed at the fuzzy front end. Infusing the design process with information about people's experiences in everyday life supports designers (and other stakeholders) to create an understanding of the users' contexts and they can use this as inspiration for setting up briefings, creating early product ideas and creating first concepts. In the development and commercialization phases rich experience information might be valuable as well, but is out of the focus in this thesis.

1.6 STRUCTURE OF RESEARCH PROJECT

To gain insight in the complex process of communicating rich experience information, I conduct a series of explorative case studies in design practice. These studies focus on situations where rich experience information is communicated to and with designers during ideation workshops. In these studies I introduce new tools and processes to communicate rich experience information based on the theory available and I observe how designers use them in their practice. To structure the insights in this research project I build a framework. This framework serves as a backbone to structure the findings of the studies. The building of the framework starts with a rough scaffolding based on literature and early empirical work and evolves into a detailed framework by adding the findings after each study. In this way, the studies and the framework build on each other and result in a detailed framework. The outline of this thesis is based on this set up (see figure 1.13).

This first chapter presented the context, goal and focus of this thesis.

Chapter 2 describes the theory and current practice of communicating rich experience information in design. Problems that practitioners face when communicating rich experience information are identified based on a literature review and by interviews with companies.

Chapter 3 presents the structure of the framework. The identified problems and insights from theory and practice are organised in a framework that will be filled in by findings from empirical studies.

Chapter 4 describes the research approach. The research is based on eight explorative studies with product development companies. I intervene in current practice with new tools and processes and reflect on these interventions. The new tools and process plans are developed based on the theory available. The studies build on each other's knowledge.

Chapter 5 is the central chapter. Here the studies are described one by one. The findings of the tools and process plans in the first studies are integrated in the later studies. The observations and insights of these studies lead to a filled in framework, which is presented in chapter 6.

Chapter 6 describes the findings from the studies. It presents the filled in framework; the qualities, the mechanisms, and operational means of 'successful communication' and a set of guidelines for practitioners.
Chapter 7 presents various tips and tricks for each of the guidelines to apply the knowledge in industrial practice.

Chapter 8 discusses further implications and reflects on the aims, methods and results of this thesis.

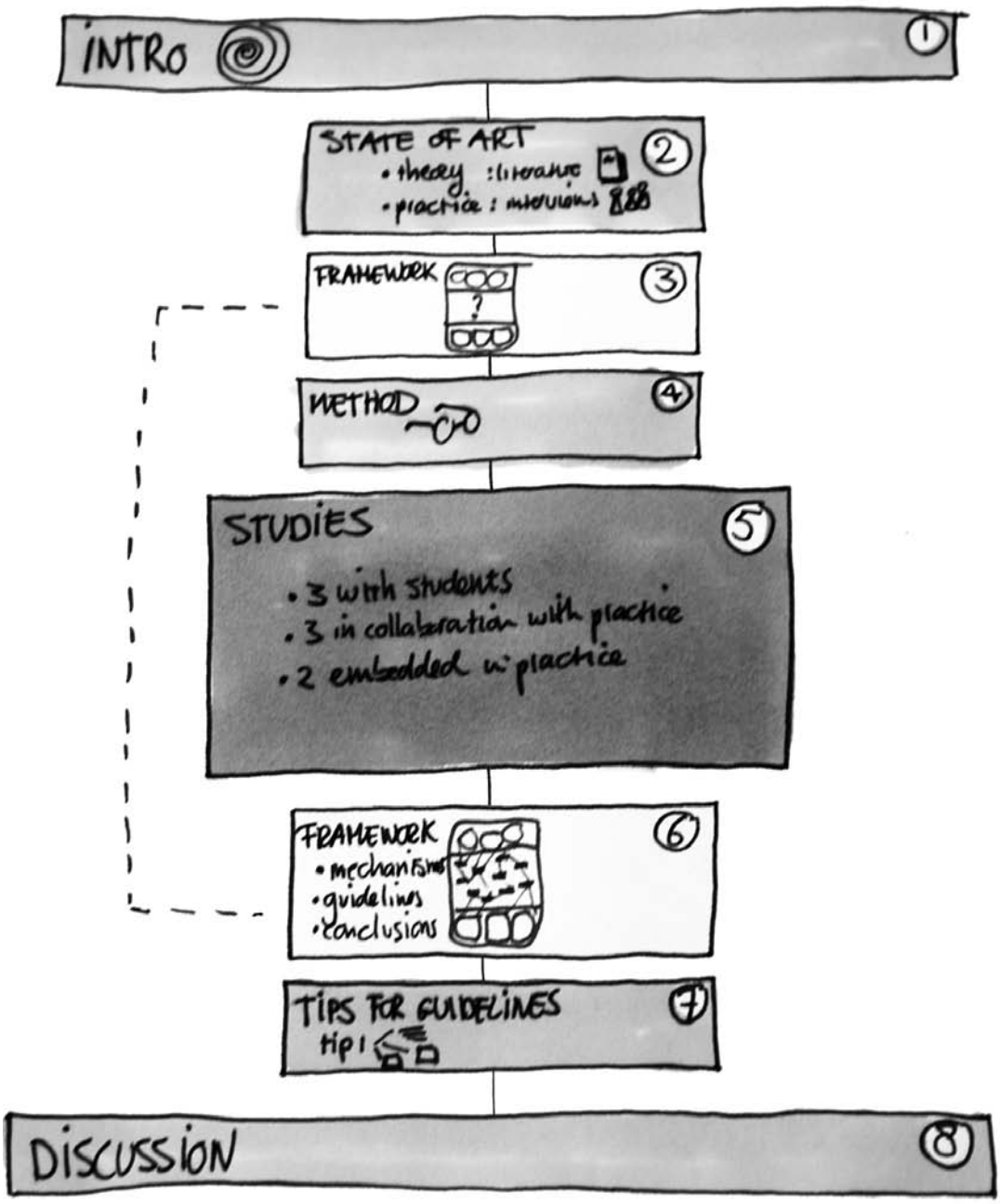


Figure 1.13 outline of the thesis.

2

Rich experience information in the fuzzy front end

This chapter describes the current practice of taking the users' experiences as a basis for design and developments for communicating rich experience information.

Section 2.1 describes the design activities in the fuzzy front end of the product development process, the current situation of design practice, and suggestions of practitioners for communicating rich experience information.
Section 2.2 presents a glimpse into current practice. Interviews with researchers and designers in the Netherlands show that collecting and using rich experience information is not applied much, but that these practitioners have a need for more knowledge and skills to integrate such information in their practices.
Section 2.3 presents a review of methods that specifically aim to bridge the gap between the research and design phase. These methods come with detailed descriptions of collecting, sense making and applying the gained knowledge about users in design activities. I specifically examine which procedures and tools of these methods support the implementation of research results in the design phase.
Section 2.4 summarizes the elements that are relevant for communicating rich experience information in design practice which are derived from the above sections. In the following chapter these elements will be placed in a theoretical framework.

2.1 DESIGNING IN THE FUZZY FRONT END

In design literature it is widely acknowledged that information about the needs and wishes of users in the fuzzy front end is a determinant of success, because if choices are embedded in the values of the user, this prevents mistakes later in the process (Ottum and Moore, 1997; Rhea, 2003; Kujala, 2003; Callahan and Lasry, 2004; Buijs and Valkenburg, 2005; Sanders, 2005). When designers are well informed about the users, they are able to create a deep understanding of the users, and are supported in discovering opportunities that might be relevant to new products.
Designers are, however, not the only players in the fuzzy front end. They interact and collaborate with other professionals in many of the activities. This first stage of product development is called 'fuzzy' since the activities and people involved are different and a structured process is often lacking (Rhea, 2003). To understand how rich experience information can contribute to the design of new products, this section describes the activities, the people involved and cultures in the fuzzy front end of product development. This rough sketch helps to identify where, by who and in what ways rich experience information is currently applied.

2.1.1 Design activities

Design activities in the fuzzy front end include gathering information, idea generation and conceptualisation (Veldhuizen,1998). Several authors point out that designers go through sequences of generating and evaluating, diverging and converging, 'synthesis and analysis' (Roozenburg and Eekels, 1995). This may sound rather structured, but these activities involve a complex, intuitive and reflective process with many iterations (Schon, 1983). Some authors (e.g., Ylirisku and Buur, 2007), distinguish a set of activities such as exploring, relating, and creating, but indicate that these activities do not have a necessary linear ordering.
Selecting information from various sources is a key aspect of design activities. Designers scan fast and pick up information that has meaning for them (Pasman, 2003). Designers do not make structured overviews of all this information. They cannot necessarily accommodate all concerns of a product (technology, manufacturing, marketing etc) at the same time, and make quick, intuitive and temporary choices. To come up with new ideas designers use a variety of creativity tech-

niques and visualise their ideas in sketches and prototypes. Designers continuously discuss, store and demonstrate their early ideas, to confront themselves or other team members. Sketches and rough prototypes (Buxton, 2007) are ways to explore their abstract ideas, and imagine possible situations to which the product could respond.

Tools and techniques to include user experiences in ideation

Designers have a varied set of tools and techniques available that allow them to discover and learn about possible user experiences. These tools and techniques help designers to *'examine their ideas and direct them into more informed design of the components which will contribute to people's experiences'* (Fulton Suri, 2003b). The consequent forms of representation are dynamic, contextually dependent and multisensory (Fulton Suri, 2003b). Examples of such tools and techniques allowing rich representations are, e.g. scenarios, storyboards, role-playing and experiential prototyping (Carroll, 1995; van der Lelie, 2006; Buchenau and Fulton Suri, 2000).

These expressive tools and techniques serve well to explore possible implications of design ideas in the use situation and mediate thinking and communication that takes place in design. They support designers in taking contextual aspects into account. Time and location elements can be included and this allows designers to create stories about the user in his context over a specific period of time. The tools and techniques are all based on creating stories. The power of using stories in design is that they can compile various aspects of experiences (Nielsen and Madsen, 2006). In a story there are main characters, a context, a timeline and a plot, helping us to imagine the user and the product in a (future) situation, which supports a holistic and empathic understanding of the users (Bate and Robert, 2007). By having the users' context at the heart of the design activity, emphasis is placed on the user in his natural environment instead of a detached product in a vacuum. Scenarios can be stories about users in their environment with the envisioned product, e.g. day-in-a-life stories.

Scenarios can be expressed in various media and forms: textual, narratives, storyboards, video mockups, or scripted prototypes (Go and Carroll, 2004). The user in a story can be a simplified character (Bodker, 2000), or a more realistic representation of the user, like a persona: an envisaged fictional user based on user data (Pruitt and Adlin, 2006). Role-playing is a technique to act out stories. This way, designers can experience for themselves the use of a (envisioned) product by taking into account its contextual aspects. To set up a role-playing activity, scenarios, scripts and storyboards serve well to capture what they discover during the role play.

Experience prototyping (Buchenau and Fulton Suri, 2000) is, for example, a technique to try out experiential prototypes to explore the use, interaction, or situation in dynamic relationship with other people, places and objects. Another example is photoboarding (Saakes and Keller, 2005); a technique that combines role-playing and creating a storyboard with the photos made during the role-playing activity.

Concluding, designers have several tools and techniques at hand into which elements of user experiences can be well integrated.

Drawing on own *and* other people's experiences

One source of information about users' experiences is the designer's own life experiences. Designers rely inevitably on their own experiences (what are my needs, how would I like the product to be, and what should I be able to do with it?). But designers are not always the targeted users. A designer could be a coffee drinker, like the user, but his experiences might be different from those of the targeted users. Designing for yourself is not designing for people. When designing for

other cultures, other professions, another gender, the designer's own experiences may be less representative, and relying on his experiences becomes a wild guess. This is a matter of degree. Every person is different in terms of background experiences, age, knowledge and capabilities, and may experience and use products in a variety of ways.
For understanding how a product idea could fit into the users' context and how it can respond to the aspirations, feelings and values of users, designers have to connect and subjectively understand the everyday experiences of other people unlike themselves. Designing for other people means understanding how other people would like the product to support them. Gronhaug and Haukehal (1997) describe a process of knowledge construction, in which designers make 'reality constructions' to make sense of their own world. Existing 'reality constructions' influence what is captured, and whether and how new data will be understood. To make sense of the users' world a designer can recognise data because it connects to his own reality construction, or the data can capture his attention and initiate reflection and modify his reality construction.
Here rich experience information of the user is a new source, besides traditional information sources, that designers receive about users (market research, consumer research, usability etc). When the information is limited to numbers and abstractions, designers are not able to get a feel for the context and to understand the complexity of their everyday experiences.

Sense making by designers
Rich experience information contains intangible aspects, such as feelings, aspirations, motivations, which can be best understood by experiencing them subjectively. *'Given that experience is, by its nature, subjective it is not surprising to discover that a good way to understand the experiential qualities of an interaction is to experience them subjectively'* (Fulton Suri, 2003b). Providing designers with such information might help them to explore their ideas in more experiential and contextually dependent ways; simply handing over the information (for example in a bullet point summary) is not sufficient. Several authors have pointed out that for a deep understanding of the user, designers should ideally be involved in user research activities (Mattelmaki, 2006a; Bruseberg and McDonagh, 2002, Leonard and Raypold, 1997; Hanington, 2003). When designers are involved in user research, the knowledge they gain is grounded in the members of the design team and can be of benefit further in the design process, beyond the conceptualisation phase.
The individual search process of designers leads to an internalized understanding. By shifting and ordering conceptually the information, they (designers) establish deeper and more personal relations with the meanings offered by the information (Gaver et al., 2003). Designers may take part in such interpretation activities to be able to create a deep understanding of the users' experiences.
A standard process for sense making in qualitative analysis is creating an information hierarchy, DIKW, where each level represents patterns in the level below it (Ackoff, 1989). The acronym DIKW stands for data, information, knowledge, and wisdom (see table 2.1). Here, data is the most basic level and captures elements of the phenomenon studied. In successive steps data is turned into information, knowledge and eventually wisdom. The higher the level, the more abstract its content. In the wisdom level, the researcher or designer applies the insights from lower levels in the context of other considerations outside the scope of the study in which the data is gathered or the perspectives in which it is interpreted and generalized.
When making sense of rich experience information, the lower levels in this table are filled with details and discuss the users as individuals, whereas the higher levels are more abstract and comprise insights which are expected to be valid for

other people beside the participants, e.g., patterns witnessed across users. Researchers are used to going through this process of sense making, but it might be a valuable activity for designers as well. If the aim is to create a deep understanding, all levels (and their relations) may have relevance. The third column of table 2.1 gives an example: the Knowledge level 'bullet point' conclusion 'people differ in standards of hygiene' may be accepted by the designer as true, but uninspiring; when presented together with the Data level quote, a 'touch of life' is added which conveys a richer and more inspiring insight.
The designers' creativity process has similar activities to this sense making process, but is less structured. Design activities involve selecting and shifting loads of information, evaluating intuitively, making interpretations and choices, evaluating again the implications of those choices and creating product ideas. A research activity, such as browsing through the material closely representing the fabric of everyday life, for example watching a video from a home observation, can be inspiring for designers and engage designers as well with the user situation, while implicitly maintaining the richness of detail of the use context. Knowledge about users is not found but created: *'The selecting and "cutting" (of data) is in itself a construction process where the new is constructed, rather than a reproduction of the existing.'* (Bodker et al., 2000).

Making sense of rich experience information is a process that bridges research and design activities. For many researchers it is new to conduct research and communicate outcomes with the aim of inspiring designers. For many designers it is new to be more involved in interpretation activities as a way of creating a deep understanding for the user. Section 2.3 zooms in on methods that aim at merging research and design activities by a detailed process of sense making.

DIKW process	elements	example of data from study about shaving
Wisdom level		
Knowledge level	theories, categories, models, patterns, themes	people differ in standards of hygiene
Information level	coding, interpretations	interpretation: 'He forgets to clean'
Data level	observations, selections, measurements	transcript: 'My wife complains of hairs left in the sink after I have shaved'
phenomenon		group discussion about shaving

Table 2.1 Abstraction levels of data. (after Ackoff, 1989)

2.1.2 Current situation in design practice

The many case studies in literature and handbooks about user-centred design suggest that the use of emerging methods to generate user information is common practice. However, these authors address practices in academia or in leading companies and not necessarily the practice of the majority of product development companies. Moreover, some literature suggests the opposite. Several authors address the urge of designers to make direct contact with users themselves, since this does not often take place in practice yet (Kujala, 2003; Zahay et al., 2004; Wakeford, 2004; Porter and Porter, 1999; Fulton Suri and Marsh, 2000). User research in the fuzzy front end is often limited by skills and budget constraints and is therefore not carried out, or carried out by dedicated experts, while most designers are not directly involved in these research activities. For example, design-

ers find it difficult to dedicate time to conduct additional user research, particularly freelance designers, and perceive that they might 'lose out' when spending extra time and money on user research. Designers are under pressure to respond rapidly to design briefs and generate concepts (Bruseberg and McDonagh, 2002). When dedicated experts conduct the research, little is known about how to make this information useful as input for designers in the conceptual phase. There is a lack of knowledge about making this information accessible and useful to designers in order to optimally use the potential value of the data (Zahay et al., 2004). Many authors in design literature have addressed the need for new tools and techniques to communicate rich experience information to designers (Lillis, 2002; Fulton Suri, 2003b; Wakeford, 2004).

A shift is going on in design practice towards user-centred design

Academia, some large companies and specialist design firms are up front in the shift towards user-centred design innovations in the fuzzy front end. These are mainly the pioneers of the user-centred design movement, which started about 20 years ago (Sanders, 2005). Such large companies are, for example, Microsoft, Intel and Samsung. Some of the leading design firms specialized in user-centred design are, for example, IDEO, SonicRim, Maya, and Adaptive Path. They are hired for performing various tasks ranging from applied ethnography to engineering or the entire design process. They are extensively developing methods and communication tools to perform user-centred processes, in which research and design are more and more integrated. They suggest multi-disciplinary approaches, in which the client (product development company) becomes part of the temporary team and develops tools to communicate user study findings that are rich, expressive and diverse (see e.g., Nussbaum, 2004). Furthermore, academia plays a large role in developing new user-centred methods. In Europe especially, academic practitioners often collaborate with industry to gain knowledge about improving user-centred design processes (Sanders, 2005). These developments take place at the leads of this user-centred design shift.

However, the majority of product development companies are not in the lead of this shift, and are only realizing now that they could benefit from new methods. They can use literature to learn about new user research methods, but, as already discussed in Chapter 1, there is little knowledge available in literature about implementing the information into the design process and making it useful for design. Moreover, CEO boards of companies often care more about the results that successful new products produce (financially) and less about the tools and methods that generate innovative products (Rhea, 2003). The new research methods and communication strategies in the fuzzy front end require substantial investments in time, budget and organisation. Academia and large companies have this (financial) space more than most of the middle sized and smaller companies; but also large companies, that have the product development process divided in several departments, are struggling with implementing user information in the fuzzy front end. The results of user studies have to survive several interpretations from department to department without losing the richness before it reaches the designers.

Different disciplines

Although it is widely addressed in literature that close contact with the users supports the understanding of them, it is, unfortunately, not common practice that designers are in contact with users. This is often mediated by other departments, e.g. marketing, consumer research or outside firms. As a result, designers may be little involved in the research activities and receive information that is filtered to the needs of other departments, e.g., corporate strategy. Designers

receive rather abstracted outcomes without the everyday details that could inform and inspire them.
The development of a product is an integrated process of various disciplines: strategic (where are we going to position ourselves with our products?), sales (how will we sell the product?), marketing (who is the customer and which market to address?), design (what should the product be?), usability (can the user handle the product?) engineering (how can the product be realised?), manufacturing (which technology can be used to create the product?).
At the start of the development process, they should all have their input, because decisions in the beginning will have greater consequences later on (Cagan and Vogel, 2002). Nevertheless, people from the various disciplines (either internal or external) do not always speak the same language, because they operate in different worlds (Griffin and Hauser, 1996; van Veggel, 2005). Communicating user information can involve a variety of disciplines (see figure 2.1) and is challenged to overcome the barriers of different disciplines. It is more than likely that senders and receivers of the information have different needs, since they come from different disciplines and have different backgrounds, education and skills.
For example, user research done by researchers (from psychology, sociology, anthropology etc) has tended to focus on the informational approach, whereas user-centred research done by designers has tended to focus on the inspirational approach (Sanders, 2005). Their cooperation can be affected by differences in jargon, priorities and even territorial aspects (see e.g. van Veggel, 2005).

Figure 2.1 Different people are involved in communicating user information. Some are senders, others are receivers of the information, and their cultures might be different.

As a result, user study results are often formulated for a research audience and not necessarily for a design audience (Adams et al., 1998; Bruseberg and McDonagh, 2002; Bueno and Rameckers, 2003; Leonard and Rayport, 1997). Professional researchers have backgrounds in social sciences and their methods and tools are more and more applied in the fuzzy front end (Sanders, 2005). These researchers are accustomed to analysing data profoundly and are used to creating rather long, theoretically focused documents in text. Whereas designers are accustomed to quickly interpreting data, and prefer to work with short, visual documents with unfiltered information. Table 2.2 shows an overview of the differences in culture between research and design.
This difference is also reflected in discussions about aspects of information and communication in marketing and design literature. For example, in marketing literature, credibility of the data, truth, faith, commitment of stakeholders and organisational aspects are much discussed (see e.g., Gupta and Wilemon, 1988; Desphande and Zaltman, 1982). Whereas in design literature, topics such as accessibility of user study results, involvement of designers in research activities and empathy are much discussed (see e.g., Bueno and Rameckers, 2006; McQaid et al., 2003.) As a result, concrete suggestions to bridge the gap between research (in this case marketing research) and design remain within their own disciplines.

Standardized deliverables
Besides the different cultures and compartmentalized organisations of many companies, the standard deliverables to exchange information can be a barrier as well. Rich information forms, such as video, audio and artefact data are often not sufficiently manageable to incorporate into the new product development process, since this does not fit in the standard communication channels (Zahay et al., 2004). Deliverables that are consistent, clear and accessible for all team members, are preferred in many companies, but especially in international operating companies, since team members meet less often.
In practice, the most common deliverable used to communicate user study re-

	Research	Design	Related literature
Purpose	information	inspiration	Sanders, 2005
	theory building	creating practical solutions	Stappers, 2007
	deciding, proofing	empathizing, ideation	Koskinen et al., 2003; Leonard and Rayport, 2003
Method	profound analysis	quick and dirty, intuitive analysis	Porter et al, 2008
Requirement	internal validity (consistency)	external validity (relevance)	Sanders, 2005
	reliable	actionable	Sanders, 2005
	truth	value	
	unambiguous results	ambiguous data	Adams et al., 1998; Gaver et al., 1999; Sanders, 2005
Communication	textual	visual	Fulton Suri and Marsh, 1997; Pasman, 2003; Keller, 2005
	long documents	short documents	Gilmore and Velasquez, 2000; Lillis, 2000

Table 2.2 Different cultures in research and design.

sults within companies and between companies is a report (Lillis, 2002; Niven and Imms, 2006). The report created in powerpoint or keynote is the overall standard for presenting information in companies and has become the standard currency of exchange (Lillis, 2002). Powerpoint is originally a lecturing tool and it makes it easy to produce text, charts and pictures within a presentation. However, nowadays it is a signifier of *'I am part of the business world'* (Nivem and Imms, 2006), making it difficult to go beyond and create different ways of presentation forms. Within or between departments, powerpoint documents may serve well the consistency of information, but designers, in particular, are not always comfortable with these documents. The documents can be quite detailed, tedious and long-winded, containing statistical information, but leaving out traces of the actual user. Written reports are easily, conveniently or accidentally overlooked (Gilmore and Velasquez, 2000). Designers are looking for surprise and discovery in information. A problem is that documents created by, e.g. marketing people in powerpoint with charts, do not always suit the creative process of designers (Bruseberg and McDonagh, 2002). Nussbaum (2004) promotes, for example, quite different tools such as video, posters, prototypes and installations, which are commonly used to communicate user results to designers in IDEO.

Senders of information have to ensure that all potential end-users (also designers) receive information from the research in a form that is both comfortable and inspirational (Wakeford, 2004). This involves an early discussion about the relative importance and scope of the different deliverables (Lillis, 2002).

Concluding, there is little room for innovation in communication tools in practice:
- The majority of product development companies are just starting to explore new user-centred methods in their practice. This implies that the problem addressed in this thesis is acknowledged by practice, but is not confronted yet on a large scale.
- The involved senders and receivers are often split into departments with different cultures. Practitioners (researchers and designers) can have different values, skills and needs.
- Product development processes and deliverables are often standardized. Powerpoint representations offer great possibilities, but are dominating the communication channels in most companies. New tools have to challenge this.

These issues determine the solution space for new communication tools in the daily practice of product development companies. In section 2.2, I zoom in on these practicalities by conducting a set of interviews with companies.

2.1.3 Designers' needs when receiving user information

The previous sections discussed the activities of designers in the fuzzy front end, and reviewed the current state of user-centred design in companies. In this section I review the suggestions in literature about the designers' needs when receiving and using user information in their design activities.

Design literature recognizes the problem of the culture gap between research and design (Wakeford, 2004). Designers have the need for more rich experience information, but are often not trained or allowed to perform more research activities themselves. User researchers are not always used to communicate information in order to inspire designers and let them interpret the data subjectively. How can user information be communicated to designers so that they can use it in their design activities? Several authors provide suggestions for communicating user information. For example, Diggens and Tolmie (2003) show how diagrammatic forms can be used to convey ethnographic data. These diagrams, being visual, connect better with designers than long pages of text, but are too abstract to convey everyday experiences. Another example of a tool which appeals to designers is moodboards (Muller, 2001): collages of images that aim to capture and convey a specific atmosphere or feeling. Moodboards are often preferred by designers over written reports, because they are visual and open to interpretation, allowing designers to make free associations. However, also moodboards cannot convey the multi-layered character of rich experience information. They only convey a feeling or an atmosphere. The tools that were discussed in section 2.1.1, scenarios, storyboards, etc., are often created by design teams, based on other information. I focus on suggestions in literature that specifically address the forms in which rich experience information is said to be useful to designers.

- **Visual material**
  '*Images are a powerful resource to convey meanings, particularly emotional values and experiences*' (Bruseberg and McDonagh, 2002b). Rich experience information contains intangible aspects, which can well be conveyed by visual materials, such as photos, drawings, video's. '*For designers, visual and narrative expressions provide rich texture about other's people physical and mental worlds, making it much easier to appreciate what matters to them than through words alone*' (Fulton Suri, 2003). One of the special skills of designers is that they are strong in visualizing their ideas (Muller, 1989). Design is a visual task and design tools and techniques are strong in supporting visual thinking (moodboards, collages, diagrams, sketches, storyboards etc) (Pasman, 2003). Concluding, visual material can convey multiple aspects of rich experience information and appeals to designers.

– **Subjective information**
  Information about users' experiences is best understood when designers are able to experience these experiences subjectively. In this, evocative quality is more important than accurate detail. Moreover, ambiguity can be of benefit: *'Ambiguous material require designers to fill in the gaps in the information that is purposefully imprecise'* (Gaver et al., 2003).' Feelings and aspirations of users are useful elements within the information to be able to personally connect to these and allow designers to make sense of the information themselves which is needed for a deep understanding.

– **Unfiltered information**
  Raw data from user studies (as opposed to abstract verbal conclusions) supports designers in getting a deep understanding of people's everyday lives and serves as evidence. *'To bring evidence from the real world'* (Fulton Suri and Marsh, 1997). Grudin and Pruitt (2002) emphasize the realistic representation of scenarios, for example, especially when created by people other than designers themselves. *'Rather than analysed data, it is often the raw images about real people, places and things, the maps or collages themselves and the unedited personal stories that best capture important insights in ways that design and client teams can relate to'* (Fulton Suri, 2003b). *'As designers begin to explore experiential qualities of design, we are devising ways to go beyond static representations and object-based descriptions to more dynamic and contextually relevant forms'* (Fulton Suri, 2003b). As these two quotes clearly state, unfiltered data providing dynamic, contextual and time-based elements can support the designers' inspiration by showing the richness of people's lives.

– **Stories**
  Stories are able to convey experiences since they compile the various aspects of an experience (Nielsen and Madsen, 2006), and designers can use these stories to explore their product ideas in the users' context.

These four areas of forms are reported to support communication about users, their lives, and their experiences, but most authors hasten to add that this is second to, and cannot replace, direct contact with users. Such direct contact, e.g. by observation, focus groups, or co-creation, opens up tacit forms of knowledge, such as behavior, personality and objects which are around the person, the natural environment, the sequence of actions, etc. Most authors stress that exposure to users in their everyday context is the most effective way for designers to gain empathy with them. However, the world of industrial practice leaves little room for this. Budget, training, and company politics stand in the way, and 'communication' is the best designers can get. Designers are not always trained, skilled or comfortable in conducting research themselves. Observing an older woman in her house, or leading a focus group, can be rather difficult when a designer is not used to these tasks. Bruseberg and MacDonagh (2002) performed a study in which designers conducted focus groups themselves. They found that, for many, the skill and knowledge required did not match up with them. Designers can feel uncomfortable with being solely responsible for moderating sessions, for example. An alternative could be to create multi-disciplinary design teams, in which some members have the skills for conducting research (market researchers, user researchers, human factor specialists), and others (designers, engineers) for integrating the results into design ideas. The team works collaboratively and shares information from the different disciplines. Multi-disciplinary teams can support the need for designers to get close to the users, without taking designers out of their comfort zone.

If direct contact is not feasible, communication must do the job. It is on this communication that this thesis focuses. The richness of the experience information should survive the translations of the information made by the user researchers as much as possible. The suggestions of visual, subjective, unfiltered data and storylines serve as starting points for attributes of communicating rich experience information to designers. I will take these suggestions into account in the development of tools for communicating rich experience information in the empirical studies (chapter 5).

2.2 A GLIMPSE INTO DAILY PRACTICE

I conducted interviews with companies to get insight into the current situation of design practice in the Netherlands. The aim of these interviews was to get insight into daily practice and check if the current situation described in literature resembles the current state of practice. I wanted to get insight into the actual senders and receivers, what the deliverables look like, by whom the deliverables are created and if these deliverables are satisfying to the receivers.
Three market research firms and three design firms were interviewed. For market research firms it is daily practice to communicate their results to product development companies. Design firms are interesting because they design products for users and it is quite probable that they need user information in inspiring forms.
The interviews address all types of information about users (e.g. also segmentation, demographics and usability issues), since the interviewed people do not have much experience with specifically rich experience information.

Method
The semi-structured interviews were conducted with a toolkit (see figure 2.2), which the interviewees used during the interviews to indicate and express their process, people involved and communication means used. This way of interviewing allowed the interviewees and me to point physically at otherwise invisible parts of the communication process. The interviewees might not be aware of aspects of the communication process that could be relevant to my research. During the interviews a large sheet with a light-printed sketchy scheme was used to draw out the process from the first contact with the client to the end of a project.

Figure 2.2 The toolkit used during interviews. The toolkit consisted of various materials, e.g., stickers, foam cards with representations of deliverables, figurines, pens and pencils to stimulate the interviewee's expressiveness by mapping out their communication processes.

Participants
All interviews took place with Dutch firms[1]. I selected these firms because they expressed an interest in new user-centred design methods. I knew about their interest by contacts I had with them through university (collaboration of industry in graduation projects). From the three market research firms (M1, M2, M3), managers in the qualitative research departments were interviewed. They are not specialised in rich experience information methods as described above, but their work involves information from qualitative user studies and communication with the client. From the three design firms (D1, D2, D3), the directors (either from the firm or from the product design department), were interviewed.

Procedures and needs of market research firms regarding communicating user information
The market research firms interviewed have slightly different client domains compared to each other, but have similar procedures for contact with the client. The client is a product development company, which can range from packaging, publishing, consumer products or services domains. The first contact with a client takes place by phone, mail or sometimes a kick-off meeting. The client has a question, and the agency formulates a proposal. During the fieldwork phase the client is usually invited to observe (in the field, behind the glass, or via video), but having clients present during the entire fieldwork phase is often not the case. Right after conducting the fieldwork, there is often a contact moment to discuss early findings and to discuss where to put the emphasis (in the form of a phone call, or an email with an in-between report, or an actual meeting). After the analysis phase, a report is created and sent to the client (usually digitally), and only sometimes accompanied by a meeting, in the form of a presentation or a workshop to explain the findings.
The client's representative is often a person from marketing who is responsible for the quality of the outsourced research (choice of market research agency, briefings, etc). Sometimes more people from the client (about one to four) could be involved, e.g. marketing specialists (branding and packaging), marketing communication specialists (advertisement campaigns), product managers of a product line, people from sales, a director, but this does not happen regularly. Market research firms hardly meet people from R&D departments on the clients' side. *'We seldom have contact with R&D. I actually cannot remember a project in which R&D people were involved (...) But where we are it is called market research, not design research. That is a difference, we generally talk about target groups as a starting point, not about the product. Designers and R&D-ers can ask the market research specialist for requests about the data.'* (M1)

The contact with different people of the client is mediated by the clients' representatives, which implies that the market research firm does not have much influence on the process and client's organisation. Not having contact with R&D departments is perceived as a problem, because all three market research firms would like to be able to create more impact by having more insight into the organisation of the client:
- *'My main barrier is that I have no clue of the organisational structure behind the market research specialist...and we want that there is internal involvement from the clients' side'* (M3).
- *'The clients' organisation is a black box to me'* (M1).
- *'Contact with people behind the market research specialist is way too little (...) We try to*

[1] The interviewed market research firms are respectively Blauw Qualitative Research, Ithaka, and MetrixLab and the interviewed design firms are respectively Strategic Design Agency Scope, Flex/the Innovationlab and Fabrique.

stimulate that, we try to talk with more people from the client, but it seldom happens. We sometimes beg them to come and check the research. We send invitations for the field research' (M2).
- *'The way an invitation is formulated sets the tone, the atmosphere…And we can not control that. The client's representative can adjust our invitations, in terms of text'* (M3).

Although there are some moments of contact between market research firms and their clients, the procedures are often formalised; the standard deliverable is a report created in powerpoint, which is sent digitally to the client. The contact is often by phone and mail and usually not more than one real meeting.

At all three firms, the person who performs the research creates the deliverables. It can be the senior manager who decides on the outline, and the junior who creates the report. In general, market researchers are not educated as graphic designers. They have little knowledge about the possible needs of designers. So what they provide is what powerpoint offers as possibilities.
Each of the three market research firms has its own standard lay-out of the pages in their report, which is convenient for the large amount of reports they create, but this lay-out also conveys the identity of the company. All three use landscape reports. M1, e.g. has invested in a special lay-out which is considered as their brand identity to clients. Each page has a designed margin with icons, visually indicating issues of the information. In these reports mainly text and graphs are used. Text is a large part, especially when it concerns qualitative information. By highlighting parts or adding quotes the report becomes much more attractive.

- *'We add quotations, to give it a bit more of a feel, of a spark.'* (M1).
- *'Then we highlighted parts to evoke a more proactive reaction of the client'* (M2).

Besides reports, all three mention that other formats to represent the findings could benefit the content. For example video clips on a CD could be added, but other formats are rarely used. However, the procedures are quite formalised which restricts explorations for different communication tools. Providing the client with different deliverables is in the traditional domain of research. The initiative to change current ways of communicating should be on the senders' side, since the receivers do not know that it could be different:

- *'I have never noticed in my work that the client requests a certain type of communication of information because R&D would like it that way.'* (M1)
- *'The report is what they expect.(…) They know what to expect from us, and do not know what would be possible'* (M1).
- *'Not every client appreciates different things, especially not new clients.'* (M2).
- *'In a proposal we do not offer a lot of innovative stuff; a report and a workshop. If we think that a video would benefit we present that on a separate sheet. The proposal sets the scope, so if not introduced there, it would not easily come later.'* (M2).
- *'We are the ones who decide and create the form and content.'* (M3).

Projects of M3 have a different character, because they involve co-creation with consumers, and have more space for creative exploration. It has to be taken into account, however, that M3 was interviewed at the end of 2007, two years later than M1 and M2. From 2007, M3 has started using means other than powerpoint files to communicate their findings to the client; e.g. printed A4-papers of consumer ideas, clustered and glued on larger papers, indicating themes or consumer profiles. The consumer profiles (see figure 2.3), representing the actual consumers of the study, were used in a workshop with the client (du Perron and Kischkat, 2007).

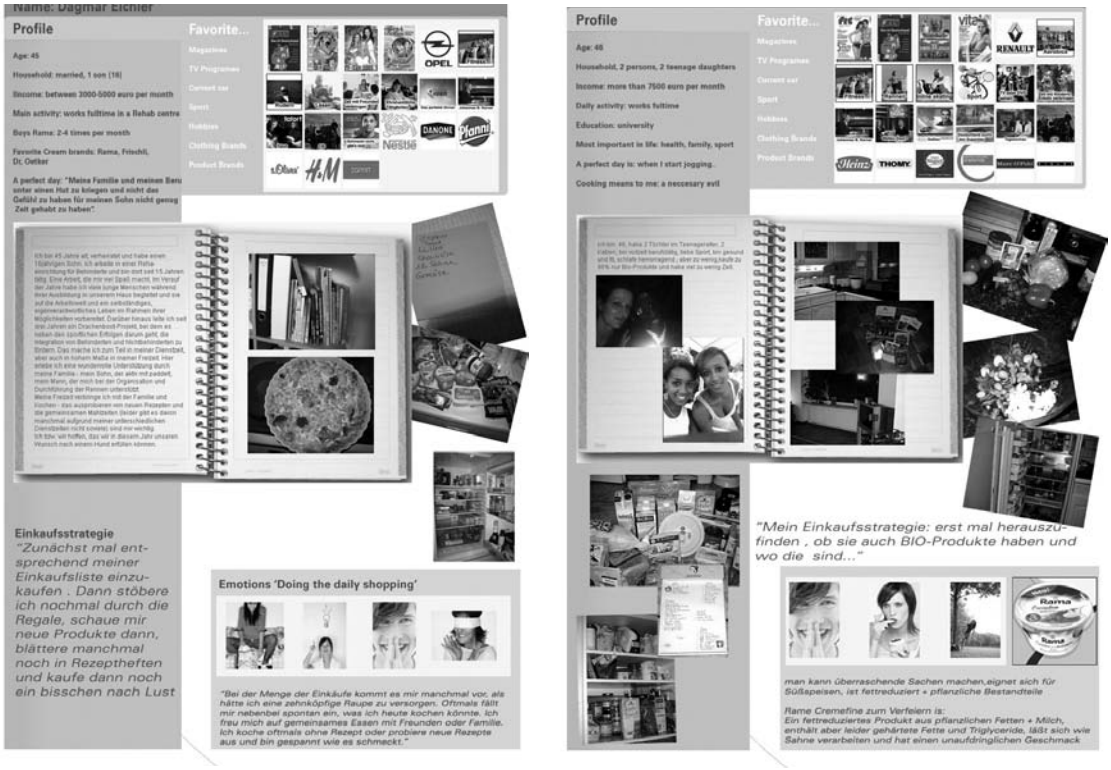


Figure 2.3 Two consumer profiles. Each consumer profile was glued on a foamboard, which was used in a workshop with the client to create product insights.
The profiles show the actual name of the participant, some characteristics, and creations the consumers made online during the research; collages and uploaded personal pictures.

M3 was positively surprised by the impact these profiles of real consumers had on the clients' side, and expressed that they will use this tool more often.

All mention that a meeting is the best place to exchange findings in an engaging way. However, a meeting does not take place naturally. When a client wants to reduce costs, a meeting is the first option to be discarded. Presentations and workshops are the first to be skipped when the budget has to be cut; *'In the proposal, we offer a report, perhaps a presentation. We charge for the presentation.'* (M1)

Procedures and needs of design firms regarding user information input

Design firms, like market research firms, are hired as external parties of product development companies. The contact with the client is usually with a product manager. This contact varies much in frequency and form, depending on the design firm and the project. These design firms hardly receive user information during contact with the client. And if the client provides them with user information, it is not perceived as inspiring;

- *'This is information that we cannot deal with, a lot of numbers, and quality is low.'* (D2)
- *'It is usual hundreds of pages with statistical data (with lousy conclusions) about a specific target group.'* (D1)
- *'It is way too little information what we receive about user. (...) The briefings are very concise. If we ask additional information, we seldom get more information about users. We never receive structural reports.'* (D3)
- *'It gives an uncomfortable feeling to create concepts in a squeeze, whereas the research phase before takes quite long but the results are interpreted over and over and over again by marketers, the client who briefs us, and again by us.'* (D2)

All interviewed designers feel a strong urge to have more information about users for designing. They appreciate user information and express the need for more. As a result, all three do small scaled user research themselves, which has an ad-hoc character. This varies from asking your mother, to a few days observation of users on location.

- *'For the design of a beer tap system at home, I discussed the needs and experience of drinking beer at home with some friends when we were at the bar on a Friday evening. It is a good discussion topic.'* (D3)
- *'In a recent project to design an operation chair, we went to the hospital and asked the people who work with that product. ...one of the questions is when is this product a success. This question is important, the answers tell us much.'* (D1)
- *'In one project, although this is not always the case, two of our designers spent two weeks as a postman, trying out the concept and experiencing the life of postmen, feeling the cold weather on your hands etc.'* (D2)

The findings from small ad-hoc studies are reported to other designers by showing photos and informal discussions, and then stored in document folders on the servers in all three firms. Representations of the data are hardly made. The quick results are convincing; *'unfiltered information to evoke discussion between designers'*.(D1)

One of the design firms (D2) is innovating their practice and would like to profile themselves more as a design research firm. They are investing in conducting more research themselves. One of their projects is the DesignGame developed in collaboration with TU Delft and a market research firm in 2006 (see figure 2.4). This is a new consumer research tool based on the need to approach the end-users in early phases of product development as much as possible. The fact that such tools are being developed only recently shows how little design firms have been conducting user research themselves, and how much they have a need to be closer to the users.

Figure 2.4 The DesignGame is a board game that gives two teams of two users tasks focusing on which solutions they feel will solve their problems. Both teams get the support of a designer who translates (real time) their ideas into tangible concepts.

Conclusions from the interviews

This glimpse into daily practice by these interviews shows that there is much willingness, but little room for improvement. The interviews confirm the findings in literature. User-centred design methods are indeed not well integrated within the practice of the interviewed firms. Especially rich experience information, apart from other information about users, is hardly used within the companies I interviewed. All three designers would like more user information and especially rich experience information. The need for more information from the receiver's side is clearly present. Also the senders of the information express a dissatisfied feeling about the contact with the receivers. All three market researchers put a lot of effort into finding out about the needs of the receivers, and adjust the outcomes of a research to their needs. Unfortunately, the current practice does not allow such connections, and they are not natural yet. Concluding, both senders and receivers acknowledge the unfulfilled needs of communicating successfully about user information.

2.3 A REVIEW OF SELECTED USER RESEARCH IN DESIGN METHODS

Section 2.1 (literature) and 2.2 (practice) both concluded with the need for new communication tools for researchers to provide designers with rich experience information. This section reviews recent methods on the forefront of designerly and ethnographic methods to infuse design with insights from the user's life situation.

The methods discussed here do not study the communication step as such (in most of them, the contact between designer and user is not mediated by a researcher). My aim in this review therefore is not to provide an exhaustive review of participatory design methods. Rather, I review these methods to find aspects which can be useful for developing new communication tools and techniques. I chose to review these four since they differ much from each other and in that sense represent the scope (see table 2.3). They are reviewed in terms of their procedure, involvement of people and forms of data carriers. The first three methods, Contextual Design, Probes and Video in Design integrate research and design activities. The fourth method, Personas, focuses explicitly on representations of user information by showing (fictive) people. The last section describes examples of tools which are developed in more experiential settings.

Table 2.3 Four methods which explicitly address the interpretation of user data into design.

	Contextual Design	**Probes**	**Designing with Video**	**Personas**
references	Beyer and Holtzblatt, 1998	Gaver et al., 1999; Mattelmaki, 2006a	Ylirisku and Buur, 2007	Cooper, 1999 Pruitt and Adlin, 2006
essence of method	diagrams and models shareable with the team	a personal and subjective exploration process of designers	one medium, video, for establishing creative dialogue in the team	a constant focus on people for synthesis

2.3.1 Contextual Design

Contextual Design is a method of designing IT products which promotes the integration of contextual data about the use of products (Beyer and Holtzblatt, 1998). Although this approach focuses on task-analysis of workers, wider contextual aspects are taken into account. The authors have developed this approach to create hardware and software that fit in with people's daily work practice. Technical systems should fit the user's expectations instead of systems defining how people have to interact with them. The authors advocate and specify a process in which the user in his work place is the starting point for design and that new systems are developed with the user in his context in mind. This context shows designers what factors influence the user's experiences and how the work unfolds.

Contextual Design starts with one-to-one interviews with users in their workplace while they work. Staying in context enables the interviewer to gather ongoing experience and concrete data. A few participants are carefully selected and are observed and interviewed in depth, to arrive at a fuller understanding of the work practice across all users. The interview is performed by one member of the design team; this could be the designer, marketer, developer or manager. Then the data from the interview is interpreted by all team members to bring in everyone's unique perspective on the data. This process supports the team in developing a shared view of all the customers they interview. To communicate and share the knowledge gained in the interpretation session of a customer's work, concrete representations are created during this session, called 'work models'. Figure 2.5 shows an example of a workmodel. *Workmodels provide a coherent way of*

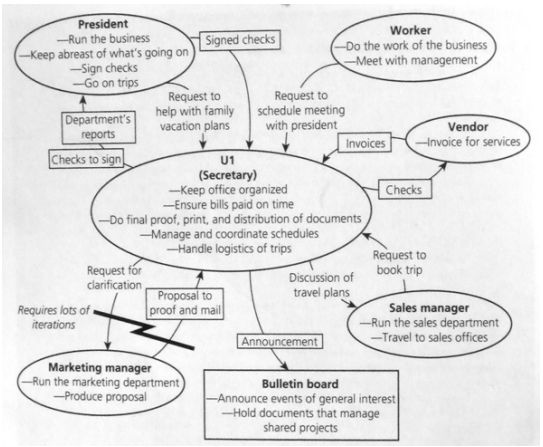


Figure 2.5 This work model (flow model) offers a bird's-eye view of the organisation, showing the people and their responsibilities, the communication paths between people, and the things communicated. (adapted from Beyer & Holtzblatt, 1998).

structuring all the detailed data, revealing underlying structures without glossing over the detail (Beyer and Holtzblatt, 1998). They present five work models: the flow model, the sequence model, the artifact model, the culture model and the physical model. *Having multiple models types of work models gives a team more ways to see issues and structure in the work, while allowing each model to focus cleanly on one aspect of the work* (Beyer and Holtzblatt, 1998). According to Beyer and Holtzblatt, these five models are sufficient to support all the design conversations a team needs to have. *As with any focus, the work models both reveal detail in the areas they cover and conceal detail that falls outside* (Beyer and Holtzblatt, 1998). Once a team has generated a set of work models for each user interviewed, they can use the models to look across users and identify common pattern and structure.

Review of Contextual Design

– **Procedure and involvement of designers**

Contextual Design gives a clear and explicit structure for to gather, structure and apply contextual information. The method acknowledges that there is variety and complexity in real working life, by showing different models of the work situation, each showing a different perspective (flow, artefacts, cultures etc).

It provides a process to generate, analyse and create design implications for design. The way the field study is structured and recorded is directly usable for the team's interpretation session. Contextual Design emphasises shared understanding within team members. The interpretation session, in which work models are created is a team activity; *'To get customer data in properly, people need to manipulate it, use it, or in some way engage with it. They need to make it their own.'* (Beyer and Holtzblatt, 1998).

The method emphasises direct contact with users. The interviewer is always a member of the team, but not necessarily a designer by profession. Individual notes from the interviewer are structured in a diagram, from which work models can be created. The interpretation session is focused on creating meaning to the observation; *'What it implies about work structure and about possible supporting systems.'*

The richness of various factors of people's experiences is maintained in the work models to some degree, e.g. showing the diversity of work tasks, but mainly showing an overview structure, leaving out, e.g., traces of the actual people. The main focus is on general *design implications*, not on providing designers with a detailed understanding of people's ongoing experiences. In communicating rich experience information both are needed.

– **Content and forms of the information**

In the representation of the information a balance between detail and overview is necessary. *'The trick is to give the team tools that let them see the breadth of data without being overwhelmed, to see the common structure and pattern without loosing the variation, and to understand the wealth of detail without loosing track of its meaning.'* (Beyer and Holtzblatt, 1998). The models are quite abstract and ready to derive design implications for the product from. The actual people are not represented, only in terms of functional roles, e.g. 'the secretary'. Also visual material is not extensively collected or shown. Notes and diagrams created by team members are the main data sources. Photos and video are not prominent in Contextual Design, but graphic output in the form of diagrams is.

2.3.2 Probes

Probes is a method of gathering subjective information from users and of opening dialogue with users. It is a designer-driven method for research with a focus on finding inspiration more than information. *Probes are collections of evocative tasks meant to elicit inspirational responses from people – not so much comprehensive information about them, but fragmentary clues about their lives and thoughts* (Gaver et al., 2004). Gaver et al. (1999) pioneered this method in design, deriving from artist-designer traditions rather than the more typical science- and engineering-based approaches. Designers create a package with diverse material and tasks, which users fill in in their own environment and time (see figure 2.6 for an example). The tasks are provocative and aim to create reflection on their own everyday life. The returned materials are inspirational input for a design team and aim to empower the designers' imagination. The returned materials are not designed to be extensively analysed or summarised; rather their authentic and personal trace of people's everyday reality are an open brief for design. The returned probes in their original form, but even more *the process* itself of designing the tasks and materials, and communicating with the users (e.g., when giving the package), enhance sensitivity for the actual users within the design team, and serve to eliminate stereotypes (Mattelmaki, 2005).

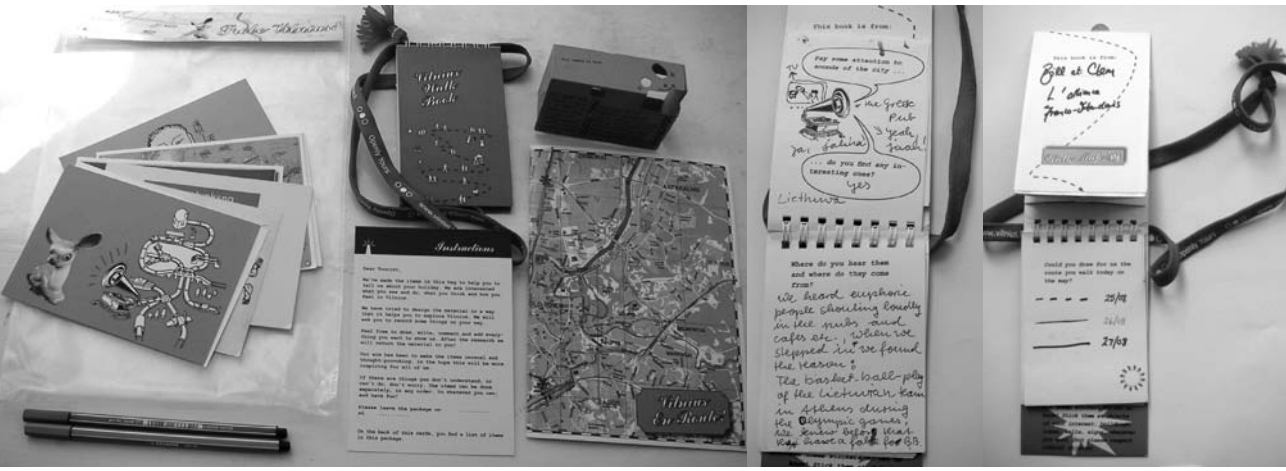


Figure 2.6 This probe package was given to tourists in Vilnius, Lithuania, at the tourist information centre. The designer wanted to learn how tourists experience Vilnius in order to design a tourist information product for this city. Left: a probe package consisting of an instruction, post cards, a little booklet with a key cord, a photo camera, a map, stickers, two bus tickets, some pens. Right: two pages of returned booklets, showing the personal traces of these tourists. (graduation project from Jonas Piet)

Review of Probes

– **Procedure and involvement of designers**
  Probes are created by designers. Creating the probe package is a design activity which supports becoming sensitive for the user and creating empathy. It is in the dialogue itself, between the designer and user, that the understanding is embedded; *'The real strength of the method was that we had designed and produced materials specifically for the project, for those people, and for their environments. The probes were our personal communication to the elders, and prompted the elders to communicate personally in return* (reflection on the cultural probe study with elderly (Gaver et al., 1999).
  A path to communicate the results of returned probes is not structured. The returned probes in their original form are considered as the results, leaving space for the designer's personal interpretations (see figure 2.7).
– **Content and forms of the information**
  The raw data is incomplete, ambiguous, personal and biased which has an evocative and surprising effect in creating ideas. Representations of the output are usually unfiltered. The open and aesthetic probes leave space for inter-

pretation and inspiration for the designers. The probes process and the raw data allow versatile interpretations. Designers make their own interpretations of the users' worlds, without aiming to evaluate or validate. Just like a typed letter that shows less richness compared to a handwritten letter; the handwritten letter shows signs of loose writing towards the end of the letter, and extra annotations added later. It shows the rich fabric of reality.

According to Gaver et al (2004) the *personal interpretation* of each designer in a team is the result of a probes study (see figure 2.7). Dealing with user experiences in the probes method is not so much about representing data, but *the process* itself the designers go through.

Other practitioners (e.g., Mattelmaki, 2005) advocate the value of creating a representation of (a selection of) the returned materials plus interpretations of the team to support team communication. In order to communicate throughout the process of design, the returned probe materials need to be shared with other representatives of the company, who might not be directly engaged with the study. Mattelmaki (2005) reports, for example, about representing the interpreted data into narratives and user portraits in multidisciplinary workshops (Mattelmaki, 2005). Photographs and short quotes from probe results are often used to explain the data to others. They trigger the imagination and *'link it to the everyday reality and authentic situations'* (Mattelmaki, 2005).

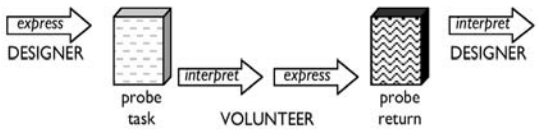


Figure 2.7 Probe results are the result of a process of expression and interpretation. (adapted from Gaver et al., 2004)

2.3.3 Designing with Video

Designing with Video (Ylirisku and Buur, 2007) is more an approach to user-centred design, in which video plays a central role, than an established method. The approach has been developed quite recently and the pioneers of this approach still have to discover a lot in terms of applying video with different design teams and users in the different stages of the design process. Ylirisku and Buur (2007) have published the book 'Designing with Video' which *'outlines a more conscious user-centred design practice that is sensitive to how people collaboratively learn and become inspired by the user's reality, and how the authoring, moulding and sharing of video artefacts help to achieve the desirable changes that designers are after.'* The authors promote video because it enables the richness of everyday life to be captured. It shows movement and rhythm, and conveys the feelings, sensations and behaviour of people. Video can be employed in a variety of ways to explore reality of users. *'Video provides a tool to collaboratively build conceptions of (i.e. conceive) design opportunities while keeping the feet on the ground of reality.(....) Both conceiving and making sense are essential to creating new ideas. These activities are also fundamental to understanding how the new ideas will influence their surroundings and eventually the reality of people.'* (Ylirisku and Buur, 2007). A user study must be planned in advance, but the relevance of the captured materials only becomes known afterwards. Ylirisku and Buur mention that the focus of a user study only becomes clearer towards the end of a design process, while the material has to be shot at the start. Sense making goes two ways. *'The fundamental paradox in design interpretation is that it needs to build both ways on what exists and what does not exist yet.' '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.'* (Raijmakers, 2007)

The authors propose a process of merging research and design activities (Buur et al., 2000). The process starts with capturing the flow of the ordinary; portraying the environment, the people and activities, resulting in 'video portraits'. These video portraits are shown to the design team and the users who have been

filmed. Based on discussions during these viewings, the design team can choose what to focus on. Then a second field visit takes place. The users are more aware of the focus of the design project by now and can direct and relate to things they want to pay attention to. The design team creates thematic video collages, that cut across the different visits. These themes are the basis for further design activities; the creation of early product ideas and experiential prototypes. At a later stage 'type scenarios' are created. These are small episodic video clips which can be used to explore future design ideas with experiential prototypes. Such processes promote collaboration between designers, researchers, the client and users in designing. For example, video recording requires an explicit involvement of the designer and the user during a field visit, which makes it a collaborative creation. When a designer starts recording in the field, there are different ways to relate to the user; observing, fly on the wall, shadowing, interviewing, intervening. The way the designer positions himself determines the perspective which is captured in the recordings. Next to the presence of the filmmakers in someone's environment when shooting, designers also expose the design project, generating space for conversation with the users (Buur et al., 2000).

Review of Designing with Video

- **Procedure and involvement of designers**
  Designing with Video promotes the search by designers in the fabric of people's everyday lives. Gathering and sense making of rich experience information are merged in this approach. Choices for setting up a user study are regarded as starting points of the design process. Recordings are no longer 'hard data', but rather first attempts to create stories that frame the design problem and impose order on the complexity of everyday life (Buur et al., 2000). The act of choosing what to record and what not to is already designing. The procedure therefore covers an entire design process from capturing, to sense making, to envisaging the future. For each of these stages, Ylirisku and Buur (2007) provide numerous methods and guidelines. Since this procedure covers so many activities, it is less structured than the previous two methods. Moreover, working with the medium video requires knowledge and skills (e.g., camera use, editing) which designers and researchers do not necessarily have yet.
  The procedure is highly collaborative, involving designers and researchers in the users' context and involving users in designing. Research and designers work closely together.
- **Content and forms of the information**
  As a means, video clips, documentaries and video fragments have the quality of preserving the ambiguous and paradoxical qualities of everyday life to survive in presentations of design and research (Raijmakers et al., 2006). It is convincing material, compared to, e.g. photos, transcripts or diagrams, since it captures the richness of the context, the details and the ordinariness of everyday life.
  Although video is a rich medium in which to capture the details of everyday life, it is an intangible medium, since the information passes by on a screen. One of the suggested methods to cope with this is the Video Card game. Printed cards with key frames of selected video clips (1-3 minutes) are exchanged, organised in themes and discussed in a team of designers, researchers and users, while the video clips convey more details to zoom in on specific aspects (Buur and Sondergaard, 2000). Exchanging, discussing, viewing the clips made the material on video tangible.

2.3.4 Personas

Personas (see figure 2.8) are fictional people created to represent user information. The results are summarised in (usually three to five) personas. A persona makes the data more lively and addresses socio-political and 'quality of life' issues, including the values, fears and aspirations of the users. *'They have names, likenesses, clothes, occupations, families, friends, pets, possessions and so forth. They have age, gender, ethnicity, educational achievement, and socioeconomic status. They have life stories, goals and taks. They are not 'agents' or 'actors' in a script, they are people.'* (Grudin and Pruitt, 2002). A persona must be liked. If a person does not like the persona, he will not be triggered to design products for that persona.

The emphasis of the method can either be on presenting research findings or on its use in design exploration, perfectly bridging the gap. Cooper (1999) emphasizes the use in design, as long as it challenges designers to design for that persona. They can be loosely based on data; they can even be stereotypes, if that provides more credence. Whereas, Pruitt and Grudin (2003) put more emphasis on the relation with the data behind the persona *'They should evolve in response to ongoing observations of, and feedback from, real people.'*

Personas aim to establish a long-term engagement with a particular set of people, and the empathy, commitment and understanding that such engagement can bring.

Personas enable designers to achieve empathy with the users. *'Personas utilize our mind's powerful ability to extrapolate from partial knowledge of people and to create coherent wholes and project them into new settings and situations.' (Grudin and Pruitt, 2002). 'To get past our personal opinions and presuppositions to understand what users really need.' 'A design team is creating a relationship with individuals instead of targeting a mass market.'*

The personas look like real people and are built on quantitative and qualitative data sets of market segmentation studies, field studies and focus groups. The use of abstract representations of people by archetypes or user profiles originates from marketing field, whereas personas are developed for the design process for designers and developers (Pruitt and Grudin, 2003).

A persona aims to trigger designers to design a product for a specific person in mind. For example, when discussing a product idea in terms of *'Would Margaret enjoy this?'*, is a much clearer focus than *'Will it satisfy the user group?'*.

Personas have had much impact on the interaction design community, where it is widely adopted and has changed the design process. Companies like Philips, Microsoft have integrated personas in their design processes (Bueno and Rameckers, 2006; Pruitt and Adlin, 2006) as well as many small firms, especially web designers. As a shared language they use *'personas'*, fictional people with life stories, for example, as a communication tool of user data and design ideas (Wakeford, 2004; Grudin and Pruitt, 2002; Bueno and Rameckers, 2006). Philips Design felt a need for more impressive visuals from the user research group; *'We wanted a visual trait of human data, a request for enhancing existing things through richer, deeper and more diverse data. This was about 2002.'* (excerpt from personal discussion with senior research consultant People&Trends). At Microsoft they use personas through the organisation; *'A report is not enough, they (team members) have to create a relationship with the customers. That is why we start doing personas.'* (excerpt from personal discussion with user research manager, Microsoft Research, 2004).

Review:

– **Procedure and involvement of designers**
  The mechanisms of this method enhance a deep understanding of user experiences while designing. Being able to identify with the user and imagining how this user might experience a new product is the essence of this method. In the process of creating personas designers are not specifically involved but usabil-

Figure 2.8 This persona is called Margaret. It shows a portrait, name, family status, job and goals, e.g., 'needs to feel in control'.

ity specialists, user researchers, ethnographers, marketers, product managers, etc. are. Designers often receive personas, and use them in their design activities, e.g. letting 'Margaret' use one of their concepts in a scenario, and identifying how she might experience the use of this product. Although the creation of personas is not a shared activity in many cases, personas bridges research and design activities since they provide a shared language across disciplines (marketing, engineers, designers). Personas are a reference through the design process: a quote like *'Margaret does not like that, she wants to be fast,'* is something designers and researchers can all understand and relate to. Personas support other activities and tools in the design process: they help to present research activities; they support designers and developers in engaging with specific users in mind during designing and use them in, e.g. scenarios; they support decision moments within teams, and, later in the development process, they help managers to decide specific product releases.

– **Content and forms of the information**
  Personas are presented in various formats; e.g. posters, powerpoint presentations, life size dolls and in scenarios. A persona has a face, name and character, which makes it easy to identify with and remember and relate to. A photo, however is used in only 71% of persona representations (according to a survey about the content of 31 personas by Pruitt and Adlin (2006).
  Personas show analysed and abstracted data. A persona is a representation which shows analysed and interpreted data. It does not show raw data.
  By placing explicitly *fictional* people as the core focus, it does not convey the aspect of everyday reality of real people. Although some practitioners attempt to make the personas as realistic as possible (e.g. let them develop over time, make life-size prints of personas, give them a blog, or even an email address), the principle to create fictive people is a questionable choice which can have an opposite effect where creating a deep understanding of real people is essential. Besides, the procedure of creating a persona is quite detailed, merging large amounts of research results into templates which eventually result in a persona. The forms in which personas are represented are not always that engaging for designers. Standard templates built in powerpoint represent personas more than often in industrial practice. Rich materials to represent the personas, such as posters, cards, door magnets, beer glasses (Pruitt and Adlin, 2006) or even documentaries (Raijmakers et al., 2006), are recommended to inspire designers, but are rather exceptions in reality.
  A risk of personas is that they can be over-used. Designing specifically for three personas might distract from the idea that they are designing for a large group of real people. When these three personas are entirely created by the research team, they might offer less inspiration than when designers can create more evoking representations of the persona. A last detail, by the way, is that none of the interviewed designers (section 2.2) knew about personas!

2.3.5 Tools that attempt to convey experiential or context aspects

Some practitioners are exploring more experiential ways of communicating rich experience information, but the tools they developed took place within specific projects and there is no systematic development on a larger scale. Still, these tools show new possibilities to support the designers in understanding the experiences of users subjectively. I collected three interesting tools, which show new

ways to convey experience information by showing real people or by experiencing the context or states personally. The first tool attempts to provide designers with detailed information about everyday people. With this tool designers can get quick access to a large set of real people talking about products in their homes. The other two are developed in academic institutions and aim to give a feel of presence in the users' environment. These installations attempt to create an atmosphere in order to get a quick feel for the situation of the users, in which designers can experience the user contexts (states of teenagers or a transition) themselves. By sound and visuals they represent the atmosphere of a specific user context. By personally experiencing the context in the design studio, designers can get a quick feeling for the users' context.

An interactive database with real people

RealPeople (Porter et al., 2008) is an interactive DVD to inform and inspire designers during designing (see figure 2.9). It shows information about user groups' aspirations and attitudes. It contains information about real people. The data is categorized into individuals, products, style and brands preferences. The starting page shows 100 portraits of people, and of each individual a short video clip is available, representing the person talking about his three favorite pleasurable products. This tool is designed to give designers an inclusive view of the individual by attempting to understand their emotions and 'pleasure' needs as well. These pleasure needs are related to the four pleasures Jordan (2000) described; physio-, socio-, psycho-, ideo-pleasure of people using products, which designers could focus on. The requirements of this tool, based on a set of interviews with designers, were (1) allowing designers quick access, (2) flexible and intuitive use, (3) a visually stimulating and interactive database, and (4) representing two types of data; intimate data about people, e.g., their lifestyles and data that shows trends across a wider population.

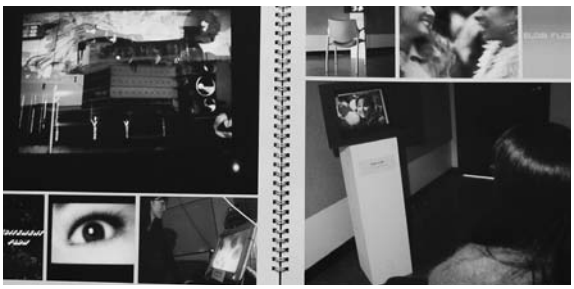
Figure 2.9 The RealPeople tool. Left: Search page showing selection categories and photographs of the 100 participants interviewed. Right: Lifestyle details about one participant; James.

The development of the tool shows the lack of information designers have and responds to the practice of designers by providing 'quick and dirty' access. A prototype of the tool was informally evaluated by letting fourteen designers carry out several tasks with the tool, and their responses were positive in general. However, a formal evaluation is not presented yet in terms of promoting empathy with users and providing inspiration for creating product ideas. The tool is currently in the final stages of production. I wonder if it will be considered informative and inspiring over a longer period of time, since it looks like a quick browsing tool and does not necessarily aim at a deep understanding of the user.

Multi-modal installations to experience teenagers' lives

'Vibrations' are multi-modal, 3-D installations, which explore the experiential states of teenagers (see figure 2.10). These installations were developed within a research and design project at the Art Center College of Design in Pasadena chaired by Brenda Laurel (Alexopolous, 2004). The installations allow designers to experience the range of emotional states of a teenager by enabling the designers to become immersed in several experiential states (e.g., excitement flow, frustration, comfort). These states were identified by a user research study in which 22 teenagers participated. The installations were

Figure 2.10 Installation of experiential states of teenagers. The left page shows the installation of the experiential state 'excitement flow'; a state in which a teenager is completely and actively engaged, for example, when they are competing in a sport, playing a video game, or shopping. The right page shows the experiential state 'slow flow'; a state of flow in which a teenager is passively engaged. For example, when watching TV.



created in addition to a raw data set, persona descriptions, scenarios, and maps of aspirations of teenagers. A designer can hear, feel and see aspects of the experiential world of the teenagers. These installations were built by the designers who conducted the research, and no formal evaluation of these tools as communication tools to designers has been performed. The installations show how multi-modal tools can help to convey experiential states of users, but they might be quite expensive to apply to product development in most companies.

Presence of context by video collages

This tool consists of an installation with a large display showing distorted video fragments of a specific context. It aims at providing a presence of the context out of the corner of the eye while designing product ideas. 'Videocollages are expressive combinations of image sequences, video, animations, music and sound to communicate an atmosphere, context or visual language during design sessions.' (Keller, 2005). The appearance is slightly fuzzy and distorted in order not to attract full attention to the content of the video. Rather it aims to be perceived in the background, and not in the centre of attention of the design activity. The goal is to inspire designers with the environment of use by evoking a sense of presence, in which the design team can immerse. It can make tacit aspects of the environment explicit, e.g.,the rhythm of a day (see figure 2.11)

Keller (2005) conducted a small scale study with design students. One student team was surrounded with the video collages on the TRI Setup, another student team was surrounded with a projection on the TRI Setup of a static collage, a moodboard. The resulting product ideas in the first group seemed to be more specific about the context of use, compared with the ideas in the second group. However, the tool has not been systematically evaluated in terms of promoting empathy and providing inspiration.

Figure 2.11 Right: The TRI set up with the large projection display, which is a curved cardboard screen for surround projection of video collages. Middle and right picture: two snapshots of a video collage of a railway station. It shows the atmosphere of being there; a busy or quiet railway station.

These three tools show that practitioners are exploring more experiential ways to convey context and experiences of users in the design domain, but they are exemplary tools developed in academia and are not (yet) applied in industrial practice. In the discussion, I do not take these exemplary tools into account, but focus on the four methods discussed in the previous sections.

2.3.6 Discussion of the methods

Although the above methods differ greatly in the aims for which they were developed, they have in common the fact that their developers have presented explicit ideas about the complex process of merging research and design and the involved communication issues (procedure, involved people and tools).

I have reviewed each of these methods with the focus on what aspects I can take along for the communication problem as addressed in this thesis. Table 2.4 summarizes issues that emerged in the above reviews and are useful to take along for further developments of communicating rich experience information.

None of the methods specifically address the communication problem of rich experience information within this thesis, but all provide useful insight into what aspects are important to take into account.

Contextual Design does not gather rich experience information, but contextual information. It provides a very structured process to integrate research and design, but is too structured and analytical to convey rich experience information.

Probes collect rich experience information and promote the subjective and ambiguous nature of this information, but provide too little structure to communicate the information to third parties.

	Contextual Design	Probes	Designing with Video	Personas
Procedure and involvement of designers				
essence of method	diagrams and models shareable with the team	a personal and subjective exploration process of designers	one medium, video, for establishing creative dialogue in the team	a constant focus on people for synthesis
input for design	criteria-based	immersion-based	immersion- and criteria-based	criteria-based
procedure for interpretation	a highly structured process	not structured at all (Gaver et al., 1999) to slightly structured (Mattelmaki, 2006a)	quite structured, especially in terms of collaboration of designers, users, researchers and the client	quite structured and focused on the motivations of the personas
involvement of designers	a member of the design team conducts the research	there is no third party involved. Direct contact with the users is performed by the designers	a member of the design team conducts the research	designers are not necessarily involved in conducting the research, and receive interpreted outtcomes
view/relation to user	one field visit, and afterwards no direct contact	direct relation, but necessarily direct contact	multiple field visits, with successive meetings with users	distant, no direct connection with the users
type of information	contextual information of workers	rich experience information	various	segment, target group, everyday life information
Content and forms:				
tools	several models and diagrams	raw, unfiltered material, e.g. photos, videos, text of original people	video clips (and cards)	various: powerpoint, posters, reprots, animations, etc.
representation of users	labelled by roles: such as 'secretary'	reflected in the expressive aspects, e.g. handwriting, drawings, annotations, etc.	the acutal users who participated in the study; in real and on videos	(fictive) users, by name and lifestyle
visual material	mainly diagrams	photos, videos, maps, drawings	videos	a photo portrait

Table 2.4 An overview of the methods and approaches together.

Video in Design proposes a much larger process where the research and design are integrated in one method. The medium of video is the basis of maintaining rich experience information in all stages, but this method is still in development and provides little explicit structure. Moreover this approach is focused on direct contact with users at every stage.
Personas put thinking about individual people at the forefront of the communication to help designers to relate to the users and to make empathic inferences about these users. However, personas are fictive people, based on large user groups and are not aimed at conveying rich user experiences. Rich experience information contains much wider information than addressed in personas (e.g., situation, feelings, rituals, etc).
There are two important aspects from this review for communicating rich experience information:

- **Levels of abstraction matter**
  These methods make use of greatly varying levels of abstraction.
  With Contextual Design, Personas and Designing with Video, clear and structured directions are given. Contextual Design provides a transparent prestructured process, which leads to design implications. Personas are an explicit step between research findings and design. In Designing with Video the subjectivity of interpreting data is more emphasized, but it still provides clear guidelines of, e.g., selecting themes when making sense of video clips. Probes tend towards the other extreme and embrace the more subjective and individual interpretation of the data for inspiring design. In Contextual Design, for example, ambiguous data should be avoided as much as possible, but in Probes ambiguity is stimulated and retained. These different ways of dealing with the information suggest that both interpreted and unfiltered data can have benefits for the design process. Some choose more structured interpretation processes and others more intuitive interpretation processes. When communicating rich experience information both interpreted and unfiltered data might have their advantages.

- **Showing traces of individual people**
  Except Contextual Design, all emphasize having traces of people in the representations. Personas embody individuals; the data is converted in usually 3 to 5 personas. With Probes the representation is the original data or a selection of it, keeping alive human traits such as self made photos or annotations in handwriting. As an addition to the original data, user portraits can be made. Designing with Video shows the people in their context in the representations in video clips and/or printed cards. This suggests that showing traces of people is a necessary element in conveying experience information.

These two aspects I take along in my research. Researchers and designers face the challenge of interpreting rich experience information, not only intuitively (like many of the design activities are), but also personally and subjectively.

2.4 CONCLUSIONS

This chapter reviewed the current state of the art in communicating rich experience information in design. I first summarize the current developments, and conclude with room for improvement. Then I summarize the elements described in literature of communicating rich experience information, which will be the basis for a framework for further knowledge development about communicating rich experience information. Chapter 3 presents the framework.

The review of literature and the interviews with the companies show a clear discrepancy between theory (literature) and practice (companies). The design literature elaborates on user-centred design developments and promotes the emerging new methods and tools to give users a place in the design process and to design products for them. The daily practice of industrial companies, however, shows that in the Netherlands these developments are not applied and integrated yet as assumed in literature. The use of rich experience information is not widely applied yet. On the one hand, there is a lack of knowledge about integrating rich experience information. On the other hand, many companies are just starting to explore, and their standardized procedures and deliverables are not allowing such information to be integrated.

Little room for improvement in practice

The practice of design is acknowledging the need for more attention to the users in the design process, but 'how to' is the big question.

Some companies are leading in this development. Several design firms and large product development companies have implemented user-centred methods in their design process from the beginning, but the majority in the Netherlands have not integrated such methods and processes yet. In general, research to inform designers from the start of the design process traditionally consists of segmentation studies before design takes place, and concept tests after design has finished, but nothing during design activities in the fuzzy front end.

Infusing rich experience information is little applied in the fuzzy front end. Both the design literature and the interviews with companies in the Netherlands show a big need for more knowledge to integrate these techniques into practice. The knowledge available in literature mainly describes methods for generating rich user data, but leaves out practical knowledge for making this information useful to designers. The leading firms and practitioners have experience and knowledge, but often regard this as confidential. For them, it is a learning process as well. It is an expensive learning process, so practitioners are less likely to share their experiences.

Practically, there is a shift needed in the current design processes, which bridges research and design cultures. In her review of user centred practices in US companies, Wakeford (2004) addresses this translation process explicitly. She suggests that practitioners should create a new stage in their process, 'the translation point', where actionable outcomes are built from research and that companies should invest in developing new communication tools that make research output more tangible.

User study reports made by conventional researchers do not necessarily meet the designers' creative thinking. Standardized procedures, standardized deliverables, time and money issues are in the way of changing the process into a more user-centred process. Room for improving rich experience information communication is therefore rather small. Efforts to improve the communication of rich experience information need to take into account these practical aspects.

In this research project I will focus on efforts carried out within design practice, taking into account the possibilities within each company.

Ingredients for the communication of rich experience information

In design literature, practitioners and academics mention a variety of elements and suggestions to enhance the infusion of rich experience information in the design process. These elements are the building blocks for this thesis' framework which will be further filled in with findings of empirical studies.

Concluding, collecting rich experience information in the fuzzy front end aims at informing designers about the context of the people they are designing for. The information allows them to create a deep understanding of their users and to discover elements in this information which can inspire them to create product ideas. When designers do not have direct contact with the users, and the contact is mediated by researchers, the communication to designers has two main aims, besides informing them with rich experience information: supporting designers to achieve empathy with users and providing them with inspiration for creating product ideas.
Design literature mentions several elements to support these aims in communicating rich experience information to designers, e.g:

- enabling designers to have direct contact with users and involve them in sense making activities;
- use of visual material (photos and videos of users) which appeals to designers;
- use of subjective information to promote a subjective understanding;
- use of storylines to capture the richness of the users' experiences;
- representing realistic data with, for example, raw data fragments

These suggestions serve as the starting points for the development of new communication tools and processes presented in the studies of chapter 5. In the next chapter a framework for describing and unfolding the process of communication will be constructed, based on the knowledge from literature and the conducted interviews presented in this chapter.

3

Framing the communication

The review in chapter 2 of the current state of developments in design practice has shown that there is a lack of knowledge about communicating rich experience information successfully to designers. In design literature a variety of elements are mentioned that are considered helpful; e.g. designers doing user research and sense making themselves, creating empathy between designers and users, and using visual and unfiltered material. These elements each have their importance, but operate on different levels. Some are intended aims of a research project, e.g. 'stimulating empathy with the user', where others are more like tips and tricks, e.g. 'use visual material'. What is missing is cohesion between these elements.In this chapter, I place these elements in a theoretical framework. This framework serves as a structure that organises these elements and helps to unfold missing parts and links, which will be filled in after conducting a set of empirical studies. The filled in framework will show what elements play a role in successful communication of rich experience information and what their relations are. A set of guidelines that accompanies the framework will help to apply the gained knowledge in practice.

In section 3.1 I propose a definition of successful communication of rich experience information in the form of a set of qualities. These qualities are derived from literature, but have not yet been proposed as explicit qualities of communication. Moreover, these qualities are often described in general terms, leaving out what mechanisms play a role and how these qualities can be fulfilled.
Section 3.2 describes the operational means user researchers can apply to fulfil these qualities.
Section 3.3 presents the structure of the framework. This framework relates the intended qualities to operational means and mechanisms which play a role in achieving them. In section 3.4 the role of the framework in this research project is addressed. Section 3.5 describes the resulting research questions. Section 3.6 concludes this chapter by specifying the research approaches for each quality.

3.1 QUALITIES OF COMMUNICATION:

EMPATHY, INSPIRATION AND ENGAGEMENT

The outcomes of a creative process can be judged on 'new' and 'relevant', or on slightly different terms, e.g. '*novelty' and 'value*', '*novel' and 'appropriate*', '*newness' and 'value*', '*uncommonness' and 'adaptive to reality*' (see Glover et al.,1989, p.203 for an overview). In the context of user-centred design, 'new' is 'the innovativeness' of a product idea, and 'relevant' is 'the fit, but also enhancement of the users' experiences in their everyday lives'. The question is how designers create new and relevant product ideas? One of the ways is developing deep understanding of the users in their contexts for who they are creating the innovative product ideas.
Collecting rich experience information in the fuzzy front end intends to inform designers about the users' experiences in everyday life. This information supports designers in creating a deep understanding of the users and in discovering elements in this information which can inspire them to create product ideas that fit and enhance the users' experiences.
When designers conduct user research themselves they are able to achieve empathy with the users and are inspired by this knowledge to create innovative product ideas which fit and enhance the users' experiences (see figure 3.1); but when user contact is mediated by the researcher, the designer misses the direct contact, is not involved in analysis and therefore might be less able to create empathy with the user, and can discover less elements which might inspire him for product ideas. Moreover, in industrial practice the designer and the researcher are not the

only players. The design process is divided into several phases, and different departments each have their speciality. Designers are often not involved in research activities and user researchers have to translate their findings in such a way that designers can still achieve *empathy* and feel *inspired* by the input of the user researchers. Furthermore, designers should be in a situation where they are able to *engage* with user information. The organisational (e.g. different departments, communication channels) and cultural aspects (e.g. attitude towards users) of the companies they work in could hold back or promote designers to use this information in their design activities. In the situation where designers are only partly or not at all involved in the research activities, the *communication* of the rich experience information could help to fulfil these qualities in particular. This turns the *communication* between user researchers and designers into a *process*, rather than simply handing over the user information as in the simplified communication scheme. The role of user researchers is not solely as producers of knowledge about users, but changes into an extended role of facilitator with the aim of supporting the design team in collectively generating actionable outcomes from the rich experience information (Wakeford, 2004).

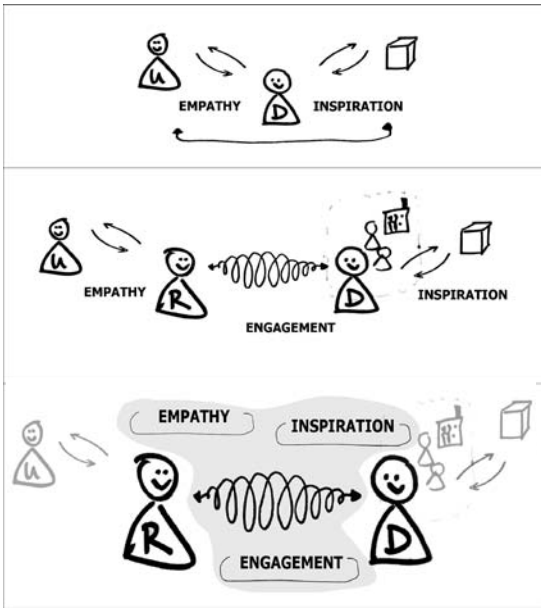


Figure 3.1 Successful communication of rich experience information is defined by three qualities; supporting designers in enhancing empathy with users, providing designers with inspiration for idea generation, and supporting designers to engage with the results of user studies.

I propose that the communication process to designers should aim to (1) enhance empathy with users, (2) provide inspiration for idea generation and (3) support engagement with rich experience information (Sleeswijk Visser et al., 2007). These three qualities are in my view inherent aims of user-centred design processes. This turns the communication process, 'sending information', into a more detailed and specific process (see figure 3.1). These three aims are necessary qualities which need to be obtained. In this schematic representation the user researcher is in charge of communicating the information successfully to designers. Designers receive and use the information to enable them to create new and fitting product ideas. Good communication can change current processes, in which, e.g., designers do not have time to study the information, or are not given the right user information, at the right moment, or in the right form. New methods and tools to communicate rich experience information should aim at achieving these three qualities. If so, recipient designers will be supported in being engaged, possessing a deep understanding of the user and gaining inspiration for successful product ideas. In this research project I will explore new methods and tools which aim at these qualities. The remainder of this section describes the three proposed qualities in detail.

3.1.1 Enhancing empathy with users

Empathy is a person's ability to identify with and understand another person's feelings, ideas and circumstances (www.dictionary.reference.com/browse/empathy). Research about the construct of empathy originated in art history, when the term 'einfühlung' (German for feeling-into) was used to describe a process in which a person projects his entire personality upon an object, and in some sense merges with this object. Later, this term was applied to people's experience and knowledge of other people's mental states (Nilson, 2003). People knew and responded to each other through 'einfühlung', which was preceded and brought about by projection and imitation. For example, smiling when you see someone

smiling. The German term einfühlung was translated into the English term *empathy* (from Greek *em –into-* and *pathos -passion, feeling-*).
Empathy occurs in situations where two people are involved. In psychotherapy these are the therapist and the client; in movies a member of the audience and a character portrayed by an actor on the screen; in the design process a designer and a user.
In design literature empathy is given much importance and is often mentioned. The adjective 'empathic' in relation to design was introduced in the late nineties (Battarbee and Koskinen, 2005). Many authors (Koskinen et al., 2003; Leonard and Rayport, 1997; Sanders and Dandavate, 1999). Mattelmaki and Battarbee (2002) and Fulton Suri (2003a) agree on seeing empathy as a necessary quality of designing. Design literature elaborates widely on methods and techniques to be able to imagine what it is like to be the user (user research, role play etc), but precise definitions of empathy are missing. There is little knowledge available of what empathy exactly is in and how empathy can be enhanced within design activities. A review in psychological literature on the concept of empathy (see Kouprie and Sleeswijk Visser, 2009) reveals three aspects to take along with empathy in relation to communicating rich experience information. These aspects are that empathy is an ability, that empathy involves cognitive and emotional components, and that empathy can be regarded as a process with different phases. These aspects are discussed below, and I conclude with a description of empathy relevant to this thesis.

Empathy as an ability
People's ability to achieve empathy differs (Mattelmaki, 2005; McDonagh, 2008). Although designers are taught to design products for people, their ability, willingness and education to empathise with the user can vary widely (see figure 3.2). Characteristics that determine this ability are: nationality, background, age, gender, culture and life experience. For example, when designing a product for a patient in the hospital, it might enhance the designer's empathic understanding if the designer has prior experience of staying in or visiting the hospital. The ability can be seen as the flexibility to expand one's own 'empathic horizon' and to open up for the worlds of the users (McDonagh and Denton, 1999). This individual ability of designers can change with more life experience, his training, and user-centred design and research experience. Besides the ability, the designer's willingness and the situation can affect the designer's ability to empathize with users. Being empathic varies with the situation (Duan & Hill, 1996). When tired, for example, this emotional state does not help the designer to take in new information about users. When the designer does not see the value of investing in the users' stories or when spending his time in creating empathy with the user is not valued by his boss, this will slow down his process of empathizing with the user.

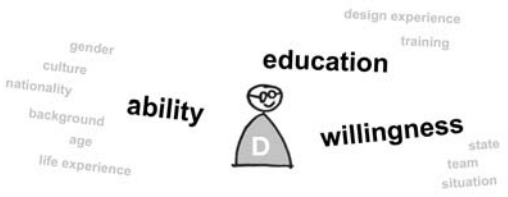


Figure 3.2 Designers differ in developmental level of empathy which is determined by the designer's personal ability, education and willingness (Kouprie and Sleeswijk Visser, 2009).

Cognitive and emotional components of empathy
Most of the psychological literature distinguishes two components of empathy: affective and cognitive (see figure 3.3). The affective component is seen as an immediate emotional response of the empathizer to the affective state of the empathee. This emotional response can have several forms, of which congruence or emotional contagion (e.g. automatically responding with a smile and feeling happy when you see somebody smile at you) is the most common form (Gladstein, 1983, cited in Duan and Hill, 1996; Vreeke and van der Mark, 2003). It is an automatic response to another's emotional state. Mead (1934) added the cognitive

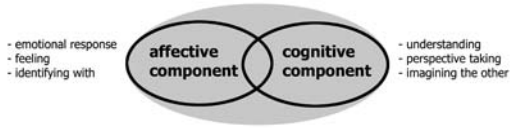
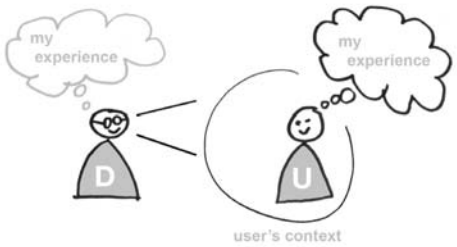


Figure 3.3 the components of empathy.

component: the understanding by the observer of the other person's feelings (Baron-Cohen and Wheelwright, 2004). The empathizer sees or hears about the empathee's situation and imagines this situation from his own perspective. It is concerned with intellectually taking the role or perspective of another person, *'a capacity to take the role of the other person with whom one interacts'* (Mead, 1934). Mead emphasized the role-playing activity, and suggested that this perspective-taking can facilitate one's ability to understand another person's affective behaviour and understand how another person views the world. Although the affective and cognitive components can be separately discussed in theory, several writers have argued that they cannot be separated in reality. These components function because they are strongly interrelated. For example, when people make decisions in social situations, the brain makes use of several affective and cognitive components (Damasio, 1994).

Figure 3.4 Empathy is a process of understanding the user on an emotional level, in which the designer's experiences are also addressed. The designer perceives the user's situation and tries to understand the user's experience by relating to his own world of experience.

For designers, awareness of both components is essential. One of the two components will not suffice in understanding the user's world. Having an emotional response (affective) to another's emotional state and being able to reflect on that by perspective-taking (cognitive) is a core mechanism of empathy. When user experiences resonate with a designer's personal experiences a deeper understanding of the user experience is obtained (Buchenau and Fulton Suri, 2000). This could be realised if the designer connects with the elements of the information in his own perceived world, through which he creates his interpretations (see figure 3.4) (Mattelmaki, 2006a, Fulton Suri, 2003a). Perceiving other people is a process of actively constructing a view of the other's world. The designers' own perception of the world, his goals in constructing his personal world and the situation in which this 'imbuing with meaning' takes place are important influences on the world under construction (Dorst, 1999). This implies that designers are personally involved, by allowing their own worldview, feelings and experiences to be used in order to understand the users' experiences better. If designers do not have related experiences, they can be aware that they have little knowledge available and can learn from the user.



Empathizing is a process

Several authors from psychology and philosophy described empathy as a process with different phases, which I placed in an overview (see table 3.1). The first phase is stepping into the world of another person. The second phase involves walking around in the other person's world, getting immersed and leaving out judgement. In the third phase a detachment takes place in order to step back into one's own world. For example, in the situation of a psychotherapist with a client, this process would be as follows: Phase 1: The therapist listens to the client's story and asks questions to elicit more stories. Phase 2: When the client is talking, the therapist listens, nods, and imagines what it is like to be in the world that the client is describing. By opening up, the therapist uses his own feelings to understand how the client must feel. Phase 3: the psychotherapist steps back into the role of therapist in order to help the client with his professional skills.

This process of creating a deep understanding for the other is relevant to communicating rich experience information. Especially, the stepping in-walking around-and stepping out process implies that a part of empathy is stepping out and going into the helping mode of creating product ideas for the user. When the third phase is absent and the designer relates too strongly to the user's feelings,

	Phase 1	Phase 2a	Phase 2b	Phase 3
Stein (1917)	emergence of the experience: perceiving a past experience of someone else	fulfilling expectation: getting pulled into the experience, standing next to the person facing the object of his emotion		comprehensive objectification: withdrawing from the other's experience, with increased understanding
Reik (1949)	identification: paying attention to another and allowing oneself to become absorbed in contemplation of that person	incorporation: making the other's experience one's own via internalizing the other	reverberation: experiencing the other's experience while simultaneously attending to one's own cognitive and affective associations to that experience	detachment: moving back from the merged inner relationship to a position of separate identity
Rogers (1975)	entering: entering the world of someone else, becoming at home and sensitive to what someone is experiencing	living: temporarily living someone's life; sensing the other's world with fresh eyes, not making any judgements		communicating: communicating your senses to the other, checking if your senses are correct, being guided by the other's responses

Table 3.1 Phases of empathy distinguished by different authors.

he might lose sight of other important issues in the design activity (Fulton Suri, 2003a). There is a subtle difference between having *empathy with* and *sympathy for*. The difference lays hidden in the word '*with*'. When someone has empathy *with* another person, he feels *with* the other person (for example feeling personally sad, when someone is crying). When a person has sympathy *for* someone, he feels sorry *for* the person who is crying, but does not feel sad necessarily. With empathy in design it is not the aim of the designer to fully understand the user, which is impossible because everybody is different; but it is an attempt '*to achieve a greater awareness, an extended imagination and sensitivity to another person's world in a powerfully and memorable way*' (Fulton Suri, 2003a). It is an implicit combination of aspects, which gives 'a sense of', 'a feeling of', how the user sees, experiences and feels at a certain moment in place and time.

Concluding, empathy is a complex phenomenon and has many aspects which can be applied and explored within communicating rich experience information. Mattelmaki's (2006b) definition of empathy in design is clear and simple: '*Empathy in design is the ability to step into another person's shoes, imagine how that person feels, would think and act, in order to use that understanding in designing*'. So, empathy is a deep understanding of the user. This 'deep' means that the designer is opening up his own perception in order to experience the reality of the user. The designer can identify, connect, and feel with the user by going through a process of stepping in and out of the user's world. In between the designer uses his imagination by allowing his own worldview, feelings and experiences, to create an understanding of the user. In this process the designer is personally, cognitively and emotionally involved. Then the designer has become sensitive towards the user and the context in which his product ideas will be used. Using this understanding in designing involves reflecting on this imagination, making sense of it and using this knowledge in creative design activities.

3.1.2 Providing inspiration for idea generation

New product ideas result from a creative process in which inspiration plays a role, but this is not a well defined element. In the dictionary inspiration is defined as 'a sudden intuition as part of solving a problem' or as 'arousal of the mind for creativity' (www.wordnet.princeton.edu). Literally, inspiration is the act of inhaling (in Latin in-spirare), which suggests something blown suddenly into the mind. This passive character is also described in Glover et al. (1989)(p.214) as the effortless and non-intellectual nature of inspiration. The inspiration I refer too in this thesis, is less passive. By a lack of sudden illumination designers need to actively search for materials that support their creative thinking. To clarify the concept of inspiration, I take a look at creativity theory in literature and what role rich experience information can have in the creative process of designers. These aspects are discussed below, and I conclude with a description of inspiration relevant for this thesis.

Creativity as an ability

Similar to empathy, creativity depends on the designers' ability and motivation. The personal ability of designers to come up with creative ideas differs depending on their background and training (Amabile, 1996). Motivation plays a large role as well in the level of creativity of designers. Components of high levels of creativity are characterized by designers having an eagerness to work diligently (Amabile, 1996) and by being in a state of flow (Csikszenthmihalyi, 1998). This arousal state of having the drive, of being in flow, is a positive state for getting inspired. Designers often express that they 'are (not) inspired', meaning a range of aspects, of which one is that they did experience flow.

Motivated designers have a drive to create product ideas. This flow is an optimal experience in which designers are totally engaged in their activity and is related to their level of control, attention, curiosity and intrinsic interest. This suggests that, to support the designers in creativity, their control, attention, curiosity and interest in rich experience information should be taken into account (Amabile, 1996).

Inspiration as part of the creative process

Wallas (1926) defined the creative process in four phases: (1) preparation, (2) incubation, (3) illumination and (4) verification. In the preparation phase the designer gathers information and creates a context for the design brief. The designer collects, studies, orders and shifts the information in order to be able to make sense of it, which is setting directions for product ideas. When progress is not made, the problem is set aside. This is the incubation phase, which leaves space to be surprised and to be open to new ideas. For example, breaking the rhythm, by going away from the desk, is a way 'to get inspired' (Keller, 2005). When designers are off the beaten path, they become more open for discovery (Kelley and Littman, 2001). Then, in the illumination phase, the designer is seeing possible solutions. After some period of time (the incubation phase), often with no clear cause, the solution appears. Several stimuli can help him to suddenly see possible solutions to the design problem. This is the phase of illumination. As often as not, it is not the elements that were gathered in the preparation phase, but rather, an element not before considered as relevant. Inspiration is most related to this third illumination phase, where the sudden insight, the 'a-ha' moment, takes place and new ideas are formed. This suggests that efforts to inspire designers are linked to the two previous phases; preparation and incubation. Inspiration is then the fuel of the creative process.

Triggers for inspiration

Several elements play a role to inspire designers:

First there is a tension field between freedom and constraints. On the one hand freedom allows designers to choose for themselves what they take along in their creative process, and relates to a feeling of being in control. Freedom and playfulness are important elements in triggering their creativity. On the other hand creativity flourishes by constraints. By setting a frame designers have a starting point from which they can explore a wide variety of possibilities. Therefore, design briefs are preferably formulated sharp and edgy, as opposed to fuzzy formulations (Kelly and Littman, 2001).

Secondly, imagination is an important element in creating product ideas. Designers liberate their minds by making free associations with future concepts. Designers use tools and techniques to embed their earliest ideas in the context of the future situation, e.g. by creating a sketchy storyboard of the intended role of a product in people's future lives. For example, figure 3.5 shows a storyboard created by a design student, in which a possible interaction with the product is explored in a sketch. Creating storyboards supports designers in *imagining* the possible interaction, use and experiences with their product ideas.

Thirdly, discovery is an element of inspiration. Inspiration is more than informing, but triggering designers to create actionable outcomes. Discovering new elements which might be relevant and making new connections and associations, are part of the creative process. Offering designers paths for discovery supports them in taking further steps for exploration.

At last, rich sources of information trigger inspiration. Confronting designers with varied and diverse information about the topic, supports designers in making unexpected and surprising connections. One of these rich information sources is the experience information about people's everyday lives.

Figure 3.5 A storyboard to explore the interaction between mother and child, while being respectively at work and school. By drawing a story in space and time, the designer makes an infinite set of choices, such as what to leave in and leave out, making him aware of the use context, and how possible interactions can enhance the feelings and drives of mother and child. (source: graduation project Robin Hoenderdos)

Concluding, in this thesis I refer to the quality of providing inspiration as 'fuel for creativity which is embedded in the users' context'. Rich experience information aims at informing and inspiring designers. It is an informed inspiration, which is part of a process to understand and make sense of the information and use this creatively in designing. Inspiring designers involves offering paths or discovery, but at the same time freedom to associate and choose for themselves what elements to take into account. Inspiration is part of the creative process, and starts with triggering designers to become curious and stimulate them to eagerly study the information and imagine possibilities in a future situation, leading to new product ideas that fit and enhance the users' experiences.

3.1.3 Supporting engagement with the rich experience information

Engagement means being committed to or being involved in an activity, someone or something. People who are engaged are interested, motivated and feel part of that activity. For example, someone can be engaged in watching a movie. For communicating rich experience information, engagement has two meanings. On the one hand the motivation or the interest of the designer to receive and use the information. This means that the designer is, e.g. taking the initiative to receive and use the information and that he is curious towards the information. On the other hand engagement also refers to the literal 'being there' to partake in the activities in which the information is collected and used. For example, being part of a team which analyses the data. For both the motivation of designers, and for

the actual participation in activities, there is one overruling aspect determining both; the attitude towards users and user-centred design of the company and of the designer himself.
The quality *engagement* is about designers being committed to use the rich experience information. A designer needs to be (1) motivated and (2) have the possibility to be literally involved. Motivation relates to the level of commitment designers give, the curiosity and the willingness they develop to study - and keep on relating to - the user experiences throughout the design process. This quality is therefore largely dependent on contextual aspects of how the project is integrated and valued within the company.
The company's culture, attitude towards users, the role of designers within the company and the standard procedures in the design process determine to a large degree the designers' possible level of involvement. Besides the company's organisation having a large impact on macro scale (engagement with the project), the personal motivation of designers determines the level of getting involved with the results (engagement with the results). The way that a design team is approached, the initiative, responsibilities, resources, the way the product ideas are going to be evaluated etc define to a large degree the motivation of designers with the project and the rich experience information.
For example, it is easy to imagine that design teams, as other expert teams, are quite motivated when the top management of their company has taken a radical step to transform the organisation of a company to a user-centred innovation process, and has invested in explorative rich user studies in the fuzzy front end. The top management gives their researchers, designers and developers large responsibilities in terms of addressing their expertise and expects breakthrough discoveries. The newness of the methods trigger excitement and enthusiasm and the expectations of the outcomes are high. Designers might feel committed and a great responsibility in coming up with breakthrough ideas, which users will love to use, and which eventually result in more profit for the company. The top management is waiting for their outcomes with high expectations.
As an opposite, a design team might be less motivated when it receives less attention and when expectations of their efforts in studying user experience information are not set high enough. Top management could be more interested in the results that successful products produce (increased revenues, higher margins, etc) and less about the people, processes and tools that generate innovative products, which is often the case with product development companies (Rhea, 2003). A possibility for researchers is to make an overview of the factors that influence the designer's engagement.

Motivation of designers
Besides the company related context, the involvement of designers can be determined by more personal factors, such as their commitment to create products that enhance people's everyday lives, the curiosity towards rich experience information, and the willingness they have to learn new things from people. Especially the role of the researcher and the social activities with the design team are of specific interest here. The researcher can play various roles; from being a facilitator of a workshop, to the analyst who explains the conclusions. The role of the researcher and the way this researcher presents himself to the design team might influence the motivation of the recipient designers.

Engaged with the users, the information and with the project
Designers can be engaged with the *project*, the *information* and the *users*. Being engaged with the users and with the project are inherent part of being engaged with the information. The engagement with a *project* is largely dependent of con-

textual aspects of how the project is integrated and valued within the company. The engagement with *users* comes close to the other quality; creating empathy with users. The designer's engagement with the *information* of user studies was my primary focus in studying this quality.

Concluding, I define the quality engagement with rich experience information as 'the motivation of designers and contextual factors that determine their possibilities to be engaged with the information'. The motivation is an interest to receive and be committed to use this information in their design activities. The possibility to use this information depends on the working environment of the company. Quite a body of literature is available on inspiration and empathy. They are more defined than the quality of engagement, as discussed in the previous sections. Engagement is a designer's cognitive activity too, but is largely influenced by the context of the project. Empathy and inspiration encompass cognitive and emotional activities of designers. In the empirical studies I will explore the possibilities of engaging designers in a company context. The qualities empathy and inspiration will be more deeply investigated in order to learn about the mechanisms and processes that can enhance these. In section 3.5 I specify researchers' questions for each quality.

3.1.4 The three qualities and their relations

Although I have discussed these qualities separately, they are not independent.
A metaphor that may help to nuance the differences and the overlaps of the three qualities is the geographical map (see figure 3.6). A hiker uses a map to explore the terrain; so a designer uses a map to explore the world of users' experiences. The map is not the terrain, but a representation of the terrain. People's experiences in their everyday lives are the terrain. The map does not replace the terrain, but helps designers to discover and explore the users' experiences (Stappers and Sleeswijk Visser, 2006).

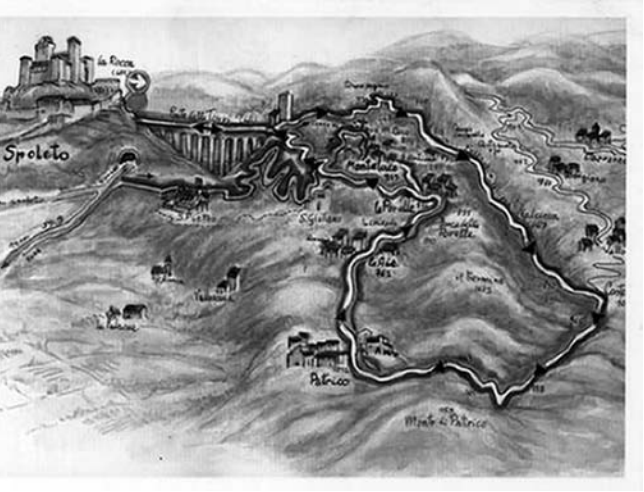


Figure 3.6 A map could be used as a metaphor to the terrain of rich experience information. The three qualities can all be addressed by using the map, but in different ways. (retrieved from www.mapwizard.nl)

Empathy with the user is defined as a deep understanding of the user. The quality empathy would be that designers imagine the people who live in the houses on the map. Designers try to imagine if the girl in the house on the corner would play in the field next to her house, and if she is bored or happy in that little village. Inspiration is discovering paths through the rich experience information, leading to new product ideas for the users. Inspiration with this map would be walking the paths and discovering new paths through the terrain and picking up elements on the way, and using these elements and impressions to create new product ideas. These paths can be not indicated (then the designer chooses to walk through the rough land), or could be indicated by roads, rivers or route indicators.
Engagement is being motivated to receive and use the information in designing. As described in section 3.1.3 this motivation can be affected by the designer's intrinsic motivation, his attitude towards users, to the project and by the company culture. Engagement would be that designers are willing to use the map, that they open the map and combine this map with their other tools (different maps, compass etc) in order to understand as much as possible, and that they enjoy the discovery of the land themselves.
Each quality has its specific aim. For example, whereas within the empathic quality the communication is more focused on being able to (partly) experience the

variety and complexity of the user's world, the inspirational quality focuses on setting out paths for discovery. They do overlap. Engagement and empathy as qualities merge when designers become highly engaged with the users. When designers are engaged with the information, they are interested in the users. Opening oneself up to the user's experiences touches the domain of empathy.
Engagement and inspiration as qualities merge when designers are using the information while creating ideas and are in flow. When designers make sense of the information, empathy and inspiration merge. Inspiration is related to creating a deep understanding of the user, which is creating empathy, and using this understanding as part of being inspired for creating product ideas. As an example of how these qualities are different, but can also overlap I present a quote of a designer in one of the studies (see Chapter 5). This designer responded to a marketing report with statistical demographic information: *'I am not inspired by these diagram,... I want to see real people and what they actually think and feel'*, indicating his need for less abstracted information about users in order to be inspired. What this designer was looking for is information that enables him to empathize with the users in order to feel inspired to create product ideas.

The qualities are aims of a successful communication
The aims of the communication lie in the three qualities. Each quality should be satisfied, but to what degree? Each is present to some degree in a design process, and can be enhanced by the communication. Depending on the company, the target group, the researchers, designers and other stakeholders involved, these qualities need less or more support. For example, a well trained design team, skilled in quickly creating innovative product ideas, might need less support in getting inspired, but more in enhancing their empathy. Appropriate tools and methods for communicating rich experience information can increase one or more of these qualities to a degree that matches the needs of the project.
As stated in chapter 1 it is difficult to trace back whether the final success of a product in the market can be attributed to a successful user research or communication earlier in the design process. The outcomes of a creative process can be judged as 'new' and 'relevant' (see the introduction of section 3.1), but also these indicators are rather difficult to evaluate. Therefore, I focus on evaluating a closer area around the communication: Are designers able to create a deep understanding of the user and can they act upon the findings in their design activities?
This implies that the communication is judged 'successful' if designers are *empathised* with the user, are *engaged* and *inspired* by the information. The degree at which these qualities are sufficient may be different for each situation. I suggest that the more designers feel empathised, engaged and inspired, the more the communication has been successful. It is the combination of these qualities which I define as a *successful* communication. The empirical studies will explore how these qualities can be aimed at.

3.2 OPERATIONAL MEANS

Design literature has also suggested several recommendations for the way in which the information can be communicated to designers, e.g., use of visual material (see chapter 2). These recommendations are practically orientated, whereas the recommendations about the qualities are more abstract. Table 3.2 shows the variety of tools which are common in design practice to communicate information. This table shows that user researchers have a wide variety of

Tools	Examples
moodboards	collages
stories	storyboards, scenarios scripts, narratives, (photo) diaries
text	transcripts, raw data, original quotes
personas	posters, life-size dolls, cardsets, reports
digital media	videos, websites, databases, emails
2D static images	infographics (graphs, maps, diagrams, illustrations, charts, exploded views)
3D models	prototypes
presentations	powerpoint slides, speeches
written reports	analysis reports, executive summaries, articles, newsletters, powerpoint slides
simulations	(interactive on-screen) installations, games, videocollages
workshops	role-playing, improvisation, performances, bodystorming, brainstroming, consumer safaris

Table 3.2 Overview of existing communication tools in research and design.

possibilities to communicate rich experience information. It would go too far to describe the advantages of these tools in detail here. Instead, figure 3.7 shows an overview of the possibilities researchers can make use of when developing tools and processes for successful communication. I divided the operational means into three categories; content, form and process plan.

The content category consists of the information itself, but researchers can choose what to include and can choose the amount and the level of abstraction of the information. In the form category user researchers can choose which medium to use (poster, animation, report etc), which elements to include (photos, quotes, etc) and the aesthetics (lay-out, font etc). The process plan category contains organisational elements such as people, activities and time.

This overview of operational means is not exhaustive, because of the great variety of choices in categories of content, form and process plan that can be made differently for each project. There is a whole discipline of information design which is relevant to this thesis, providing many 'tricks of the trade', such as 7+/-2, readability ratios (Miller, 1956) or composition orderings (see e.g., Lidwell et al, 2003), but in this thesis I focus on how operational means can be used to fulfil the qualities. (Chapter 7 suggests further reading for information design).

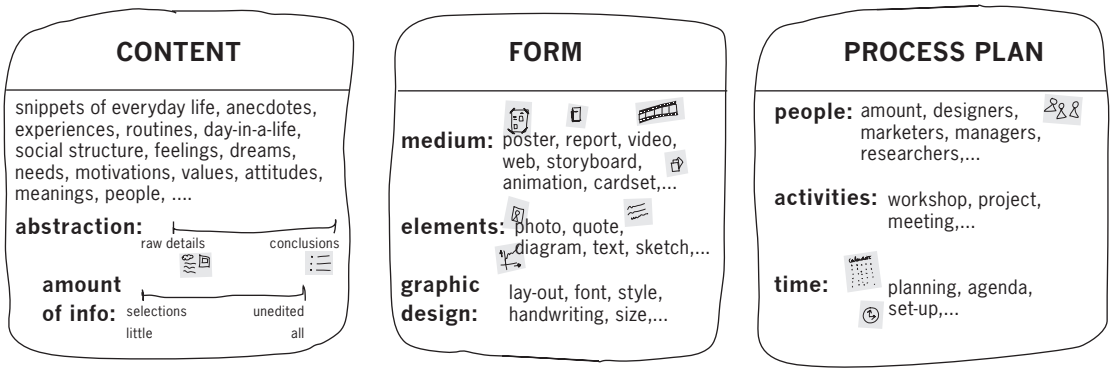


Figure 3.7 Possibilities in operational means which researchers can apply in their communication tools and processes.

3.3 THE STRUCTURE OF THE FRAMEWORK

Choices about which operational means to use affect the qualities of the communication. In design literature, I have not found clear descriptions of links between the operational and theoretical aspects of communicating rich experience information. By creating a framework, I attempt to make explicit links between these domains. For example (see figure 3.8), showing *a photo* of a user gives a personal impression. The designer notices that this person drinks much, quickly, early, at the table etc. The designer gets a feel for the situation and the person. The face on the photo gives a *personal impression*, and a sense of the other as a full flesh-and-blood being, and helps to gain *empathy* with him.

The elements in this example can be divided into three fields.
(1) The element **'gaining empathy'** is an aim of the communication, which I place in the top field of the framework (see figure 3.9). Field 1 represents the proposed qualities of communication. These qualities are already described in section 3.1. The communication is successful if these three qualities are fulfilled.

Figure 3.8 A photo of a user from a user study.

(2) The element of showing a **'photo'** is an operational means to support to retain the personal identity and contextual information from the source. But a video-fragment, audio-fragment, or the presence of a name are also means to relate to an individual person. I place this operational means in the bottom field of the framework. Field 3 represents operational means.

(3) The framework makes explicit links between these two fields. I propose an intermediate level, level 2, which links the qualities and the operational means (see figure 3.9). It represents mechanisms which influence the impact of choices of operational means on one or more of the qualities. In the above example, a photo of a user can support the designers' empathy because the designer can relate to the individual user. The designer has access to personified information. The mechanism, **'personification'**, is a process by which designers can relate to individual users, which can enhance the designers' empathy with the user. Personification is the mechanism by which a designer can relate parts of information to the same, recognisable person.

—>
Figure 3.9 The structure of the framework for communicating rich experience information. The framework has three levels; proposed qualities, mechanisms and operational means.

The framework consists of a structure with three fields (see figure 3.9). This example of a photo of a user, through personification leads to stimulating empathy for the user, might be a clear link, but other links and elements must be explored, determined and evaluated. This framework is a way to organize and communicate the theoretical construct of communicating rich experience information. Creating a framework for a theory is the broad mental configuration of a given phenomenon (Bacharach, 1989). The structure of the framework consists of three fields. Field 1 contains three proposed qualities, and field 3 contains the categories of operational means. What is lacking is the middle field, which connects the operational means with the qualities.
In the descriptions of the three qualities (see section 3.1), I have already suggested

communication

of rich experience information into the design process

qualities

ENHANCING EMPATHY
designers are creating a deep understanding for the user

PROVIDING INSPIRATION
designers are triggered to create product ideas

SUPPORTING ENGAGEMENT
designers are feeling committed to use the information

mechanisms

personification

operational means

CONTENT

snippets of everyday life, anecdotes, experiences, routines, day-in-a-life, social structure, feelings, dreams, needs, motivations, values, attitudes, meanings, people, ...

abstraction: raw details — conclusions

amount of info: selections — unedited; little — all

FORM

medium: poster, report, web, storyboa, animation, ca

elements: photo, quote, diagram, text, sketch,...

graphic design: lay-out, font, style, handwriting, size,...

OCESS PLAN

nount, designers, arketers, managers, esearchers,...

workshop, project, meeting,...

time: planning, agenda, set-up,...

a few relations with possible mechanisms and operational means (second and third field), which will be further explored in empirical studies, (e.g., *photo-personification-empathy* or *storyboard-imagination-inspiration* or *participants-involvement-engagement*.)

3.4 THE ROLE OF THE FRAMEWORK

This framework has a threefold function for further research: theory building, directing the set up of studies, the design of tools and my personal view on the phenomenon.
First, the framework serves to structure theory about communicating rich experience information, by identifying and relating the elements and their relations. The structure of the framework presents the identified elements from literature, but also shows that elements are still missing here, that some elements are not clearly defined and that relations between elements are missing. Mainly the middle field, connecting the upper and lower field is not filled in yet. The framework will be detailed in chapter 6 after the studies, showing a more complete set of mechanisms and their relations with the qualities of communication.
Second, the framework serves as a preliminary guidance for the studies. The framework tells me what I want to know most and first (Miles and Huberman, 1984). It helps to identify new research questions (see section 3.4), to define the first set-ups of the studies and to design the tools to communicate the rich experience information. The framework functions as input for my own design and process interventions in the studies.
Last, presenting the framework is a way to share my personal construct of the communication phenomenon as a researcher *and* as designer to the reader of this thesis. It is a way to make my theoretical assumptions more explicit. A key aspect of my research approach is that I have several roles (see chapter 4) . These multiple roles I play are quite complex, but, by showing my early constructs of the phenomenon, my design ideas and choices can be related to the framework.

3.5 QUESTIONS

The construct of the framework shows that the relations between qualities and operational means of communication are lacking; by identifying and exploring mechanisms that play a role when designers receive and use rich experience information, these relations can be explored. To set directions for the studies the following sub research questions are formulated:

(1) How can the designers' empathy with users be enhanced by rich experience information?
Section 3.1.1 described empathy as a process, in which several mechanisms play a role. In the studies I will focus on how this psychological process can be applied in the communication process and I will explore solutions to support this process of stepping in, wandering, and stepping out of the user's life.

(2) How can designers be inspired by rich experience information?
Section 3.1.2 described inspiration as fuel for creativity. Designers make many intuitive choices on their paths of discovery. In the studies I will focus on what content elements and form variations designers perceive as inspiring, and what would be an appropriate balance between freedom and directing in offering paths for discovery for designers?

(3) How can the designers' engagement be supported by the rich experience information?
Section 3.1.3 described engagement as the motivation of designers and the contextual factors of a company. In the studies I will focus on what factors play a role in supporting designers to engage with the information and what solutions can support researchers to support the designers' engagement?

(4) Do these qualities also help or hinder each other?
This last question addresses the proposition I have made that these three are indeed qualities of communication, and how they are interrelated.

These three questions require to connect the lower level with the top level of the framework by setting out paths through the middle level.
The questions give direction to the set up of the empirical studies and will be answered in chapter 6.

3.6 CONCLUSIONS

Design literature provided several recommendations for successfully communicating rich experience information, but these recommendations are little related to each other. In this chapter I constructed a framework to structurally organise these elements, find new elements and identify relations. I propose three qualities which should be aimed for when communicating rich experience information to designers. These qualities can be supported by setting in operational means and activate mechanisms of the designers to achieve empathy, be inspired and engaged with the information. By conducting a set of empirical studies, I will identify and explore these mechanisms. In the next chapter the use of this framework will be explained by presenting my research approach.

4

Research approach

In this research project, I take several roles, such as an academic researcher, a user researcher and a designer during the empirical work.
First, I am a researcher studying the phenomenon of rich experience communication. In this role, I formulate research questions, collect and analyse the data and extract the relevant knowledge.
Second, I am a user researcher who conducts user studies and is challenged with communicating the user study results in an optimal way. Not many product development companies in the Netherlands conduct user studies that focus on rich experience information of users in the fuzzy front end. The few that are exploring new user research methods, express the need for practical knowledge about, specifically, the implementation of the results of such user studies in the design process (including the communication issue) (see chapter 2). This research project addresses a new and upcoming field and cases have to be created as they are not readily available in current practice. As an expert on contextmapping I offer to conduct contextmapping studies for companies. In return, they offer me access to their work practice which allows me to observe whether and how the results are used.
Third, I am a designer creating tools to communicate rich experience information. The content of these tools often originates from my efforts as a user researcher. As a designer I choose the medium, the elements, and the graphic design of the communication tools. In this role, I rely on the current state of the framework so far, and make use of literature on graphic and information design for creating innovative solutions.
To illustrate these roles, I present a moment during one of the idea generation workshops which took place in study 7 (see chapter 5). Figure 4.1 shows a design team, consisting of designers, marketers, managers and engineers, during the workshop in the process of interpreting the information. Here, they are supposed to be reading anecdotes from users on large posters and are writing their first interpretations on these posters. In the researcher's role, I observe and analyse how design teams react to the information which is communicated. As a user researcher I facilitate this workshop together with a co-researcher. As a designer I created the posters. From these different roles I have different perspectives on this situation:

Figure 4.1 An idea generation workshop in study 7. A marketer and a manager are discussing a project, which is not the project of this workshop. The other team members, in the background of this figure, are carefully studying posters that contain lively anecdotes of the users.

As a **researcher** I see that the marketer and manager seem to lose their attention faster than the designers and engineers. The designers and engineers keep on reading and making notes on the posters with data. Could it be that different professions have different interests in rich experience information?
As a **user researcher** I facilitate the idea generation workshop. I feel slightly irritated because these two people waste the precious time of the workshop, while I want them to immerse as much as possible into the anecdotes of the users on the posters.
As a **designer** I wonder if I made the design of the posters good enough, because some people seem not to be attracted to them. Is the font too small, or is there too much text?

Insights from these perspectives add to the knowledge development of communicating rich experience information. It allows me to observe the design team's behaviour during the workshop, and gives space for intervening and trying to optimize the communication. These different roles determine, to a large degree, the research approach. I need an approach that combines the gained knowledge

from all these roles. Since there is not one existing research approach that allows me to do this, I construct my own approach based on elements of several existing approaches.

First I describe the outlines of the chosen research approach, and then I describe existing approaches to borrow ingredients from. This chapter starts with a description of my personal background and my values, which give insight into my attitude towards this research approach (section 4.1). Section 4.2 reviews related research approaches and presents the ingredients which I borrow for my specific research approach. Section 4.3 describes the research approach in more detail, such as the applied methods of data collection and analysis within the studies. Section 4.4 describes the conclusions of the research approach.

4.1 MY RESEARCH ATTITUDE

This section gives insight into my personal background and my values. I am not trying to be an independent researcher, but look with a variety of coloured glasses at the object of this study. I am looking for solutions (design background) and I have a drive to improve current design practice by doing this research project, because I am a promoter of user-centred design. This background has an influence on why I have chosen this particular approach.
The ambition of this thesis is to gain knowledge about the communication phenomenon of rich experience information to design teams and to make this knowledge directly applicable in design practice. For me it is important that the gained knowledge has to be in line with the possibilities of current design practice. Having a background as a designer, I enjoy creating new things and I have a strong preference for tangible results. The results of this thesis are, besides a detailed theoretical framework connecting goals and means of communication by mechanisms, guidelines that can be applied by practitioners to improve their communication (chapter 6). This means that the generated knowledge has to be relevant to the design practice and available for practitioners. The guidelines are the main conclusions to the 'how' question of this thesis. Chapter 7 provides tips and tricks for these guidelines. A third way to connect with practitioners and share the knowledge is by developed tools during the studies. These can be seen as prototypes and they are carriers of the (even implicit) knowledge (Stappers, 2007). The new knowledge resides in the developed tools, the publications and in the detailed descriptions of the studies (chapter 5).
I am personally a promoter of user-centred design. I am disturbed by the many products available nowadays that do not fit the everyday lives of people. Especially, products with new technologies can be a hassle in everyday life. Take, for example, the digital TV products. In almost every household, I see nowadays several remote controls for controlling the TV; the remote control belonging to the TV, the remote control for the digital receiver, and one or more controls for hard discs, DVD and video players (see figure 4.2). When people want to watch TV, simply 'pushing a button' is past history. You have to put the TV on with the TV remote controller (not the 'off' button, but a channel button, e.g.,'1'), but you will not see anything yet. With another remote controller you have to activate the digital receiver (the on/off button). But then, in most cases, you might still not be able to watch TV. The mode has to be switched to e.g., 'SCART' or 'EXT-1'. Imagine how many people do not know what 'SCART' or 'EXT-1' stands for anyway. Then switching channels is only possible with the remote of the digital receiver, whereas the remote control of the TV also has buttons indicating the channels. Making the mistake of pushing one of the channel buttons on the TV remote

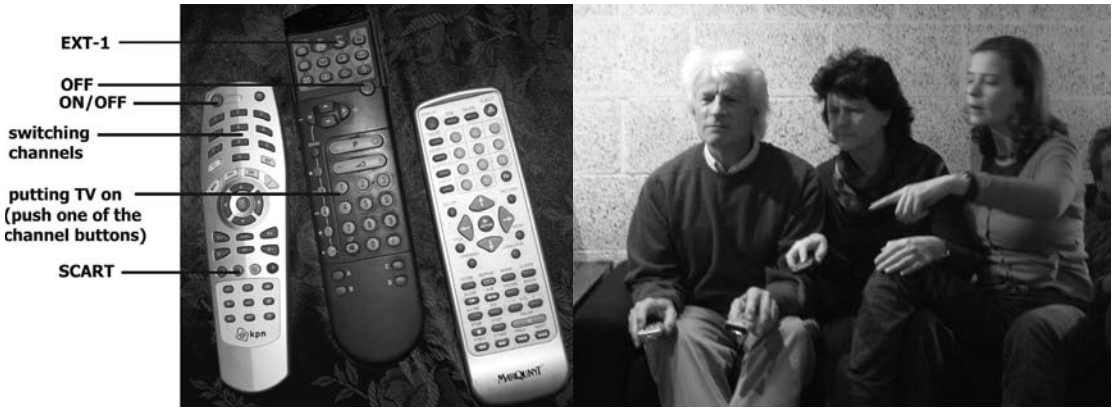


Figure 4.2 Three remote controls for watching TV, leading to confusion and unpleasant TV watching experiences.

(which you have probably used for years for this), gets you into trouble, because then you have to reset the mode again, causing confusion and a very disturbing TV experience. Moreover, other people who are watching TV with you are disturbed too, resulting in a less pleasurable experience for all.

User-centred design methods change the design process of these kinds of products. If design is to encourage artefacts that are meaningful to users, it must at least acknowledge, if not support, their conceptions and desires (Krippendorff, 2007). By focusing on the user in his natural context, companies can take the users' experiences into account from the beginning of the product development process and create products that better fit the (future) everyday lives of people. User-centred design methods are getting increasing interest in practice (see chapter 2), but there is a lack of knowledge and skills which makes it problematic to apply these methods and to integrate them into the current work practice. More knowledge on the communication of rich experience information could support the success of user- centred methods, such as contextmapping, in the early phases of the design process. My aim is to go beyond generating practice-relevant knowledge: I would like to improve the current practice by advising companies on how to integrate user-centred design methods. As a co-developer of the method contextmapping at the StudioLab, I am motivated to explore and to show the design practice the potentials of this method, and continuously refine the method by applying it in design practice and reflecting on its use. This research project roughly consists of a variety of studies (see figure 4.3) of which the majority are conducted in commercial design practice. In all of these studies designers (either design students, professional designers or other professionals involved in designing) receive and act upon rich experience information, often by interactive meetings, such as idea generation workshops. In these studies many interventions and ideas for new communication tools are explored.

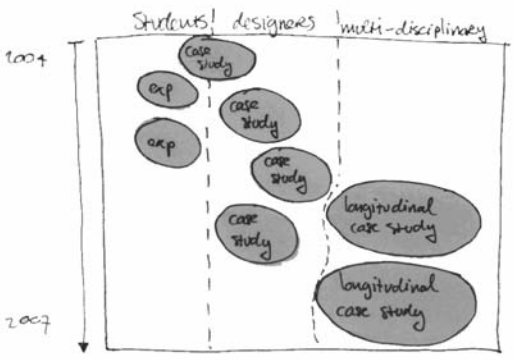


Figure 4.3 Overview of the studies.

The characteristics of this project imply an approach that is grounded in both practice and theory and myself taking the role of both an actor and a researcher. This above mentioned background gives insight into my research approach. The research is both practice-based and theory-orientated and I act both as a researcher and as an actor in these studies. This research approach can be characterised as follows: explorative, designer-driven, and systematic.

– An **explorative approach** to take the complexity and variables of real practice into account. The phenomenon under study is new, and depends on many variables. My aim is to get insight into which variables play a role and what kind of role, rather than isolating and testing one or two variables. The involvement of a variety of companies, receivers of information and design practices in the studies make it possible to explore the phenomenon in vivo and provides insight into a variety of contexts. This implies that the researcher is flexible and can adjust the research questions during the studies in case emerging insights do suggest fruitful promises for further investigation.
– A **designer-driven approach** for making choices with incomplete information. Designing involves a creative and intuitive process, dealing with uncertainty, instability, uniqueness and conflicting situations (Cross, 2007). It is in the industrial designer's nature to have a drive to solve problems and look for tangible solutions. My approach to the research question is orientated towards solving and improving the situation; how can the communication be made successful? This implies that I identify the space for improvement and design solutions. I design tools and guide the communication processes in the studies based on the framework. In the course of this, many theoretical ingredients are taken into account in the creation of these solutions and I reflect upon these considerations. The design process of diverging/converging or generating ideas/evaluating ideas is the basis of knowledge development in a designerly way (Stappers, 2007). This way of approaching the problem helps me to think further than the existing situation and to generate solutions.
– The last aspect is a **systematic approach** to consistently generate knowledge which is in line with the main research question. Conducting a wide variety of studies with an explorative nature can have the pitfall of losing focus. To keep the main goal of generating knowledge clear, I have built a framework to structurally organise the findings before starting the studies. Besides focus, the framework also serves as an intention of scope; the intention is not only to stick within the framework, but also to look for the best opportunities in the real world and fill in the empty spots. The framework serves as a starting point for the studies and each study fills in a part of the framework. The framework contains the aims and means of the communication phenomenon, but it lacks the connections between these two. By taking this framework into account during the set-ups, conducting and analysis of each study, I can structurally organise and add knowledge to the framework which is in line with the main research question.

In the next section this approach is further defined and related to several existing approaches.

4.2 EXISTING RESEARCH APPROACHES TO BORROW FROM

In research there are two opposing paradigms; positivism and social constructivism. My approach is in line with the latter paradigm. The positivist paradigm implies a basic belief that the world is external and objective. Research involves independent research, large samples, testing theories and experimental designs. The social constructivism paradigm implies a belief that the world is socially constructed and subjective. Research here embraces a large degree of involvement of the researcher (I take part in the process being studied), small number of samples (I study a few cases in detail), generating theories (I will build a theoretical framework) and fieldwork (most of my studies take place in design practice) (Easterby-Smith et al., 1999).
In art & design and in the social sciences, various research approaches are avail-

able which share the above values, but none of them is completely applicable to my research project. However, I can borrow several elements from the following approaches: practice-led research (Nimkulrat, 2007), Action Research (Avison et al., 1999; Stringer, 1999), Research through Design (Archer, 1995; Overbeeke et al., 2006; Stappers, 2007) and Grounded Theory (Glaser and Strauss, 1967).
A frequently used approach in art and design research, is **practice-led research**. Practice-led research is when a creative piece of work is included in the submission for examination (Nimkulrat, 2007). The development and the effect of created interventions or art pieces are central in this approach. My approach borrows from this approach in the sense that I indeed create interventions, but central in my approach is the communication phenomenon being studied, and not the (art) work itself. The interventions are a means of generating knowledge about the underlying dimensions of the phenomenon. As a fruitful side result, however, the created solutions can function as inspiring examples for practitioners.

Action Research originates from the social sciences. It is an inquiry which is context related and addresses real-life problems. Action research is an iterative process involving researchers and practitioners acting together on a particular cycle of activities, including problem diagnosis, action intervention, and reflective learning (Avison et al., 1999). The researcher intervenes in the practice in order to improve the practice collaboratively and to further the goals of (social) science simultaneously. There is a dual commitment in action research to study a situation and concurrently to collaborate with people in that situation by changing it in what is together regarded as a desirable action (Gilmore et al., 1986). My approach shares the aspect of intervening in the phenomenon, working together with the practitioners, and me having the role of a practitioner (conducting and delivering user study results) as well as a researcher (intervening, observing and reflecting on the phenomenon). To be able to create situations where there is rich experience information to be communicated to designers, I take a role as a user researcher. Only then can I observe the communication in the full complexity of real practice. Together with the practitioners I share the same goal of improving the design practice. In line with Action research, I treat the diversity and capacities within local groups as an opportunity to enrich my research process. My approach shares many of these qualities, but there are differences as well. The interventions in most of the studies are single events, not iterations. Iterations do take place, but each time with a different company involved. I collaborate with a variety of practitioners (design students, product designers, interaction designers, engineers, marketers, strategists, consumer researchers, managers etc). My aim is not to engage and dedicate my research efforts in the improvement of one system in one company, which is common in the action research approach, but to be relevant to many different companies and practitioners.

In the design discipline, **'Research through Design'** is an emerging approach where the act of designing and creating new solutions is a valuable process for generating knowledge. The considerations and reflections during the design activity contribute to the research (Archer, 1995). In design, products are created for the future; a world that does not yet exist and is not yet known (Stappers, 2007). The approach is based on designing structurally varied, experiential and product relevant prototypes and generating knowledge by the process of building and evaluating these prototypes. These prototypes go through cycles of building and evaluating in real-life settings whenever possible (Overbeeke et al., 2006). Both the building and the evaluating generate knowledge. Publications of studies applying this approach generally describe an iterative cycle of

building/evaluating, or action/reflection, or doing/thinking (Keller, 2005; Ross, 2008; Wensveen, 2005). My approach borrows from this approach in that it allows me to take a designer role creating prototypes of possible communication tools and confront the practice and see the effect. However, this approach is still in development and does not provide enough information, such as guidelines and criteria for research procedures yet. Brandt and Binder (2007) compared three PhD projects that claim to have applied this approach, and conclude that the easiest way so far seems to be adopting 'conventional' strategies borrowed from research communities outside design research. This indicates the underdeveloped nature of this approach. My approach fits in the domain of this approach, but I will have to specify the details.

A last approach which relates to my approach is **Grounded Theory** from social sciences. This is a qualitative research approach that has the purpose to develop theories that are grounded in the data rather than existing theory (Glaser and Strauss, 1967). By a process of multiple data collection, coding and categorizing a theory emerges. The researcher has an open mind and is as much as possible open to discovery (Corbin and Strauss, 1990). The theory is built from the data, with as little as possible theoretical prejudice. Personally, I embrace this kind of research since it is so open to discovery. It allows the discovery of elements, and relations between elements, which otherwise might not be identified. Although I appreciate this attitude, my research approach does not resemble a grounded theory approach at all. It is actually rather the opposite. My approach is much more directed; it starts from theory and organises the data in a pre-structured framework. Moreover I infuse the phenomenon with my own tools and actions. I still have chosen to take this approach to borrow elements from because in an overall view, I share the intention of being open to discovery. The advantage of this open mindset is to prevent fixation on preset assumptions. I will not stick to theoretical judgements if the practice reveals different ways. In more detail, within the studies I will borrow several elements from grounded theory, such as multiple sources of documentation and continuous note-taking during the studies. In Grounded Theory, everything is data, i.e., the researcher's interpretations as well. Collecting data and analysis are simultaneous activities, which I adopt in my approach.

Both Action Research and Research through Design have a cyclic nature of activities. This is the most important aspect of my approach. There is an action-reflection process described in several publications in each of these approaches (e.g., Avison et al., 1999; Overbeeke et al., 2006; Schon, 1983; Stringer, 1999; Scrivener, 2002) e.g., within action research 'research informs practice and practice informs research synergistically' (Avison et al., 1999). Within Research through Design prototypes go through cycles of building and evaluating in real-life settings (Overbeeke et al., 2006). This action-reflection process is essentially an iterative loop between doing something (creating, intervening, changing) and reflecting (see, think, analyse) on its effect. There are many representations of this cyclical process, but they all seem rooted in the experiential learning cycle of David Kolb (1984): concrete experience-reflective observation-abstract conceptualisation-active experimentation. The different versions might be comprised of a two element cycle which alternates between action and critical reflection.
To summarize, Practice-led Research and Research through Design encourage researchers to build 'things', and take the considerations for the design of the 'thing' as research data into account. Action Research promotes interventions to be able to unfold the phenomenon in question and to aim for improvement of

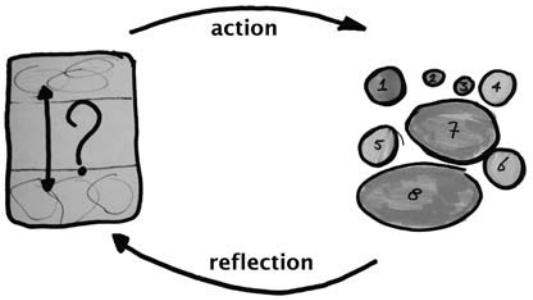


Figure 4.4 The iterative loop of my research approach. Based on the framework actions in practice are performed (the studies), and reflections on these actions are fed back to the framework.

the practice being studied. Grounded Theory embraces the openness of the researcher in relation to this phenomenon. The fundamental structure of my approach is this action-reflection loop (see figure 4.4). The actions in each study are based on theory (from the framework) and, by evaluating the actions (during and after), new knowledge is added to the framework. This new knowledge after each study allows me to reflect on what is learned in that study and what the next steps should be for a following study.

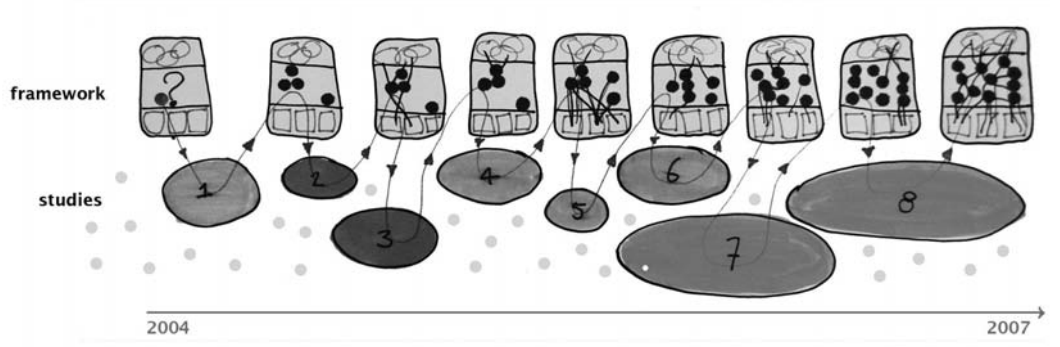
4.3 DETAILS OF MY APPROACH

The above section elaborated on my attitude towards approaching the problem. In short, I chose an explorative, designerly-driven and systematically structured approach based on an action-reflection process of gaining knowledge.
This sounds challenging, but what does it mean practically in terms of implications? This section describes how the studies are set-up, and which methods are used within the studies.

4.3.1 Eight explorative studies

Figure 4.3 shows an overview of the eight studies. These eight studies took place over time, revealing the iterative loop of gaining knowledge by each study (see figure 4.5). When I extract the action-reflection loop over time, the feedback of knowledge into practice and back into the framework becomes explicit. The studies and the framework inform each other subsequently. Each study explores a part of the framework, and as a result adds knowledge to the framework. This is an iterative process where each study sets the stage for a new study in which the knowledge so far can be explored further. The framework is a direct reflection of the gained knowledge and the reality of the previous studies. The framework and the studies are continuously tuned and related to each other.
This figure looks like a clear and linear process, but in reality the growth of knowledge has been less linear. Between 2004-2007 I have been teaching and consulting students and professionals by translating their user research results into product or service ideas, which could be regarded as many tiny studies as well. Putting my efforts into education provided the bedrock for my ideas about successfully communicating rich experience information and a continuous stream of reflection on these ideas. Students asked critical questions and/or surprised me with innovative ways of communicating their findings of a user study.

Figure 4.5 The iterative research process over time.



By responding to them, I created more awareness about some of the issues. The continuous discussion with these students supported me in understanding and improving the communication of rich experience information. As an indication, I have been teaching contextmapping to more than 500 students over the last five years, and with about 100 of these students I have been closely involved in their design project in which they integrated their user research results[2]. Furthermore, contacts with peers and practitioners within the science and design field (conferences and freelance work) were of great value to me in developing the knowledge about communicating rich experience information. It would go too far to structurally describe all these events as learning points in this thesis. However valuable these interactions may have been, the focus here is on the studies that were deliberately set up. The small dots around the studies (in figure 4.5) represent the many side activities, which have informed and inspired me along the way.

4.3.2 Methods within the studies

In total eight studies were conducted. As figure 4.5 indicates, there are small and large studies, with an experimental or an explorative character and a variety of participants involved. Table 4.1 shows an overview of the studies. This set of studies was not formed in advance, but developed along the way. Each study raised new questions and helped to set the direction for the following study. In combination with the opportunities in practice (e.g., a company who likes to collaborate) the developing framework guided the research journey. It is a process of discovery, rather than evaluation. This is similar to the process of designing, where there is an evaluation after each phase in order to define the new knowledge need (Dorst, 1997).

The starting point was what I knew about communicating rich experience information from literature and earlier experiences. These combined led to a first instantiation of the framework. For every study an appropriate method was chosen for the specific research questions at hand. For example, in study 1 the effect of a tool, the personal cardset, was explored in a case study with student designers and professional designers. The findings in this study revealed four mechanisms that relate to supporting empathy and inspiration. The second study zoomed in on the relation of two of these mechanisms with the intended qualities, empathy and inspiration (see table 4.1, the column 'motivation' for relations between the studies). A second example was that I realised, halfway along my research journey, that in practice the receivers of the information are seldom only designers, but multi-disciplinary teams including managers, marketers, strategists, and engineers as well. And obviously, organisational aspects such as budget, time, company politics, composition of the team and jargon differences can have a large effect on the demands on, and success of, the rich experience information communication. To be able to understand the effect of these variables it was more convenient to become a temporary team member; experiencing the company culture from the inside and following their work process over a longer period of time. The last two studies were longitudinal case studies and both took more than six months.

In these last two studies I have applied action research methodology. I became a

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[2] Besides teaching students at the Faculty of Industrial Design Engineering, I have been teaching at Faculty of Architecture, TU Delft, Human Technology Schools in The Hague and Groningen, Cultureel Maatschappelijke Vorming at Rotterdam, Design Academy Kuopio, Finland, National Taiwan University (NTUST). I have also been involved in teaching professionals (Kivi contextmapping Masterclass (TU Delft, NL), Creatief met de eindgebruiker Masterclass (Hogeschool Utrecht, NL), and JIDPO (Tokyo). Apart from teaching I also learned a lot from freelance activities as a user researcher (www.contextqueen.nl).

nr.	titel	motive	type of study	design team composition
5.1	*'Did you read Sasja?'*	first exploration of interactive and personified tool	explorative case study	design students and product designers
5.2	*'Based on four men only'*	further investigation of effect of personification, interactivity and raw/anstracted data	experimental case study	design students
5.3	*'I was visualising the users'*	if representing raw and personified data has so much impact, would a mere transcript of a user session function as a communication tool?	explorative case study	design students
5.4	*'I prefer real photos over cartoons'*	exploration of various rich visualisations as opposed to providing unedited transcripts	explorative case study	interaction designers, product designers, design researchers
5.5	*'I could keep on doing this for hours'*	exploration of a direct interpretation process, without any communication tools	explorative case study	product designers
5.6	*'I have been a postman too'*	further investigation of addressing designer's own experiences and its effect on empathy	experimental case study	product designers, engineers, psychologists, computer science students
5.7	*'I am not inspired by these diagrams'*	exploration of embedding a contextmapping study in practice	longitudinal case study	product designers, marketers, engineers, product managers, consumer researchers
5.8	*'When there is no stake'*	further investigation for engaging stakeholders	longitudinal case study	product designers, marketers, strategists, engineers

Table 4.1 Overview of the studies (see chapter 5 for extende table, p.88)

temporary member of the design team (e.g. I got an entrance card with my name to be able to enter the company's building for half a year).
The majority of the studies were case studies (Yin, 1994) where the phenomenon in question is studied within contemporary events, and the variables are not under the control of the researcher. In studies 2,3,4 and 6 variations of tools are compared. Study 2 was set up as an experiment, study 3 and 4 as case studies. Study 6 was set up as an experiment but turned out to be a case study, since there were many variables overruling the independent variable.
In the next section I will elaborate in more detail about the various methods of data collection and analysis, taking the quality criteria of scientific research into account.

4.3.3 Reflexivity, relevance and validity as indicators for the research quality

Malterud (2001) describes three overall criteria for establishing research quality based on a review of literature about qualitative research; reflexivity, relevance and validity. I use these three quality criteria for my research approach. Other criteria are either comprised within these three criteria or not relevant in my research approach. Objectivity, for example, is in line with the criteria reflexivity, as long as the researcher acknowledges that knowledge is partial and situated, and that the researcher is aware of, and explicit about, the researcher's effects. Reliability is, for example, less relevant in this research project where richness of data and diverse contexts are preferred. Reliability addresses the matter if the method yields the same results each time (Babbie, 2004), which is not the case with eight explorative studies in different contexts. In this section I describe the criteria and explain how my research is set up in line with these criteria. In the next section I describe the data collection and analysis procedure in more detail.

Reflexivity

Malterud describes reflexivity as '*an attitude of attending systematically to the context of knowledge construction, especially to the effect of the researcher*'. Reflexivity is like the researcher's mirror. The researcher's background, position and attitude have influence on how the research is set up, how the questions are formulated and how the methods are judged. It explains the angle of investigation and therefore the researcher should share his preconceptions in discussions and in writings. '*Reflexivity starts by identifying preconceptions brought into the project by the researcher, representing previous personal and professional experiences, pre-study beliefs about how things are and what is to be investigated, motivation and qualifications for exploration of the field, and perspectives and theoretical foundations related to education and interests*'. In the introduction of this chapter and in section 4.1 I elaborated on my background, attitude and values for the research approach. I explained the angle of investigation; the variety of coloured glasses through which I look at the research data. I am aware of the consequences of these different glasses and I openly describe my observations taking into account these coloured glasses. In the descriptions of each study in chapter 5 the different roles are made explicit. For example, the 'background' section of each study shows a short overview from the user researcher's perspective and the 'tool considerations' section of each study describes my preconceptions, and knowledge present in advance. This knowledge is mainly based on the framework which evolves in line with the studies, but is also fed by my intuitive knowledge of thinking in solutions (related to my design background). By explicitly describing these considerations and openly describing the observations and including many contextual details, I attempt to provide transparency in the knowledge generation.

Relevance
Relevance means that the knowledge I gain from each study is useful to other practitioners as well. It refers to whether concepts from one study are relevant to other settings (Easterby-Smith et al, 1999). Corbin and Strauss (1990) emphasize that '*No theory that deals with social psychological phenomena is actually reproducible in the sense that new situations can be found whose conditions exactly match those of the original study, although major conditions may be similar*'. The more variation in the different types of studies and companies, the more likely it is that the findings apply to a broader range of situations. The eight studies are described one by one and, besides the detailed storyline of each particular study, I have made a clear relation with the framework. Each study starts with explaining what part of the framework this study addresses, 'intro and overview' section and ends with a 'back to the framework' section. The intro and end summary of each study take a helicopter view and extract what can be generalised. Also the findings of one study are always viewed with the knowledge of previous studies in mind. If something is contradictory with earlier findings, this is further investigated (as Table 4.1 shows). In the conclusions over all studies (chapter 6) I elaborate on the relevance of the findings for the field.

Validity
In general validity is concerned with whether the research findings make sense, and are credible to the research context; its users, our peers and our readers (Gray & Malins, 2004). It relates to how well the knowledge corresponds to the question. Validity has two components: external and internal. External validity addresses the problem of whether findings are transferable to other settings, which is similar to the above description of the criterion relevance. By staying close to practitioners, and even having two studies embedded in practice, I make sure that the knowledge is addressing the communication question of real practice. Internal validity is related to terms of credibility, authenticity and transparency. The underlying issue here is whether the findings in relation to the interventions make sense to both participants and readers (Miles and Huberman, 1994). I attempt to provide transparency in my research process by proper documentation and by being explicit and reflective about my different roles during and after the studies. This way, readers can follow the path from data to findings and judge if the findings are credible and authentic. My validation efforts of the findings are (derived from Miles and Huberman, 1994):
- Checking for researcher effects (e.g. being aware of the effects on my interventions and taking this into account during analysis).
- Checking for representativeness (e.g. making sure that the findings are based on representative events by connecting findings from one study to the next).
- Getting feedback from informants (e.g. inviting participating designers in the study to react to my preliminary findings).
- Triangulating (e.g. using multiple data sources, multiple methods, and involving multiple researchers in the analysis).

In the next section these issues are further discussed on the level of data collection and analysis.

4.3.4 Data collection and analysis

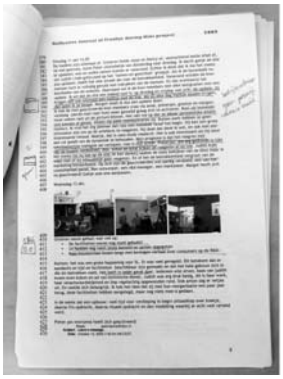
Data collection
Proper documentation is important so that results are available for critical assessment later (Gray and Malins, 2004). Proper documentation also refers to diversity in documentation, which is an important criterion for Grounded Theory (Corbin and Strauss, 1990).

In every study I made use of a variety of methods for data collection; open or semi-structured interviews, discussions and most of all observations. In some studies I also used questionnaires, self-reports of designers and logs. For example, in study 6 designers were asked to draw a graph to show how their empathy level changed during the course of the workshop. This helped me to better understand my observations of their empathy levels. In all studies the data is recorded and maintained. As a result, the data collection consists of recordings (audio and video), transcripts, photos, logs, collected company brochures, email conversations and notes in notebooks and reflective journals.

During the entire research project, I made annotations in notebooks (in total five notebooks, 200 pages each), to record the questions raised, my intentions, decisions, observations, reflections and interpretations (see figure 4.6). Making annotations in these notebooks (over the period of 2004-2008) helped me to have my thoughts accessible for critical assessment later. I noticed different things when looking through the researcher's glasses than when I put on the user researcher's glasses or the designer's glasses, as illustrated in the introduction of this chapter. Having the observations through these different coloured glasses well documented, is a key aspect of the criteria reflexivity. By systematically writing all these thoughts, interpretations and intentions in the notebooks, I created a record, which is close to how things really went, rather than only interpreted recordings afterwards. In the two longitudinal studies I kept a 'reflective journal' (Gray and Malins, 2004) to keep trace of the journey as it unfolded. I wrote almost everyday in this journal during the two studies. By documenting the creative process of the set up of studies and tool considerations I was able to look back and see for what reasons choices have been made. During a study with Action Research the researcher rather adapts his assumptions and ideas during the study. The reflective journal serves as a document to make the things happening over time explicit. It holds together the structure of all other types of data collection. It contains my daily observations and everything that took my interest and that I found worth writing about, e.g., my observations on the behavior of team members, tool considerations, emails, contact moments by phone, interpretations, and evaluations of the quality of early conclusions. Figure 4.7 shows an excerpt from the reflective journal.

Figure 4.6 My notebooks during the course of the entire research project.

As in Action Research and in Grounded Theory, the research does not only derive knowledge from the gathering of reference materials, but the process itself is part of the data. The reflective journal describes, in a step-by step way, the journey. I kept the reflective journal only for personal use, since it contained also my feelings about aspects of the research (e.g., being happy when a first reaction was posted on the website, or being frustrated when someone did not respond in time). In both studies I also wrote a report with the early findings, based on this reflective journal. The resulting report has been used to discuss the early findings with both the co-researchers and the participating people from the company. Besides direct observations, the recordings contain many clues, which I might have missed during the direct observations. These recordings also served for transcribing interviews and discussions. I have re-listened to many of them during the writing of the studies for this thesis (e.g. on my mp3 player, when cycling from and to the university) in order to step back into the context of that study. Furthermore, interpretation sessions and discussions with co-researchers were always audio-recorded, to be able to reflect on these discussions later on.



Tuesday 11 Oct. 14.09

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Above that, I do not want to disturb the team member with an update too much. I would like that the website is a stable tool, it should be consistent; I am gonna do it just on Tuesday and Friday, every week, very consistent. I'll do it by sending an update to everyone's email address with a link to the site. If I would email them everyday, I might spam them too much. So Friday I have to do the next update.

I asked all not-activated team members (James via Jennifer, Harry, Eefke and Margaret) today (third email to them) again by email to activate themselves on the site. James will stay out of the picture the coming two weeks. I notice that they do not seem to know each other's personal email addresses or at least do not give it anyway. They only communicate through work. Out of work they seem to have little or no contact with each other, and I think it is such a pity that James is not taken part in this project anymore. He could be such a stimulating factor for the team and react on the little fragments which I place on the website. I think, he would do that, react, and also with some interesting content. But yeah, that's life, this is real practice case study research. It would also be interesting if he would play a role later, just to keep the dynamics going on. I expect that the amount of reactions with the text balloons would be quite small, James is not active. Harry, who was so excited at the start seems totally disappeared now, Chris and Jennifer take a look once in a while. Julia visits the website most often (checked by the stats of the website), but I do not know if she would react and with what kind of content, and what kind of reactions the people from marketing would give. Until now, the members who have activated themselves are nicely spread; one designer, one R&D manager, one marketer. Oh, Margaret has activated herself! I am immediately going to adapt the website to this.

Wednesday 13 Oct.

Figure 4.7 Excerpt of the reflective journal used in study 7 (translated from Dutch to English).

Analysis

A general analysis approach is applied for all studies. This approach is based on consistently checking findings with earlier findings, using large data displays and triangulating with multiple researchers.

– **Checking findings with earlier findings**
  This research project has a qualitative and explorative nature. The analysis is grounded in the data, which includes both observations and interpretations. Early ideas for possible mechanisms are explored in the context of designers receiving and using rich experience information for designing. These early ideas are rough concepts, which are refined by identifying their relations with other elements. Some of these mechanisms (e.g. 'immersion') and their effects on the intended qualities (e.g. 'empathy') are not directly observable. Indirect indicators (e.g. quotes from designers about their immersion in the data) play a large role in gaining insight into what kind of cognitive processes take place in the designers' minds when receiving rich experience information. I often searched for more or other forms of evidence, besides the behaviour and quotes of designers, to exemplify findings. I used a verification process, which was integrated in the data collecting itself. By self-consciously setting out and double checking findings with co-researchers (and team members in the longitudinal studies), using multiple sources and modes of evidence, I checked if the findings were representative for drawing the conclusions. The process of analysis in each study started with browsing through the data (notes, transcripts of interviews or discussions, videos, photos etc) and selecting data which might be relevant. By finding and discussing patterns in the data, categorizations were formed and eventually led to findings. These findings were then compared to findings from the earlier studies (if they strengthen or contradict earlier findings). In this iterative way, the mechanisms are explored in more than one setting, making sure that the findings about a mechanism are appropriately linked to the observations.

– **Using large data displays**
  Data displays and discussions with co-researchers are central elements in my analysis approach. Components of data analysis are (1) data reduction, (2) data displays, and (3) conclusion drawing/verification (Miles and Huberman, 1994). Creating data displays are a means of studying the selected data and of finding patterns (like forming matrixes). As with data reduction, the creation and use of displays has been a continuous part of analysis in the form of posters and large walls (see figure 4.8).

In many of the studies I have often used large walls to structure, discuss and re-structure and find patterns in the data. Pieces of paper with transcribed interviews and interpretations, pictures and post-its and stickers fill the wall. These fully filled walls, with selections of raw data and identified patterns, can be regarded as continuously changing living data displays. Together with co-researchers, analysis sessions were held around these posters or large data walls. Large posters were used to add data (from the field or from in between analysis sessions with co-researchers) in the course of the study.

Figure 4.8 An analysis session, where quotes are cut out and organized in clusters by three researchers. The walls in this studio (StudioLab) are magnetic and can be annotated on with markers, which makes it a very supportive space for analysis session.

– **Triangulating**
A third aspect of the analysis is triangulation by involving multiple researchers. This is a method to include an independent check or measure on the findings (Miles and Huberman, 1994). Co-researchers have been involved in conducting the studies and in analysis sessions. In conducting the studies co-researchers from the StudioLab, as well as the designers who took part in the study, were involved in observing, reflecting and interpreting first observations. Since I played various roles in this research project, I was not always able to take the helicopter perspective and see patterns in the data. My own capacities were limited to one role at a time. For instance, I might not have been 100% open to discovery as a researcher, when my attention was taken by recruiting users for a user study in my user-research role. The researcher's perspective could be overruled at moments by the designer's or team member's perspective. Documenting the processes through these coloured glasses during the studies (for example the reflective journals) helped me to have detailed insight into what happened over time. In most studies, a co-researcher was involved to support me in making observations of the designers. Furthermore, in all studies I have openly discussed my research focus with the participating designers just after e.g. a workshop. I asked them for reflection on their own processes and activities in order to better understand my observations. In both longitudinal studies, a team member became a co-researcher (according to the Action Research approach), just as I became a member in their team. In these studies, I planned a meeting every three to four weeks to discuss my observations with them. These meetings (on the phone or face to face) were always recorded on tape for assessment later. Even during the writing of the studies for this thesis these participating designers have been closely involved in the description of the study they were involved in. During analysis sessions, I have been discussing and exposing the data of each study with co-researchers at the StudioLab and if possible with other fellow researchers who have experience in the same

substantive area and with participating team members in the studies. Often, one co-researcher was involved in conducting the study observing the design team using my tools. At the start of an interpretation session, this co-researcher would start with explaining which observations were meaningful or surprising for him, before I would explain my early interpretations. A third researcher, who was not involved in conducting the study, was usually asked to read a transcript or watch a video, and give his fresh view on the first data elements. This way of triangulating with multiple researchers supported the process of making sense of the data and validating the findings.

4.4 CONCLUSIONS

Chapter 3 presented a framework to be filled in with findings that resulted from eight empirical studies; whereas chapter 4 shows the research approach that consists of an iterative loop between the framework and the studies. The aim of the studies is to describe how designers react to the interventions and tools, and thus how rich experience information can be successfully communicated. My research approach does not aim to produce facts or direct relations of independent and dependent variables. Instead, it aims to take the situational and contextual aspects into account and include a wide variety of many variables (such as different preferences of designers, different designers/participants, different companies, processes, different possibilities to be involved, etc). The descriptions of the studies provide detailed insight into the situations in real practice, leaving the phenomenon in its full complexity. The conclusions of the studies are based on an analysis process of reflection in and on action. By triangulation with other researchers during and after the studies, and by involving the designers who participated in the studies, the findings are validated. The next chapter describes the studies one by one.

5

The studies

This chapter presents eight studies to fill in the framework. Each study explores a part of the framework and feeds back the findings into the framework in an iterative process. Most of these studies were conducted in industrial practice, and as a result the findings are related to the specific company involved. The growth of knowledge about communicating rich experience information is summarised in a section at the end of each study: lessons which are valuable about the mechanisms and relations which are generalizable beyond the situation of each study. In chapter 6 the findings across the studies will be discussed. Table 5.1 shows an overview of the studies. The companies in the last two studies are anonymous because of company-sensitive information. The descriptions of the studies all have the following structure (see figure 5.1):

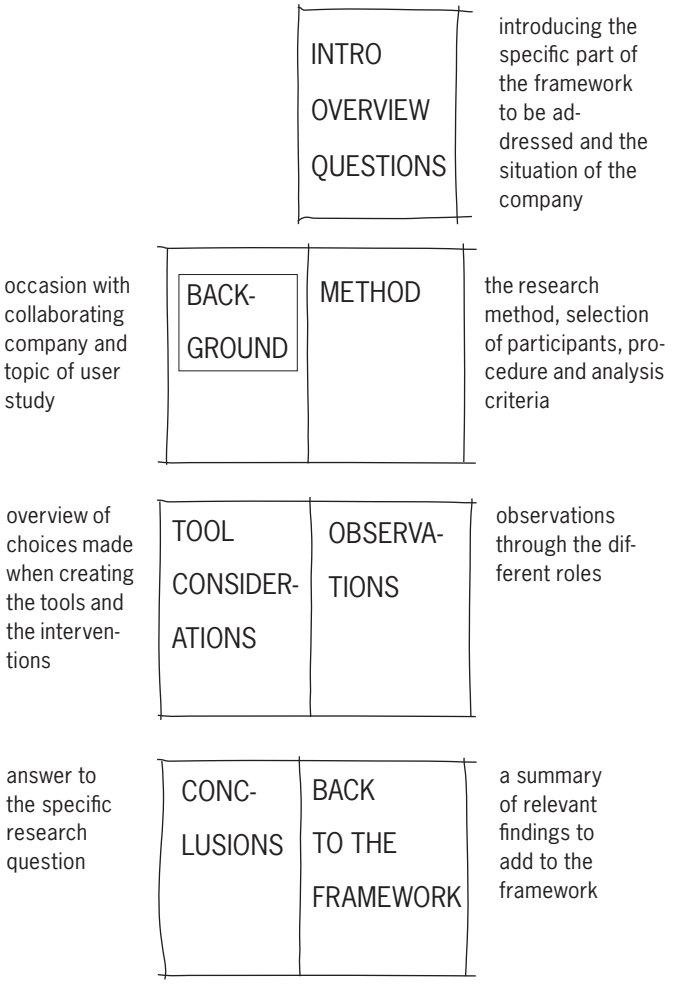
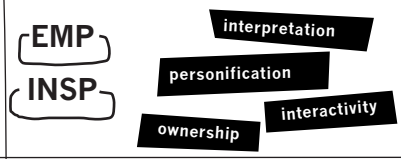
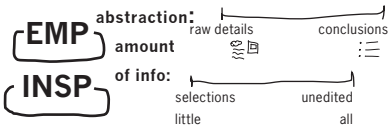
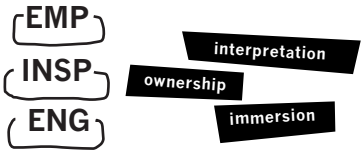
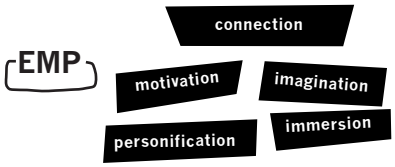
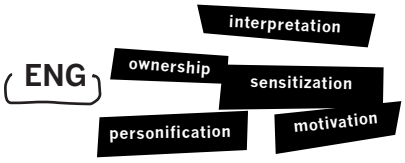
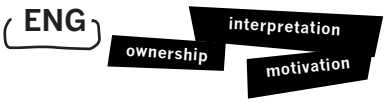


Figure 5.1 Outline of each study description.

Table 5.1 —> Overview of the studies.

nr.	titel	question	motive	focus (mechanism and aims)
5.1	*'Did you read Sasja?'*	How can the design of a tool support designers in creating empathy and providing them inspiration for product ideas?	first exploration of interactive and personified tool	
5.2	*'Based on four men only'*	What is the effect of interactivity and level of abstraction on the designer's empathy with users and on their inspiration?	further investigation of effect of personification, interactivity and raw/anstracted data	
5.3	*'I was visualising the users'*	How do design students form a picture of the users while reading a transcript and how can this support their empathy and inspiration?	if representing raw and personified data has so much impact, would a mere transcript of a user session function as a communication tool?	
5.4	*'I prefer real photos over cartoons'*	What forms and graphic styles appeal to designers?	exploration of various rich visualisations as opposed to providing unedited transcripts	
5.5	*'I could keep on doing this for hours'*	How can an interpretation process be organised in order to guide designers through the raw data?	exploration of a direct interpretation process, without any communication tools	
5.6	*'I have been a postman too'*	What helps to evoke empathy?	further investigation of addressing designer's own experiences and its effect on empathy	
5.7	*'I am not inspired by these diagrams'*	How can stakeholders from different departments be involved in conducting the user study and using the outcomes?	exploration of embedding a contextmapping study in practice	
5.8	*'When there is no stake'*	What factors influence engagement of stakeholders in the real setting of a large corporation?	further investigation for engaging stakeholders	

type of study	research instruments	setting	design team composition	tools	topic of user data	company involved
explorative case study	observations when using and afterwards an open group discussion about the tools	2 hour ideation workshop	design students and product designers	the personal cardset	shaving	Philips DAP
experimental case study	comparison of four tools by counting; # references to the users and/or themselves (indicator of empathy), # product ideas (indicator of inspiration)	2 hour ideation workshop	design students	cardsets, poster, report	shaving	
explorative case study	self-report ratings in questionnaires and open group discussions	student exercise	design students	transcripts and ID-cards	shaving	
explorative case study	observations when using and afterwards an open group discussion about the tools	2 hour ideation workshop	interaction designers, product designers, design researchers	personas, storyboard, animation, 3D-storyboard, advent calendar	morning ritual of families	Philips Design
explorative case study	participant observation during a one day workshop and evalution discussion	1 day interpretation session	product designers	no tools, but a facilitated process	having and using bicycles	Scope Design Strategy
experimental case study	comparison of two different set ups for workshops by counting number of references to the user/ themselves/relatives, observations and self reports of designers	2 hour ideation workshop	product designers, engineers, psychologists, computer science students	cards with photos, quotes and videos	social lives of elderly	Philips Research
longitudinal case study	action research: participating in the design team and reflecting in and on action by e.g., keeping reflective journals	in-company context-mapping study	product designers, marketers, engineers, product managers, consumer researchers	sensitizing webtool, mirroring letter, action posters	footwear freshness	a multinational fast moving consumer goods company
longitudinal case study	action research: participating in the design team and reflecting in and on action by e.g., keeping reflective journals	in-company context-mapping study	product designers, marketers, strategists, engineers	webtool, goodybag, personas, design guidelines	recently retired	a multinational telecom company

5.1

‘Did you read Sasja?’

INTRO & OVERVIEW

This study explores ‘the personal cardset’ as a tool to communicate rich experience information to designers. Four possible mechanisms to influence the intended qualities of enhancing empathy and providing inspiration are explored. These mechanisms are: interactivity, personification, ownership and interpretation.
I designed the personal cardset based on a set of considerations and evaluated these by having the tool used by designers during ideation workshops.
The considerations are derived from assumptions about mechanisms that could relate to the designers’ inspiration and their empathy with the users.
These mechanisms are explored by evaluating how designers use the personal cardset in an idea generation workshop and to what extent the tool supports these two aims.
This study focuses on the situation when designers did not have any preparation before receiving the tool containing the rich experience information. The designers were not at all involved in the user study and only received the results at the start of an idea generation workshop, which places even more emphasis on the design of the tool, such as the form and the elements to convey the information very important in the success of communicating the information.

Questions
– How can the design of a tool support designers in creating empathy and providing them inspiration for product ideas?

In order to answer this question, the following subquestions are formulated to analyse the results.
– how do designers use the tool?
– is the tool perceived as useful by designers during design activities, such as brainstorming, presenting early ideas?
– what elements of the tool are useful for designers?

5.1 ‘DID YOU READ SASJA?’ 91

5.2

‘Based on four men only’

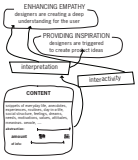
INTRO & OVERVIEW

This study explores four different tools to communicate rich experience information to designers. Two mechanisms, interactivity and interpretation, are explored to influence the intended qualities of enhancing empathy and providing inspiration.

I designed the Personal Cardset based on a set of considerations and evaluated these by having the tool used by designers during ideation workshops.
The considerations were derived from assumptions about mechanisms that could relate to the designers’ inspiration and their empathy with the users. In this study, tools which vary on the mechanisms interactivity and interpretation are further explored.

This study focuses on the situation when design students did not have any preparation before receiving the tool containing the rich experience information. The designers were not at all involved in the user study and only received the results at the start of an idea generation workshop, which places even more emphasis on the design of the tool, such as the form and elements.

Question
What is the effect of interactivity and level of abstraction on the designer’s empathy with users and on the inspiration designers have for creating product ideas?



5.2 / ‘BASED ON FOUR MEN ONLY’ 99

5.3

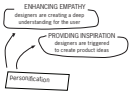
‘I was visualising the users’

INTRO & OVERVIEW

This study explores how design students read through the transcripts of user discussions, which elements they pick up to form a picture of the users and how this digestion relates to enhancing empathy with the users and getting inspired for creating product ideas.
Starting point for this study was the observation that the form of narrative in the Personal Cardset in study 1 was successful in informing and inspiring designers with rich experience information. These narratives were created by selecting and editing the transcript of user discussions. This made me wonder if transcripts could be a useful tool as well to convey rich experience information to designers?
In this study, I explore if and how reading transcripts as a tool can be useful for design students as part of designing. Different forms of the transcript (personified/anonymous, chronological/transcript per user) are compared when used by design students as part of a design assignment.
I also asked design students to explicitly elaborate on the users, and create an identity card for one of the users in the transcript. This assignment was set up in order to explore if and how they construct mental images of users during the reading of the transcript. In the first study, I as a user researcher felt that the search for finding a fitting image for the representations of users is a design act itself which already stimulates empathy with the users. This suggests giving this task to designers to explicitly ‘fill in’ the character. Designers could become participatives creating the representations of users.

Questions
How do design students form a picture of the users while reading a transcript and how can this support empathy and inspiration?

Subquestions are:
1. How do design students perceive reading a transcript of a user discussion as part of a design assignment? Is it experienced as useful and inspiring or as a tedious activity?
2. What form of a transcript is supporting design students in creating empathy and inspiration?
3. Do design students build mental images of the users and if so, on which elements of the transcript are those images based?
4. How do design students experience creating and elaborating on the personality of the users?
5. How do these mental images of users relate to empathizing with them and getting inspired for product ideas?



5.3 / ‘I WAS VISUALISING THE USERS’ 105

5.4

‘I prefer real photos over cartoons’

INTRO & OVERVIEW

This study has a more design-oriented focus compared to the previous studies. The main aim of this study is to explore new solutions for visualizations of rich experience information. When creating communication tools the researcher has an infinite amount of choices on the level of form, style, amount of information, order, medium, elements, etc. These are all choices in the lowest level of the framework, the operational means. Two sets of tools with different choices in operational means are used by professional design teams.

Design choices for communication tools on this level influence the way designers perceive and use the materials and if they can get well informed and inspired.

This study does not elaborate extensively on linking mechanisms with the qualities, but explores the effect of design choices on the perceived inspiration and usefulness of designers. The evaluation took place by observing designers using the tools during ideation workshops and discussing their experiences with the tools.

Questions
What forms and graphic styles appeal to designers?

– Which media and forms work well to convey the richness of the user data?
– How do designers react to different styles of representation (sketchy or pictures)?
– What are appropriate amounts of information during ideation workshops?

5.4 / ‘I PREFER REAL PHOTOS OVER CARTOONS’ 113

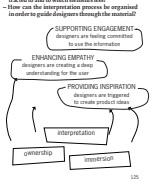
5.5

‘I could keep on doing this for hours’

INTRO & OVERVIEW

This study describes an interpretation workshop of raw data with designers. Interpretation involves a process of studying a rich and diverse set of user data in order to understand the behavior, motivations, feelings, values and contexts of users, discovering patterns and creating meanings as a source of inspirations for generating innovative product ideas.
As described in Chapter 2, design firms acknowledge the value of extensive user research and interpretation processes in the early phases of the design process, but time and budget available is often limited.
This study explores if and how speeding up the process of interpretation can be useful for designers from a design firm.
Findings from the previous studies indicated the necessity of providing raw data elements in order to support empathy for the users and inspiration for new ideas.
In this study I explore if it is sufficient for designers to provide only raw data to designers and guide them through the interpretation process based on raw data in one day. In close collaboration with a design company a context mapping study was performed for one of their clients. The context mapping study was a try-out for this company, to see whether this method could be valuable for them. This implied speeding up parts of the context mapping process in order to be not too time consuming.

Questions
– Is only raw data without any pre-selection, and pre-analysis by researchers providing sufficient empathy for users and providing inspiration?
– To which elements of the data are designers attracted to and to which elements less?
– How can the interpretation process be organised in order to guide designers through the material?



5.5 / ‘I COULD KEEP ON DOING THIS FOR HOURS’ 125

5.6

‘I have been a postman too’

INTRO & OVERVIEW

This study focuses specifically on enhancing empathy for users. One of my assumptions is that empathy with users will increase when designers explicitly address their own experiences. This assumption is derived from a review of the psychological literature, where empathy is regarded as a process, in which an emotional connection with the user’s experiences is a fundamental part. Understanding someone else’s experiences includes cognitive and affective components on the part of the designer.
To be able to understand someone else’s experience a designer can be informed about that experience, but also ‘feel’ what that experience must be like for that person. The designer’s feelings about his own experiences is important, because then he might be able to better understand what it must feel like for the other person to have such experiences. Supporting designers to make an emotional connection might help in enhancing their empathy with users.
This assumption is explored by executing four workshops in which the designers’ own experiences are addressed. Two of those workshops included a specific exercise by which the designers addressed their own experiences, whereas the other two workshops did not. In this way we make a comparison to establish whether this exercise had an influence on increasing designers’ empathy with users.

Questions
– What helps to evoke empathy?
– Does guiding designers to address their own experiences support them in increasing empathy with the users?
– How can empathy of designers be measured?

5.6 / ‘I HAVE BEEN A POSTMAN TOO’ 133

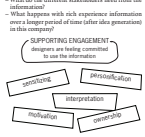
5.7

‘I am not inspired by these diagrams’

INTRO & OVERVIEW

The previous studies focused on supporting designers to have empathy with users and on providing inspirational input for product ideas. This study addresses the third aim of successful communication: engaging designers and other stakeholders, such as marketers, managers and engineers, with the information. In this study I follow a team with stakeholders from different departments of a fast moving consumer goods company over a longer period of time and examine what happens with the context-mapping outcomes. I explore what factors play a role in engaging different stakeholders and how this engagement can be supported by communication tools. The social and political context of a team with stakeholders from different departments is taken into account.
In this company marketing is usually in charge of user research and concept generation. It is a challenge where the application of context-mapping in the fuzzy front end can be positioned in this corporation. I explore how context-mapping as a joint marketing and R&D tool can be used for generating product ideas.

Questions
– How can stakeholders from different departments be involved in conducting the user study and using the outcomes?
– What factors influence engagement of stakeholders in the real setting of a large corporation?
– What do the different stakeholders need from the information?
– What happens with rich experience information over a longer period of time (after idea generation) in this company?



5.7 / ‘I AM NOT I SPIRED BY THESE DIAGRAMS’ 147

5.8

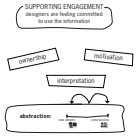
‘When there is no stake’

INTRO & OVERVIEW

This study describes the engagement of various stakeholders with the results of a context-mapping project over a period of 6 weeks. The previous study has shown that communicating to multiple stakeholders in different departments is influenced by contextual factors, such as time, resources, culture, standardized communication channels, attitude towards users, and departmental structures. This study explores the organisation and dynamics of another product development company to learn more about the factors that can influence the engagement of different stakeholders with the information.

A second focus is to explore the needs of abstraction levels of different stakeholders. In the previous study some tapped into the raw data, where others were looking for more interpreted data. The promising webtool of the previous study is further explored in this study. Here, besides providing snippets of raw data, the tool will also provide interpreted data such as emerging themes. This way there are multiple entry points for stakeholders. My assumption is that if stakeholders can choose where to tap in, and are then triggered to ‘switch to another abstraction level’ of the information, they might be more engaged with the information.

Questions
– What factors influence engagement of stakeholders in the real setting of a large corporation?
– When stakeholders are triggered to ‘switch between abstraction levels’ of the information, will they be more engaged with the information?



5.8 / ‘LOOKING BACK ON MY JOURNEY’ 167

5.1

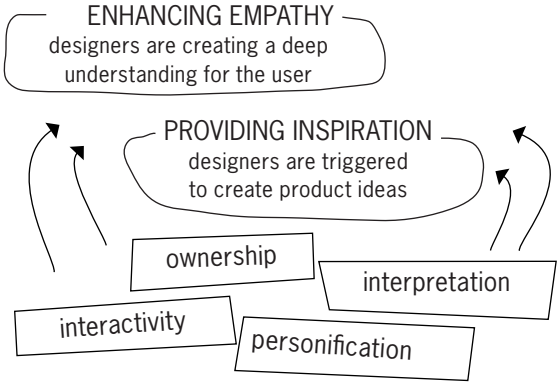
‘Did you read Sasja?’

INTRO & OVERVIEW

This study explores ‘the personal cardset’ as a tool to communicate rich experience information to designers. Four possible mechanisms to influence the intended qualities of enhancing empathy and providing inspiration are explored. These mechanisms are: interactivity, personification, ownership and interpretation.
I designed the personal cardset based on a set of considerations and evaluated these by having the tool used by designers during ideation workshops.
The considerations are derived from assumptions about mechanisms that could relate to the designers’ inspiration and their empathy with the users.
These mechanisms are explored by evaluating how designers use the personal cardset in an idea generation workshop and to what extent the tool supports these two aims.
This study focuses on the situation when designers did not have any preparation before receiving the tool containing the rich experience information. The designers were not at all involved in the user study and only received the results at the start of an idea generation workshop. This makes the design of the tool, the form and the elements to convey the information very important in the success of communicating the information.

Questions
– How can the design of a tool support designers in creating empathy and providing them inspiration for product ideas?

In order to answer this question, the following subquestions are formulated to analyse the results;
– how do designers use the tool?
– is the tool perceived as useful by designers during design activities, such as brainstorming, presenting early ideas?
– what elements of the tool are useful for designers?



Part of this study was my graduation project at P5 consultancy in 2003. One of their potential clients at that moment was Philips DAP, for who we ran a pilot project to inform and inspire them about the men's shaving experience. The procedure of contextmapping was explored as a new method to elicit user data and I designed a tool, the personal cardset, to communicate the results to the client. Since the client was still potential when the cardset was created, the cardset has not been used and evaluated by the designers of Philips DAP, but by voluntary designers.

Figure 5.1.1 A group session with four participants elaborating on their shaving experiences.

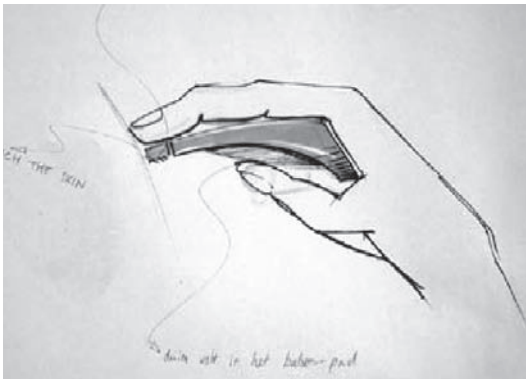


Figure 5.1.2 One of the concepts generated by the designers in the evaluation: A razor held inside the hand, establishing continuous contact between the skin of fingers and face.

Topic: Shaving experience of men

The study was about the shaving experience of men. Eight men (dry shavers and wet shavers) participated in a contextmapping study and expressed their experiences about shaving. They told us detailed stories about their shaving ritual, and their feelings about shaving during the sessions. These are just a few of the shaving insights:

– These men change their routine of shaving during holidays or weekends; *'On Saturdays I do not shave, that is my free day'.*
– They all remembered their first time shaving, which determines largely if they will shave wet or dry for the rest of their lives.
– Looking so closely in the mirror can be quite confronting. It is the only moment when they zoom in and carefully examine their face in strong light, which makes them sometimes realise that they are getting older; *'And, the aging, which you see again and again, because for a small moment you look very conscious to yourself.'*

One product idea that resulted from one of the idea generation workshops was a razor which allowed direct fingertip-skin contact (see figure 5.1.1).
This idea was derived from reading these quotes:
'During shaving, I actually do not think of shaving, but of the day that is gonna come, because shaving has become a totally automatic thing for me. I even always start on this side on this spot (point at his left cheek). Then I turn like this, and then my neck, and even if I would be totallly drunk I will do it this way. My hand knows this movement by heart.'
'I always feel with my fingertips if it doesn't feel smooth yet, after each strike'
The designers combined these observations and had the insight that there should be a device which emphasizes this routine hand movement around the face. There should be a razor with the advantage of an electric razor combined with the tactile quality that wet shaving offers (see figure 5.1.2).

Setting:	2 hour ideation workshop
Tools:	the Personal Cardset
Date:	2004
Topic of user data:	shaving experience of men
Company involved:	not directly

Related publications:
– Sleeswijk Visser, van der Lugt, Stappers (2004) The Personal Cardset-a designer-centered tool for sharing insights from user studies.
– Sleeswijk Visser, Stappers, van der Lugt, Sanders (2005)Contextmapping: Experiences from practice.
– Sleeswijk Visser and Stappers (2007) Mind the Face.

METHOD

A tool was designed and evaluated in ideation sessions with professional designers and with Masters-level students in Industrial Design Engineering of Delft Technical University.

The procedure was as follows:
Four workshops were held, each with a team of two designers. At the start of the workshop, the designers were given the assignment to create one or more innovative concepts for a shaving product, focusing on the experience of shaving. They then received the personal card set, with the explanation that each card contains the contributions of one user from a user study. No directions were given regarding how the personal card set should be used, except that the design teams were asked to start by exploring the cards for about ten minutes. In the two-hour assignment the designers developed concepts for a shaving product. The teams of two designers were set up in order to observe the interaction between the designers, such as exchanging and discussing aspects of the card set. To examine if and how the designers used material from the personal card set to support the argumentation of their concepts, the teams were asked to present their product ideas to someone acting out the role of a product manager. Afterwards, the designers were interviewed about their experiences with the tool.
The workshops were taped on video and the presentations of their concepts to the product manager were transcribed. During the sessions an observation check list was kept to note how the cards were used, and what they discussed about the content. In the interview afterwards, they were asked about their use of the tool, their attitudes and opinions of the tool, if they perceived the information as inspiring, if they were able to create useful insights, if they were able to create a lively image of the users, as well as their feedback to the functioning of the personal card set's elements.

TOOL CONSIDERATIONS

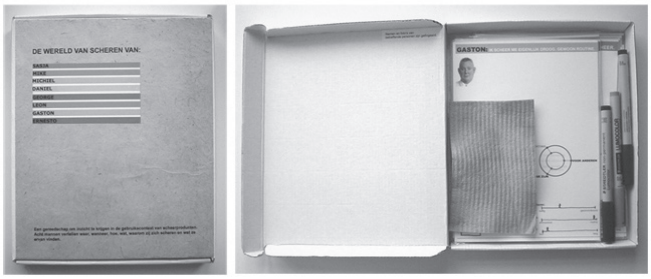
Objectives of this tool are:
– It is easy to use, without explanation
– It supports shared use of the tool between designers
– It invites designers to study the information
– It supports designers in gaining insight in the shaving experiences in a short time
– It triggers designers to create more innovative product ideas
– It fluently merges within sketching and discussing activities of designers

I had following considerations on my mind when designing the tool (see figure 5.1.3):

An interactive form
The tool has to support a team of designers during idea generation activities. I thought that a set of cards can become part of their designing activities, rather than a 'fixed' tool, e.g., a poster, which stays apart. Each card has the same graphic design, consisting of two sides of A4 paper, folded double into A5 size. The cards can invite designers to interactively structure and analyse them: they can create overview, re-arrange, select, compare, exchange and discuss the cards.

Personifying the information
When I had finished the analysis of the user data, I realised that when I would only present the general themes, much of the richness and diversity of the individual stories could be lost. I decided that it would be necessary to present the participating users too. Each card represents information from an individual user and is marked with a visual identity of that user (colour, photo and name). During a pilot test of an earlier version I realised that simple sketches of the users were perceived as too anonymous (see figure 5.1.4). The designers could not keep track of the different users. The cards were perceived as interchangeable, and thus missed their goal of anchoring the data. So in the final personal cardset I prominently placed a photo and name (although both fictive) of each user on the cards.

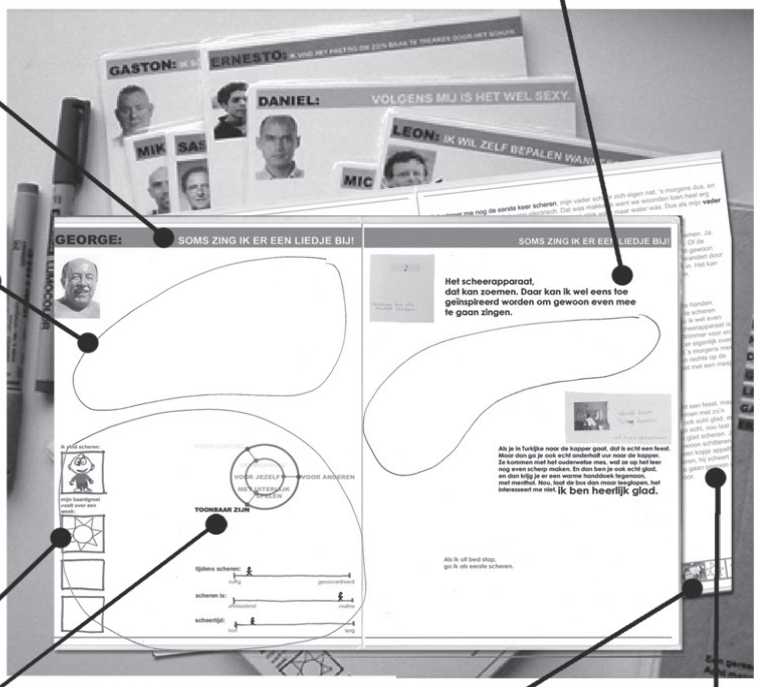
Supporting co-ownership
I thought that by making annotations on the cards, the designers will leave visual marks that would help them feel ownership over the interpretations in the card set. I want them to personalize the cards and be stimulated to add their own insights.
I laminated each card so they could write and wipe off annotations with a non-permanent marker. Each card has plenty of white space for annotations of ideas/insights. The cardset was packed in a box together with a set of non-permanent markers and a sponge. I expect that the design of the cards would invite them to add their own interpretations and react on the leads suggested by the researcher.
Interpretation: balance of raw and abstracted data
I did not have a clear idea on what level of abstraction designers find data inspiring. Adding a bit of raw data is much suggested in literature (see chapter 2), but which amount is appropriate? And on what level would designers like to be guided in interpreting the



selection of typical quotes

personal label & motto

The name, and photo emphasize that the story is about a real person. Moreover it helps as an anchor to retrace stories, and refer to them in the conversation..This motto says: *'Sometimes I sing a song while shaving'*



white space

The white space can be filled with annotations. It suggests that the cards are open for addition and interpretation.

diagrams

Circular positions, emotion mannekins (after Desmet, 2002) and linear ratings on scales show patterns of emotion, meaning and goals users have around shaving. Some diagrams are incomplete to invite designers to add their own interpretations. These diagrams function as leads towards patterns and help designers to quickly obtain overview.

These circles indicate the meaning of shaving for each user

associative illustrations

Below the transcript, a strip of small associative visuals to the anecdotes is added. This strip is intended to help designers find back the anecdotes they have read.

entire personal narrative

The back of each card shows the entire story of the user. This is almost unedited raw data. Colour coded words indicate themes that recur between different users.

Figure 5.1.3 The Personal Cardset. Top: the box of the cards (left: closed, right: open); bottom: the cards and their elements.

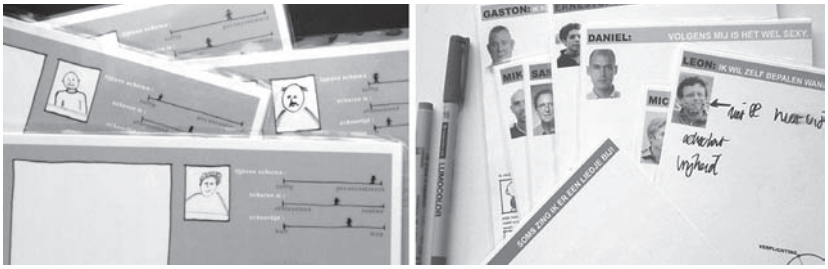


Figure 5.1.4 Simple sketches of the users in a pilot version of the cardset (left image) were replaced by fictive photos of people.

raw data?
I decided to put much raw data in, and to put elements with several abstraction levels on each card, ranging from associations and tentative interpretations of the researcher (me), and suggestive leads for interpretation. This way designers would be free to choose their preference of abstraction levels.

OBSERVATIONS

An interactive form to present the information
All teams made extensive use of the cards and used them throughout the design activity; the cards were used for formulating their starting points for the design. While sketching ideas, they frequently revisited the cards for new insights. The cards were used to physically organize the information in different ways (see figure 5.1.5). Two teams used the cards physically in their presentation to argue their product ideas *'The cards are useful to convince the manager of your designs. You can use them as evidence material. The information is difficult to summarize, so handing over a card for a minute or two is quite effective.'*

Personifying the information
The personification of each card contributed to anchoring the data and to sharing the information between the designers. Designers mentioned the users' names and sometimes even discussed and analysed personalities of the users. They used the names on the cards to refer to particular anecdotes or persons; *'Did you read Sasja, he thinks...'* and *'Yeah, Leon and Daniel really take their time for it'.* They read out loud from the cards to each other, linking the contents to their own personal shaving experiences; *'I am just like Ernesto, I shave exactly like him'.* One design team, consisting of two female designers, used the different experiences to create an overview; *'I am a girl, and I need those stories to understand the contexts of shaving'.* They designed with two specific users in mind; *'The concept is specially developed for Gaston and Sasja. I have the feeling I met Gaston, I really know intimate things about him. He seems a little bit like my neighbour. I can totally see the picture of how he shaves'.* The written text in spoken language was also appreciated. *'It is enjoyable to read, its very personal, and you read through it quite fast.'* One designer had noticed a mismatch between the (substitute) photo and the narrative; *'This guy says he shaves his head every week, but he has quite some hair. Is this photo false, or is this text belonging to another user?'.* When I explained to her afterwards that I had replaced the original photos (because I was not allowed to use their real names and photos) she felt misled, because her understanding of his shaving experiences was strongly based on the photos.

Supporting co-ownership
Only one team underlined a few sentences in the narratives. The other designers did not write or draw on the cards, but on separate pieces of paper. In the interview afterwards, they said they felt no need to write on the cards, because they looked too beautiful to annotate on.

Interpretation: balance of raw and abstracted data
Fragments of the raw data were read intensely. The designers mentioned appreciating the *'real data from everyday life'*, and most designers appreciated having all data available, which gives a sense of overview. Some designers said that the amount of information was too much to comprehend for a two-hour session, and that they would wanted more time to read all stories. They appreciated the users' stories, but missed visual data. They would have wanted more pictures of how and where the users shave. *'I really want to see more of this guy, what does his bathroom look like?'*
The suggestive leads in the diagrams were also appreciated and carefully studied; *'Very clearly, I used them as reference points'* and *'With these diagrams I can immediately start to work'.* It is interesting to see that the designers differ a lot in their judging about the balance of raw data and interpreted data.
Designers have very different preferences and attitudes towards the stories and the suggestive leads. Some designers wanted to see more explicit structure in the cards; *'I would have liked more organized parts in the text. Now we had to search so much.'* In contrast, others avoided the structured elements, such as the colour-coded words; *'I tried not to pay attention to the colour coded words. I prefer to decide for myself how to filter the information'.* They enjoyed the freedom of selecting for themselves what was meaningful.
Some used the diagrams to create an overview or to decide which users they wanted to study more in-depth, while others tried to compare one card against another. One team, for example, created a graphic of the 'fun value' during the shaving process based on grouping the cards in two sets: (1) experiences of fun during shaving and (2) experiences without fun during shaving (see figure 5.1.6). The team drew a supportive diagram on a separate piece of paper.

About the aims of supporting the designers' inspiration and empathy:
In the interviews afterwards, all eight designers judged the personal cardset, the cards and the content, as useful and inspiring during idea generation. It gave them a lot of insight in a short time and trig-

gered them to create solutions; *'Yes, it helps. It helps very much in generating ideas. What those people are doing. It is easy to imagine. Particularly the text, and the words express that very well.'*

All eight valued the insights in people's lives to imagine what the shaving experience is like. *'I need those stories to empathise with them'. 'I prefer to work from this cardset than from a collage. I don't believe in designing for target groups. I like designing for a person in mind.'* Six designers related the information to themselves or to relatives to understand it; *'By comparing it with yourself, you can understand what those men are saying.'*

Figure 5.1.5 Designers use the cards in many different ways: reading together, comparing diagrams, cross-referencing themes in the narratives, systematic comparison, detailed comparison of diagrams, and free categorizing of the cards.

Figure 5.1.6 Diagram produced by a design team, depicting the 'fun value' before, during and after shaving. It shows a low value of 'fun' during the act of shaving itself.

The designers valued the rich experience information much during designing. They judged the information in the form of the personal cardset as inspiring information and giving much insight in the users' experiences in a short time. Looking back to the considerations of the personal cardset:

Interactive form
Interactivity of the tool supports designers to select, organise and discuss the information. An interactive tool supports the different preferences of designers. Some designers look for similarities across the set of cards, while others concentrate on a few complete stories. Also, physically keeping a card in your hands makes the information more tangible. An interactive tool allows them to choose for themselves how to use the information.

Personifying the information
Personification is a very important mechanism to communicate rich experience information. Besides relating the information to individual people, it also serves as anchor points to structure and organise the information. Designers can refer to parts of the information (e.g., one card) and discuss the individual experiences. It has served the designers' feeling of trust, because the source of the information is clear. A learning lesson is that when there is a mismatch in the data, revealing that some data is fictive, designers can feel strongly misled.
Regarding the relation with empathy, the designers clearly identified with the users. They often referred to the names of the users, suggesting that they were designing with real people in mind. They enjoyed reading out loud quotes, written in the users' personal idiom, to each other. Several designers mentioned that, even in the short time-span of the workshop, they had the feeling that they really got to know the users as if they had met them personally. This suggests that they related to the users' stories as real events rather than abstractions.
Also designers said they felt very much inspired by the personified data. Reading the stories of real people triggers them to get ideas.

Supporting co-ownership
I have not gained insight on the mechanism of ownership, because the tool failed to invite the designers to co-own the cards. After use by the designers, the personal card set was visually still owned by the researcher. The personal card set did not support enough co-ownership of the information, as I thought it would. The aesthetics of the personal cardset was probably 'too finished'; the designers did not feel comfortable writing on the cards, and preferred to write and draw on seperate sheets of paper.

Although this study does not show how beneficial the mechanisms of ownership could be, it does support me in the idea of supporting ownership in communication. The designers could formulate very well how they perceived the information and that their needs differ much in level of guidance in interpretation. When the designers can physically add their interpretations, I expect that designers will value such a possibility.

Interpretation: abstraction level
The designers in this study have different preferences for the information. Some designers want freedom to find original design directions, while others are eager to build on suggested interpretations. A tool should allow for these differences.

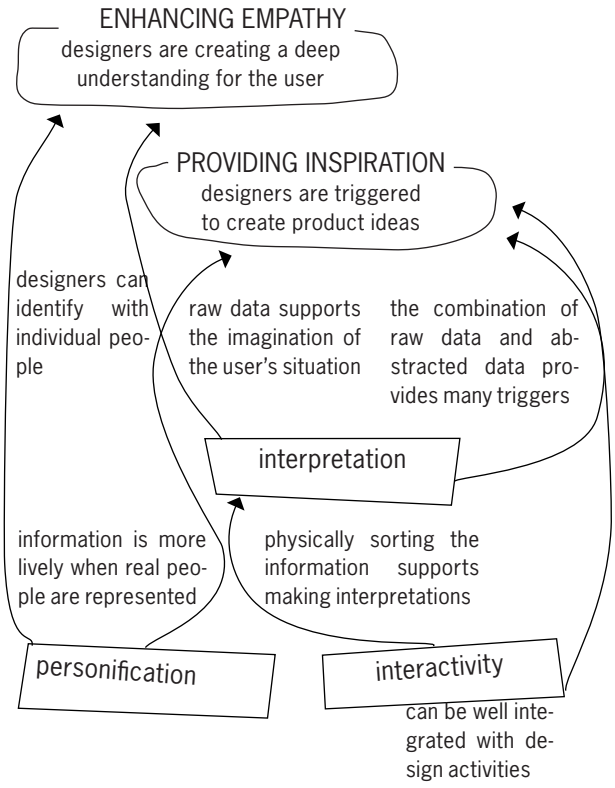
On one hand, providing raw data is convincing and gives in-depth information. Designers value having insight in the users' stories and having insight in their everyday lives. The freedom of being able to 'have' the entire stories and select for yourself is valuable to some designers. Suggestive leads by the researcher were avoided on purpose to be able to make their own interpretations. They value the richness and ability to select for themselves what is important. Including raw data has a direct effect on the designers' empathy with the users. It gives insight into the realistic situations of people.
On the other hand, abstracted data supports designers to create overviews and see or find patterns in the information. The suggestive leads are helpful in a quick scanning of the information and deciding what to take further. Finding a path in the large amount of the text, could be supported by offering interpretations.

Designers have different ways of getting inspired. Raw data gives them insight and easy to digest, but too much can be overwhelming too. The combination of raw data and abstracted data supports designers in seeing structure, finding patterns and making sense of the information.
This suggests that the balance of raw data and abstracted information and providing suggestive leads for interpretation is subtle and each designer has his/her own preference for the level of abstraction. This study was a first exploration and showed that raw data is valued a lot, but the appropriate amount of data should be further explored. It showed that abstracted information is also valued a lot, but the way of presenting interpreted information needs further research. The right balance of different abstraction

levels might be different for each design team in order to support their inspiration.
This suggests that the balance of raw data and abstracted information and providing suggestive leads for interpretation is subtle and each designer has his/her own preference for the level of abstraction.

BACK TO THE FRAMEWORK

This study has explored four mechanisms; interactivity, personification, ownership and interpretation. Interactivity is useful for quick scanning, organising and supports making sense of the information. Personification is valued by designers to be inspiring and helps them to enhance their empathy with users. The tool in this study did not succeed in sharing ownership to be a useful mechanism. The consideration to share ownership of the interpretations with the designers needs further research. Based on the observation that some designers try to deny the suggestive leads of the researcher (colour-coded words) gives rise to the idea the designers indeed want to feel freedom in choosing what to take from the information in order to be inspired by the information. The last mechanism, interpretation, is a very important mechanism, because the balance between raw data and abstracted data is very subtle and has much influence on how designers feel attracted to the information.



5.2

‘Based on four men only’

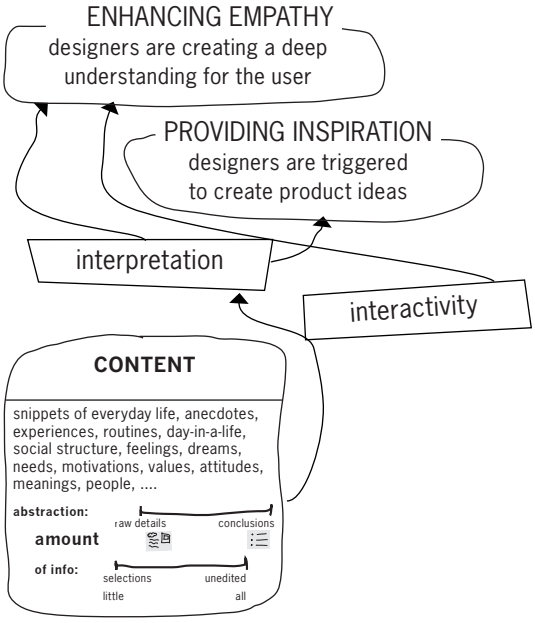
INTRO & OVERVIEW

This study explores four different tools to communicate rich experience information to designers. Two mechanisms, interactivity and interpretation, are explored to influence the intended qualities of enhancing empathy and providing inspiration.

I designed the Personal Cardset based on a set of considerations and evaluated these by having the tool used by designers during ideation workshops.
The considerations were derived from assumptions about mechanisms that could relate to the designers’ inspiration and their empathy with the users. In this study, tools which vary on the mechanisms interactivity and interpretation are further explored.

This study focuses on the situation when design students did not have any preparation before receiving the tool containing the rich experience information. The designers were not at all involved in the user study and only received the results at the start of an idea generation workshop, which places even more emphasis on the design of the tool, such as the form and elements.

Question
What is the effect of interactivity and level of abstraction on the designer’s empathy with users and on the inspiration designers have for creating product ideas?



BACKGROUND

This study is based on the same user data of the first study 'Did you read Sasja' with the topic: shaving experience of men. Eight men (dry shavers and wet shavers) participated in a contextmapping study (see figure 5.2.1) and expressed their experiences about shaving. They told us detailed stories about their shaving ritual, and their feelings about shaving.

Figure 5.2.1 A group session with four participants elaborating on their shaving experiences.

Setting:	2 hour ideation workshop
Tools:	cardsets, poster, report
Date:	2004
Topic of user data:	shaving experience of men
Company involved:	none

Related publications:
- Sleeswijk Visser, van der Lugt, Stappers (2005) Participatory design needs participatory communication.
- Sleeswijk Visser, van der Lugt, Stappers (2007) Sharing user experiences in the product innovation process: Participatory design needs participatory communication.

METHOD

Four tools were designed which varied on level of interactivity and level of abstraction. Eight design teams of two female Masters-level students at Industrial Design Engineering of Delft University of Technology were given one of the tools with the assignment to create product ideas for shaving.

For each condition, two sessions were held resulting in eight workshops (a to h, see figure 5.2.2). Just female students were recruited for this study as they would not be able to draw from their own facial shaving experience.

Similar to previous study, the design teams were given the assignment to create innovative concepts for shaving, focusing on the experience of shaving. They then received the tool, but no directions were given how the tool should be used. The idea generation workshop lasted two hours. Afterwards, they were asked to present their product ideas to someone acting out the role of product manager.

Besides general observations of how the design students use this type of information during idea generation, I was specifically interested in the relation of these conditions to empathy and inspiration.

In order to be able to compare the effect of the different tools, I formulated indications for empathy and inspiration.
As an indication of inspiration the number of ideas was counted (drawn ideas and verbalized ideas). The product ideas were judged by other design students on their innovative quality. More innovative product ideas could be an indicator for designers' being more inspired.
As an indication of empathy, the number of times the designers referred to the actual users (e.g., 'he', 'Leon', 'this man') were counted. Although these are rough indicators, it supports to make a comparison of the workshops.

Besides counting these indicators, observations were made of the frequency of use of the tools during the workshops. Right after the presentation of their product concepts they were asked to fill in a questionnaire in which they could evaluate the use of the tool. The answers in the questionnaire were the starting point for an evaluation interview to discuss the tool and its use by the designers.

The starting point was the Personal Cardset. Originally, this cardset contained eight cards, representing eight users. This was quite a lot of information for a two hour idea generation workshop. Only four of these cards were used in this study.
Three other tools were created, which respresented the same data from four cards of the Personal Cardset: a report, a poster, and a set of statement cards.
The set of cards (Personal Cardset and statement cards) are both highly interactive to allow the designers to organize and re-organize the information. In contrast, the report (A4 binded) and poster (A3 size) are more fixed, which makes it impossible to organize the information physically.

I expected that the interactive tools would provide more inspiration than the fixed tools, because this allows designers to organise the information themselves. The poster and the Personal Cardset contain primary raw data with few interpretations. The poster contains a selection of the quotes and many images to resemble a moodboard, which is often used by designers as inspirational input. In contrast, the statement cards show mainly interpreted information, paraphrases of the data, added with the responding part of the transcript in small font. One statement card could, e.g., say: 'Smell seems an important element'. Paraphrases are often used in data analysis to code the data and be able to make categorizations (Corbin and Strauss, 1990). The corresponding raw data part is still present but attracts less attention. Also the report summarizes the conclusions (categorizations of the data), and provides the raw data in the appendix in a small font.
I expected that the tools with mostly raw data would score higher on empathy, because they provide more lively details. As much as possible, the same aesthetics were applied in all four tools.

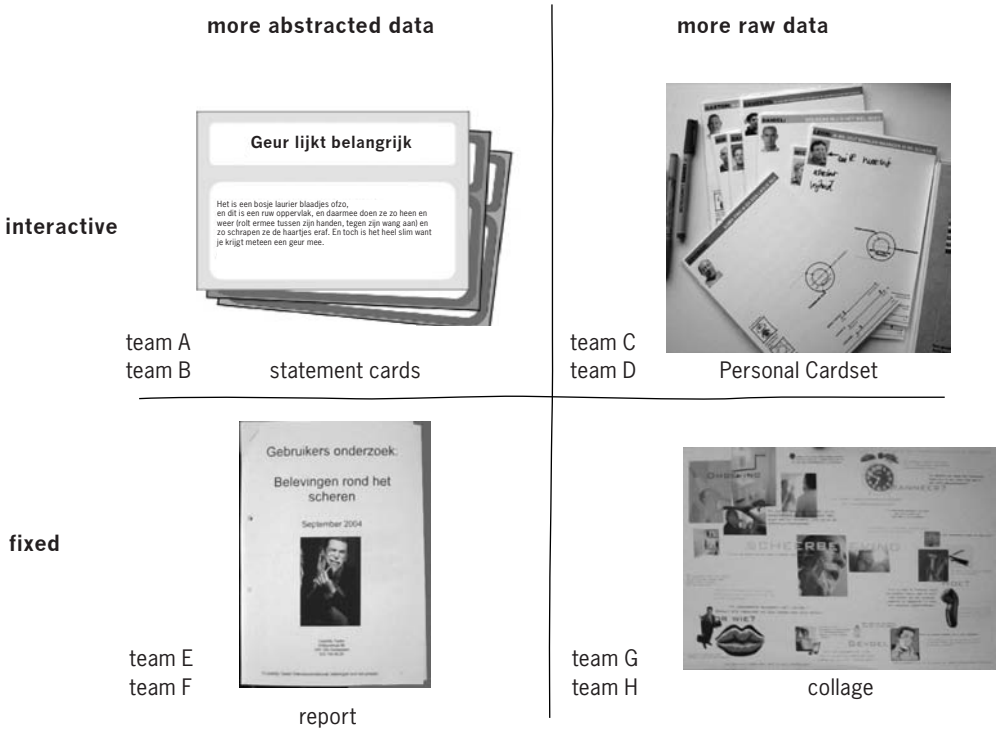


Figure 5.2.2 The four tools vary on level of abstraction and on interactivity.

The following findings are based on the observations, the questionnaires and interviews afterwards.

Interactivity
Figure 5.2.3 shows that the design teams with the interactive tools produce more ideas; in total 112 ideas compared with 81 ideas of the design teams with fixed tools. Also the amount of references to the users is slightly higher with the teams who used interactive tools. This suggests that interactive tools are more effective during the design activity, and support the designers' inspiration and the designers' empathy with users. However, the counting of ideas and references is just a rough indicator and the numbers do not differ much. A more convincing observation is that the interactive tools were used much more intensively throughout the process. During the workshops, the interactive tools (personal card set and statement cards) were used much more intensively in frequency and in duration, compared to the fixed tools (poster and report). The fixed tools were used only in the first fifteen minutes of the workshops, and then left aside. Only, one design team (e) revisited the report in the last few minutes to check whether their concepts matched the main findings of the report. Design team (f) mentioned that they have read the conclusions in the report as an introduction to the problem, but for getting inspired they had used their own creative techniques.

Abstraction level
The tools including more raw data (personal card set and poster) score high on the number of ideas (in total 124) in comparison with the other groups (69), suggesting that including more raw data has a positive effect on inspiring the designers. It is interesting that these tools score higher on designers gaining empathy as well (relatively 69 and 41). Also, the concepts created with these tools appeared to be more innovative, while the concepts created with the tools including less raw data tools (report and statement cards) were judged as more similar to existing shaving products. During the interviews, the designers mentioned very different preferences towards the level of abstracted data.

Another (unexpected) observation is that the personal card scores highest on both inspiration (number of ideas) and empathy (number of references) in comparison with the other three tools.
This could be because the tool is both interactive and provides much raw data. But, in the interview afterwards I realised that only in the personal card set were the four users explicitly presented as four individual people. Four design teams (a, b, f, h) had not noticed that the data was based on the data of only four men. Three of these four teams had used a tool with mainly interpreted data (statement cards and report). Design team (a), which had used the statement cards, did not make any reference to the users at all. Design teams using the other tools did not always notice that the data originated from four men. This implies that the personification of the data might have a stronger influence on empathy than the inclusion of more raw data has.

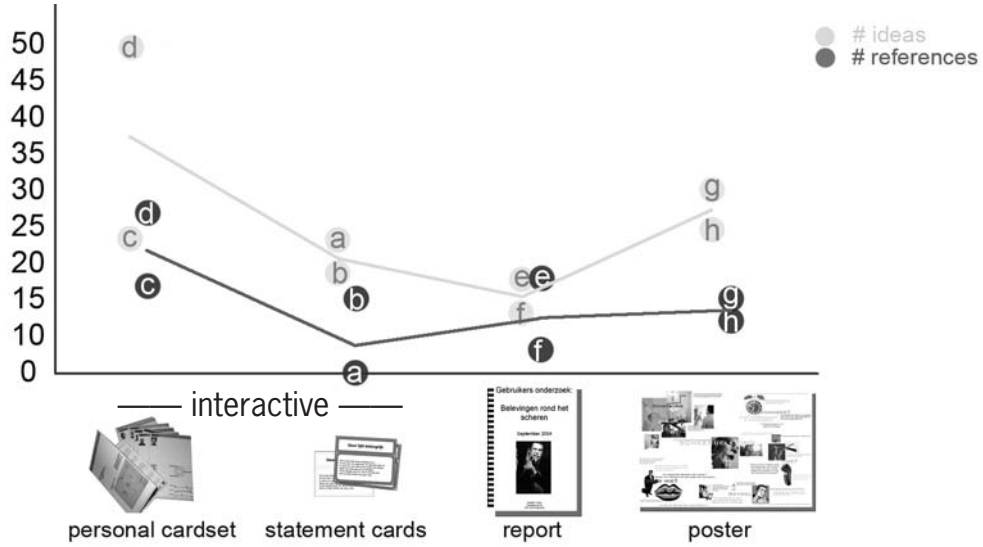


Figure 5.2.3 The number of ideas and references that were counted in the sessions. Circled letters (a-h) are identifiers of the design teams; the lines connect the averages for each of the four conditions.

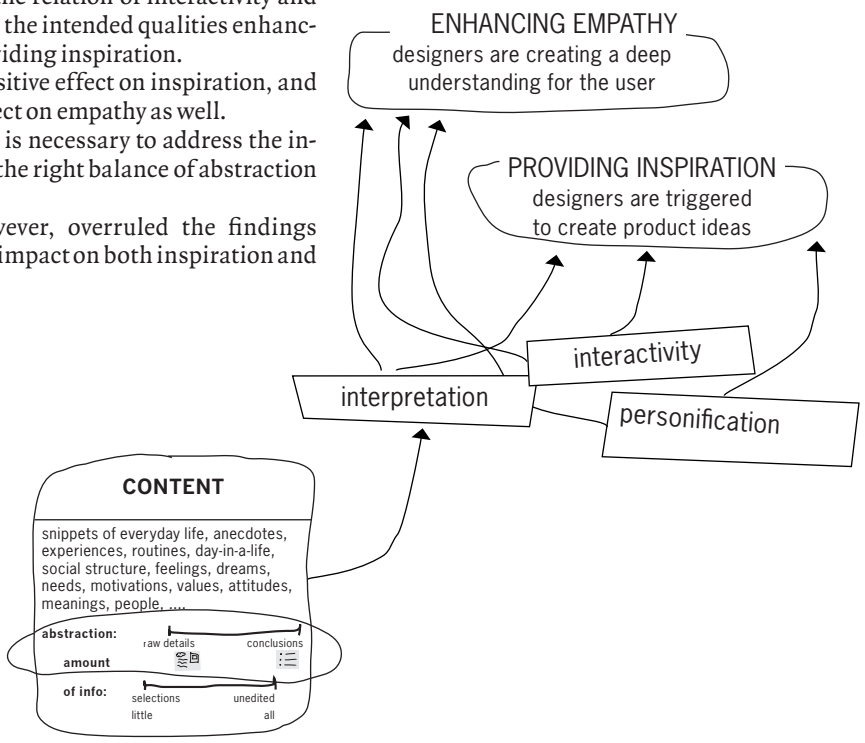
Interactivity
The results of comparing the use of these tools are in line with the expectations I had beforehand.
Interactive tools support designers more in getting inspired than non-interactive tools. The interactivity of the tool has a positive influence on the deisgnners' inspiration. When the tool is interactive it merges more easily with the design activities and is more often used by the designers.
I did not find clear evidence about the relation of an interactive tool and the designers' empathy. There are slightly more amounts of references to the users with the use of interactive tools, but I have not found other arguments to describe the relation with interactivity.

Abstraction level
The tools with mostly raw data scored less on the indicator of empathy than the tools that showed mostly abstracted data. Here again, they also scored higher on the indicator of inspiration.This indicates that raw data is a necessary aspect for attaining these qualities. This is in line with the findings in the literature review in chapter 2.
This study, however, does not reveal findings about the right balance between raw data and abstracted data. It only confirms the idea that inclusion of raw data is necessary. As in study 1, the designers differ much in opinion in appreciating more or less guidance through the information.
Further research should focus on new forms of suggestive leads, to support the designers in creating empathy and inspiration.

Although interactivity and abstraction level were designed as independent variables, a third indepedent variable, personification, appeared during the evaluation, when I tried to understand why the personal cardset scored much higher on both intended qualities. Personification had an even larger influence than the variables being studied. When designers can relate to individual people, they can make subjective inferences about these people, and identify with them, which seem to increase inspiration and empathy as well. This confirms the finding of the first study, where personification was one of the most influential mechanisms for a successful communication.

BACK TO THE FRAMEWORK

This study specified the relation of interactivity and abstraction level with the intended qualities enhancing empathy and providing inspiration.
Interactivity has a positive effect on inspiration, and a slightly positive effect on empathy as well.
Inclusion of raw data is necessary to address the intended qualities, but the right balance of abstraction level is still unclear.
Personification, however, overruled the findings and has a very strong impact on both inspiration and empathy.



5·3

'I was visualising the users'

INTRO & OVERVIEW

This study explores how design students read through the transcripts of user discussions, which elements they pick up to form a picture of the users and how this digestion relates to enhancing empathy with the users and getting inspired for creating product ideas.

Starting point for this study was the observation that the form of narratives in the Personal Cardset in study 1 was successful in informing and inspiring designers with rich experience information. These narratives were created by selecting and editing the transcript of user discussions. This made me wonder if transcripts could be a useful tool as well to convey rich experience information to designers?

In this study, I explore if and how reading transcripts as a tool can be useful for design students as part of designing. Different forms of the transcript (personified/anonymous, chronological/matrix/per user) are compared when used by design students as part of a design assignment.

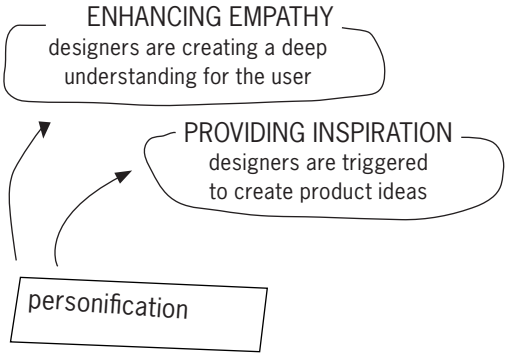
I also asked design students to explicitly elaborate on the users, and create an identity card for one of the users in the transcript. This assignment was set up in order to explore if and how they construct mental images of users during the reading of the transcript. In the first study, I as a user researcher felt that the search for finding a fitting image for the representations of users is a design act itself which already stimulates empathy with the users. This suggests giving this task to designers to explicitly 'fill in' the character. Designers could become participative in creating the representations of users.

Questions

How do design students form a picture of the users while reading a transcript and how can this support empathy and inspiration?

Subquestions are:

1. How do design students perceive reading a tran script of a user discussion as part of a design assignment? Is it experienced as useful and inspiring or as a tedious activity?
2. What form of a transcript is supporting design stu dents in creating empathy and inspiration?
3. Do design students build mental images of the users and if so, on which elements of the transcript are those images based?
4. How do design students experience creating and elaborating on the personality of the users?
5. How do those mental images of users relate to empathizing with them and getting inspired for product ideas?



BACKGROUND

This study is based on the same user data of the first study 'Did you read Sasja' with the topic: shaving experience of men. Eight men (dry shavers and wet shavers) participated in a contextmapping study (see figure 5.3.1) and expressed their experiences about shaving. They told us detailed stories about their shaving ritual, and their feelings about shaving.

Figure 5.3.1 A group session with four participants elaborating on their shaving experiences.

Setting:	student exercise
Tools:	transcripts and ID-cards
Date:	2005/2006
Topic of user data:	shaving experience of men
Company involved:	none

Related publications:
– Sleeswijk Visser and Stappers (2007) Mind the face.

100 design students were asked to read a transcript as preparation for a design assignment. The students were Master students, Industrial Design Engineering from Delft University of Technology. These students had little or no experience with reading transcripts and were not informed about the shaving project. A little background was given to explain where the transcript came from. Each received a transcript in an envelop with the instructions for **home**work for the following week. The students were instructed to read and select 10-20 quotes. These quotes would be the starting point for the next class, in which they would discuss the selected quotes and organise themes for design directions. No explicit assignment was given for studying the users' personalities. The transcripts had six variations in representation, varying on structure and personalisation (see figure 5.3.2).

By means of a questionnaire, the students were asked about how they perceived reading and interpreting the transcript, and how close they felt to the users. This questionnaire consisted of quantitative and qualitative questions, e.g.;

– question 5: I felt that reading the transcript was: inspiring, boring, etc. (ratings 1-7)
– question 8: Did you get the feeling that you really got to know the people in the transcript, like you met them in person? (see figures 5.3.3 and 5.3.4)
– question 12: Did you compare the users' shaving experiences with your own shaving experiences? (In case you do not shave yourself, read: the shaving experiences of someone close related, such as roommates, boyfriend, father, brother,...)

In a plenary discussion the usefulness of the transcript as information source as a preparation for idea generation was discussed with the students.
For analysis, the quantitative results between the different conditions of the transcripts were compared. The qualitative results (open questions and discussion afterwards) were analysed and discussed with two other researchers.
To explore how students build mental images of the users, a similar procedure as above was set up. 120 students (same course, one year later) were given transcripts. These transcripts all had a chronological structure. Half of the students received ananonymous transcript, and half received a personalised transcript. They were given the same assignment as above, but were also asked to create an identity card (consisting of a name, description and an image) for one (students' choice) of the four users.
The produced identity cards were placed on boards per user, followed by a plenary discussion about similarities and differences in richness of the identity cards, that the two groups of students produced.
By means of a questionnaire with open-ended questions the students were asked to explain what and how they made choices for the identity card, e.g.; Which considerations played a role in your choice to pick a suitable photograph for the identity card?

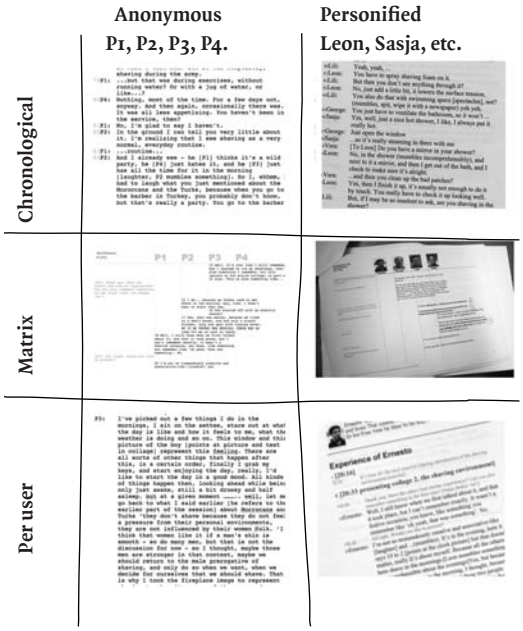


Figure 5.3.2 The transcript contained a part of a generative session featuring four users talking about their shaving experiences. Half of the transcripts were made anonymous (names were replaced by 'P1, P2,...' relating to participant 1, participant 2. The other half of the transcripts showed names, portraits, and short descriptions of each user. The portraits were small and printed in black and white in order to not attract much attention in relation to the transcript. The little portraits would serve as icons, not necessarily as additional information to the text. Besides anonymous and personified transcripts, one third of the transcripts showed the chronological order of the discussion, one third showed an in-between representation (matrix form), and one third showed four separate transcripts of each user.

TOOL CONSIDERATIONS

Transcripts are written texts of word for word recordings of what users in a session said. They are a much used medium to analyse user discussions, but they may not be communicated to third parties, such as designers. They contain unedited raw data, lack interpretation, and are bulky and quite extensive to digest. A transcript contains nuances and details which could be useful for designers to know about. These details would be otherwise filtered out when interpreted and analysed by researchers.

Six variations of the transcript were provided to the students. The variations were decided along two dimensions: structure and personalisation (see figure 5.3.2). I was interested in the effect of the difference in personified transcripts and anonymous transcripts. My assumption was that the personified transcript supports design students more in creating a mental image of the users, which will enhance their empathy with the users. I also expected that the personified transcripts would be preferred over the anonymous ones, because of the liveliness.

Besides this variation, I was also interested in the structure of the transcript. Normally a transcript is structured in the chronological order of the discussion. But the Personal Cardset in the first study had the information structured per user, which supports designers in making sense of the information quickly and may lead of the notion of empathy with users. I designed three variations for the structure of the transcript; chronological, per user and a matrix form, to explore if the design students prefer one over the others. The chronological form consists of 16 pages. The transcripts per user consists of four sections of the transcripts (ranging from 3-5 pages). The transcripts per user provide all what that specific user said. In some parts I included reactions or questions of other users, because extracting only what the user says does not always make sense. The sentences of the other users were printed in grey.

The matrix form combines the structure of both; presenting the chronological order of the discussion, and showing in a visual form who says what. My assumption was that the matrix form might offer the best of both organisations, because it combines the chronological storyline with clear seperations for each user. I expected that the organisation per user of the transcripts would support designers more in creating a mental image of each user than the chronological organisation.

One year later, another group of students who did the same assignment (all received the personalised and chronological transcript) were asked to create an identity card for one of the four users. I prepared a digital document, in which a frame for a photo or portrait and a few lines to describe the user were provided, but no further indications were given about what content to add on this card.

OBSERVATIONS

Overall impressions:

- The students were generally enthusiastic about the assignment of reading the transcripts. *'These descriptions are fun to read'* They rated this activity high on inspiring and low on boring (respectively means of 5 and 3 on a scale of 1 to 7).
- They said they valued the authenticity of reading stories about ordinary people, which was new for most of them. They had no experience with reading transcripts as part of a design assignment before.
- Most of the students thought that creating the identity cards was meant as an icebreaker exercise in between the analysis activities and enjoyed elaborating on the personalities of the users.
- The students missed complementary information. In the questionnaires many students expressed the need for video or more, bigger, colored photos. Students felt the need to hear or see them 'really' speak; *'I would like to see facial expressions and gestures and how they say things. That's important to have a complete picture.'* and *'It is weird to only read a transcript, without a video with it. It is hard to imagine how the discussion was really like. You miss facial expression, gestures, intonations. That's why it is still very distant and i don't feel i really met them.'*

This implies that a transcript conveys a sense of being close to the user but exemplifies that it is not close enough. 85% of the students responded that they did compare the users' shaving experiences with their own shaving experiences (or someone closely related, such as roommates, boyfriends, father, brother).;

- *'I asked my boyfriend'*
- *'This homework exercise made me think about my own shaving rituals.'*
- *'I thought about my father'*
- *'I pictured the razor of my boyfriend.'*
- *'I was visualizing the users' stories by my own way of shaving.'*
- *'I asked my boyfriend about the throat part.'*

This suggests that for having empathy, students take the experiences of themselves or of a relative to

project these on the experiences of the users. They automatically compare the experiences (see figure 5.3.4).

Effects of the variations in the transcripts

No significant differences were found in the variations of the structure or personalisation of the transcripts (based on the rating questions in the questionnare), but the open ended questions and the plenary discussion revealed preferences of the students.

Structure variations

In the plenary discussion afterwards, students who had received the transcripts structured per user, mentioned that they found this confusing because of the many repetitions and the lack of overview. These students also spent more time on reading the transcript (see table 5.3.1). This suggests that without any editing, a transcript structured in this way might be similar to listening to a phone conversation on only one side. The context is missing in order to make sense of what you read or hear. When discussing the advantages of the matrix form, students did not express any specific preferences for or against the matrix form over the chronological form.

Personalisation variations

Students preferred the personified version. Some were even annoyed when they realised that their neigbour student had received a personified version. Students who received the anonymous version often mentioned in the comments on the questionnaire that they were missing background information, whereas in the personified version this was not the case. Students who had received the anonymous transcripts mentioned that they had difficulties in keeping track of the four users. It took them intense (re)reading to form an opinion about each user (see figure 5.3.5). Within the chronological structure the difference of spending time between the anonymous and personified version is a whole hour, which shows that it indeed requires more time to make sense of the anonymous transcript.

	Anonymous	Personified
chronological	3.3	2.3
matrix	3.1	3.0
per user	3.3	3.3

Table 5.3.1 Average time spent on reading the transcript (in hours).

Anonymous	Personified
1/4	1/2

Table 5.3.2 Number of students who said to have created mental images of the users while reading the transcript.

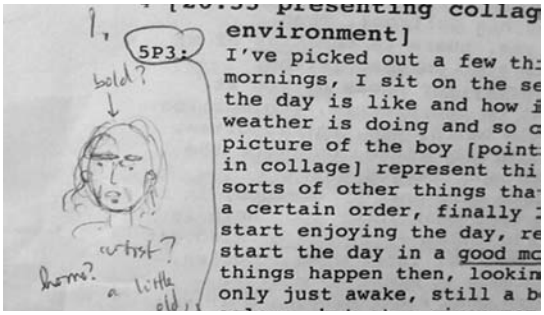


Figure 5.3.3 A drawing by one of the students of the user who is represented by 'P3' in the anonymous transcript.

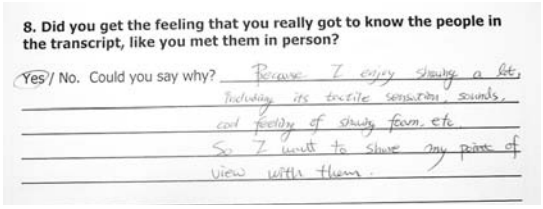


Figure 5.3.4 This student received the anonymous transcript divided per user and couldn't create a coherent view or a mental image per user.

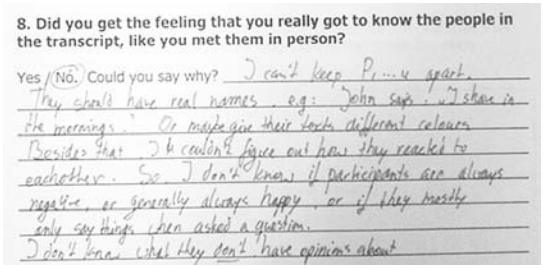


Figure 5.3.5 Many students projected the users' experiences on their own experiences or their relatives' shaving experiences (boyfriend, father, son, roommate).

Figure 5.3.6 The four boards, each representing one user from the transcript. Each board shows similarities in lifestyle and age. User P2, or George, was most often chosen to be represented on an ID-card, whereas user P1, Ernesto, was not chosen much.

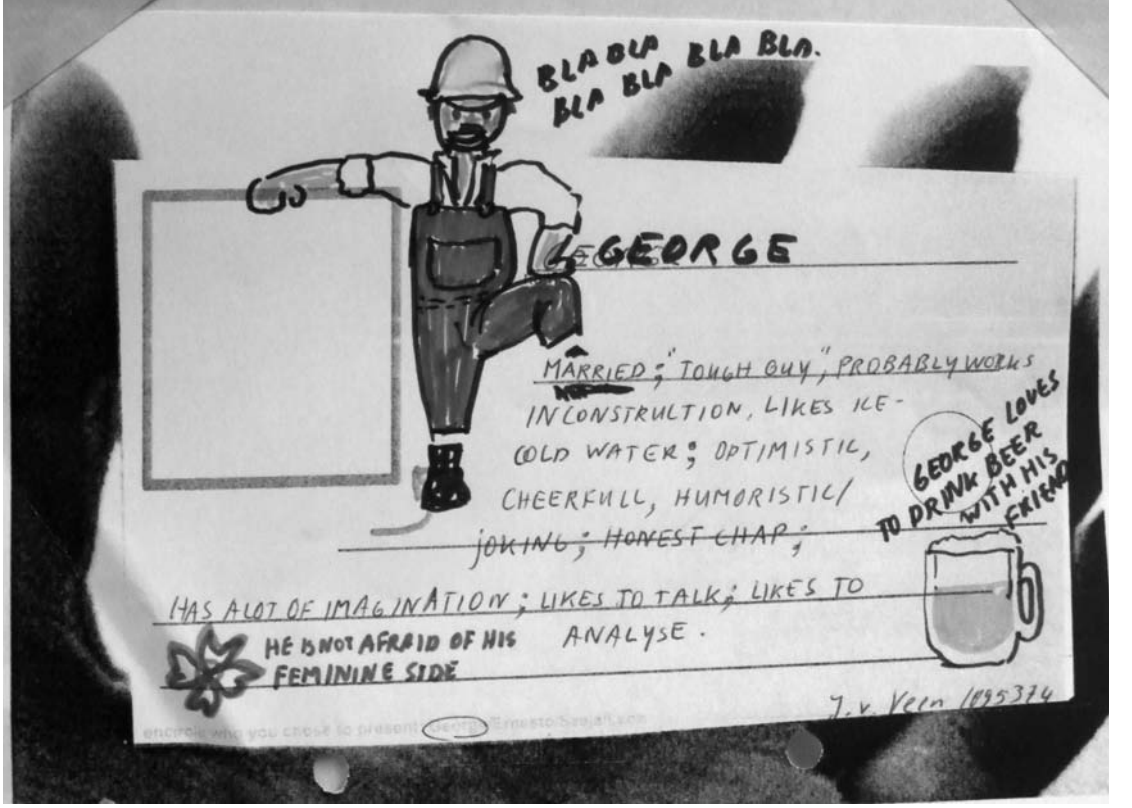


Figure 5.3.7 Students pick up user characteristics by the stories, but also the way the user behaves and talks in the group discussion. On the identity-cards, most of the time lifestyle and age, job and family status are described. This card describes the user's personality in quite some detail.

Another finding is that at least half of students who received a personified version said to have created a mental image of each user during the reading of the transcript. Only one quarter of the students who received an anonymous version, said they created mental images of each user (see table 5.3.2 and figure 5.3.3). This result suggests that a personalised transcript supports designers in getting more empathy with the users.

Students elaborating on the users' characters

In the plenary discussion afterwards opinions differed about the act of creating an identity card for the users. Most students were positive about elaborating on the users' characters, because they said they were doing this automatically, and could easily create the cards. Moreover, it helped them to analyse the transcript better. Some mentioned that during the searching for a fitting portrait, they read the transcript again to create a more detailed image of that user;

– *'It makes you analyse the transcript with different perspectives in mind'.*
– *Made you think more about the person', and 'It makes you reread the transcript'.*

Other students, however, said that they did not feel comfortable in elaborating on the characters of the users. They thought it did not support them in their creative process, e.g.; *'I am looking for themes, I do not want to spend my time on the characters of the users'.* This suggests that elaborating on the users' characters is not a natural act for all design students. Most find it interesting and useful for better understanding the users, but others do not feel like learning to know the users as persons, but prefer to stay focused on the product.

The collection of identity cards

The identity cards based on the anonymous or personified transcript did not show differences in richness of the descriptions of the users. More surprising is that the number of identity cards for each user differs (see figure 5.3.6 and 5.3.7). Students explained that the one who talks most, gives the most lively impression and is easier to elaborate on.

The cards made by the students representing the same user showed similarities in age, and lifestyle. The portraits or photos were more varied, but still the collection showed the same type of man. Students mentioned that the way they derived character information from the transcript was, besides elements as age and lifestyle, the role in the conversation (e.g.,dominant, interrupting, shy). This suggests that a lot of the personality traits are derived from the user's role in the conversation.

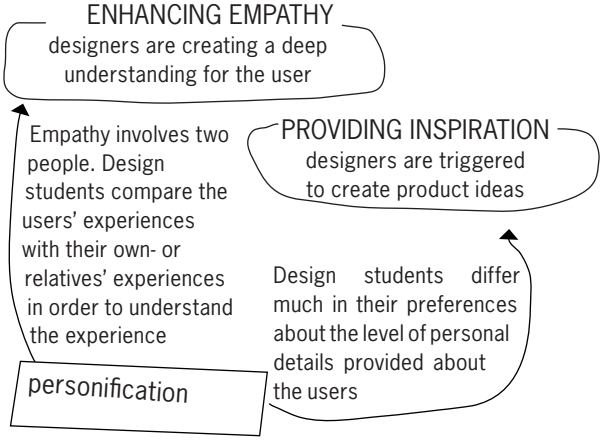
Transcripts as tool to communicate rich experience information have potential, because generally the design students experienced reading the transcript as useful and inspiring. The strength of a transcript is that it reveals many little details in the stories of the users. It even provides a sense of presence, since it shows also the 'hmmms', 'uuh', <laughs>, when the users are talking. These aspects provide the authenticity and richness which is useful for enhancing the designer's empathy. However, a bit of editing would be recommended to prevent much repetition, without losing the details to convey the authenticity. A transcript as a communication tool would be enhanced when additional information is provided. The students missed additional data, such as a video fragments or photos of portraits. The transcript is perceived as an extract of the actual story. This suggests that a transcript can be a powerful tool, but it requires additional (visual/audio) information.
A personified transcript is preferred over an anonymous transcript. With the personified transcript, students were more stimulated to create mental images of the users. Students had to reread the anonimysed transcripts more often in order to connect quotes to the users. The chronological or matrix structure is preferred over the 'per user' structure.

BACK TO THE FRAMEWORK

The first study showed that design students perceive personified information as more lively, which inspires them. This study has showed that personification is an important mechanism for communicating rich experience information to design students. A personified transcript supports students to create empathy with the users, because it allows them to identify with individual people instead of an anonymous target group. The personified transcripts support them more to picture the users and have an impression of their characters.

Personification and empathy
When users are introduced personally (even by only a name and little photo), design students are better able to create a mental image of that user, and can better picture that user in his situation. When the users are anonymous, the design students have more difficulties to picture the users in their mind.
An interesting finding is that the design students create this picture of the user based on many details, but also on the way the users talk (e.g., a dominant guy, because he talks the most). This suggests that researchers have to be aware that designers pick up many unforeseen details about the users and that they quickly make inferences about the users. Researchers can rather be careful what details to provide, but more important is to still provide the details. Based on the details, designers create mental images of the users. Having a mental image of the users supports empathy with that person. When having information at hand to build a lively image of the user, the student's empathy is more likely to grow for the user.This study also revealed that almost all students relate the experiences of the users with themselves or their relatives. This emphasised my thinking about empathy as a projection where at least two people are involved; 'the self' or a relative and 'the other'. When the student does not have someone to relate to, it could be more difficult to imagine, or connect with.

Personification and inspiration
The explicit focus on the personal details of users themselves in this study brought up a lively discussion with the students. They differ a lot in their judgement whether elaborating on the users' characters was supporting their empathy and if this activity helped them in getting inspired. Some students like to go into detail and elaborate on the juicy details of the characters. Whereas others mentioned that they thought that elaborating on the users' characters is taking them away from the task of making sense of the information for idea generation. This suggests that design students have different preferences for the level of personal details provided in rich experience information. Some are eager to elaborate on the users' personalities, whereas others prefer to make a quick impression about the users, but then focus on the themes and prepare themselves for idea generation.



5·4

‘I prefer real photos over cartoons’

INTRO & OVERVIEW

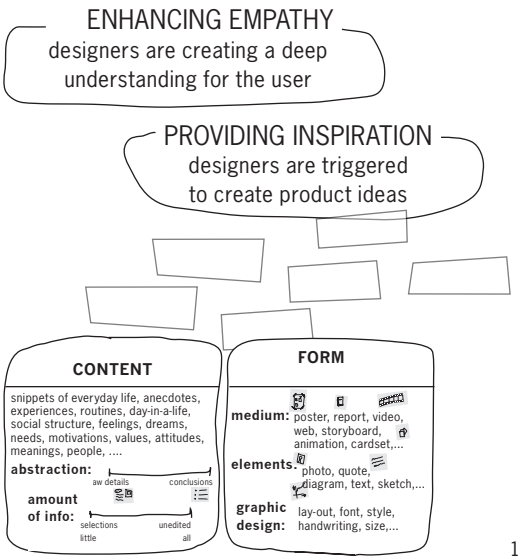
This study has a more design-oriented focus compared to the previous studies. The main aim of this study is to explore new solutions for vizualisations of rich experience information. When creating communication tools the researcher has an infinite amount of choices on the level of form, style, amount of information, order, medium, elements, etc. These are all choices in the lowest level of the framework; the operational means. Two sets of tools with different choices in operational means are used by professional design teams.

Design choices for communication tools on this level influence the way designers perceive and use the materials and if they can get well informed and inspired.

This study does not elaborate extensively on linking mechanisms with the qualities, but explores the effect of design choices on the perceived inspiration and usefulness of designers. The evaluation took place by observing designers using the tools during ideation workshops and discussing their experiences with the tools.

Questions
What forms and graphic styles appeal to designers?

– Which media and forms work well to convey the richness of the user data?
– How do designers react to different styles of representation (sketchy or pictures)?
– What are appropriate amounts of information during ideation workshops?



BACKGROUND

This study has been part of an elective course: RichViz!. In this course, 15 selected Master students of Industrial Design Engineering, Delft University of Technology, deepened their knowledge and skills, building forward on the course ID4215, Context & Conceptualisation by focusing on communicating rich experience information to designers. In the first part, relevant examples, guidelines, and theories from communication design, psychology, cinema and creative theory were discussed. In the second part they created rich visualisations themselves.

The user data came from two earlier projects at Philips Design and Delft University of Technology, which were re-analysed by the RichViz! students. We created events, storylines, plots and personas and compared, iterated and turned these into rich visualisations (see figures 5.4.1 and 5.4.2)

The RichViz! project took place in close collaboaration with the people centred department of Philips Design. In the first week of the project we all visited Philips Design and learned about their ways of facilitating user research outcomes into designs (see figure 5.4.3). Towards the end of the project, two design teams from Philips Design carried out idea generation workshops with our tools and reflected on their use. The students could see how professional designers use user data, and I could explore the effects of design choices on the designers' inspiration.

Topic:
morning rituals of families with young children.
The study addressed routines such as taking a shower, setting the table, taking care of the kids, reading the newspaper, planning the day. The data set was based on interviews and self-documentation packages.

Figure 5.4.1 The students are creating storyboards.

Figure 5.4.2 A student presenting his photoboard during the course. Different styles of sketching, cartoons, acting out with photoboarding were tried out and discussed.

Figure 5.4.3 A people researcher from Philips design explains how they combine user research and designing.

Setting:	2 hour ideation workshop
Tools:	personas, storyboard, animation, 3D storyboard, advent calendar
Date:	May 2006
Topic of user data:	morning ritual of families
Company involved:	Philips Design

Related publications:
– Stappers, van der Lugt, Sleeswijk Visser and van der Lelie (2007) RichViz! Inspring design teams with rich visualizations.
– Sleeswijk Visser and Stappers (2007) Mind the Face.

METHOD

Designers from the company performed an idea generation workshop. Their backgrounds varied from product designers, interaction designers and people research specialists. The designers are accustomed to integrating insights from user research in ideation sessions in their daily work, which makes their feedback very valuable for exploration of our tools.
Two workshops were held simulaneously to explore two sets of tools, each with a team of six designers (team A and team B). The set up of the workshops was similar to the set up described in study 1; after a short briefing, they were given the tools, and were asked to study them for a while and create product ideas. After two hours both teams were brought together and had to present their ideas to the other team.

During the workshops we observed the actions of the designers and how the tools were used. The workshops were also recorded on video and audio. I analysed the data. For analysis, observations were made if and how the designers referred back to the information during their presentation of ideas. The briefing for the designers was to create a product or service to enhance the social interactions in the morning routine of families. In the plenary discussion with both teams afterwards, the tools were evaluated with all designers together (see figure 5.4.22).
Here, the designers gave feedback about the tools and how these served their needs in designing for specific user situations.

TOOL CONSIDERATIONS

The tools were developed by the students working with me. To adjust our early ideas for tools to the design teams of Philips Design, we visited them and learned that they have much experience in integrating user research results and ideation sessions. They are used to working with personas, and are able to facilitate their own ideation sessions. This requires that the tools should fit their way of working during the sessions. The challenge was to enable the designers to rapidly immerse themselves in the user data, making it tangible, understandable and interpretable for them. These requirements were listed by the creative director of Philips Design. This led to the following design choices of the tools:

Sensitizing: using time before the workshop to get curious.
Time is valuable for creating an understanding and reflecting on the information. Sensitizing is a technique derived from user studies, where users are prepared for an interview by e.g., keeping a diary (see Sleeswijk Visser et al, 2005). In a two hour workshop, with professional designers, the focus is on effective use of time. We cannot ask much time of them to immerse in the information. They need their time in developing ideas and making these presentable. We decided to use the week prior to the workshops to give them little snippets of information in order to get them introduced, curious and aware of the topic.

Small amounts of information
The tools during the sessions needed to be useful during creating ideas; easy accessible and not too much. We decided to provide a little amount of information, which is easy to digest in 10-20 minutes.

Use of personas
We decided to create personas of a family, consisting of a mum, dad and two sons. Personas are a clear references to organise the data.

Use of storylines
By providing designers with background information of a family morning routine in the form of a storyline, they can imagine how their product ideas would enhance that situation and evaluate their ideas immediately within the users' context. Storylines have the power to unite various aspects such as the main characters, situations and events over time. Linking information to people and stories supports to convey the diversity of the users' experiences. Stories serve to create a mental imagery of a situation, and to give all parts a place. Personas and scenarios, for example, do serve this function of holding together user experiences (Pruitt and Adlin, 2006).

Style: abstraction of visuals
A more open question was which style, in terms of aesthetics and abstraction of visuals, would support designers in understanding the users and getting inspired? For example McCloud (1994) mentions that in Manga comics, the hero is often drawn in iconic style, surrounded by characters in realistic style. This promotes the reader to 'fill in' the hero, and identify with him/her. We decided to try out different styles in the tools to learn about their preferences.

These design choices led to two sets of tools, in different forms, style and aesthetics in order to be able to compare and evaluate choices on these aspects as well. One team (A) received tool set A, and the other team (B) received tool set B (see table 5.4.1).

Figure 5.4.4 Persona mugs were placed in the coffee corner some days before the workshop.

Figure 5.4.5 One of the three advent calendars. Each had a theme, expressed by a triggering question. This one says: 'What is the first thing you do when you wake up?'. Designers could open the small doors to see pictures behind them of people waking up. Markers and post-its were provided to add their own reactions, reflections, or experiences.

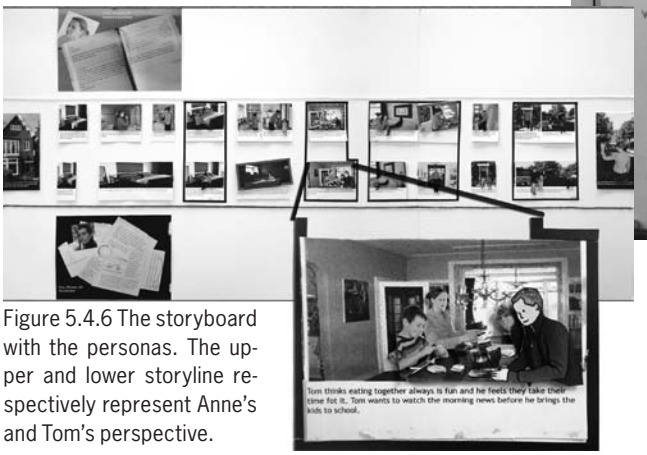


Figure 5.4.6 The storyboard with the personas. The upper and lower storyline respectively represent Anne's and Tom's perspective.

Figure 5.4.7 The different styles in the pictures are cut and glued to emphasize the layered dimension of the storyline.

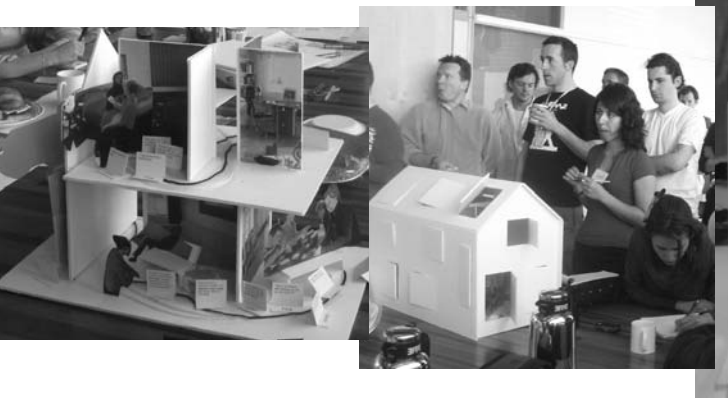


Figure 5.4.8 The house model in its outside box and the quotes on little cards which are part of the house.

Toolset A: The house and the storyboard
Four days before the workshop we brought persona mugs and three advent calendar boards to the coffee corner of the designers (see figures 5.4.4 and 5.4.5). These advent calendars would trigger their curiosity and stimulate their awareness about their own morning rituals. The mugs introduced the two main characters Anne and Tom of the family.
During the workshop they received a 2-meter long storyboard on a foamboard representing the morning ritual of a family. The mother, Anne, and the father, Tom, are the main characters in two storyboards, which run parallel. Anne and Tom are introduced by a persona description, which is added on this foamboard. The two storylines show the morning ritual from two different perspectives (see figure 5.4.6). Based on different techniques mentioned in 'Understanding Comics' (McCloud, 1994) the different personas are presented in different styles; the main character has black outlines and a drawn expression in order to support the stepping into his/her experience, and identifying with that person. To give a realistic impression pictures are collected of the interior from a house selling website. Besides the personas and central objects of each event (e.g.,table, bed, car) the pictures are black and white, to guide the reader quickly to the most important part of the pictures. A short descriptive text beneath each frame makes the events explicit and reveals the feelings and values of the personas. A black frame around the pictures from both storylines bounds the moments where Tom and Anne interact. To draw the designer's attention, a clash in the morning ritual is indicated by a red frame and by twisting the image slightly. Furthermore parts of the images are cut out and glued to create visually different layers in the storyboard (see figure 5.4.7). Besides the storyboard they received a 3D house model (see figure 5.4.8). The house is a representation of the same story, with an extra dimension added. The house provides an overview of the living spaces of this family and explains their rituals and paths that they follow in the morning as well. The house model could elicit playful exploration besides the foamboard. It would be a tangible way to point at situations. Printed quotes on little cards were provided. The designers would be asked to place the quotes along the storyline in the house model to support investigation of the house. To stimulate their curiosity in the beginning of the workshop, an outside of the house was created. First this house was covered in this outside box, representing the actual house, including small windows, through which the designers could peek inside. After studying the storyboard, we would take the outside box off, and they could see the inside of the house.

toolset A	toolset B
house and storyboard	animation and dolls
style: mix of photos and sketches	style: cartoons
sensitizer: mugs and advent calendar	sensitizer: cards and dolls with wardrobe
representation of users: abstracted faces	representation of users: totally sketched

Table 5.4.1 Toolsets for teams A and B.

Toolset B: Animation and dolls
Four days before the workshop we brought two carton life-size dolls to their coffee corner. These dolls represented the two kids of a family, Mark and Steven, and each day they would wear a different T-shirt with different slogans on it (see figure 5.4.9). A secretary would replace the T-shirts each day. This way the designers would get curious and see that something was going on with them. The designers received emails from Mark and Steven (StevenMark.Andrews@gmail.com) three days in a row in which they introduce themselves. The emails were set up to get to know the two boys a bit better before the workshop. On the day before the workshop the designers received a breakfast package, containing biscuits, a drink, an apple, but also a card for Mark or Steven with a note to them and raising a question about the designer's morning ritual (see figure 5.4.10). These materials would immerse the designers in their own and in Mark's and Steven's morning ritual.

At the start of the workshop an animated movie with stills of sketched events is shown, explaining the morning ritual of this family (see figure 5.4.12). Video requires little effort of designers to get into the information and to make the story come alive. By using a movie-format a more dynamic way of storytelling is provided, which could engage the designers more into the story. The idea of presenting personas by means of a movie is based on the work of Raijmakers et al. (2006) who experiments with persona documentaries to inspire the design process, besides conveying information. The movie presents the family, the persons and their interactions in a sketched comic style, while a voice-over tells the storyline, and gives in-depth information about feelings and values of the personas. At the same time, a placemat is provided (a piece of white paper with a small print of the house) in order to give designers an active role during the watching of the movie (see figure 5.4.11). They can use this placemat to make notes and mark where a situation takes place in the house. After the movie, they receive cards (see figure 5.4.11), which represents events of the movie and the text of the accord-

Figure 5.4.9 Mark and Steven as two life size dolls with their T-shirts (photo taken in Delft).

Figure 5.4.10 One of the cards of the breakfast package, containing a message for Mark and a question for the designer.

Figure 5.4.11 From left to right: the placemat with a map of the house, the dolls sitting at the table and one of the cards showing family situations.

In an earlier verion of the storyboard, we realised that the color coded personas did not look human. In the final version the personas have expressive faces.

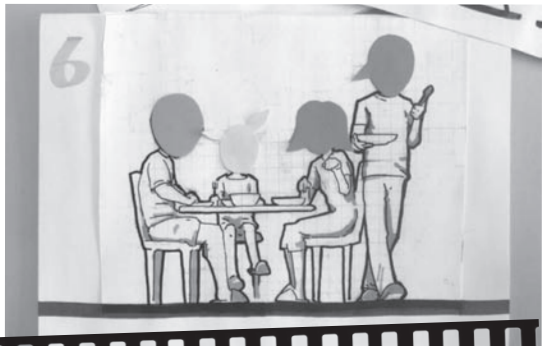


Figure 5.4.12 Stills from the movie.

ing voice-over. By using a sketchy, comic style, we meant to give the designers space to let them fill in situations with details they know from their own lives. The cards could be used as tangible information carriers after the movie.

OBSERVATIONS

The workshops were quite fruitful both in terms of interesting product ideas (see Stappers et al., 2007) and of evaluating the communication tools with professional designers.

The designers said they enjoyed working with the tools. It helped them to get started and the clear storylines were valued a lot. An overall suggestion of both teams was although the storylines support in getting started, it lacks real problems. The designers said they missed real problems addressed in the routines. Designers are used (and trained) to identify problems. A switch to finding opportunities in a situation where nothing is wrong, requires some adjustment. The storylines could have benefited from a more explicit 'bump', rather than a routine flow to fit well in supporting their idea generation. Below the observations of each team are described.

Team A: The house and the storyboard
The team enjoyed the advent calendars and said to have fun with each other in the coffee corner by annotating their own reactions to it. The mugs were also appreciated (see figure 5.4.13), and raised questions about who the depicted people on the mugs were and where the mugs came from.

At the start of the workshop, the team was briefed about the assignment and received the storyboard. The storyboard was carefully studied (see figure 5.4.14). One designer started reading out loud the stories to the others. In between they discussed, elaborated on the family's ritual and compared it to their own morning rituals. After about 15 minutes, we gave them the house and asked to place the quote-cards in the house. The team was fascinated with the house model and eagerly did the assignment, quickly placing the quotes in the proper places of the house (see figures 5.4.15-5.4.18). There was a creative and energetic atmosphere with great curiosity towards the tools. They were discovering and discussing all kind of details. After doing this for about 10 minutes, they started discussing and sketching about possible ideas. They split up into two groups on the basis of the two parallel persona views. It was surprising that the storyboard and the house were explored intensively, but only in the beginning. After a half hour the storyboard and the house were put aside for the rest of the workshop. The storyboard and house seemed to work well to give the workshop a really rapid start.

In the discussion afterwards the designers elaborated on the provided tools. In general, they were satisfied with the storyboard and the house, and said to be informed and inspired enough. The storyboard was said to help them to '*get into*' the routines and the house model gave them useful and inspiring information. The designers quickly became familiar with the patterns and spaces via the house model. Compared to standard ways of presenting personas, they thought the house model was strong in conveying a realistic situation:

– *I've worked with personas since '98 and in various forms and they look so hypothetical in general. And this I found interesting, especially the house. You kind of know their house. You can see it physically. The kitchen, I can see the scene happening.'*
– *'I imagine if you give me a persona on powerpoint sheets I can spend a good part of two hours reread and reread whereas here I don't have to read everything. I just see it.'*
– *'I consider it as a very good and healthy interaction. What is on their mind? How are these people interacting, besides physically and timewise, but also what is in their mind. I got a feeling.'*

When asking why the designers did not turn back to the storyboard and the house, after studying them in the beginning, they explained that they did not need to. This was said to be detailed to a desired degree, and the desigers explained that they did not refer back to it during the workshop, because it had been 'with them' in their minds, not because it lacked interest; *'For me it is presented well enough to immediately capture it, walk away and not needing it. It is like photographic memory, I understood the situation enough to continue with designing.'*

The tools did trigger their imagination;
– *'I really want to know why Tom is so grumpy in the morning.'*
– *'I would like to know how is their weekend morning ritual.'*

Although, they appreciated the level of information load to get started, they missed links to the original data; *'There is too little raw data, which always contains many small and inspiring details.'*
One designer suggested that this amount and this way of presenting the information is good to start with, but would like to have more detailed information too; *'The house would be a great trigger to check some footage as a next step.'*

Figure 5.4.13 The mugs are taken in use.

Figure 5.4.14 the team investigating the storyboard. They started with the persona descriptions.

Figure 5.4.15 Introduction of the house to the team.

Figure 5.4.16 One designer reads out loud the story to the others.

Figure 5.4.17 Designers are placing the quotes in the house.

Figure 5.4.18 The storyboard and house are put aside during the developing of ideas.

Figure 5.4.19 The dolls are waiting for the designers to join them at the table.

Figure 5.4.20 The doll is quite a passive company for the designers.

Figure 5.4.21 Designers discuss their own morning ritual and made notes together on the placemat as a reference tool.

Figure 5.4.22 The plenary discussion with both design teams and the RichViz students.

Style:
The designers differed in opinion about the style (mixing realistic images and sketched faces). Some appreciated the combination; *'Photographs really help me getting into the situation, and cartoons are easy.'*

It looked like that the principle of visually abstracting the main character in order to intuively identify with him/her could have worked, but the designers could not confirm if it worked that way. They were more guided by the text. The parallel storyboards already emphasized the two different main characters.

The way photographs were used in the storyboard and the persona representations, helped create empathy. But they would have wanted more details about the personalities of the personas, the children themselves and some real tension in the story.

Toolset B: Animation and dolls
Of team B, most designers did not receive or notice the materials before the workshop. The designers were not in the office those days (holidays, or meetings elsewhere) and did not visit the coffee corner much. For four of the six designers the life size dolls, sitting at the table, surprised them at the beginning of the workshop. The life size dolls surprised them in the beginning, but the designers soon lost interest in them (see figures 5.4.19 and 5.4.20); *'It is funny to take place next to him, but (unfortunately) they do not talk back.'* This indicates that life-size dolls can stimulate curiosity (temporarily), but static as they are, they fail to engage the designers to provide them with more information. One designer mentioned that it might have been good if someone played their part to answer them.

After the briefing, the movie was presented from a laptop. The designers listened very carefully to the story, but made little annotations on their placemats. After the movie the cards, representing the events in the movie were provided. They discussed some of the cards in about 5 minutes, but decided to split up in two groups to work separately.
The first group did not use their placemats at all and discussed the different perspectives of the families by using post-its, whereas the second group annotated on the placemats together (see figure 5.4.21), but discussed morning rituals in general, and their own morning ritual experiences.
By the time they got back together, re-uniting the groups was difficult, as their ideas had diverged greatly. The cards were hardly used. When coming back together, they used the cards to find more information or to find back information that had been forgotten.

The movie:
They liked the movie to get started, and enjoyed listening to the story. It helped to absorb the information and gave quickly much information. But they missed the realness of everyday life in the sketched style. They referred to a recent project in which they were provided with an edited video containing raw data, which inspired them very much.

– *'I didn't feel energy in it. It did not feel real. Live is more spontaneous.'*
– *'Cartoons are easy but you could not get into the personas'*

The movie was a pleasant way to get introduced to the information, but would need more detail to be inspiring.

The movie was more appreciated than the cards. About the cards the designers said they really missed detailed information. The absence of realistic representations (everything was cartoon style) did not inspire the designers. Whereas the movie had the voice-over which contains many details, the cards had too filtered information to be useful. The cards did not seem to give them much grip. They relied much more on personal knowledge. The cards were used, but these didn't give them much support in ideating.

Style:
The designers were not satisfied with the abstracted style, without any real photos. They misssed a level of concrete detail in the visualisations. Being drawn, there were too much interpretations, they wanted real data; *'I prefer real photos over cartoons.'*

They thought the information was too much filtered, they missed the information that would trigger them. To be inspired this team clearly addressed the need to see more details., e.g., what did they eat? what did they say at the table? seeing all stuff standing on the table?. They had the feeling they had to rely too much on personal knowledge. They felt the abstractions failed to convey the presumed richness of the user study.

These workshops gave a good impression of what worked well and not, what surprised us, and what the designers' needs are. The tools in team A and B were valued differently. The house and the storyboard were valued more than the dolls and movie. However, the atmosphere of the two teams differed in energy level, which could be due to the designs of the tools or to the group dynamics in each team. The difference in appreciation of the tools could also be related to the atmosphere and designers involved in the teams. But still, we have found some valuable lessons for creating rich visualisations of rich experience information.

The designers appreciated the rich visualisations and were inspired by them. They enjoyed working with different materials. The house model for example gave detailed insight in the context of the personas. The designers mentioned that they would like to see this kind of representation more often in their work. This suggests that designers are willing to receive rich visualised information.
Coming back to our considerations for the tools.

Sensitizing
The materials before the sessions did not have much effect (especially for team B), because of a practical problem that the designers were not in the office those days. But still, it did have the effect of triggering some to become curious. The advent calendars were fun, and the mugs are still present in their work environment a year after the workshops. (I observed this during a visit to this department a year after the project.) Playful materials such as mugs, but also beer holders, magnet boards, balloons etc are more often used to convey persona information in playful and memorable ways (Pruitt and Adlin, 2006).

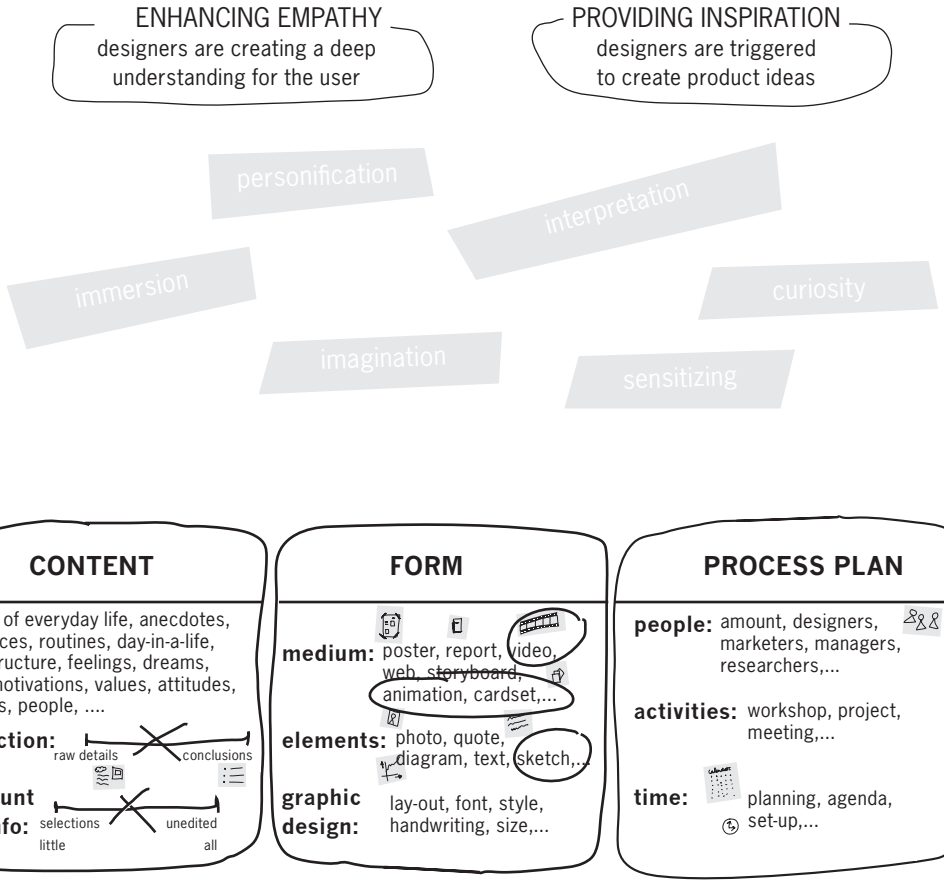
Small amounts of information
The right amount of information is a challenge in every study. In this study it has been the first time that the information was not experienced as too much. The movie, the storyboard and the house served well to get the designers immersed in the morning ritual of the family in a short time. For getting started and a quick dive into the users' situation this amount was appropriate according to the designers. However, some designers were missing links to the data sources and were already eager to find out more about these people (e.g., what they do in the weekends, or more details about the characters of the personas).

Use of personas
The designers appreciated insight in the characters of the family and used their names throughout the workshops. The results suggest that these character elements have to be part of a persona in order to be able to get a lively impression, which supports designers to empathise with them.

Use of storylines
Storylines are compact and inspiring ways to communicate experiences users have over a specific period, e.g., the morning ritual. Besides the personas, insight in events, situations and timelines are perceived as valuable information to designers. It gives sufficient information to start ideating.

Style: abstraction of visuals
Cartoon-style visuals work well to introduce information and give overview, because they can be engaging, and focus on the main message. The abstracted faces in the storyboard surrounded by a realistic context used by team A are interesting in a first glance, to start up in reading the storyboard, and to guide the reader in taking the view of the main character.
Using only sketched materials is not suitable to convey user experience information. They are too filtered, in that they leave out important details that could otherwise serve as powerful visual triggers for the designers. The designers of team B were not inspired, and missed the details. Drawings lack the details which designers like to absorb.
Concluding, the style of the sketches can have influence on how designers 'read' the information. We base this on this study, in which we only explored two of the many drawing styles (the abstracted faces in tool set A and the sketches of tool set B). We have not received much feedback on these styles particularly. To get more insight in successful use of drawing styles to convey user experience information, further research is needed.

Concluding, to inform and inspire designers during ideation, the tools in this study do support a quick understanding of the users' situation and provide triggers to find starting points for ideation. These tools contained a small selection of data. This suggests that selections of data are recommended for a quick immersion only. Storylines and personas are supporting a quick immersion. The storyboard and the house model are inspiring forms, because they trigger questionning, imagination and energetic interaction. Also a movie containing drawings gives rich insight and can be pleasing, but without supplemental tools which offer more details, it remains a poor way of conveying information and inspiring designers.
Only sketched materials are not suitable to convey rich expereince information, since designers need 'real data, such as photos or quotes.



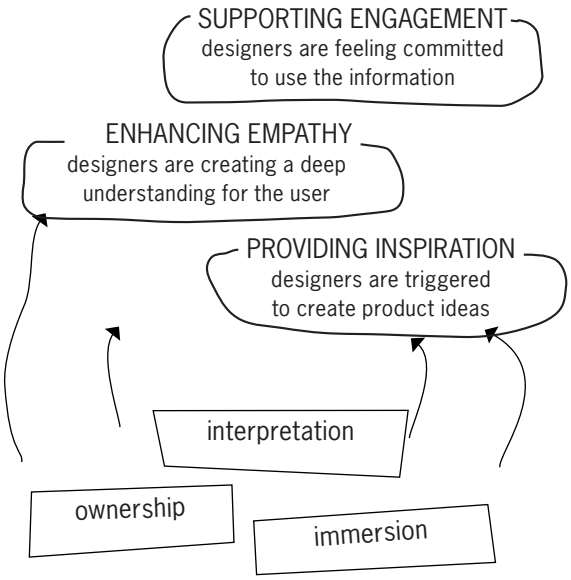
5.5

'I could keep on doing this for hours'

INTRO & OVERVIEW

This study describes an interpretation workshop of raw data with designers. Interpretation involves a process of studying a rich and diverse set of user data in order to understand the behavior, motivations, feelings, values and contexts of users, discovering patterns and creating meaning as a source of inspiration for generating innovative product ideas.
As described in chapter 2, design firms acknowledge the value of extensive user research and interpretation processes in the early phases of the design process, but time and budget available is often limited. This study explores if and how speeding up the process of interpretation can be useful for designers from a design firm.
Findings from the previous studies indicated the necessity of providing raw data elements in order to support empathy for the users and inspiration for new ideas.
In this study I explore if it is sufficient for designers to provide only raw data to designers and guide them through the interpretation process based on raw data in one day. In close collaboration with a design company a contextmapping study was performed for one of their clients. The contextmapping study was a try-out for this company, to see whether this method could be valuable for them. This implied speeding up parts of the contextmapping process in order to be not too time consuming.

Questions
– Is only raw data without any pre-selection, and pre-analysis by researchers providing sufficient empathy for users and providing inspiration?
– To which elements of the data are designers attracted to and to which elements less?
– How can the interpretation process be organised in order to guide designers through the material?



This study was part of a larger project, in which the applicability of contextmapping method in the practice of a strategic design agency was explored. A project was set up with Strategic Design Agency Scope and ID-StudioLab. Three researchers of ID-StudioLab, of which one was a Master student of Industrial Design Engineering, and three designers from Scope co-operated in organising and conducting a contextmapping study about having and using bicycles in the Netherlands. One of Scope's bigger clients is a bicycle manufacturing company for which the results of this project could be of interest. During the set up of the project and creating the work packages all researchers and designers were involved. Nine users were sent a probe package, containing (see figure 5.5.1) a workbook, sound recorders, camera, picture cards, stickers and a bottle of wine. A week after the probes packages were sent three of the users attended a group session to discuss their filled-in packages. At the group session two researchers, and one designer were involved. With one user, who could not attend the group session, an individual interview was conducted by a researcher. The group session and the interview were transcribed.

Topic: having and using bicycles

The results comprise information about the users themselves (who they are, what they look like, where they live and their opinions about things), and diverse aspects of the experiences of having and riding bicycles. For example, what bicycles they have, what aspects they like of bicycles, where they store bicycles, with who they use it, how and when they use it. A few of the interesting insights:

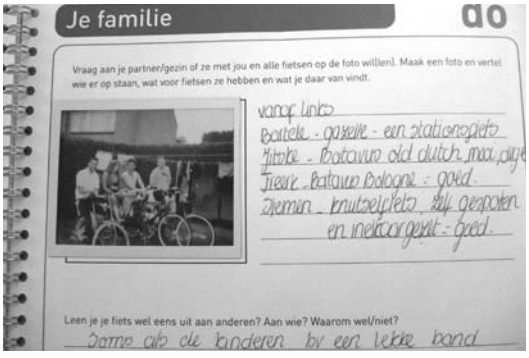


Figure 5.5.1 A page of the workbook in which the users introduces his/her family and the bikes they have.

Storing

The users could explain in detail why and how they store their bikes. There are a lot of considerations involved such as: in the garage, but the last bike 'in' does not always mean the first bike 'out', causing recognisable irritations. One user told about her son, who bought a scooter and that the storage place for their bicycles was taken by this new scooter. All the (expensive) bikes were now stored in the garden outside instead of the former place inside the garage.

Feeling active and healthy

Cycling feels healthy and people enjoy the flow.
'If I take the bike instead of the car, when I go to work, I feel more fresh. ...I feel more satsified at the end of the day.'

The key

One product idea that came out of this session was a much more delicate and luxury design of the key to lock the bicycle. This idea was derived from the insight that a key is a prominent object which is related to the bike. The key of the lock of the bicycle is this little thing, which gives people the feeling of having the bicycle available to them. Feeling the key in your pocket, gives a sense of trust, that you own the bicycle. An innovative design of the key could give users more satisfaction of 'having the bicycle in your pocket.'

Besides the findings described in this study, the applicability of contextmapping for this design firm was evaluated. In short, the designers appreciate the contextmapping method because of the close contact with users, and the convincing power this information has for them, in comparison to information which is less close to the users and in which more easily opinions of the researcher are present. However, it is time consuming, and not affordable to set up a contextmapping study for each design project.

Setting:	1 day workshop
Tools:	no tools, but a facilitated process
Date:	September 2006
Topic of user data:	having a bicycle
Company involved:	Strategic Design Strategy Scope

Related publications:
– van der Lugt & Sleeswijk Visser (2007) Creative sessions for interpreting and communicating rich user information.

A session plan was created for the interpretation day. The session lasted one day (six hours) at the design studio. Three researchers (from StudioLab) and three designers participated and all participated in the interpretation process as active members. Besides participating, one researcher facilitated, and one researcher (me) observed and made annotations (a logbook) on how the designers reacted to the different parts of the process and to parts of the data. Video-and audio recordings were made to observe their behavior also afterwards.

At the end of the day, an evaluation discussion was held about the proposed process, which aspects the designers found most useful and what they thought about the outcomes of this workshop. In the months after the session we had regular contact (by mail, phone and meetings) to discuss their learnings with this method.
A year after the session an interview with one of the designers was conducted to learn about how they dealt with the information on the long term.

For analysis, I evaluated if the goals of the workshop were reached and to what degree and discussed my observations of the interpretation day with them. I compared their expectations (weeks before the workshop, at the start of the workshop, and their impression after the workshop and months after the workshop).

TOOL CONSIDERATIONS

Before the workshop, the designers had been involved in the user study. All of them had participated in the creation of probe package materials, and one of the designers attended the group session. For efficiency reasons, only one designer attended the group session, but that by means of the filled in packages, the other designers would get to know the users. This implies that there was not any pre-selection, analysis or presentation prepared for them. The designers would start with immersing in the materials from the packages.

The following process was created (see figure 5.5.2):

9.15 discussing aims
9.45 immersing in the data
11.00 creating themes
12.00 lunch
12.45 organising data in the themes
13.15 insight and idea generation
14.15 reflection
14.45 the end

This proposed process is a combination of a creative problem solving process and an analysis process on the basis of the Grounded Theory approach. Positioning the interpretation process as a creative problem solving process would immediately provide the designers with an approach they are familiar with. Creative problem solving process, consists of phases in which diverging, and converging follow each other in an iterative way (Roozenburg and Eekels, 1995).
The principal approach to structuring the data is inspired by Grounded Theory: Allowing meaning to surface from the data pool. This involves a process of identifying interesting connections or mini-theories,

Figure 5.5.2 The process plan for the interpretation session

which are developed and strengthened (or rejected) by adding data elements (Corbin and Strauss, 1990). However, the limited time available requires some shortcuts to deal with the large amount of data. We decided that a tactic would be to identify a small number of major themes, then identify data elements that are relevant to these themes, and then engage in the process of sense-making of each theme.

The day would start with discussing the aims and sharpening these for the workshop. Then a big hour was reserved for discovering what the probe packages and the transcripts were filled with. We thought that time is needed for immersing in the data, getting to know the users, and discovering many of the little details. Starting with raw data allows designers to undergo an interpretation process starting from raw data, leading to broad themes, to enriched themes with quotes to insights for early product directions. The data consisted of 7 probe packages (two were not returned) and the transcripts of the group session and one interview. The following hour was reserved for discussing the parts, anecdotes, topics, that surprised us and guide this discussion to the identification of a set of themes. These themes would be the starting points for a more focused analysis of the data. We would bring big foam boards on which these themes could grow with selections of the data. We were doubting if cutting and glueing parts of the probe package material would be an option, because that would lose the original structure of the data sources such as the workbooks, photos and cards. The design firm had a copier, so the relevant parts could be copied, and then cut and glued on the foam boards. Then a small idea generation would take place, to get them in the mode of finding meaning in these clusters of data around the themes, and couple it to early product directions. In the end of the day, the results would be visible on five foamboards consisting of self selected and self organised raw data fragments, and an interpretation of the themes by early insights and product ideas.

OBSERVATIONS

At the start of the day the expectations of the day were discussed. The designers expected a deep understanding and original product ideas;

– *'To have a deep understanding of the users and their experiences with bicycles, and have original insights and product ideas to communicate to the client.'*

– *'Original ideas, insights of which you can not think of yourself.'*

They want to know the identity of the users, and what their lives look like, for example how they integrate kids and bikes in their lives. These expectations clearly address their needs of gaining empathy with the users, and providing inspiration for innovative product ideas.

When we presented the program of the day (see figure 5.5.2) the designers were surprised. They expected to lean back and to listen to a presentation of the researchers at the start. They are used to research results are presented to them, but after explaining that we did not prepare any presentation because we wanted them to have the first contact with the data, they agreed. We started by opening the packages and browse through the materials (see figures 5.5.3-5-.5.7). Soon, the designers became enthusiastic and were totally absorbed by especially the stories in the workbooks and in the transcript. They read out loud fragments of the diaries to each other, and showed fragments to each other. This was an active, creative and social activity. After one hour of rummaging through the data, they expressed the need for having more time. They had the feeling that there was much more interesting stuff that they had not each of them encountered yet. They enjoyed this rummaging, because it is so close to the daily reality; *'It feels so real, I could keep on doing this for hours'.*

We discussed what surprised each of us, and created five themes to continue with; the looks of bikes, freshness & health, trust, detail and a collection of interesting material which did not fit the other themes yet (see figure 5.5.8). The themes were written on the foamboards (see figures 5.5.9-5.5.12). After lunch, we started browsing the data again, but this time with those themes in mind. The atmosphere was very active and the designers were highly engaged in reading stories, commenting on them, copying, cutting, discussing and filling the foamboard with data elements. The transcripts were hardly used, since it was hard to select quickly in so much text. We split up in groups of two and each couple focused on two of the themes. Two designers were especially interested in the aesthetic preferences of the users, displayed by selected stickers in the workbook. One assignment of the probe package was about ranking pictures of products on their attractiveness of visual design. The designers laid out down these cards and were looking for patterns (see figure 5.5.13). They counted and sorted them on age and gender; *'You see, these products are all rated high by the women'.*

When starting the idea generation, these designers preferred to and continued with analysing the aesthetic preferences. Aesthetic preferences is a main topic of interest of their company, so this information was very valuable and intriguing to them.

The insights and first product ideas by the other designer and researchers were written on post-its and added to the foamboards (see figure 5.5.14). During the discussion about each theme and the findings, the selected quotes from the packages were used as

Figure 5.5.3 (9.45) The returned probe packages are waiting to be interpreted.

Figure 5.5.4 (10.00) Immersing in the data.

Figure 5.5.5 Checking pictures in the workbooks

Figure 5.5.6 Two designers are having fun when reading a workbook.

Figure 5.5.7 One designer is absorbed by a story.

Figure 5.5.8 (12.45) Five themes are being selected after a discussion of what surprised us.

Figure 5.5.9 (13.30) Copying fragments of the workbook.

Figure 5.5.10 Cutting quotes and pictures out of the copies.

Figure 5.5.11 Adding data fragments to the foamboards.

Figure 5.5.12 (13.30) Creating insights and ideas within the themes.

Figure 5.5.13 Two designers focus on the aesthetic preferences of the users.

Figure 5.5.14 Two of the theme boards.

arguments to explain each one's findings. This was a very interesting discussion in terms of interpretaton levels coming together. Apparently, these quotes were shared knowledge, and by means of the quotes thoughts about patterns and meanings were formulated and raised many new questions. On the video afterwards can be seen that the designers and researchers are all concentrated, engaged and thinking while another explained his/her insights. Switching between these levels is a concentration task, because many connections are made.

Looking back to their stated aims at the beginning of the day, the designers said that they felt very much engaged, and like to have the feeling of being so close with the users.
We asked them what made this type of information so useful:
– *'It intrigues me what kind of role products and service play in the lives of people. I find this kind of information very fascinating.'*
– *'I have the feeling that we have very valuable information for the longer term. It is not the kind of knowledge, which is gone soon.'*
– *'For us, the value is the rich background you get from such a project. It is positive information, including feelings and everyday routines.'*

The designers had the feeling to have a lot of, even unarticulated, ideas spurting up, and were satisfied by the close feeling of contact and really 'knowing' the users. They valued the convincing power of having this kind of information. One designer said; *'So often research results contain the opinion of the researchers within, but this information is true and pure'.*

When asking if they felt empathized with the users, the designers all confirmed. Especially the time to browse through and immerse in the raw data which was all around in the studio, supported this.

Towards the other aim of having original insights and product ideas the designers were more critical. They did not have the feeling that all insights and ideas were condensed yet. To them, the interpretation process was only half way complete. As a result, they asked for a second day to continue with finding deeper meanings. They missed a next step in the interpretation process. They would have wanted to have more condensed insights and product ideas. The created ideas were small in amount and not worked out at all.
This suggests that the designers were well immersed and that they had gained a deeper understanding about the role of bicycles, the users and cycling, but this knowledge was not tangible and useful yet for the next stage of idea generation. Time was short to do an extensive idea generation. Moreover they were so engaged in the current activity, that cutting this activity and taking distance to brainstorm about possible product ideas did not feel good. They mentioned that the filled in probe packages contained so much richness that interpreting and discovering little details did not feel completed yet.

After the workshop the following things took place. The second interpretation session was never realised. Instead, the fascination by the aesthetic preferences lead to a new project which they continued with. The student who had been one of the researchers, performed a larger quantitative study about consumer preferences of style by means of a graduation project. To present her results she added contextcards (see figure 5.5.15), because the designers wanted to have the same kind of convincing and realistic information, as the contextmapping data provided; *'We are not intrigued by numbers; a rich insight I cannot get from that'.*
The context cards show a user in his/her own house with a quote to give a quick insight in the users' lives. The context cards are not a visual representation of what the quantitative results show, but an enrichment of the users' situation.
The foam boards of the contextmapping study did not last a long life; *'Soon after the workshop, we made pictures of them and have thrown them away. We have not really used those pictures, honestly'.*

The designers had reported the insights to their client in one of their meetings, but did not show the results of the interpretation workshop. On one hand, the client had a priority for another project and on the other hand, the results of this workshop were too unfinished and not presentable yet.

Figure 5.5.15 One of the contextcards, providing a view in the user's lives. Inspired by the contextmapping study, these context cards to the results are created as an addition of a quantitative study about aesthetic preferences, to have a richer view about the users.

The process has been an efficient way for providing designers a rich view and close connection.
The biggest part of the data has passed their eyes, of which some parts are structured and reorganised in themes, enriched by a few insights. In that sense, the process plan worked well. It provided them the close contact with the raw data, in which they could immerse and discover many aspects and could empathize with the users.

But the process plan as proposed did not succeed in providing them with sufficient guiding in consolidating the gained knowledge. Regarding the outcomes and the development of product ideas, the process plan can be improved. It failed in supporting a consolidation of the deeper interpretations and coupling of it to useful outcomes. There was not enough time planned to condense the insights. So direct interpretation of raw data with designers provides a rich view, but the proposed process plan did not allow them to generate actionable outcomes. Other possibilities could be to focus on one of the selected themes to continue with or to split the process in two separate workshops, in which the first is dedicated to immersion and sense making, and the second workshop dedicated to idea generation. The challenge will then become to provide a bridge for the rich experience information to pass beyond the bounaries of a 'research' workshop into idea generation.

Immersing in the raw data
One hour of browsing through the raw data had not been enough to have the feeling to have seen enough. The designers did not feel they were able to grasp all there is yet. Designers need the time to wander around in the users' worlds. Designers can be hesistant to generate outcomes when time is short, but immersion time allows designers to become more receptive for the data.
This study confirmed the power of raw data. When reading stories the designers can imagine the feelings which are expressed and reflect about opinions and situations described. The stories and dreams as well as the visual information (the cards, stickers and photos) support enhancing the designers' empathy. Being surrounded by raw data on the floor, the walls and tables, was an effective way for immersing and interpretating.

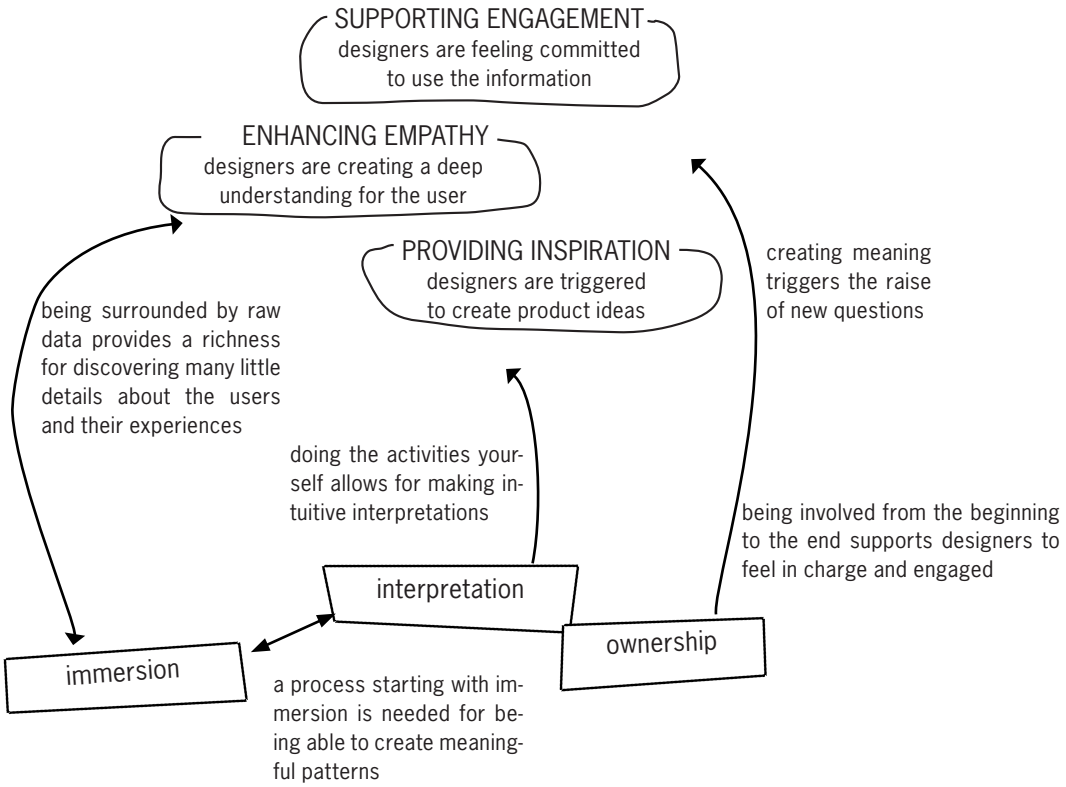
Designers interpreting the data
Providing only raw data gives designers a rich view of the users' lives, but does not show the deeper layers. Deeper layers evolve during the creation of themes and finding patterns.
The discussions and the foamboards with themes show how fluent designers can switch and combine different interpretation levels in this study. Raw data provides details, and the personal stories were engaging. When this sense making is combined with idea generation the designers had difficulties. Therefore, it would be valuable to divide the process of interpretation in two seperate activities. The sense making needs time to consolidate. Considering the short time of the interpretation day and the large amount of materials, the identification and formulation of the last step did not feel complete. During the workshop there were two moments where the designers were mostly engaged: While browsing through the raw data and while discussing the early findings at the end of the day.
Immersion was a valuable start for the interpretation process to gain empathy. But insights towards product ideas were just emerging and remained intangible for later use.

This study suggests that involving designers in an interpretation session of contextmapping data provides them with a deep understanding of the users and a feeling of close contact. Here, the designers were actively invovled in the earlier stages of the contextmapping study, which supported their engagement with the project and its cause. The advantage is that they feel ownership over the results and are engaged. Designers are used to being able to quickly organise and create new structures, which is valuable for interpreting rich experience information together with them.

Time for immersion is an important phase for an interpretation session. Having explicit time for browsing through is recommended. Then when designers discuss and create meaning they have a shared base of knowledge about the users' stories.

Being surrounded by the raw data helps designers to choose, explore, and browse through the data package of each user, which allowed them to get to 'know' each user in a personal way.

Immersion in and interpretation of the information are different ways of dealing with the information. It can be difficult to switch from the activity of browsing through the data to interpretating and creating first insights for product ideas. There should be sufficient time or guidance to support designers in changing from one mode to another mode of dealing with the data, when product ideas are the expected outcomes of a workshop.



5.6

‘I have been a postman too’

INTRO & OVERVIEW

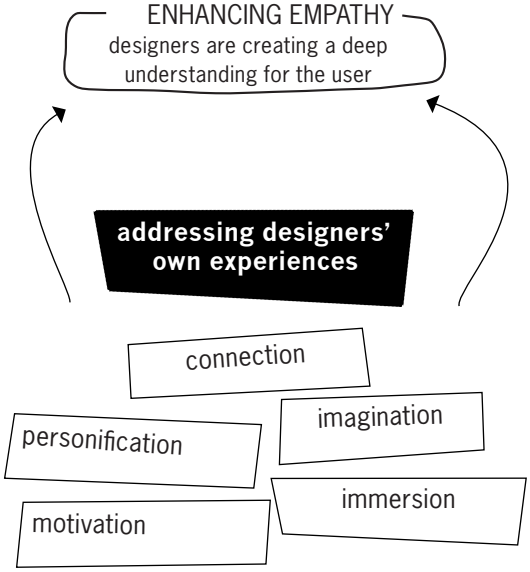
This study focuses specifically on enhancing empathy for users. One of my assumptions is that empathy with users will increase when designers explicitly address their own experiences. This assumption is derived from a review of the psychological literature, where empathy is regarded as a process, in which an emotional connection with the user’s experiences is a fundamental part. Understanding someone else’s experiences includes cognitive and affective components on the part of the designer.

To be able to understand someone else’s experience a designer can be informed about that experience, but also ‘feel’ what that experience must be like for that person. The designer’s feelings about his own experiences is important, because then he might be able to better understand what it must feel like for the other person to have such experiences. Supporting designers to make an emotional connection might help in enhancing their empathy with users.

This assumption is explored by executing four workshops in which the designers’ own experiences are addressed. Two of these workshops included a specific exercise by which the designers addressed their own experiences, whereas the other two workshops did not. In this way we made a comparison to establish whether this exercise had an influence on increasing designers’ empathy with users.

Questions

– What helps to evoke empathy?
– Does guiding designers to address their own experiences support them in increasing empathy with the users?
– How can empathy of designers be measured?



This study has been part of the graduation project of Merlijn Kouprie at StudioLab. It was part of a large project of Philips Research, in which two graduation students and two PhD students were involved. The four of us conducted an extensive contextmapping study with eleven elderly people and the outcomes have been used for input in several projects afterwards. We visited each of the users three times in their homes (see figure 5.6.1). The first visit was aimed at getting to know them, observe, drink coffee, introduce the user study and hand over the sensitizing package. This package contained assignments about their social world and their activities during the following week. A week later we returned and in a one hour open interview the user could explain his/her filled in package and make a collage about his/her social world. At the end of this meeting, the user received another package to be filled in with one of the persons who was present on his/her collage. A week later we would return again, and discuss the filled in packages with the user and this other person (who could be a sister, a friend, a neighbour, a partner). All meetings were recorded on video and analysed.

Topic: social lives of elderly

The aim in this project was to gain insight into the social lives of elderly in order to develop technologies and applications that fit and enhance these social worlds. One of the concepts inspired by the results of this user study is a service to exchange pictures (see figures 5.6.2 and 5.6.3). This concept was created and developed by one of the graduation students involved; Elisabeth Leegwater.

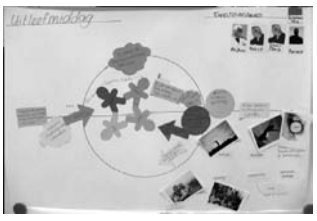


Figure 5.6.1 The contextmapping study: users made posters about their social worlds and about one of their activities specifically, e.g., in this picture 'the table tennis afternoon on Wednesdays'.

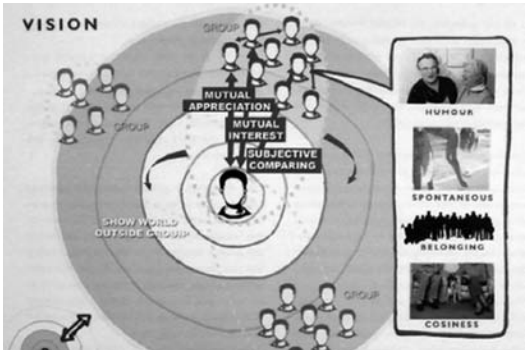


Figure 5.6.2 One insight was that elderly have many contacts in the outer spheres of their social world-maps. With these people, they have regular, but not very in-depth contact. They share common activities, e.g., walking in the woods. Another insight was that the elderly who are able to use the computer are proud of this ability and willing to help others. Elderly who are not using the internet miss a lot of inbetween contacts. These insights led to a concept which allows a group of elderly who share a common activity to share photos about that activity. The one who is able to post them on the internet posts the pictures of that shared event using a specific program. These pictures can be seen on a special TV channel, for those who do not use internet. They can rate the pictures according to how much they like them, which in return is a sign of recognition for the person who has posted these pictures.

Figure 5.6.3 This picture shows the TV version of the service. A working prototype was tested with one of the users who participated in the contextmapping study and his group of friends, with who he goes walking on Sundays.

Setting:	2 hour ideation workshop
Tools:	cards with photos, quotes and video
Date:	January 2007
Topic of user data:	social lives of elderly
Company involved:	Philips Research

Related publications :

– Kouprie and Sleeswijk Visser (2009) A framework for empathy in design: stepping into and out of the user's life.
– Sleeswijk Visser and Kouprie (2008) Stimulating empathy in ideation workshops.
– Sleeswijk Visser and Stappers (2007) Mind the face.

Four workshops of two hours each were conducted at Philips Research. In each workshop three to four employees participated. Some of them were designers, but most of them had other professions, ranging from engineers, psychologists, sociologists to managers etc. None of them had been involved in the context-mapping study. They were invited to participate on a voluntary basis and were not told that these workshops were part of a study about empathy. They participated for different reasons: some were interested in learning more about the contextmappping method; others were interested in the topic 'the social lives of elderly'. In the workshop they received information about the elderly and were asked to create product ideas that enhance social contacts in neighborhoods.

Four workshops were performed with different teams, under two different conditions. All workshops followed a set- up of sensitizing, immersion in the data, interpreting the data, idea generation, and ended with a presentation of the created product ideas. Teams A1 and A2 were given an explicit assignment to recall their own experiences in relation to the topic, whereas teams B1 and B2 were not instructed to do so.

To evaluate whether the designers' empathy increased more in teams A than in teams B, we used a set of methods.

– We counted the number of references to the users and to themselves or relatives as indicators of empathy from video. References to themselves were not counted when teams A discussed their own cards after filling them in.
– Three times during the workshop, the designers were given a mini questionnaire, in which they had to score how empathized they felt with the users at that moment (see figure 5.6.4).
– We observed their behavior. All workshops were recorded on video for this aim. We specifically looked for differences in the energy level and group dynamics of each team during the different activities of the workshops.
– Afterwards, the designers were asked to reflect on their empathy during the workshops. When the workshop was finished, we asked several questions. One of the questions was literally: 'How empathized do you feel now?'. After that we gave them back their mini questionnaires to review their scores and describe their development of empathy in the course of the workshop. We explained that the workshop had goals other than informing and inspiring them about the social lives of the elderly and/or the method, and that we were interested in their developments of empathy. Then we asked them to draw a graph on their development of empathy and present this (see figure 5.6.5). We learned more from this self reflection than any of the other methods. Being empathized is an ambiguous term, which can be interpreted slightly differently by everyone. Self reflection, and explanation in their own words, helped us to understand what they were expressing with these graphs.
– Afterwards, an expert panel would judge the product ideas of each team on how well these ideas fitted in with the needs of the user group. Unfortunately, the ideas differed too much in quality to compare them.

Figure 5.6.4 In this mini questionnaire the designer is asked to give a score from 1 to 7 about his/her feelings on that moment in relation to the users in terms of being *interested, involved, inspired and empathized*). The dimensions were listed in random order each time during the workshop. The questionnaire was given at the start, after the introduction and at the end of the workshop.

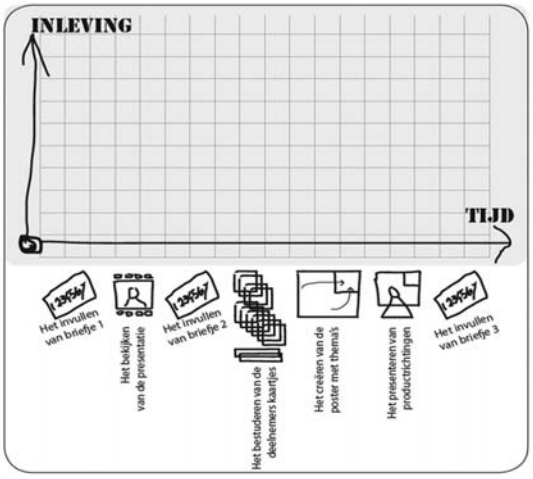


Figure 5.6.5 Designers can depict their own experienced changes of empathy during the time of the workshop on these sheets. These graphs provided starting points to reflect on their empathic process as witnessed by the quotes.

As discussed in chapter 3, the ability of people to empathize depends on their own knowledge, the situation, the state they are in and their motivation. Therefore, when the designers applied for the workshops (about three weeks prior to the workshops), they were asked to fill out an online questionnaire consisting of two parts. In part one they were asked about their demographic characteristics (name, date of birth, gender, function, education), and about their availability for the workshop (which day). They were also asked about their knowledge of contextmapping and when they feel most creative during the day. Part two was an empathy test (Baron-Cohen and Wheelwright, 2004). This test is a 60-question self-report, resulting in an Empathy Quotient (EQ). It was created to measure empathy in adults of normal intelligence. A score between 0-32 is low, between 32-52 is average, between 53-63 is above average and between 64-80 is very high. 80 is the maximum score. We used this information, as far as possible, to create teams which scored equally on EQ, had mixed genders and their personal preferences for morning or afternoon.
To make sure that the set up of the workshop, the tools and the method worked out as planned, a pilot test was conducted with design students. In the pilot test, the students were given three mini questionnaires (based on several empathy tests from psychology) five times during the workshop. We learned that these mini questionnaires were distracting them from the activities and that the students found it difficult to answer them. Therefore, in the workshops we used only one of the three questionnaires and gave it out in three stages during the workshop.

TOOL CONSIDERATIONS

Process plan
Based on psychology literature on empathy which describes empathy as a process and our experiences in the previous studies, we translated this process to design (Kouprie and Sleeswijk Visser, 2009). Figure 5.6.6 shows a process for empathy in design consisting of four phases. This process can be used to structure and organize design activities and to provide guidance for developing specific tools and techniques in design. This stepwise process can be applied in various ways ranging from a small exercise to the planning of a design project over a longer time. In this study it spanned the duration of the workshop. The first three steps comprise the discovery phase, step 4 the immersion, and step 5 involves the connection and detachment phase. Figure 5.6.7 illustrates the set up of the workshops, consisting of six steps:

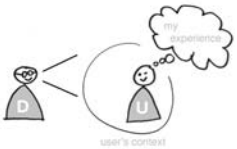
1. Three days before the actual workshop the designers receive a sensitizer.
2. The workshop starts with a 15 minute presentation by the researcher. The aim of the workshop is to create product or service ideas for elderly people to enhance their contacts in the neighborhood.
3. The designers briefly introduce themselves by presenting their sensitizer and fill in a few cards about their personal experiences concerning the topic and discuss these.
4. The designers receive a card set with selected quotes of the users, and are given 30 minutes to just immerse themselves in this information.
5. On a large sheet of paper, the designers organize cards into themes for product directions. They are explicitly asked to compare their own cards with the users' cards (45 minutes).
6. In the last step they present their new ideas to a specialist.

Teams A1 and A2 carried out all six steps above, but for teams B1 and B2, step 3 was omitted and the instruction to relate to and compare with their own experiences was left out in step 5. We expected that teams B would show less empathy than teams A. We considered including a third condition in which this process was not followed, but since this study took place in practice, we did not want to set up a workshop in which we did not support the designers in achieving empathy at all.

Tool considerations
The workshop material consisted of a sensitizing letter, video fragments, a cardset with quotes, and a pre-designed poster. In these tools, three of the eleven users were presented in more detail. We thought that it is more useful to provide information about three users in detail than to provide information about all eleven users. This way the designers would be better able to connect with the users.

The sensitizing letter was sent by email three days before the workshop. The three users were introduced briefly. Teams A were asked to fill in the map with their own social world, whereas teams B were asked to use their imagination and fill in the social world for one of the three users (see figure 5.6.8).

At the start of the workshop we introduced the conducted user study in powerpoint. Video fragments were shown of the three users during the interviews. In the pilot test with the design students, we had not yet extracted video clips, and just brought the cursor to the place on the timeline to show a minute. By using fast forward to find the right moment, the design

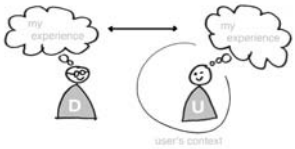


DISCOVERY
Entering the user's world
Achieve willingness

The process starts with the designer approaching the user. He makes a first contact with the user, either in person or by studying provoking material from user studies. The designer's curiosity is raised, resulting in his willingness to explore and discover the user, his situation and experience.

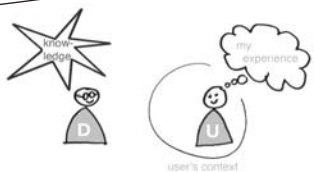
IMMERSION
Wandering around in the user's world
Taking user's point of reference

After the first encounter with the user's experience, the designer takes an active role by leaving the design office and wandering around in the user's world (data from qualitative user research). The designer expands his knowledge about the user and is surprised by various aspects that influence the user's experience. The designer is open-minded, interested in the user's point of reference. He is being pulled into the user's world, and absorbs without judging.



CONNECTION
Resonating with the user
Achieve emotional resonance and find meaning

In this phase, the designer connects with the user by recalling explicitly upon his own memories and experiences in order to reflect and be able to create an understanding. He makes a connection on an emotional level with the user by recalling his own feelings and resonates with the user's experience. At this phase both affective and cognitive components are important; the affective to understand feelings, the cognitive to understand meanings.



DETACHMENT
Leaving the user's world
Design with user perspective

The designer detaches from his emotional connection in order to become 'in the helpful mode' with increased understanding. The designer steps back into the role of designer and makes sense of the user's world. By stepping back out to reflect, he can deploy the new insights for ideation

Figure 5.6.6 The process for empathy in design consists of four phases (Kouprie and Sleeswijk Visser, 2009)

Figure 5.6.7 The overall steps in the workshop set-up. The steps marked with a * were different for the A and B teams.

students were able to see some characteristics of the users. We noticed that this gave the students a rich view, because they could see a bit more of the interview, when scrolling to the selected moment. Instead of an imported clip in powerpoint, we showed the video the same way in the workshops.

During the introduction we also explained that we had conducted these interviews ourselves. If the designers wanted additional information they could ask us about the users whenever they wanted. This way, we hoped that we could give them a feeling of being able to get a bit closer to the users, since we at least did actually meet them.

In the workshops some of the materials created by the selected three users were placed on a wall.

A cardset was created to convey the information (see figure 5.6.9). The medium of a card set was chosen, because in previous studies exchangeable elements, which allow designers to interactively organise the cards, has proven to work very well. The set consisted of raw data and interpreted data: 20 quote-cards per user showing a quote (raw data), one background card per user showing his/her sociogram, one dimension card per user showing how his/her social world was centred locally or at a more geographical distance, and finally three overview cards indicating a theme, which placed users in a position relative to the other users who participated in the study. The cards belonging to one user had the same color (orange, pink or red). We adjusted the cards after the pilot test. Instead of one and the same photo coming back on each quote-card, we placed different photos (taken from the video recordings of the interviews) to provide a sense of liveliness. Also, when a quote was derived from a discussion between the user and his/her relative (in the second interview) a photo of the two people was used. In the pilot test, some words (relating to our identified themes) were printed in bold type, but we noticed that this was confusing for the design students, so the final cardset did not have any words in the quotes in bold.

To address the designers' own experiences, four cards were provided per designer, with an empty text balloon to fill in (see figure 5.6.10). These cards had

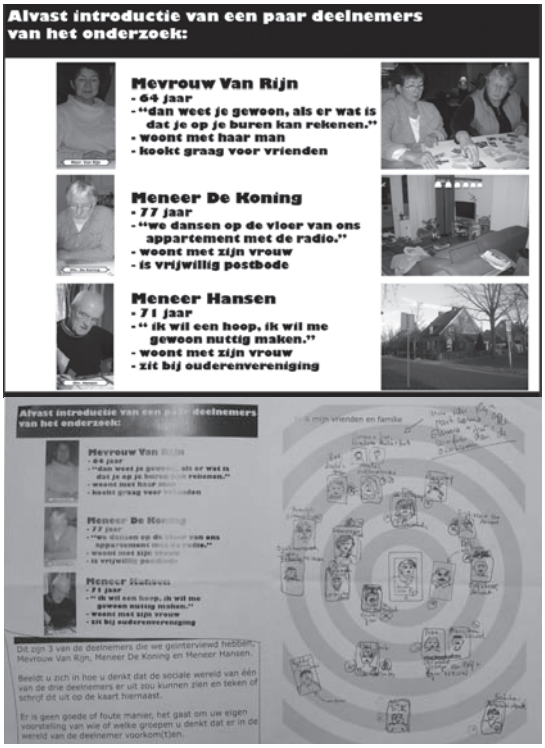


Figure 5.6.8 The sensitizing letter contained an introduction about three users and an exercise to fill in the social world of the designer (teams A) or of one of the users (team B).

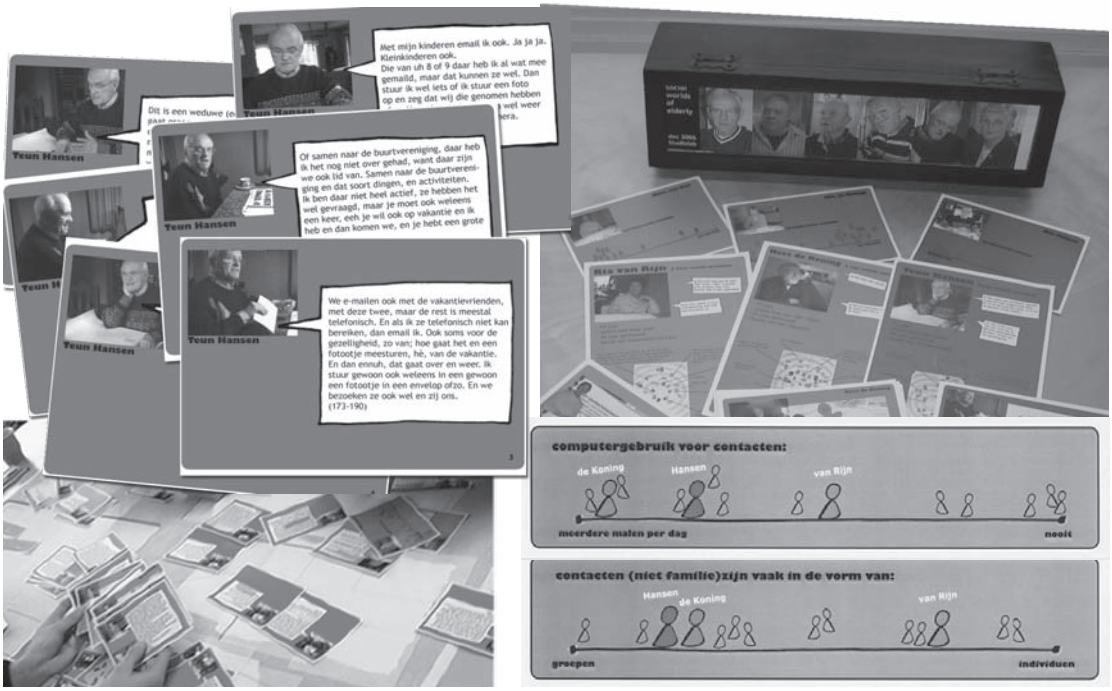


Figure 5.6.9 The cardset contained mainly cards with quotes (excerpts from the interviews) of the three selected users, but also cards providing background information and the social world map of these users (upper right), and dimension cards showing how these three users are positioned in relation with the other users interviewed (bottom right).

the same graphic design in order to convey the idea that they were similar to the cards of the users. These cards had different colors (yellow, green, blue, purple). The cards were given right after the plenary introduction, and before the designers received the cardset with the users' information. At this moment the designers have a bit of knowledge about the users, by having done the sensitizer and by seeing them in the videos. Before surrounding them with lots of cards, they were first asked to elaborate on their own experiences concerning their social worlds on a set of four cards and compare these with the users' experiences (see figure 5.6.11).

With the cardset the designers were given highlight stickers to stick on the cards wherever they found something that interested them. Post-its were provided to make annotations.

A poster was designed to use in the organization phase. It had a pre-designed layout with spaces where themes could be formed by grouping the cards and the post-its in this space, and a corner in which product ideas could be placed. We anticipated that they might not be trained as designers and therefore needed a bit more guidance in creating themes and ideas (see figure 5.6.11 and the right picture in figure 5.6.12).

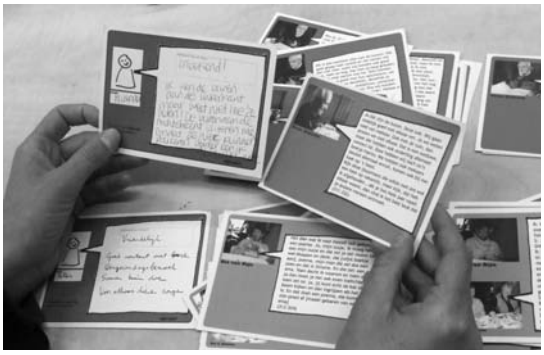


Figure 5.6.11 The designer's own cards are compared with the user's cards.

Figure 5.6.10 These are the empty cards for designers to fill in with their own experiences of their social worlds. On two cards they were asked to write/draw something about one of their social worlds (family, a group of friends, colleagues, etc). One card asked them to describe their favorite medium for communicating and the last card asked them about what their neighbourhood means to them (the second card shows one of the filled in cards by the designers). These topics were also extensively elaborated upon in the selected quote-cards of the users.

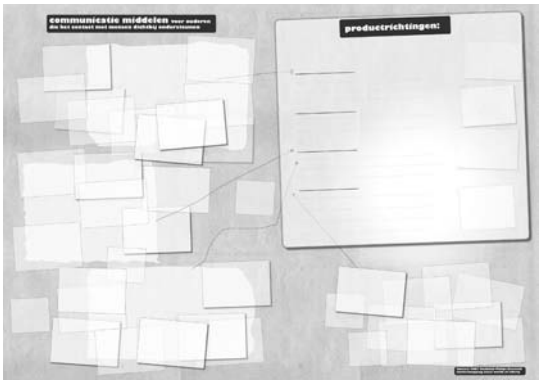


Figure 5.6.12 The poster helps to structure the data into themes and create product ideas based on these themes.

The designers were divided over the teams, resulting in the following mean score of EQ;
team A1: 36 (28,35,47)
team A2: 52 (?,42, 50,58)
team B1: 50 (41,49,60)
team B2: 52 (51,52, 52)

Differences in group dynamics between the teams
Team A1 consisted of three people. None of them participated currently in projects for elderly people. They did not know each other. During the introduction, they were rather quiet and listened attentively. Their personal stories about their social worlds were quite personal, about such things as the close connection with one's partner, or the parents in law. They listened carefully to each other, but no discussion started. The team stayed quiet during most of the time. Sometimes there was a little chuckle or a short conversation. Only during the organisation phase did they discuss more. One person was still learning Dutch, and seemed to have difficulty following the group. She stayed rather passive during the entire workshop. The other two were absorbed by the cards. When asked to compare the users' cards with their own, one mentioned; *'They are on the other side of life* (a designer, aged 28)*, and I find it intriguing to get insight in their experiences. In the end I might also end up in such situations ...I realize that it is so different.'* Another said: *'When I am old, I would like to be like De Koning. He is so full of energy.'* The quiet person did not add to the conversation. During the creation of themes all discussed more and referred several times to themselves and/ or the users.
The themes remained as clusters, and product directions were hardly created. In the last minutes some ideas were drawn up, but were simple (e.g. a digital planner to organise activities). One idea, an interactive recipe book, was based on the data of one of the users, who enjoyed cooking together. The other ideas were rather general.

Team A2 consisted of four people, and all of them participated in projects for elderly people. Most knew each other. It was a very active group with good group dynamics. All were interested in elderly people and in contextmapping, which made them eager for information. They worked vividly, talked freely about their own experiences, and frequently reacted to, and reflected on, each other. One seemed touched by the stories of the users and often read out loud quotes and elaborated on them, which evoked even more discussion.
They asked us, and each other, many questions about the experiences of the users.
During the introduction they asked how these users were selected, who did this selection, if they all lived in their own houses (instead of elderly people's homes), if they use the internet for e.g. banking, and about the generative techniques which were used during the interviews. They were bringing in their own knowledge about the elderly; *'The elderly people who use email, use it for communicating with the family and especially with grandchildren; sending photos. They do not chat much.'* They laughed at the video fragments. *'He is talking about his table tennis club, but they hardly play table tennis there, great! And they only drink coffee, haha!'* When discussing their own filled in cards, they told each other a lot, and this elicited a lively conversation in which personal issues about their social worlds were discussed, e.g. *'My father is nightblind, so I recognise this aspect of again and again arranging who drives when they go somewhere.'*
During the immersion they all took a bunch of cards and read them one by one, leaning back in their chairs (see first two images of figure 5.6.13). Some had already put the highlight stickers on cards, and every now and then they chuckled a bit.
When asked to compare the users' cards with their own, they discussed a lot, but not particularly on the differences between them and the elderly.
During the organization phase they discussed what surprised each of them in the cards. They told each other what they had read and exchanged cards *'Oh, I haven't seen that one'*. They used the dimension cards and overview cards to verify if aspects mentioned in the quote cards would be general for this user goup. They extensively elaborated on their own experiences of having contact with people in the neighbourhood. As a reaction to the need of recalling memories in one of their themes, one said: *'Indeed, I had a walk with my mom in Utrecht last weekend. We visited all the places where she has not been since the war.'* They critically judged their themes and checked whether the themes would fit the assignment and discussed possible product ideas. Cards were still exchanged and re-ordered on the poster. This led to dimensions, such as sustaining personal contact, while staying at home. One of the main topics in their discussion was what exactly the differences between younger and older people are in the way they communicate nowadays.
The ideas are not well developed, but seem strongly related to the user information, e.g. a service which allows permanent contact while having the freedom to not respond, or making a-synchronous communication more personal.

Team B1 consisted of three people, where only one was recently involved in a project for elderly people. This team was a bit uncomfortable at the beginning, because they did not know each other. During the in-

troduction one was already asking us several questions, e.g. *'Do you think that he feels he needs more contacts?'*. This designer was very active and constantly wanted to know why these users behaved as they did and what could the underlying motivations for their behaviour be. He asked us many questions to get additional information about the users. The other two were quieter.

During the immersion they talked a lot, and all of them asked us questions about the users. *'Is his wife also into walking?* or *'Where did they go on holiday?'* or *'what car does she have?'*. They chaotically browsed through the cards, using quote cards and overview cards iteratively. Sometimes one reflected on his own experiences; *'[ICQ] Even I have never used that.'*

When organising the cards on the poster, the most eager and active one took the lead again. They focused on themes and ideas which *'aim at facilitating personal contacts. Not to replace this, but to stimulate face to face contact, because that is what they would like.'*

The ideas that were developed ranged from a message board showing who is doing what activities in the neighbourhood to a service to motivate people to go outside more often. They referred a few times to specific quotes on the cards in their presentation of the ideas; *'That one, eh, de Koning, he is online all day!'*

Team B2 consisted of four people, two of whom were currently participating in a project for elderly people. During the introduction, remarks were made which related to their own experiences; *'She makes me think of my mother'*. They laughed at the ticking clock which could be heard on the video during the interview. When discussing the sensitizing assignment, they realised that the two women had chosen the female user to elaborate on, whereas the two men had chosen one of the male users. One remarked that you probably choose someone you can relate to. *'She is the type of person who does like this and this, I can imagine that'* or *'He is a postman, and I have been a postman too, so I can imagine him walking in his neighbourhood, he probably has many friends, and has many little chats.'* When introducing the cards, one person asked if we were conducting an experiment (because of the permission for the videotaping and the mini questionnaire). We explained that indeed we were changing the procedure of the different workshops slightly and were observing the differences. She felt uncomfortable when she realised that she was a participant in a study. She felt offended and left the workshop immediately. This event affected the group dynamics. The other three seemed to feel uncomfortable with the situation (and we did as well a bit) and as a result, they did not talk much. One tried to cheer the group up a bit, but she was not having much success. During the immersion

Figure 5.6.13 Overview of the workshop of team A2.

they did not communicate much, and one seemed to be full of other thoughts. The other two, however, were carefully reading the cards. When organising the cards, they talked more. The energy level was quite low towards the end again. Many ideas were created (about 6), of which most were rather general; *'Using this device needs to be easy for elderly people'* or *'Elderly want to have to do something'*, whereas this was not mentioned in any of the cards provided. It seemed that they relied on presumptions they had in general towards the elderly. The most concrete product ideas were a product to document the story of your life and a service to check each other's availability in the neighbourhood.

Comparison of product ideas

The ideas of all teams differed a great deal in their degree of development (from a general insight to an articulated product or service idea). Moreover the way the ideas were presented also differed a lot (from a written sentence to drawings). It would be impossible to rate the ideas and compare the results of teams A and B, so expert judgement of the ideas was not conducted.

Number of references to themselves, relatives or the users

The number of references in teams A are higher than in the other groups (see table 5.6.1). This could be an indicator of more empathy, but their active discussions which continuously took place might have affected this result too.

Results of the mini-questionnaires and self reflection by drawing a graph

Figure 5.6.14 shows the results of the mini questionnaires about how empathized they felt during the workshop (first moment is before the workshop, second moment is after the videos, the third moment is after the presentation of the ideas). Comparing the scores between teams A and teams B does not show much difference (means of teams A and teams B, based on second and third measure moment). When discussing afterwards, the designers also said that they found it hard to fill these in during the workshop. Their reflection on these measurements have been more useful in understanding what happened during their individual processes of empathy. This way they were able to express their feelings and thoughts during the process.

	refs to yourself	refs to a relative	total refs to their own or related experiences	refs to the users	total refs to users
A1	9	0	teams A: 29	44	teams A: 73
A2	6	14		39	
B1	6	1	teams B: 20	30	teams B: 45
B2	11	2		15	

Table 5.6.1 The number of references per team. (references to yourself or a relative: *'I', 'like me', 'my mother', 'I know someone'*, etc. References to the users: *'She', 'he', 'meneer de Koning', 'the red one'*, etc.

The drawn empathy graphs, however, do show that the empathy of almost all clearly increases during the workshops. This suggests that the proposed process in both workshops stimulates their empathy. Of the 13 designers, two show a decrease, and one remains constant. One person in team A2 explained that he found it hard to judge the degree to which he feels empathized, but figure 5.6.15 (the right one of team A2) shows that he has drawn a slightly increasing graph about his empathy level.

One person in team B2 explained that she was not empathized because she did not focus on that. Her expectations of the workshop were different. She might have been influenced by the other team member who left the workshop. She has drawn a flat line (see the left one of team B2).

When discussing their graphs, many mentioned that user information itself was stimulating their empathy. Watching the video, browsing through the cards and discussion about the cards (in the organi-

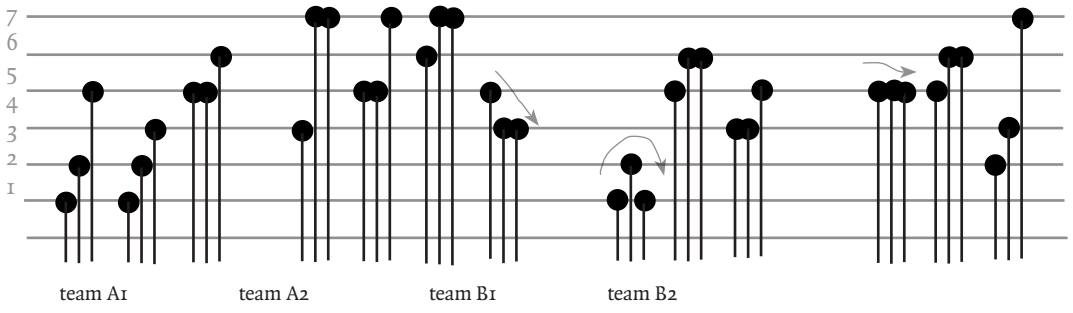


Figure 5.6.14 The scores per designer of how empathized (score 1-7) they felt on the mini questionnaires.

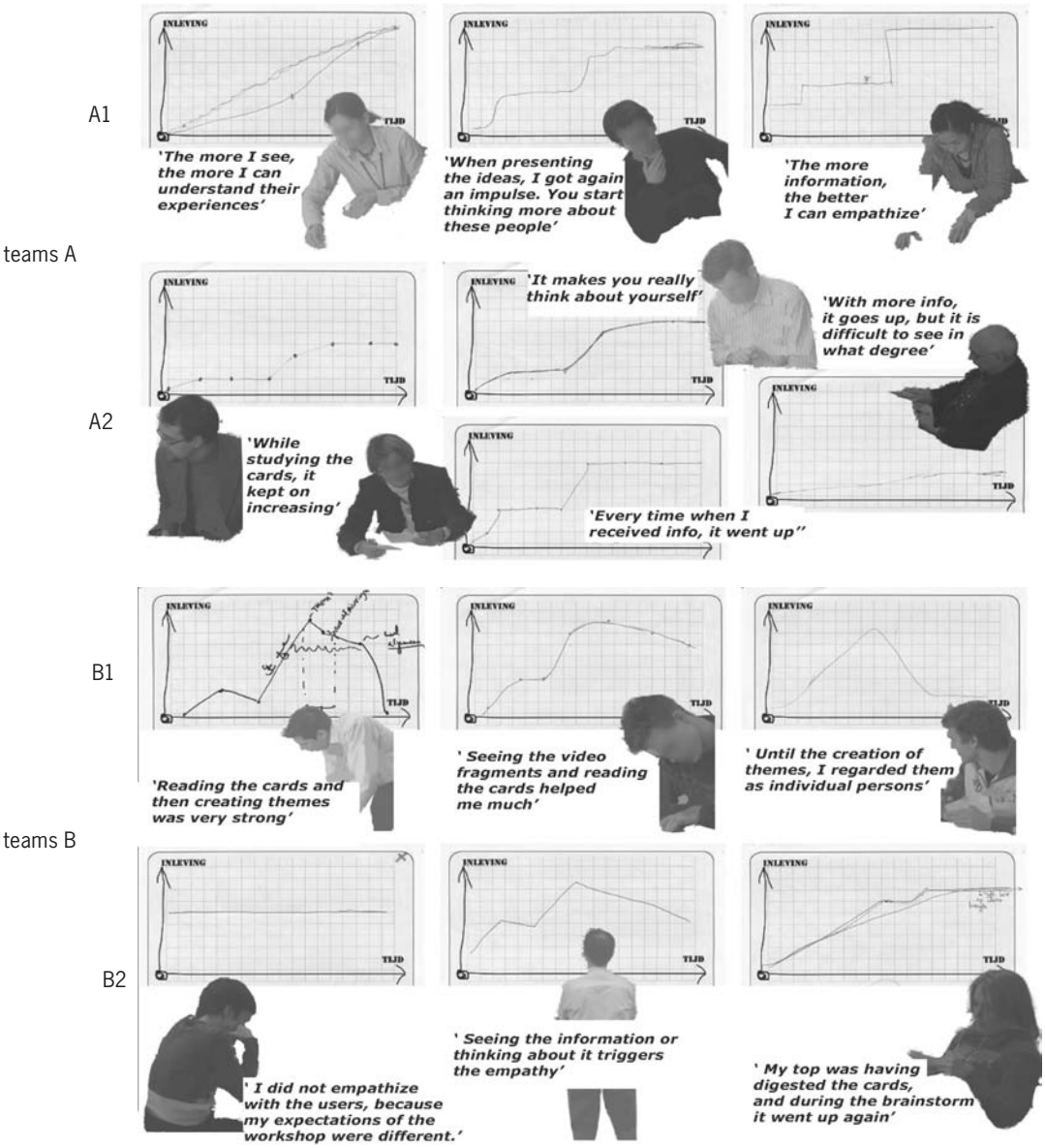
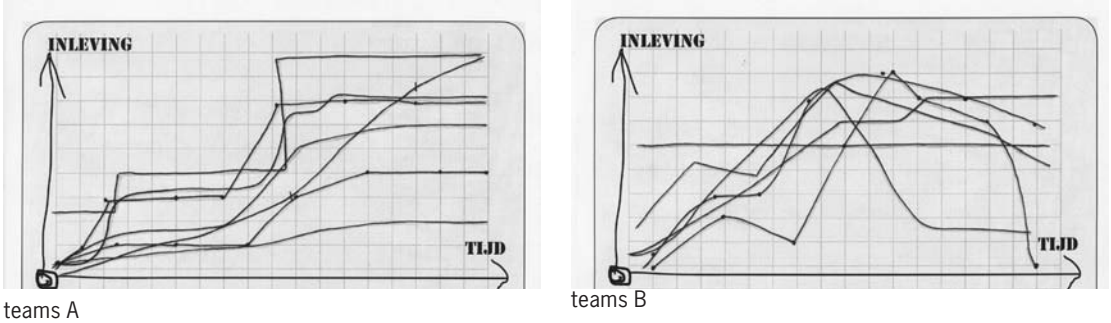


Figure 5.6.15 The self report graphs of their development of empathy during the workshop.



teams A

teams B

Figure 5.6.16 The graphs of teams A generally end up high, whereas the graphs of teams B show a curved line

sation phase) are moments when their empathy increases.

It is interesting to see that the graphs of teams A generally end up high, whereas the graphs of teams B go downwards at the end (see figure 5.6.16). This could indicate that their empathy was less intense or less durable. However, another reason could be that drawing a graph without a defined scale is a rather difficult question and that they copy each other's behaviour and, as a result, end up drawing similar lines.

Reflection on providing raw data
For these designers, it was the first time they had worked with a cardset, which only represents three users. They valued that it provides much 'emotional information'; *'Proof I do not have, but inspiration I definitely had'*, or *'Conclusions are ok, but I want to know for whom I am designing...creativity is personal and emotional, so I cannot be inspired by only conclusions.' 'You need this kind of emotional information, I enjoyed it, it gives you new ideas.'* One said that the data was almost too rich; *'Very rich information, maybe too rich...I was lost in the stories of these people. Based on the information in the homework, I expected information in a more structured form, like personas, categorized and analysed.'* One mentioned the usefulness of the overview and background cards; *'I checked these overview cards to place the quotes....and I asked you about more background information. Quotes alone are not rich enough'*

Filling in own cards
We can discuss this part only with teams A, since teams B did not do this activity. It was difficult for them to judge if bringing up their own experiences helped them in gaining more empathy with the users. They said that it definitely makes you think more about the stories. One person mentioned: *'By filling in these cards myself, I know much better where the quotes come from. It helped me definitely in knowing how to look at and judge the cards'.*

CONCLUSIONS

Design teams A1 and A2 referred more often to themselves, and to the users, than the B teams. This could indicate increased empathy. Also in their self-reports teams A indicate a slightly higher level of empathy than teams B.
For all teams the empathic understanding increased, and the differences between teams A and B were small, whereas the individual variations of the team members were large.
This suggests that the proposed process with the four phases (discovery, immersion, connection, detachment) for empathy in design (see figure xx) is worthwhile to apply in workshops where stimulation of empathy is required.

Addressing the designers' own experiences
In the observations and other results we did not find conclusive evidence for the claim that stimulating the designers to recall upon their own experiences (teams A), and comparing these, increases their empathy with the users. There have been too many other factors influencing the results. In particular, the group dynamics and the motivation of the individual participants influenced the development of their empathy during the workshop.
However, the effect of taking a moment to recall the designers' own experiences and share these within the team created a more personal and open atmosphere. Teams A discussed more personal stories and were more aware of how different the experiences of these users were. This finding confirms our assumption that it does make a difference. The impact of recognizing something from someone else, like 'I have been a postman too', is large when aiming to understand someone else's experiences.
When designers are stimulated to recall and discuss their own experiences concerning the topic, they become more aware of the nuances and differences of the experiences of the users and are more able to address the designers' own experiences.

Reflecting on the use and reactions on the tools
Addressing the designers' own experiences can be stimulated in many ways. In this study we created the designer cards and the user cards, which is only one solution. There are many other possibilities to stimulate this. This cardset worked well for the aim of this workshop. In particular, the link of the quote cards with the video fragments works well. Positioning ourselves as mediators between the users and the designers also had fruitful effects. Team A2 and B1 questioned us about additional information about the users.
Also representing the information by detailed information about three of the eleven users, while showing overview cards, in which these users are placed between the other eleven users, was valued a lot by the designers.

Reflection on the method
Although we carefully prepared the set up of the workshops and used several ways to gain insight into the development of empathy, we could not prove the effect. There were still way too many variables which

disturbed our set- up with independent variables. The number of references to the users or themselves are not a precise measurement for empathy. The self-report graphs and discussion about their filled in notes provided the most insight into their development of empathy.

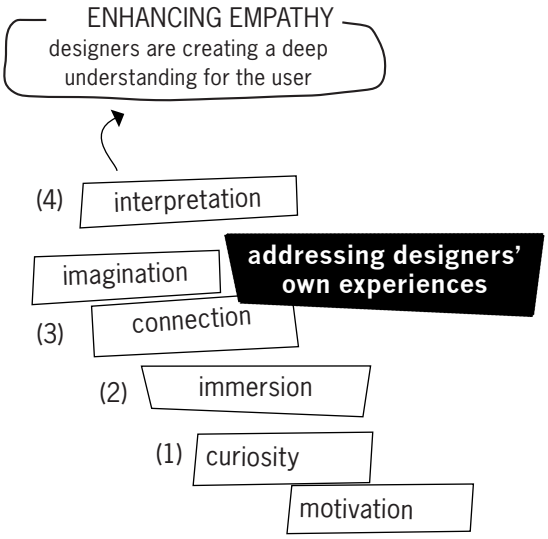
Other variables which influence empathy
We noticed many other variables that seemed to influence the designers' empathy too. These variables all deal with the motivation of the designers. Among these variables the following were prominent and are interesting for further research:

– The connection to their project(s). Some designers taking part in this study were not currently working on a project for the elderly. Those who were working for the elderly were much more interested and willing to learn.
– The situation of the workshop (e.g. place, time of day, such as morning or afternoon).
– The personal state (e.g. tired, freshly awake)
– Motivation plays a major role. When a participant is not curious or willing to digest the data and create concepts, empathy is low.
– The personal ability of the designers. Empathic ability differs greatly. Although we tried to balance this ability over the different teams, we noticed that the participants differed greatly in how they dealt with the user information.
– Group dynamics can interact in subtle ways with the empathy process. A single dominant participant can affect the process in positive or negative ways.
– Attitude of the design team: are they convinced that empathizing is important.

Relation empathy and inspiration
This study focused only on empathy, but the designers mentioned themselves that 'this type of emotional information' triggers their inspiration.

BACK TO THE FRAMEWORK

Empathy can be seen as a process in which several mechanisms take place in order. Guiding designers through this path stimulates empathy. This process starts with triggering curiosity, then immersion in the user's world, and at some moment affective resonance takes place by making an emotional connection. Now the designers can imagine, through their own feelings, the experiences of the user. In the last phase, the designer detaches by realising what is different in the experiences of the user in relation to himself. When the designer has this increased understanding, he has empathized with the user.



5·7

'I am not inspired by these diagrams'

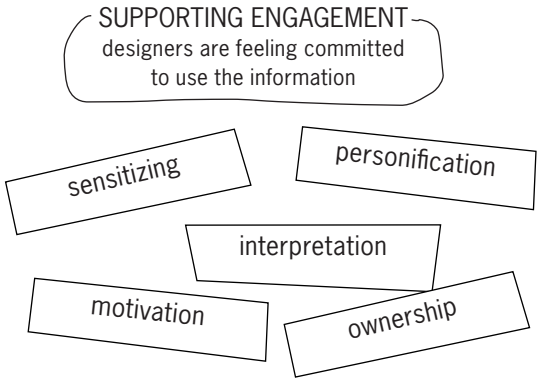
INTRO & OVERVIEW

The previous studies focused on supporting designers to have empathy with users and on providing inspirational input for product ideas. This study addresses the third aim of successful communication: engaging designers and other stakeholders, such as marketers, managers and engineers, with the information. In this study I follow a team with stakeholders from different departments of a fast moving consumer goods company over a longer period of time and examine what happens with the contextmapping outcomes. I explore what factors play a role in engaging different stakeholders and how this engagement can be supported by communication tools. The social and political context of a team with stakeholders from different departments is taken into account.

In this company marketing is usually in charge of user research and concept generation. It is a challenge where the application of contextmapping in the fuzzy front end can be positioned in this corporation. I explore how contextmapping as a joint marketing and R&D tool can be used for generating product ideas.

Questions

– How can stakeholders from different departments be involved in conducting the user study and using the outcomes?
– What factors influence engagement of stakeholders in the real setting of a large corporation?
– What do the different stakeholders need from the information?
– What happens with rich experience information over a longer period of time (after idea generation) in this company?



BACKGROUND

One of the brand divisions of this company produces footwear products. Not the shoes, but all kinds of products for taking care of and maintaining people's shoes and feet. Think of shoe polish products and foot aids. After attending a Masterclass in contextmapping, one of the designers at this company was interested in applying this method and asked for collaboration.

A contextmapping study was set up in collaboration with the departments of R&D and marketing. Fourteen users participated in the user study that fit the description of two of the brand's user segments: 'Glamorous' and 'Conformists'. A characteristic of the Glamorous-segment is, for example, that they have at least 28 pairs of shoes. The users received a sensitizing package and nine of them showed up to attend the generative sessions.

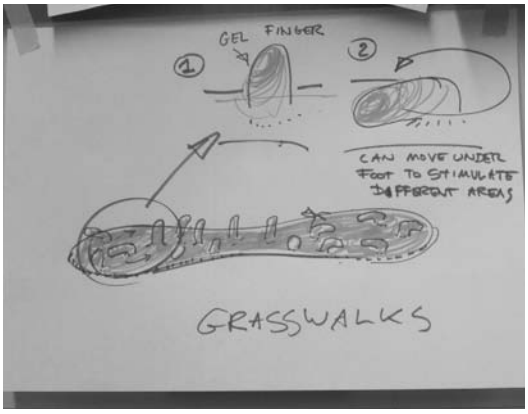


Figure 5.7.1 One of the many product ideas, that resulted from the idea generation workshop. This is an insole which massages your feet with little grass fingers and releases a fresh smell.

Topic: Footwear freshness

Consumer research is a standard element in the product development process of this company. Qualitative and quantitative research takes place in several stages. In these results, they noticed that their users often rate 'freshness' highly. The company wondered, however, what exactly consumers meant by 'freshness'. The topic of the contextmapping study was footwear freshness. The sensitizing package, which the users received one week before the session, contained questions about the storing of shoes in the house, which shoes they wore during that week and why, what is special about these shoes, what they like and dislike about their shoes, and how their feet feel over a day etc. In the sessions, the users made a collage about 'what freshness means to me' and about 'the ritual of dressing up for a special occasion'. As a last part of the sessions the users created their ideal foot or shoe device and presented this to the group.

Many insights were generated about how these users relate to their feet and shoes and what freshness means for them. It was striking that these users find 'looking good' much more important than 'comfort'. If shoes are beautiful, but hurt, they still wear the shoes. For example, if shoes are not the right size, some still buy them, just because they are so beautiful. In relation to footwear one of the product ideas generated by the design team was a grasswalk-insole (see figure 5.7.1)

Setting:	in-company contextmapping study
Tools:	sensitizing webtool, mirroring letter and action posters
Date:	June 2005-September 2007
Topic of user data:	footwear freshness
Company involved:	multinational fast moving consumer goods company

Related publications:
- Sleeswijk Visser and Stappers (2007) Who includes user experiences in large companies?
- van der Lugt and Sleeswijk Visser (2007) Creative sessions for interpreting and communicating rich user information.

I followed an Action Research methodology, implying that I participated and intervened in their practice. This is a qualitative research method in which research informs practice and practice informs research synergistically (Avison et al., 1999).
I, and a co-researcher from StudioLab, Remko, conducted a contextmapping study in collaboration with the company. I started and ended with a series of interviews. Throughout the project we intervened, created tools, and observed their reactions.

I started with a series of interviews with the stakeholders to become acquainted with the company, their culture, their communication channels and the people. Based on this knowledge we set up the planning and created the communication tools. The interviews were semi-structured and based on four themes (see figure 5.7.2):
– 'Me and my work' (background information about that person, his/her role etc).
– 'Meeting the consumer' (to get insight into how they relate to the user, if they attend focus groups, and what kind of user research is conducted). In this company, the user is referred to as 'the consumer'.
– 'This project' (to get insight into their product development process and who communicates what, with whom and when, in the product development process).
– 'The contextmapping project' (here I introduced the procedure of this method, and asked each of them how they would see their involvement and role in this project, and how they expected the other stakeholders to have a role.

The interviews were transcribed and used to define a communication strategy in order to choose what medium and forms of tools would be appropriate.
I kept a 'reflective journal' (Gray and Malins, 2004) to describe my research journey. In this reflective journal I wrote down daily my observations, choices, progress results and ideas. Emails and phone calls were all part of the data collection. Meetings with each of the stakeholders were audio recorded. During the workshops video recordings were made. Logfiles were made of the use of the webtool.
With two co-researchers from the StudioLab, I had a meeting every two weeks to discuss my observations and further plans. In the course of the project the analysis took place simultaneously.
After the contextmapping study I kept contact with the company. In the months after, I visited them regularly to discuss the aftermath. I checked where the posters and the product ideas were stored, and if and how these were used. I also followed the path of the

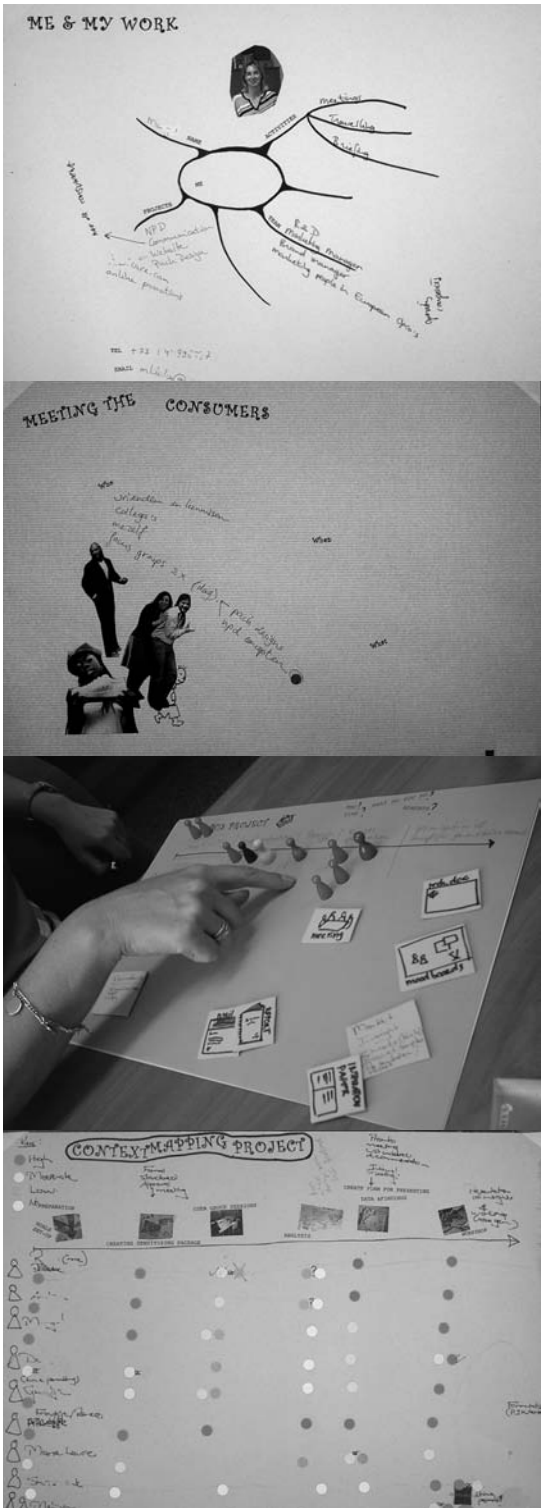


Figure 5.7.2 The interview sheets filled with information by one of the marketers.

product ideas which had been generated in the workshop we had facilitated with the rich experience information.
A large poster was used to place data elements about each stakeholder before, during and after the project (see figure 5.7.3). To analyse the development of the engagement of the stakeholders, I looked for changes in behaviour and expressions between these phases.
To get insight into what factors play a role in engaging stakeholders, I re-read the reflective journal, highlighted parts that seemed relevant, restructured these parts and continuously added new data elements. By regularly discussing the developments on this poster with my co-researchers, we were able to identify the influential factors on the stakeholders' engagement.

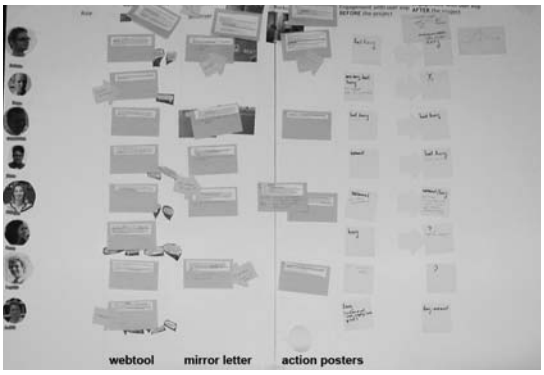


Figure 5.7.3 A poster on which data elements, e.g., excerpts of transcripts of interviews or from discussions during the workshops and reactions on the webtool, are placed about the engagement of each stakeholder before, during and after the user study.

TOOL CONSIDERATIONS

Process plan
The process plan developed along the way during this study. We set up the following 'rules' for our interventions to support the stakeholders in engaging as much as possible with the project and with the information.
– Equal involvement of R&D and marketing in every phase of the project. Although the initial request for collaboration with StudioLab came from a designer in the R&D department, two key persons, one from marketing (Richard) and one from R&D (Chris), will lead the project. We will involve these two representatives equally in every decision to be made and in every phase during the project. Our strategy is that these two key persons can diffuse their insights, activities and behavior to the other stakeholders in their departments.
– We welcome every stakeholder who shows an interest in this study, to participate (also outside of R&D and marketing). This way we hope to encourage 'the buzz' and more employees might become curious and interested in what this team is doing, resulting in more engagement.
– Trigger the stakeholders' curiosity, particularly during the analysis phase, in order to build expectations towards the idea generation workshop. The two key stakeholders had clearly indicated that the company should not be involved in the data analysis of the user study. They expected that phase to be performed by us: *'Ok, but personally I think our involvement should be as light as possible in the analysis phase, so that we are not influencing the output. Because the analysis is something you need to do based on your experience and all that..... The important thing here is that, whilst we are part of the process, you come back with what you think is right. Before we even see it. You come back with unbiased views and we can just think about the practicality of using that information.'* (Richard, interview July 12 2005)
– Stay open for opportunities along the way and be flexible during developments during the project.

Tool considerations
Three tools were designed. (1) a sensitizing webtool, (2) a mirroring letter and (3) action posters.

The sensitizing webtool
The stakeholders will be involved in the design of the sensitizing packages, if possible attending the generative sessions with the users, and participating in the idea generation workshop. However, during the analysis of the user data, they wanted us to conduct the analysis, so we had to overcome this period of three weeks and keep them interested, informed, and curious about the information. Figure xx shows the idea for the sensitizing webtool. The webtool is an online tool, which shows the participating users and little snippets of user data. From the moment of sending out the sensitizing packages until the day of the idea generation workshop, this webtool will be online for the stakeholders. Based on interviews with the stakeholders, I learned that they communicate mainly by email, telephone, face-to-face meetings and text messages. An online tool would fit this culture of frequent and short messages. By providing the stakeholders with a personal password they can log in. By an email update they will be informed that there is a new item on the webtool. Twice a week a new user will be presented, keeping the curiosity of the stakeholders as high as possible during the three

weeks of analysis. This way, the stakeholders can develop an initial understanding of the participating users, and can relate to them from the start of the workshop. The webtool was also convenient since the stakeholders are located in different countries.

I had the following considerations for the webtool in mind (see figure 5.7.4 en 5.7.5):

– The webtool should be interactive. By inviting the stakeholders to leave reactions on the webtool, they could add their own thoughts and ideas.
– The webtool should be very simple and intuitive to use. Easy to have access to and no hassle, otherwise stakeholders might leave it alone.
– The aesthetics should be playful and open. I have chosen a sketchy style (no perfect outlines, but roughly cut out images, and no straight lines).
– People, the users as well as the stakeholders, should be explicitly represented on the webtool. By putting people in front, I intend to convey the personal and human attitude of this type of research.
– The webtool should have a rather small presence in their everyday working life. Its use should not require much effort, especially for engaging stakeholders who do not have a lot of time.
– By revealing fragments over time, I can keep them engaged and continuously satisfy and trigger further curiosity of the stakeholders.
– Every update reveals a data fragment of a new user. To provide consistency this will be a photo or fragment from one of the filled in sensitizing materials. The additional comment by the researchers (us) should be explanatory about the user (e.g., lifestyle) or the data fragment.

The final webtool was, however, not fully interactive. I came up with the idea for the webtool when we were already creating the sensitizing packages for the users, so there was little time for development. We created the tool in a few days, but the interactive part was simulated; if a stakeholder clicked on the 'leave a message' balloon above his head, an email to me popped up. I was online almost non stop, to post their messages on the site as fast as possible.

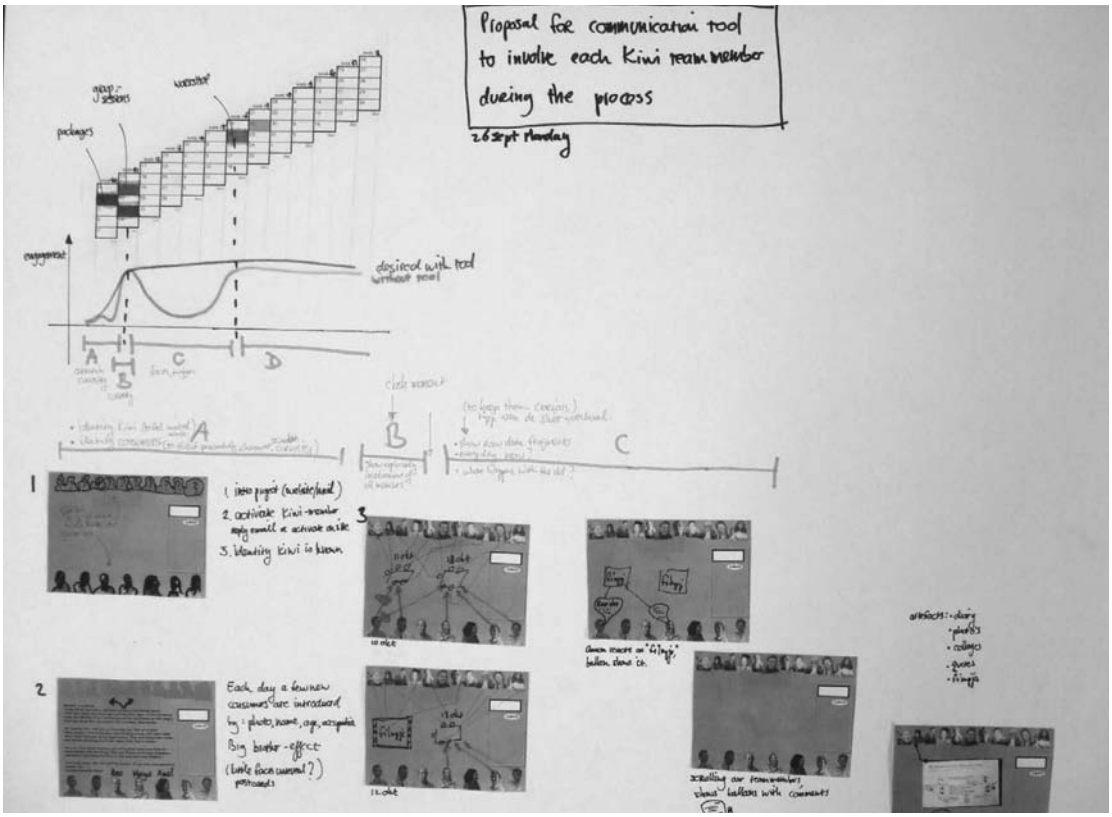


Figure 5.7.4 Sketch for the sensitizing webtool to keep the stakeholders involved and to trigger their curiosity about the oncoming results. We expect that stakeholders who have been involved in creating the sensitizing packages and attended the generative sessions, will be engaged with the project (phase A and B in the diagram). Their interest and motivation might lessen if there are no activities for them after phase C, the analysis, until the idea generation workshop (phase D). This gap will take about three weeks, during which time we wanted to keep them interested and curious towards the user data by showing little fragments of the data.

The mirroring letter

One week before the idea generation workshop, the stakeholders will be sent a letter as preparation for the workshop. The letter contains a sheet and stickers (see figure 5.7.6) to express their imagination about one of the users, as well as to express their personal experiences about the topic. My assumption is that the act of thinking of their own experiences will trigger them more to imagine the users' experiences. As a side effect, I hope that the stakeholders will know the users by name by the time of the idea generation workshop. By this assignment, the stakeholders will hopefully take another look at the webtool and will have a richer image for at least one of the users.

Action posters

At the idea generation workshop, Action posters will represent the information and serve as large displays to work on. I had the following considerations in mind for the Action posters:

The three posters represent the three main themes which we came up with during the analysis: 'motivations around shoes', 'footwear over a day' and 'freshness is personal' (see figure 5.7.7). Within each theme, the poster was filled with a selection of raw data elements (see figure 5.7.8); photos and text fragments of the users. Showing raw data would convey the richness of the stories.

The large posters on the walls of the room should serve as large displays to work on and support collaboration between the stakeholders. Stakeholders can study the information, add their interpretations, discuss together, and highlight elements.

The posters should evoke action in the stakeholders. The posters have an unfinished aesthetics style. Text fragments and photos of the users are roughly placed on the poster and there is still a lot of space to add interpretations and ideas. The text fragments of the users have the same size of post-its. When adding post-its to the poster it becomes visually part of the poster. The rough and sketchy order invites them to add their interpretations.

The posters serve as displays to guide the stakeholders through a process of immersing, interpreting, finding patterns, and creating insights for product ideas, while staying constantly close to the original data sources. The raw data elements should be visible during the entire day of the workshop.

The users have a central role. The data fragments are grouped around them. The users are displayed by their original photos and names. By having attended the group sessions and/or visiting the webtool the stakeholders are hopefully already familiar with these users, which makes it logical to structure the data around these users.

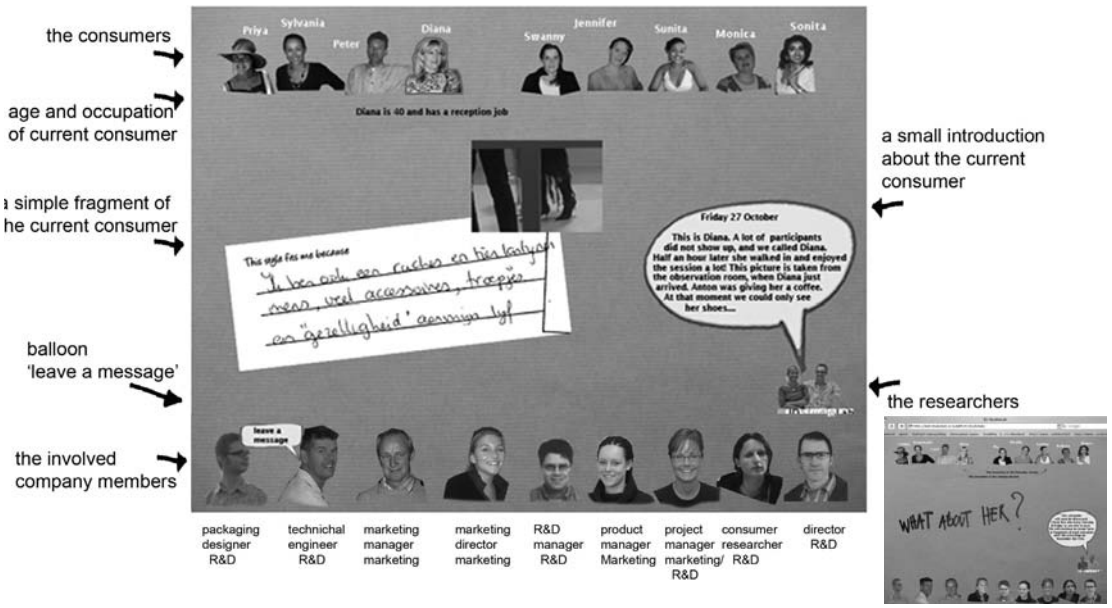


Figure 5.7.5 The sensitizing webtool reveals a fragment of one of the users (top) every three days. Stakeholders (bottom) can leave reactions on the fragments in the text balloons by the heads of the stakeholders. By explicitly representing users, stakeholders and user researchers on one site, we emphasize that this information is about everyday people like you and me. This page shows a fragment of the fourth user, Shiva. When visiting the site, the current consumer is the first page. Stakeholders can click on the users to see their pages. The first three are introduced in the previous updates. The pages of the consumers on the right side of Shiva are still blank. It just shows 'What about her?' to trigger curiosity and keep them interested until the workshop.

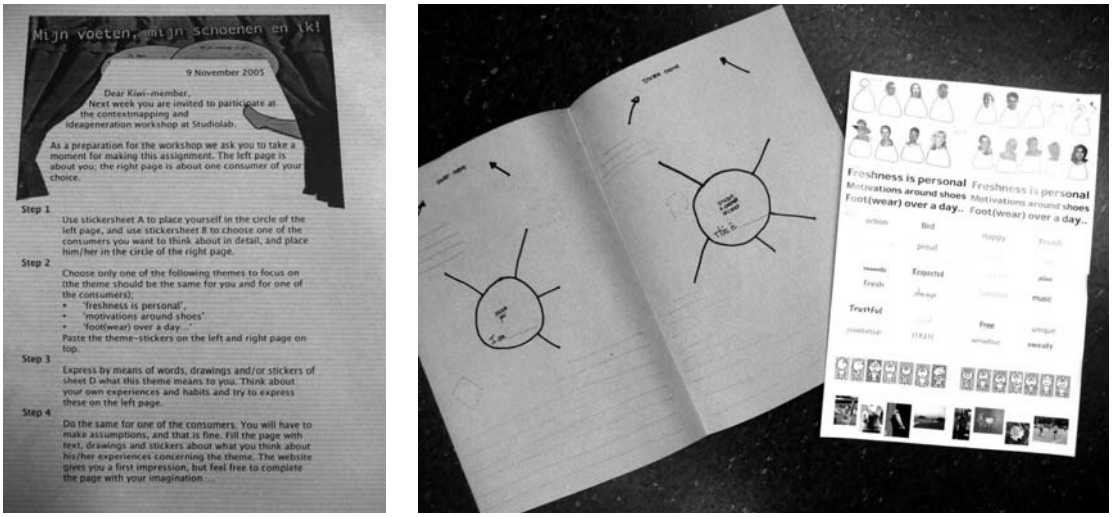


Figure 5.7.6 The mirroring letter. This letter was created to encourage the stakeholders to dive into the users' experiences and their own experiences around footwear. We asked the stakeholders to elaborate on one of the users and make a mind-map with the provided stickers about the behaviour of that specific user concerning her/his footwear. Second, we also asked the stakeholder to express his/her own behaviour about his/her footwear.

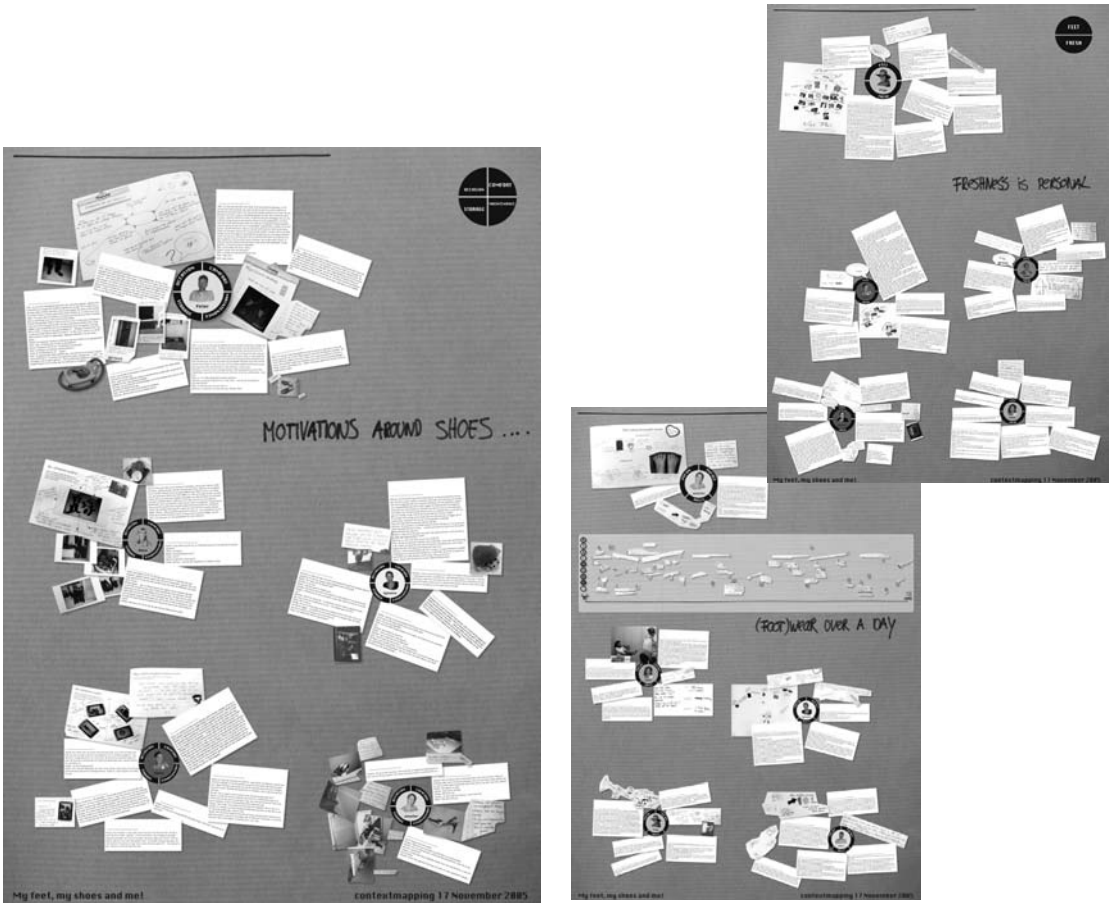


Figure 5.7.7 These Action posters contain a selection of raw data. They are supposed to invite action of all stakeholders. The posters represent fragments of raw data grouped around the individual users.

Figure 5.7.8 Fragments of raw data of user Shiva on one of the posters. During the workshop, the stakeholders would be asked to label the fragments and draw relations between the stories of the users (white space above the text fragments). Non-permanent markers, post-its and stickers are provided to finalize the posters with their interpretations by the team together. By the end of the workshop day, these posters would visualize the different layers ranging from users' anecdotes and photos, to interpretations, up to insights and finally product ideas.

The observations are divided in five phases:
1. The start up phase (November '04-June '05)
2. Interviews with stakeholders (July '05)
3. Conducting the contextmapping study (September-November '05)
4. Idea generation workshop (November '05)
5. After the workshop (November '05-January '07)

1. The start up phase
Initial request (November '04) for this contextmapping study arose when one of the designers, Chris, had felt unhappy about the abstract nature of the statistical demographic information about users that they usually received from marketing, as this provides no holds for the ideation process: *'I am not inspired by these diagrams....I want to see real people and what they actually think and feel'*. It took some time to set up a project, since they had to organise and plan how this project would fit in with their new product development process, and who should be involved as stakeholders. In June 2005 the proposal for the project was approved and the user study would take place in October/November 2005. Objectives of the project were:
– To generate real world consumer insights and concepts,
– To gain a deeper understanding of the role of footwear freshness in peoples' everyday lives,
– Make the 'glamorous' and 'conformist' target groups 'come alive' for the NPD (New Product Development) team,
– To explore the use of contextmapping as a joint marketing-R&D tool for generating consumer insights.

2. Interviews with the stakeholders
In July '05 I conducted interviews with the stakeholders. The stakeholders were (fictive names):
– Richard (marketing manager),
– Margaret (marketing director),
– Anna (product manager at marketing),
– Chris (packaging designer at R&D),
– Philip (technical engineer at R&D),
– Denton (R&D manager),
– Gerda (project manager and works with both marketing and R&D).
All stakeholders could speak Dutch, so the user study could also take place in Dutch. But the communication to the stakeholders took place in English, because not all stakeholders spoke fluent Dutch. In the approval process the company discussed several times how a collaboration with us could be organized in their NPD process and who should be involved as a stakeholder. Richard and Chris were assigned to take the lead.

The stakeholders are familiar to each other and have frequent contact.
When I conducted the interviews, I noticed that they knew each other personally from working together on projects. Although marketing and R&D are located in different countries, they often travel for meetings and make frequent use of email, telephone, telephone conferencing and texting. Hardly any physical reports are shared *'You can print your power point file if you want a physical report'* (Margaret, interview July '05). An internal network is used to store files, which is accessible to all.

Consumer tests are daily practice
R&D and marketing are separated geographically, marketing being located in France, and R&D in The Netherlands. The roles of the various stakeholders are strictly demarcated and hierarchically organized.
Marketing collects user information: *'Consumer insight is part of marketing'* (Chris, interview July '05) and diffuses the results in the organisation by means of formalized digital reports.
Their product development process is characterized by many consumer tests. It starts by market insights based on segmentation studies and demographic data, which are used to create product ideas. These product ideas are formulated into concepts (a concept is a consumer insight with the key benefit, key features and functions) presented on a sheet with a drawing of the concept. These concepts are tested with consumers, usually by external research parties. The concepts which pass this stage turn into 'projects'. Up until here it is mainly the work of marketing and external parties, although R&D and other parties (OpCo's) are informed and asked to give feedback along the way. Once concepts are passed, a project team is formulated, which works together until the product hits the market.
This contextmapping project is quite different, since it involves R&D much more in the early stages of the NPD process.

The many consumer tests in their process can be seen as gateways. The concepts get a 'go'/'no go' after these tests. The stakeholders from R&D hardly attend focus groups and sporadically meet the users, but receive reports of these consumer tests. The stakeholders from marketing attend focus groups more regularly. Margaret also listens to audio tapes of focus groups in her car. R&D has a small group of consumer researchers, who organize consumer tests, but Chris, for example, only gets to see the results (charts and numbers) in a report. Besides Chris, other stakeholders also express the need to get closer to the users.

'Those tests, they have far removed from the interviews. It is a ray of numbers in the end...When attending a focus group you know when the person (a user) is really involved and see their emotions and how they react on your concept. Like 'aaah', 'ooooh', 'wow', they are looking at it (a prototype of a concept) and trying it out and it pours on the floor. You see it is messy. These are things we never see in a report....but you know time is the issue, I cannot attend many focus groups.'
(Richard, interview July '05)
Richard also mentioned that the consumer research reports are useful, but rather bulky. He stores them under his desk (see figure 5.7.9), revealing that he cannot think of a better place for them.

'We should get in touch with the consumers. There are new needs, new uses, and new consumers. We realised that about five years ago. I want to step away from the arrogance 'I know what you need, consumer'. So I would like to meet and see our consumers more often.'
(Philip, interview July '05)

Gerda sporadically attends a focus group. *'I like to go to qualitative focus groups, but I often do not have time. The bigger tests, however, we never attend, because we get an extensive report about them'*

Figure 5.7.9 Storage place of reports in one of the stakeholders' rooms.


Figure 5.7.10 A designer and me bringing the sensitizing packages to the users at their work or at their home address.

3. Conducting the contextmapping study (September- November '05)

Recruiting the users
The users were recruited by Julia, a consumer researcher at R&D. Some were selected from an existing database of consumers; others were recruited by her. She went into the street to find people who fitted the segment 'Glamorous'. She was quite excited about the contextmapping project, and when I asked Chris if it would be an idea to include her in the process as a stakeholder, he agreed. She is quite engaged with the users, and she might transfer this feeling of contact to the other stakeholders. She had met them in the street, so she can tell in what context the contact took place.

Richard left the team
Richard did not respond to my emails about the creation of sensitizing packages, and it appeared that he changed jobs. I felt disappointed because our protocol was to involve the two representatives of marketing and R&D, so that they could transfer 'the buzz' within their departments. Now that Richard has stepped out, marketing would be less involved. The other marketers, Margaret, Anna and Gerda, had less time to spend on this project. Margaret would take over Richard's role in this project, but she was less intensively involved from the beginning. Together with Chris and Richard, we decided to keep Richard as a stakeholder visible on the webtool, since he could still be a stimulator for others to leave reactions on the webtool.

Creating sensitizing packages for the users
We (Remko and I) designed the sensitizing packages and, during a meeting and several phone calls, Chris and Denton were involved. They came with ideas for little adjustments for the questions and materials.
I wanted to bring the sensitizing packages personally to the users, to meet them and explain what to do with the package. I also wanted some of the stakeholders to come with me to the users' homes, so that they could meet them and shake hands. They were not so eager to do this because of time pressure, as this would easily take half a day or even a day. But after some convincing efforts by me, Chris came along for half a day (see figure 5.7.10), and another designer came with me for the rest of the day. In a phone call with Chris the next day, he elaborated about the users he had met (*'I had a different image about Mirella, she was more serious than I thought'*) and emphasized how useful it was to meet the users.

Generative sessions with users
The group sessions took place on two evenings in the building of R&D. R&D had installed this observation

room with high-tech equipment to conduct user sessions, but it had not actually been used yet. This was the first time user sessions had taken place there. The session could be observed in a room next to the session room by a video and beamer installation.
At the first session (October 11th) Chris, Denton and Julia were present. Philip would have come too, but was unfortunately hindered. When setting up the cameras before the session, Jaap, the director of R&D, passed by and had a chat with us. He said he had heard enthusiastic stories about the contextmapping project from his employees. This made me happy because 'the buzz of the contextmapping project' is going through the company. I came up with the idea of inviting him also to be a team member on the webtool, because this would be a stimulation for the other stakeholders to have their boss participating. Chris thought it was a good idea. I asked Jaap for a picture and sent him a login name and password.
During the session, the audio quality was quite bad, but as a consequence a long discussion took place between Chris and Denton, in which many product ideas surfaced. '*So many ideas popped up during that session*' (Denton, interview May '06). Chris emphasized that meeting the users was valuable; '*Being able to shake one's hand, that is such an advantage of that session*' (Chris, interview May '06)

At the second session (October 13th) Chris, two colleagues of Julia, and Anna attended. Anna came all the way from France to attend the user session. Anna made notes about what was said. Her notes were interpretations, for example a list of topics mentioned by the users about 'fresh' and 'not fresh'. She did not write down users' names, and commented here and there by adding insights from other consumer studies: When one of the users put her naked foot on the table during the session, Anna commented: '*In France, the soles of the feet are taboo. So commercials only show the top view of feet. In Germany this is not the case.*'
The others hardly made annotations, but discussed the users extensively (their personalities and how they related to their shoes). Some of the users told quite funny stories and in the observation room we laughed a lot. The atmosphere was exciting.

The webtool
We launched the webtool on the 5th of October, when the users had just received their sensitizing packages (see figure 5.7.11 and 5.7.12). Reactions could not be left yet. We used this time to test whether the stakeholders could log in without problems and if their system would show the pages as we wanted them to appear. It showed only the contours of the stakeholders and the users in order to trigger curiosity. Two days later, we sent another update by email to mention that the identities of three of the users were al-

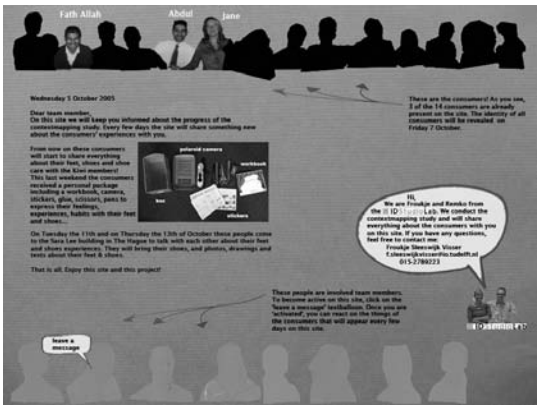


Figure 5.7.11 The introduction page of the webtool from October 7th. The users and stakeholders are presented, but only by their contours to build expectations to what is behind.

October 5:

Dear team member,
Maybe some of you have seen us before, but we would like to introduce ourselves once more, now that the project has started. We are Froukje & Remko from the ID-Studiolab, TU Delft. We are doing a contextmapping study about the experiences of footwear with consumers. This study will bring your consumers alive and show their daily experiences concerning foot wear. Last Friday Froukje and Chris personally delivered the personal packages at the consumers' homes. Please go to this site to see the project and the consumers:
http://test.studiolab.io.tudelft.nl/chris
The site will inform you about the progress of the project and will show new facts about the consumers twice a week!

For privacy reasons you need a login name and a password. When you enter the site the first time, the system will offer to remember your password. We recommend you do this. It saves some work the next times you visit.
Your personal login name: chris
Your personal password: shoelace

On the website, we would like you to become an active member. When you visit the site, reply an email to me by clicking on your textballoon. If you have done that, you will be an official member of the contextmapping project!

Best Regards, Froukje & Remko

Figure 5.7.12 Email to each stakeholder to introduce the webtool.

October 5:

Hi Froukje, It looks great and i am looking forward to follow the project this way,
Denton

October 6:

Hi Froukje,

If everything works, I am an active member now, right? I'll be at the session on the 13th in The Netherlands. It looks really good, joyful and exciting! I am very very curious to more!
Regards, Anna

Ocotber 6:

That looks good!
Chris

October 6:

Hi Froukje, the link does not work.
greetings Gerda

October 11:
I am also active on the site now. I look forward to hear the interesting discussions on the problems to keep shoes fresh and creative solutions!
Best regards,

Margaret

Figure 5.7.13 Some reactions by email of stakeholders after visiting the webtool for the first time.

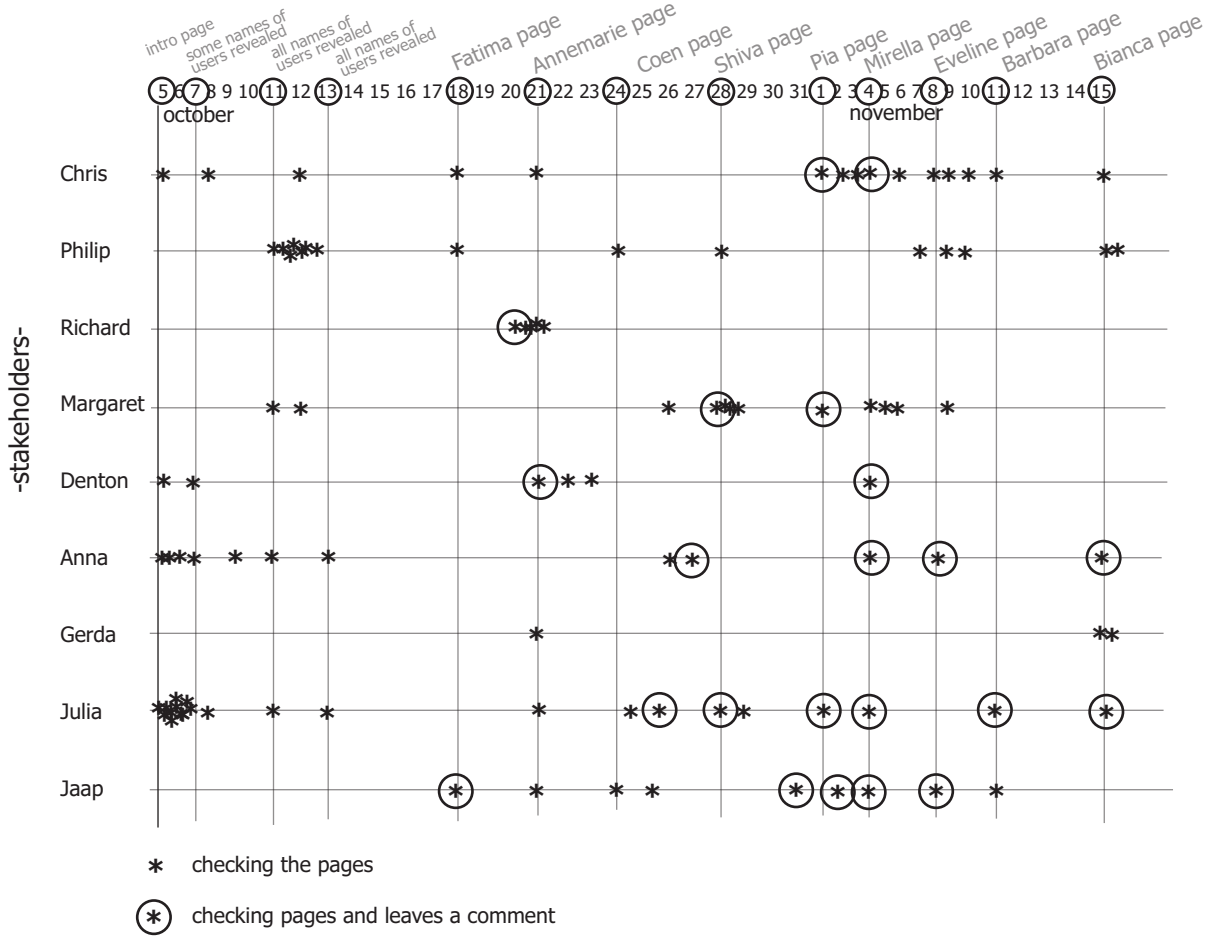


Figure 5.7.14 Logs of the webtool.

ready revealed in order to trigger curiosity. Once a stakeholder had logged in, his/her picture became visible. In this way we wanted to trigger other stakeholders to 'activate' themselves, as they could see that other stakeholders were already active. In a few updates, the users' identities were revealed. Figure xx shows that many of the stakeholders had already visited the webtool several times. In one week all stakeholders activated themselves, except Richard and Gerda. Gerda had problems with logging-in in the beginning, which were not resolved until 21st of October. The reactions were positive (see figure 5.7.13).

On the 18th of October the first user page (Fatima's page) was put online. By now, if a stakeholder visited the site, a textballoon appeared above his/her picture to leave a message. The same day, Jaap left the first message. This was great, because a good start is half of the work: *'It is really cool that Jaap participated, a senior manager!'* (Denton, interview May '06). In the updates that followed more and more messages were left (see figure 5.7.14). The content of the messages ranged from personal reactions (*'I wouldn't like it to have socks on in bed'*, or *'My kids prefer to walk with naked feet in the house'*) to questions (*'What does she mean exactly by a good insole?'* or *'Was it part of the shoe she bought or did she put it in herself?'*) to additions of other knowledge stakeholders have about users' needs (*'In the winter people do not want cold feet, maybe we can do something on that'*) (see figure 5.7.15). Looking at all the reactions, there are no particular differences: both marketing and R&D, and the other invited members (Jaap and Julia), react by raising questions, providing solutions, or expressing their own experiences.
Altogether, the webtool was successful in keeping all involved and curious about the user data. The webtool also raised more expectations;
'My first reaction to the website was: Wow that is great, I feel really involved! Wow, I can post a message, but nothing happened afterwards. It would be great if there was more information available, or maybe a chatbox.' (Denton, interview May '06)

4. Idea generation workshop (November '05)
The workshop was held at StudioLab and lasted an entire day. At the workshop Chris, Philip, Margaret,

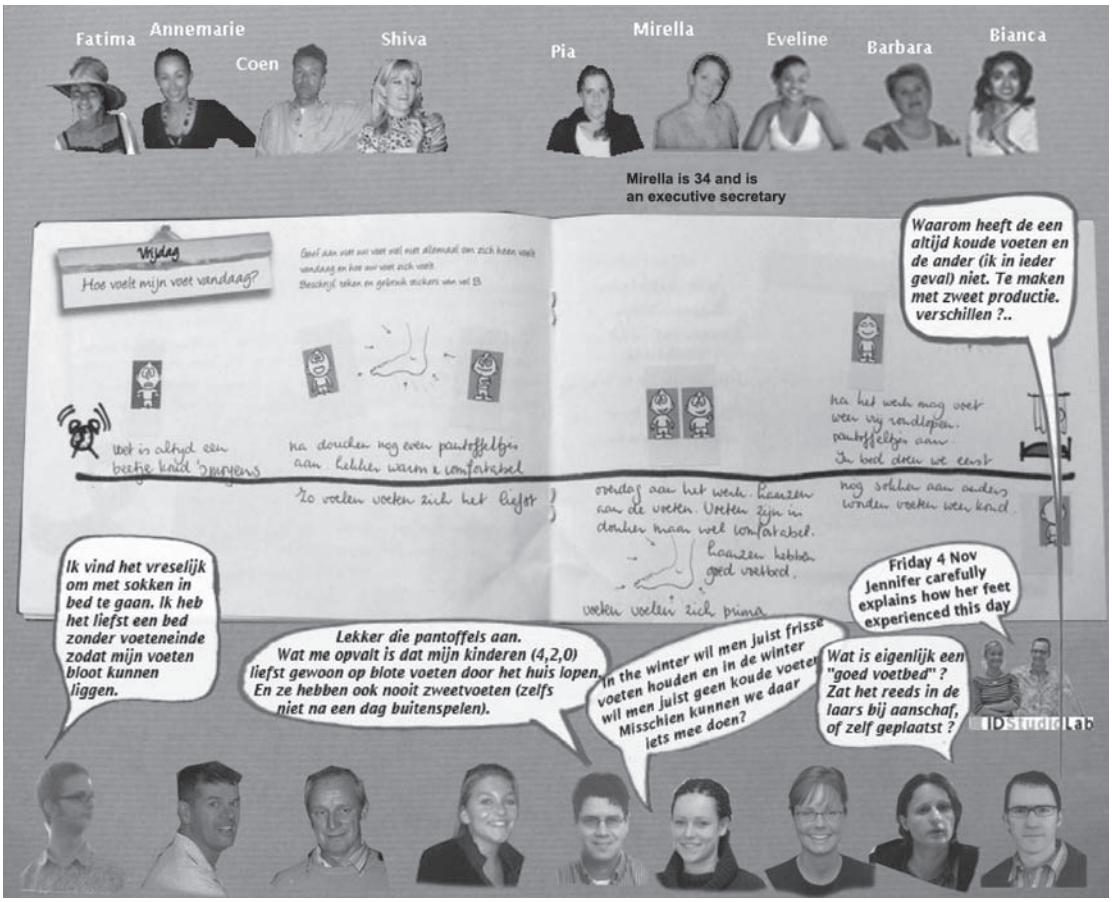


Figure 5.7.15 The webpage of Mirella (November 4th). A page of her diary in the sensitizing package is presented. It shows how her feet 'feel' over an ordinary day. Five stakeholders left reactions.

Denton, and Gerda were present, and three other designers from another brand division. When I heard that they planned to bring more 'creative' people to the workshop, I thought that they have to check the webtool as well. What a pity that I did not know this earlier. I quickly asked for their email addresses and sent them a guest login name and password, and sent them mirroring letters as well. This way they could also do the preparation assignment with the mirroring letter.

We started the workshop with an introduction round by means of the mirroring letter (see figure 5.7.16). All had done the exercise, and presented what they thought the user and his/her experiences must be like, and the stakeholder's personal experiences with footwear; *'I have chosen Annemarie, because I think I am similar to her. She says that in the morning she puts beautiful boots on, but after an hour they start to hurt. But then she still has to walk on them all day. Well, I really recognise that.'* (one of the designers). Some users were chosen by more than one stakeholder. The ideas they had about this user differed a lot (*'I think she has a walk-in closet, with all her shoes exposed'*), whereas another stakeholder reacted (*'No, as soon as she comes home, she puts on slippers and kicks her shoes onto a pile'*). The stakeholders who had attended the user sessions and had heard the users talking could adjust the imagination of the others about those users. The stakeholders also told a lot about their own footwear experiences; *'I actually realised that I find it quite hard to throw away old shoes'* (Philip). My expectation that the stakeholders would know some of the names of the nine users was almost met. Most stakeholders knew some of the users' names. Only Margaret had forgotten the name of the user that she had chosen for her mirroring letter. The mirroring letter introduction was a good start, because the users were extensively discussed.

The goal of the day was to end with a set of concepts. The planning of the day was as follows: We first gave a plenary presentation about the contextmapping study. We explained how we set up the study, how we analysed the data and presented our main findings. After this presentation, we wanted the stakeholders to take a step back, and let them immerse for an hour in the raw data. They were asked to study the data on the posters and label the text fragments. If ideas popped up they could write them on the poster or on post its, but the main activity was to take the time to read the stories to get a feel for all the diversity and richness the data contained. After an hour they were given little stickers to place on elements on the poster that they thought were interesting to keep. We then clustered these ideas, and facilitated a brainstorming session to come up with lots of ideas. These ideas were again clustered and the ten best ideas were written/drawn on yellow stars. These stars were added to the posters as well (see figure 5.7.18). After the lunch break, the ideas were worked into concepts in the afternoon.

During the immersion, they carefully studied the posters, and wrote on them.

In the beginning there was little discussion, because they were busy with studying the data. Some were so absorbed by reading the text fragments, that they hesitated to continue with the brainstorming sessions. Halfway through the morning, Margaret and Gerda moved back from the posters and hardly returned to them. They were discussing other work-related issues for the rest of the morning (see figure 5.7.17).

In the afternoon the concepts were generated on separate sheets of paper and this took place in another room. By now they were hardly taking into account the users' experiences, but were ideating based on existing knowledge they have about users from their work. At the end of the day we asked them to search for a raw data quote on the posters to add to each concept, in order to connect the product ideas back to the

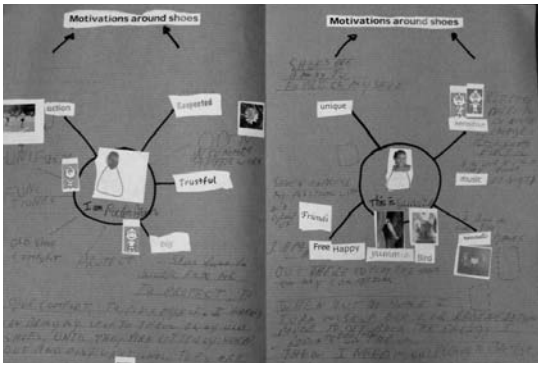


Figure 5.7.16 One of the mirroring letters.On the left side the stakeholder's own experiences are presented. On the right side the stakeholder's imagination about one of the users is presented.

Figure 5.7.17 During the idea generation workshop the manager and the marketer step away from the posters and discuss other projects.

data. There was hardly any time left for this activity, but they valued this last step; *'Collecting specific quotes of what people really said enriches the concepts.'* (Gerda). Before the end evaluation of the day Margaret had to leave to take the plane back to France and Gerda took her to the airport. She took all the sheets with concepts with her. The day after she had a meeting in which these concepts could be directly reviewed for further development. I asked if she would like to take the posters with her to France, but Margaret was not interested. I tried to insist, because I had designed these posters to hang in the corridors in their building to remain visible after the workshop. She explained clearly that she was not interested, that the concepts were useful to her, but not the raw data on the posters: *'I am happy to have many concepts about freshness, because these were still missing in our pile of concepts.'*

In the evaluation, we discussed the set-up of the day, the tools provided and the results of the day with the remaining stakeholders (only R&D). The stakeholders from R&D were very positive about the set-up, the tools and the results. They expressed the need for more time to digest all the richness on the posters and asked us to facilitate another workshop.

They thought that the posters worked well, but also had a few critical notes. The information was perceived as too much and overwhelming, and difficult to read because the font used was small. They also said it was a pity that the concept generation in the other room was not a smart move, since this did not encourage them to stay close to the original data. Some also experienced the labelling of the text fragments as a lot of work; *'This is not a necessary activity, I think. If they were already pre-labelled it would be easier for us. But I liked the fact that we could write on the posters.'* (Chris). They also were a bit disappointed that Margaret and Gerda did not fully participate in the morning, and that they were only interested in the resulting concepts at the end of the day. This shows that marketers, although being interested in the raw data for a while, prefer to work with more interpreted information. At the same time, the other stakeholders also liked the fact that the generated concepts were immediately taken by marketing into a meeting for further development.

Figure 5.7.18 The evolvement of the Action posters during the workshop. It started with the team members immersing in the data on the posters, then they were asked to label and underline text fragments. If ideas emerged, they could write these on post-its. By adding little green stickers they rated they important insights.The ten selected ideas were written on the yellow stars.

5. After the workshop (November '05-January '07)

Request for two more workshops

The idea for a second workshop was an initiative from R&D only. This workshop was held two weeks later. I kept the posters at the StudioLab, so I could take over their written labels for a new version of the posters. I made a few adjustments:

– I changed the format of the posters from portrait to landscape (see figure 5.7.19), because I noticed that many of the text fragments were not at eye-level. They had to bend or step on a chair to be able to read some quotes.
– I improved the quality of some images (the resolution of some was low)
– I added the stakeholders' labels in large typed bold letters above the text fragments and translated these into English. This could give them a sense of ownership, since they were their interpretations. Moreover, in the second workshop two colleagues from South Africa would be attending, who did not understand Dutch. They would not be able to read the text fragments, but the others would translate when needed during this workshop.

  The participants of the second workshop were Chris, Denton, two colleagues from South Africa and two colleagues from their own department (all engineers, managers or designers). The workshop had a similar structure as the first workshop. The labelling activity was replaced for more time to study the data, and the concepts were generated in the same room. A whole hour was reserved for connecting the concepts with a few user quotes.

Chris and Denton had already mentioned that it was a pity that of the fourteen users, only nine had shown up. These were all fitting the segment 'Glamorous'. They asked if we could conduct a similar contextmapping study for the segment group 'Conformists'. We conducted this study in February '06. The user session took place in the R&D building and was followed in the observation room by Chris, Denton and several other R&D people. For the idea generation workshop I created cards (see figure 5.7.20), like the Personal Cardset (see section 5.1). The reason for this was that the posters during the second workshop were still perceived as overwhelming. In the third workshop, I resolved this by using cards that contained pre-selected data about the individual users, which allowed the stakeholders to focus on the individual experiences of the users, instead of having to deal with the whole data set (see figure 5.7.20). The cards also contained more interpreted information, resulting from our analysis: under every picture of the user there were two dimensions ('overdressed' or 'underdressed', and 'for yourself' or 'for others'), where the position of each user was indicated. Chris liked the cards more than the posters; 'It is easier to store them and take them with me'. At this workshop they invited Coen, one of the users participating in the first contextmapping study, to co-create product ideas with them.

On March '06 I received a happy email from Chris, saying that the contextmapping project was also presented during a visit of the company's CEO. She was very positive on this initiative and said that more product departments should invest in these kinds of projects.

The place of the information in the company

The portrait posters stayed at the StudioLab, since the landscape posters were taken to R&D. They were never placed on walls near a coffee corner as I suggested. They were to ask a facility manager who is in charge of the public spaces, but they did not do that. Chris thought that they looked 'too messy' to place on the walls. When we discussed the idea for posters in October '05, he thought it was a good idea, but he expected a well laid-out poster, like an infographic. The cards from the third workshop were stored on Chris' desk, and were used several times: *'Sometimes I take them to take a look at them, when looking for inspiration'* (Chris, April '06). He had also shown the cards to other engineers, but Chris told me that that was not really a success, because they were not used to so much text and raw data, and did not have a clue what to do with it. When I visited them in April '06, I asked where he stored the information. Chris had a binder on his desk called 'contextmapping' (see figure 5.7.21).

What happened with the concepts resulting from contextmapping?

I traced the route of the concepts that resulted from the first workshop by asking Chris several times during the following year. Margaret took them to a concept selection meeting, where concepts from other projects were also judged. 18 concepts were selected for further development of which 4 came from the contextmapping workshop. These concepts were further refined (January '05) and tested in focus groups. Eight concepts survived, of which one was partly derived from the contextmapping workshop. Unfortunately, in a quantitative consumer test (March '06), this concept did not survive either.

Evaluation interview with Chris and Denton (May '06)

We first evaluated the formulated goals at the start of the project. It had been a great success in terms of generating real world consumer concepts, understanding what freshness means, and bringing the users alive for the NPD team.

We discussed the fourth goal 'exploring the use of

contextmapping as a joint marketing/R&D tool'. R&D feels empowered by this kind of project; *'I can use it for inspiration, and I can convince marketing easier when my ideas are partly based on anecdotes from real users'* (Chris). Marketing sees the value as well. They have seen that this method enables many new concepts to be generated and to have more empathy with users,

Figure 5.7.19 The second version of the Action posters were in landscape format to improve readibity.

Figure 5.7.20 For the third workshop Personal Cards were used instead of Action posters.

Figure 5.7.21 Contextmapping information is stored in a binder at the designer's desk.

but the project seems to be taken over by R&D. *'Yes, indeed, the second workshop and second contextmapping study are all R&D initiative'*. They do not think that marketing feels excluded. *'No, they accepted this, because it is our shared goal to come up with concepts. And we all said we wanted to try new ways. And this contextmapping project was one of the new ways among other new projects. They participated and attended the sessions and the workshops, which is already a great sign of involvement. The contextmapping project was also taken into the planning, so it is definitely taken seriously, by them as well.'* The stakeholders from marketing seem to be more interested in higher abstractions of the data; *'They prefer higher abstraction levels. Especially Margaret and Gerda are two persons, who I see as making quick choices. That is also one of their skills to make quick choices and to make sure that the outcomes are good and ready in time. So they are more like 'what can we get out of this, we take that along with us', and they are not that interest in how the concepts are generated.'* It is difficult to judge the success of the contextmapping project, but both Chris and Denton said that it has been a great success. It convinced them to invest more resources in getting closer contact with the users;

– *'The contextmapping project confirmed the direction we are taking to have closer contact with our users.'*
– *'Contextmapping stimulated focus on the emotional side of products, not the functional side.'*
– *'Next week, for example, we (the R&D department), are all going on a consumer safari for our yearly event. We will visit consumers in their homes, and observe how they deal with their shoes.'*
– *Jaap is also positive. 'We have to listen more to our consumers.'*
– *'For us it was a useful tool (the webtool), because it is so personal, and you see how consumers use their shoes. You see things which you totally do not expect.'*

Re-use of posters in January '07

In a three day idea generation workshop with various international stakeholders from different departments in Switzerland, Chris used the posters again (15 months after the project). They were not actively used, but served as a background during the creative sessions. Chris made a powerpoint presentation to convey the information on these posters (see figure 5.7.22); *'I used the posters to select quotes, but it is not a convenient tool to present to others in a short time. So I created slides, each containing a theme, visualised by an image and a quote.'*

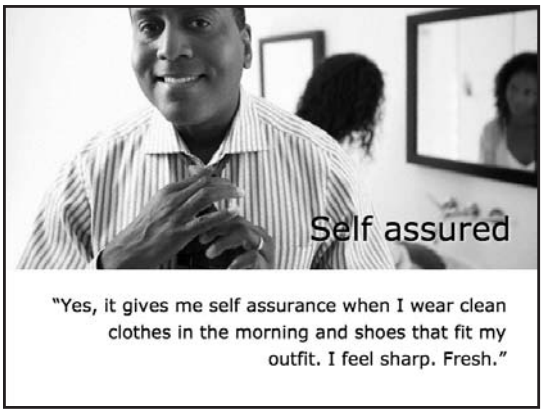


Figure 5.7.22 Two of the powerpoint slides which contain quotes taken from the posters. This powerpoint was used as inspiration for an idea generation session.

CONCLUSIONS

We can conclude that all stakeholders were engaged with the project. Before and during the contextmapping project all were committed, motivated and felt responsible for the outcomes of the project, which are indicators of being engaged. After the idea generation workshop, R&D felt even more committed and planned another contextmapping project. Marketing, however, was satisfied with the resulting concepts and showed less interest in the remaining user information.

Factors that have influence on the engagement of stakeholders with the project:

Attitude towards users
The attitude towards users was positive, which supported their engagement. They were open to meeting the users, and to learn from them. Otherwise, the contextmapping project would not be integrated into their NPD process. Marketing and R&D members were positive, and pointed out the power it has to generate new ideas and to have more empathy with users. The contextmapping project confirmed the direction they are taking to have closer contact with users. Now they conduct more 1:1 interviews, and even invited a user in an idea generation session to co-create ideas with them.

Support from higher management
The project was approved by managers from R&D and marketing. This supported the motivation of the team members. During the project, the director of the R&D department expressed his enthusiasm. His presence on the webtool has been a stimulation for the other stakeholders. The fact that the CEO of the entire company reacted positively to this project gave the team confidence to continue with their efforts.

Motivated people who activate others
In this project many team members were involved, and each of them has his own priorities and personal preferences. Chris was the initiator of the project and kept on leading it until the end. Even 15 months later he felt proud to present the user information to other stakeholders.
Also my motivation (trying to make a success of the project), presence (being around in their buildings) and interventions (the created tools, organizing the contextmapping study, calling and emailing all of them regularly, convincing them to come with me to visit the users in their own homes, etc) have played a large role in supporting their engagement.

A team can change composition
It was sometimes difficult to invest in these members. For example, after I had invested quite some time in convincing one of the marketers, he changed jobs in the middle of the project. This was quite a pity because I thought, as long as I have one marketer deeply involved, he would spread 'the buzz' to other members in his department.
I also could not get a clear grip on which members would attend the user sessions or the idea generation workshop. At the idea generation workshop some new members showed up, instead of the members who had already been sensitized with the website for three weeks. These experiences show that, in practice, the notion of one coherent team can be rather artificial.

The needs of different stakeholders
This study shows that stakeholders have different needs for the information. Whilst attending one of

the user sessions, the marketer immediately interpreted what she heard and made connections with other knowledge she has about users. The R&D people zoomed in on the personalities and the users' stories . At the idea generation workshop, the marketers appreciated the raw data elements and the richness, but only for a short time. They preferred to focus more on abstracted information, which they can use to create overview and make decisions. The stakeholders from R&D could not get enough of the raw data elements. They even requested an additional workshop to study the data and requested a similar contextmapping study for another user group as well.
This company has a tradition of validating results, but it did not bother the marketers that the results were based on the stories of only nine users. Both marketing and R&D did see the value in going into depth with a few users only.

R&D feels empowered by this type of information
This study shows that especially R&D feels empowered by the results of the contextmapping studies. R&D gets sparked to develop innovative product ideas, which fit the actual users' context. R&D does not have to validate ideas, whereas marketing does.
The stakeholders from R&D felt at ease with the characteristics of the user data. The various perspectives from users stimulated idea exploration. After this workshop, a second workshop with the same data and even an additional contextmapping study was conducted, in which only R&D participated. It was R&D in the end who had become the lead actors in this project, while we intended an equal involvement of marketing and R&D.

Reflections on considerations and use of the tools:
The sensitizing webtool was often visited and intensively used. With minimal effort the stakeholders became curious, and felt part of the project, and got the feeling that they had met actual users. The interactivity of the tool was a key to this success, because each of them could leave their trace, providing a sense of ownership. They saw more potential in the simple webtool; one stakeholder even came up with the idea of including a chatbox.
Putting the users up front worked well in order to dive into the users' personal stories.

The mirroring letter was also a success in terms of stimulating empathy. The letter evoked inferences about the users, stimulating the stakeholders' imagination. By addressing the stakeholders' own experiences they could subjectively relate to the users' experiences.

The Action posters served very well as a working template to guide them through a sense-making process, which leads to idea generation. The posters allowed them to get in touch with raw data elements, and discuss collaboratively about the data, and find patterns in the data.
The Action posters, however, failed to integrate the information in the following phases (such as refinement of concepts). The posters did not fit in with their communication culture of digital information exchange. The posters were useful for creating empathy with the users and a starting point for creating product ideas, but in successive phases, the poster format was not taken along. In large organizations, particularly, this might be harmful, as each department put their own perspective on the product and swiftly the concept has become something very different from that which originated from the user data.

BACK TO THE FRAMEWORK

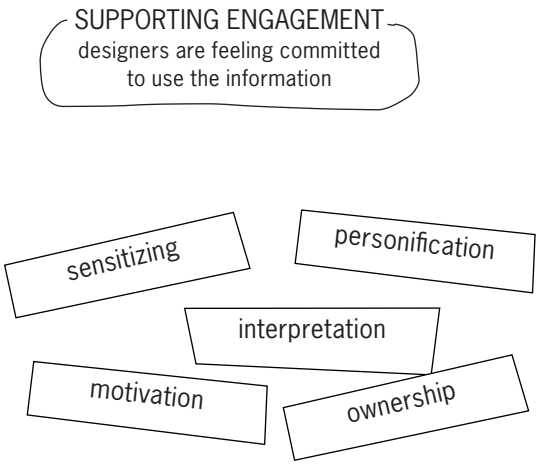
This study has given insight into what aspects are of influence on the communication issue of a large corporation. It showed that the developed tools and our interventions successfully engaged all stakeholders with the information. The success of engaging the stakeholders is based on:

– An intensive process of involving various stakeholders throughout the process, from beginning to end. This supports their motivation. The user researcher has been, apart from conducting the user study, actively involving them in every phase.
– The attitude towards users. The stakeholders wanted to learn from the users and used the insights gained for creating new product.
– Providing room for higher management to be involved, such as letting the director of R&D participate on the webtool.
– Addressing the stakeholders as active recipients of the information. By asking them to react on the webtool and 'finish' the posters by adding their interpretations of the data.
– Using tools to sensitize the stakeholders, which evoke reactions but with little effort.
– Showing the real users as key elements in the information in all communication tools provided. The personification of the information supported them in understanding and making sense of the information.
– Supporting ownership of the information. In this case eventually R&D 'owned' the project. The information fits the domain of R&D, they feel in

charge and can use the information to convince others about their product ideas.

Issues to improve our efforts to engage stakeholders in new projects are:

– Different stakeholders have different needs. Stakeholders from marketing appreciated a quick look at raw data elements, but prefer to tap in on higher abstraction levels. It seems that they prefer structured and actionable information input over slightly chaotic, unfiltered data fragments. Communication tools should allow recipients to tap in on different abstraction levels, in order to keep all engaged.
– We noticed that the streamlined communication processes in this large multinational company make it particularly difficult to keep the user data 'alive' in the aftermath of the workshops. Communication tools should also provide possibilities to keep the data alive in successive phases after concepts are generated.
– The sensitizing webtool showed much potential in engaging stakeholders. The stakeholders visited the webtool often and actively contributed to the tool by leaving reactions. This tool could be further explored in engaging stakeholders with rich experience information.



5.8

‘When there is no stake’

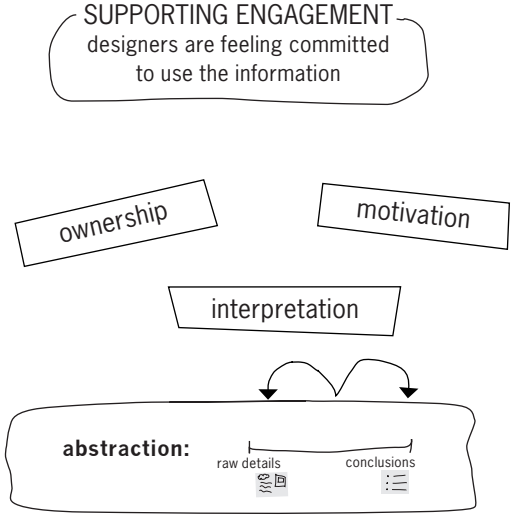
INTRO & OVERVIEW

This study describes the engagement of various stakeholders with the results of a contextmapping project over a period of 6 weeks. The previous study has shown that communicating to multiple stakeholders in different departments is influenced by contextual factors, such as time, resources, culture, standardized communication channels, attitude towards users, and departmental structures. This study explores the organisation and dynamics of another product development company to learn more about the factors that can influence the engagement of different stakeholders with the information.

A second focus is to explore the needs of abstraction levels of different stakeholders. In the previous study some tapped into the raw data, where others were looking for more interpreted data. The promising webtool of the previous study is further explored in this study. Here, besides providing snippets of raw data, the tool will also provide interpreted data such as emerging themes. This way there are multiple entry points for stakeholders. My assumption is that if stakeholders can choose where to tap in, and are then triggered to ‘switch to another abstraction level’ of the information, they might be more engaged with the information.

Questions

– What factors influence engagement of stakeholders in the real setting of a large corporation?
– When stakeholders are triggered to ‘switch between abstraction levels’ of the information, will they be more engaged with the information?



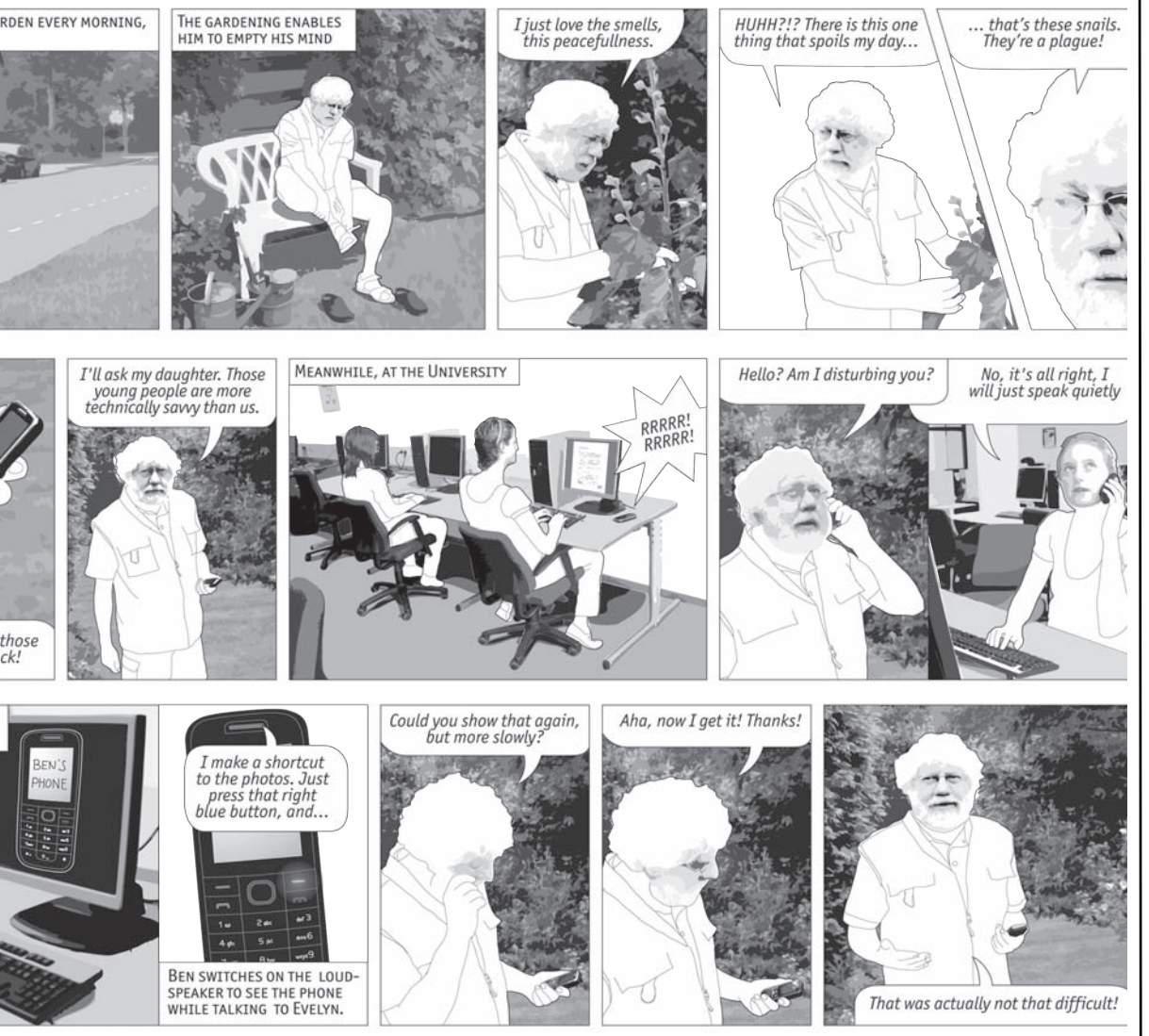
The User Research team (UR) of the R&D department was interested in contextmapping after they had seen the value of this method during a student graduation project in their company. They contacted the StudioLab to see if we could set up a project together. Soon a proposal was formulated for collaboration. We would support them by conducting a contextmapping study, and I would be able to explore the engagement of various stakeholders over a longer period of time. It was a perfect match, because this UR team wanted to position themselves with innovative user-centred design methods within the company, and the development of their relations with other departments was an important aspect of this project. Two researchers (Jonas and I) from the StudioLab, supported this team in conducting the entire study.

Topic: Recently Retired

The company dedicates most of its research efforts to identifying the needs of young people; i.e. the group which purchases most of their products and services. There have been some initiatives for elderly people, and they want to develop more innovative products and services for this group. This group is growing in size and has money to spend, and the company does not know much about them, apart from demographic trends. 'Recently Retired' was chosen since that does not put the stigma on a specific age group, but on the everyday life situation of people who organise their lives differently than before (when they were still working). The focus was to get insight into their lives, in what way their social lives change when they retired, how they relate to technologies such as mobile phones and the internet, and what new applications could satisfy their needs. In total 35 users participated. They all received a sensitizing package a week before the contextmapping sessions. Five sessions were conducted with seven participants each time. The sessions started with an introduction of the participants, and a reflection on their sensitizing packages. They were then asked to create a collage about one of their favourite activities, and the sessions would end with a group discussion about the possibilities of new services on mobile phones and the internet. These are a few of the insights about 'Recently Retired':

– Retirement has a big impact on people. Social lives change radically.
– For some people retirement has not been their own choice. Health problems or a reorganisation at work are often reasons for retirement.
– In general they enjoy the freedom, they have time to read, travel, garden, visit friends and (grand) children, etc.
– Looking specifically at their use of technology, most of them use the internet, and have a mobile phone. This mobile phone provides a feeling of security 'I can call whenever needed'. However, for making phone calls, the majority use the phone at home.

One product idea that resulted from the idea generation sessions is a service (on distance) which supports children in helping their parent with an internet or mobile phone application from a distance (see figure 5.8.1). This idea was based on the finding that many parents ask their children to help them set up or use modern electronic devices (e.g. digital tv, dvd, mobile phones, internet etc). This



service allows children to help their parent by having direct access to the internet page or mobile phone menu of the parent from a distance.

Figure 5.8.1 A storyboard presenting a service concept to support children to help their parents in using modern technological products.

Setting:	in-company contextmapping study
Tools:	webtool, and goody bag containing a booklet, a key holder, personas, scenarios, magnets with personas, tiles with guidelines for designing
Date:	January-September 2007
Topic of user data:	the life of recently retired people
Company involved:	multinational telecom company

No related publications

The method used in this longitudinal study is Action Research. I, as a user researcher and as a researcher studying the phenomenon, became part of the UR team, and together we worked to aim for the best results of (1) conducting a contextmapping study and (2) engaging stakeholders with the project. This method allows me to be part of, observe and intervene within the company over a longer period of time (e.g. not a 2 hour workshop). From the initial idea for setting up a user study until months after the results had been presented, I was able to track possible effects of interventions. Another researcher (Jonas) from StudioLab was involved and hired for this period by the company. We became members of the UR team. Not in a sense that we received email addresses from the company, but Jonas did get a desk for two days a week, and we both received a pass to enter the office.

As part of data collection, I started by getting acquainted with the company and the people involved. Besides conducting interviews with each stakeholder, I observed the atmosphere, the work environment, posters in the elevators and corridors, etc. The (semi-structured) interviews with each stakeholder took place in face-to-face meetings or by phone. In these interviews the following themes were discussed:

– Background/role/activities of the stakeholder's work
– Attitude towards users
– Intro of the User Driven Innovation project (by me)
– Relation to other stakeholders and UR team (in order to find out what responsibility or role the different stakeholders could have in this project, and thus what questions to ask them on the webtool)
– What they expect from this project
– Practical issues (when available, etc)
– The description of this case is based on data from:
– Continuous observations during the entire period (noted in a Reflective Journal)
– Semi-structured interviews with each of the stakeholders before the workshop during the period (January/May). These interviews are transcribed.
– Questionnaires and evaluation interviews after the workshop in summer.
– Discussions in meetings with the UR team, about progress and planning further steps and interventions.
– All email contacts
– Logs of the webtool

To get insight into what factors affect the engagement of the different stakeholders, observations and developments were continuously discussed with the UR team and two researchers from StudioLab. I kept a Reflective Journal (Gray and Malins, 2004) from day one until the end of the project (September), in which I wrote down my observations, thoughts, reflections on discussions, ideas for interventions etc. Besides this Reflective Journal, which is mainly a document to record the continuous progress during the project from different points of view (the designer's glasses, the researcher's hat, and the user researcher's will to create successful results), a large poster at the StudioLab was used to structure the data about the specific development of engagement with each stakeholder (see figure 5.8.2).

I wanted to compare their behaviour and attitude before, during the online webtool and the workshop and after the workshop. For each phase specific data would be relevant. Observations about their behaviour was structured in this table. As indicators of increased engagement with the stakeholders, I focused on behavioural aspects, such as; asking for more information, taking the initiative, the dedication of their reactions, the way they talk about 'their' project, and if they take more responsibility in their roles as stakeholders, etc.

During the use of the webtool I wanted to structure their reactions on the webtool on the level of intensity and type of content. These dimensions would help to get insight into their behaviour and into what level of abstraction they would tap, and if and how often they would switch levels of abstraction.

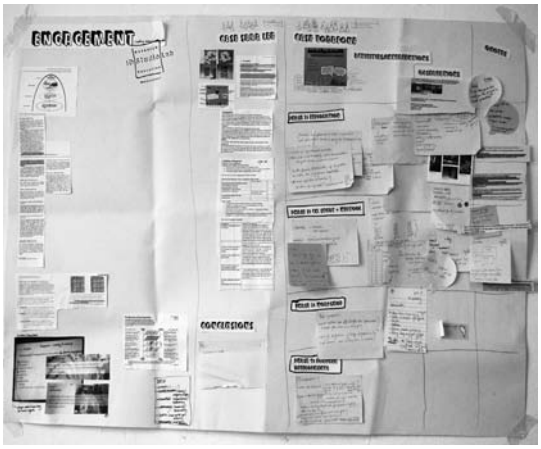


Figure 5.8.2 The right part of this poster was divided in four phases; (1) exploration/setting up project, (2) conducting the user study and diffusing information and triggers, (3) workshop, (4) further developments. For each phase there was space to add information about (1) activities and interventions, (2) observations, (3) quotes to illustrate the observations.

Process plan
The process plan developed along the way during this study. To support the stakeholders in engaging as much as possible with the project and with the information, we set up the following 'rules' for our interventions:
– Invite all stakeholders from the start of the project; so they would be involved in several decisions about defining the focus of the user study, the segment selection and the type of results.
– Explain, whenever needed, the theory about the contextmapping method; e.g. giving a presentation during a lunch meeting about contextmapping in the R&D office.
– Encourage stakeholders to be more involved; e.g. giving responsibilities and tasks to a stakeholder if he/she shows an interest in being more involved.
– Stay open to opportunities along the way and be flexible during developments during the study.

Tool considerations
As a basis I used the idea of the webtool developed in the previous study (see figure 5.8.4). The main aim of the webtool in the previous study was to sensitize the design team with snippets of raw data of the users. Then the team would know the users who participated in the contextmapping study as a preparation for the idea generation workshop. In this study the aim was slightly different for the webtool. Here the function of the webtool would be to provide 'an online platform' to let the stakeholders and the UR team communicate with each other during the contextmapping study and make these discussions part of the ongoing project. The webtool in the previous study did not facilitate discussion between stakeholders, whereas this tool would do so. This implied that the webtool should be fully interactive (as opposed to the webtool in the previous study) and function as a kind of forum. The aesthetics of the webtool should trigger people to react with each other, and be easy to use. Before the workshop planned on July 5th, the webtool would be filled with:
– Personal information (photo, name and background information) about the users in order to support them in enhancing empathy with the users.
– Snippets of raw data of the users
– Visible reactions of the involvement of each stakeholder (by means of the numbers of reactions they would leave)
– Discussion topics in the form of themes based on the reactions of stakeholders to each other
– The early product ideas which would be generated during and after the workshop.

Besides triggering the stakeholders' curiosity and sensitizing the stakeholders, it would be a longer lasting tool, supporting the ongoing developments during, and also after the contextmapping study.

I wanted to find out if stakeholders have different preferences for abstraction levels, and I wanted to offer them the possibility of tapping in where they like. Moreover, I wanted to encourage them to 'switch between abstraction levels'. My assumption was that if the webtool can seduce a stakeholder, who taps in on the raw data level, to check a theme (higher abstraction) as well, this could increase his/her engagement with the information. The aim, by means of this webtool, is to offer two levels of abstraction; snippets of raw data about the users, and themes based on discussions of the stakeholders (see figure 5.8.3). The raw data about the users functions as a trigger for curiosity and as an anchor point, whereas the function of the discussion and appearance of the themes function as understanding the data and being able to take further actions, such as developing new concepts.
If stakeholders with different information needs still follow the links and browse through other abstraction levels, then I have supported them in engaging more with the information, because the information is more intensively studied by them; e.g. a manager does not only remember an insight (a theme, a product direction), but also remembers the original data on which this insight is based.
Besides offering different abstraction levels, supporting discussion between stakeholders, this would give them a feeling of ownership of the ongoing project.
Design decisions of the webtool (see figures 5.8.5 and 5.8.6):
– A playful appearance, promoting the playful char-

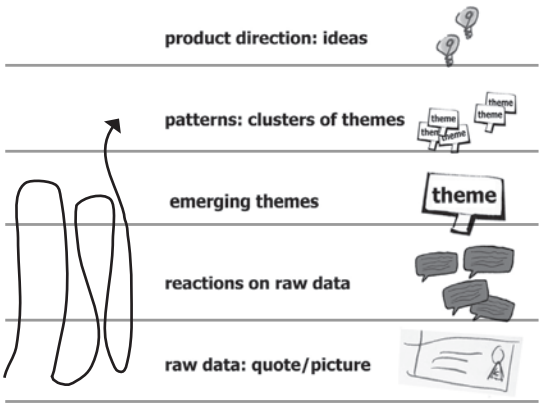


Figure 5.8.3 Abstraction levels of the data. The webtool stimulates stakeholders to switch between abstraction levels during the weeks that the tool is online.

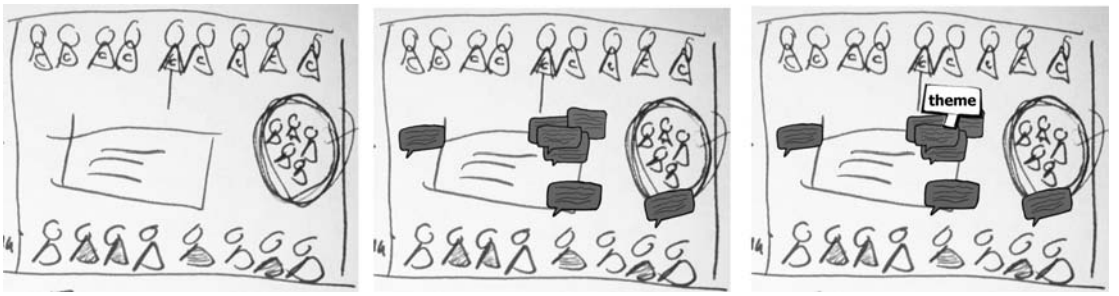


Figure 5.8.4 The UR team provides raw data per user, on which stakeholders can leave reactions. A group of reactions will be marked by a theme by the UR team. Stakeholders can continue the discussion on themes-level or on raw data-level.

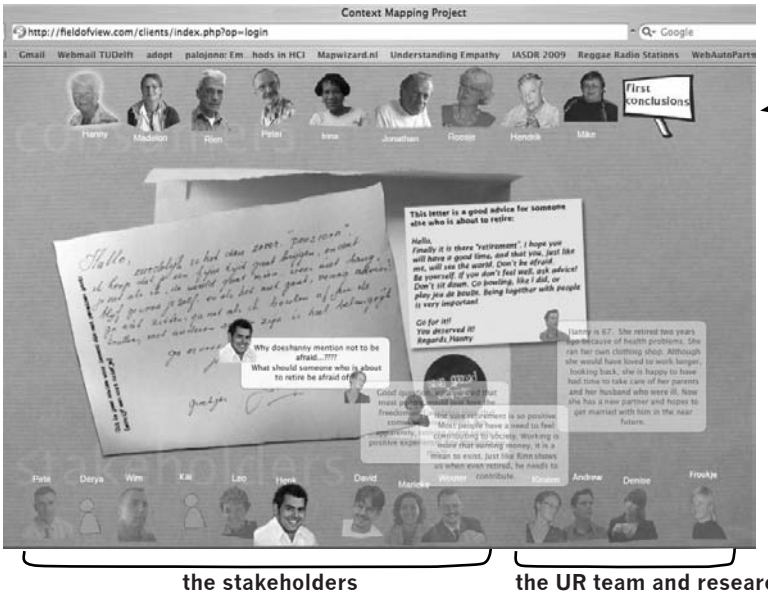


Figure 5.8.5 This is a screenshot taken on June 5th. On the top 9 users are represented. This page shows the first user, Hanny. She has a white shadow behind her photo. At the bottom the stakeholders, the UR team and the researcher, are represented in the same way as the users are represented; individually with a name and a photo. On this date, stakeholders can click on the other users, but the pages are still blank. Each few days a new user page is filled with a raw data element. After five weeks, all pages are filled. Here Henk, one of the stakeholders is logged in. This is visible by an enlargement of his photo, and the cursor carries his photo, as a little icon over the screen. Henk has just left a message here. The other stakeholders' messages are half transparent.

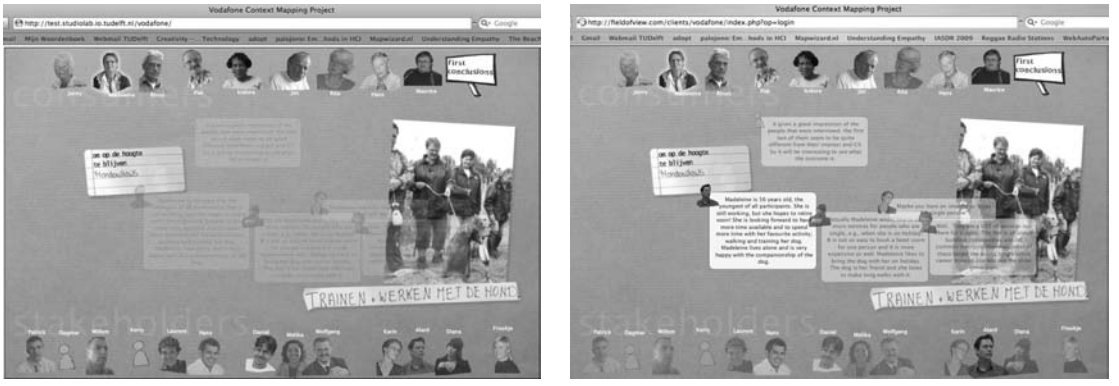


Figure 5.8.6 The textballoons are half transparant, unless you scroll over them. This allows the raw data to remain visible and many reactions can be posted on top of each other. On the right picture one scrolls over Andrew's message.

acter. The photos are not lined up precisely, and baking paper is used as a background.
– Same appearance of users; stakeholders and researcher to convey that the users are people just as the stakeholders are
– Personal; all have their photo and name visible
– Intuitive and easy to use; after logging in, the cursor carries the logged in stakeholder's photo. When clicking somewhere in the middle field, a textballoon appears in which a message can be written. By clicking on the balloon again the message is posted.

With the design of this webtool I expected that the first one or two pages would be filled with just a few messages, but that after a little start up, stakeholders would react more and more and also on each other's messages. The pages would be filled with many messages, and themes would be posted. After the last user would be introduced (July 4th), page would appear showing all the themes that emerged by the reactions of the stakeholders.

OBSERVATIONS

The initial request for collaboration came from the R&D department (January 9th).

User Research team

This UR team was newly formed about two years before with the aim of creating a stronger link between new technologies and research developed within R&D to possible applications. They were interested in new user-centred research methods as a means of generating user insights to strengthen their output and to better serve other business units; '*We would like to use this project as an internal networking exercise*' (Andrew, July 2d).

This team was looking for new ways to provide useful input for the other departments, such as the OpCo's in Europe and departments such as marketing and strategy. The OpCo's develop new products and services. For example, would their output be product or service concepts in the form of working prototypes? Or would inspiring research results about people's daily lives be more useful? The UR team consisted of three members; Andrew (industrial design background), Kirsten and Denise (both psychology background) and was headed by Henk (head of this team, R&D manager). They called this project the 'User Driven Innovation Contextmapping project'.

After having several contacts by phone, email and two meetings, the official proposal was accepted. In this proposal (February 23d) the following objectives were formulated:

Company objectives:
– Obtaining insights for segment (to be defined) about product area (to be defined), which are useful for the businesses.
– Establishing contextmapping as a method to leverage user research for innovation with the stakeholders.
– Learning contextmapping skills by the UR team. Getting acquainted with contextmapping methods and learning how to conduct a contextmapping study.

TU Delft ID-StudioLab objectives:
– Ensuring the quality of the performed contextmapping study.
– Getting insight into the needs, wishes and interactions of various stakeholders before, during and after the contextmapping project concerning their engagement.
– Supporting the team by creating a webtool to engage various stakeholders.

This proposal also defined a 'project team':
– Henk: project champion
– Andrew: researcher / designer
– Kirsten: researcher
– Denise: researcher
– Jonas: contextmapping expert, ID-StudioLab
– Froukje: contextmapping expert, ID-StudioLab
– stakeholders 1 - n
(names of stakeholders are fictive)

The project started with discussing several practicalities (time plan, dates, refining the aims, selecting target group, who to involve as stakeholders etc). The user study would run in May/June, the webtool would be active in June, and a workshop was planned July 5th where all stakeholders would be present. The goal of this workshop would be to decide what activities could be taken as next steps.

The UR team had several discussions with possible stakeholders, and in March the final selection was made (see figure 5.8.7). One stakeholder from the marketing department was involved at the start, but after the selection for customer segment 'recently retired' he was not involved anymore, since this segment did not fit in marketing's running project at that moment. They tried to get one stakeholder from OpCo (country 3) involved but did not succeed.

I interviewed each of the stakeholders in the period of March-May. Aims of these interviews were: to introduce myself, to introduce the contextmapping method, to get to know them, to understand their communication culture, to get insight into their ex-

pectations and needs of this project, and to see in which way they could be involved. As a side effect of these contacts, I became a mediator at the start of the project. I noticed a wide variety in attitude towards users between the stakeholders. When I ask them: 'What is your first reaction when you think of 'the consumer, the customer, or the user', some have a lively impression where others only describe their segmentation of customers. *'Firstly, I am one of them myself, and my parents belong to the recently retired segment.'* (Henk, March 22nd)
'People you see walking around, people a bit younger, mainly young professionals....I do not attend focus groups, so I do not meet them ' (Pete, March 26th). The stakeholders have clearly different interests in the outcomes of this project (see table 5.8.1).

Company culture & communication
From the interviews with the stakeholders, I learned that they use multiple ways of communicating. These ways are mainly email, phone calls and meetings. Communication is often quick and fast; mostly emails or short and condensed face-to-face meetings. Within R&D once a week they all meet in the corridor and discuss the projects and developments. This is highly informal. Findings and results are generally communicated in powerpoint; a slide pack, not printed but sent by email.
To communicate with other parties, such as strategy and marketing, R&D uses multiple ways; *'It is difficult to coordinate diaries and get everyone together. So it is easier to do it in multiple ways.* (Pete, March 26)
The medium email seems to be over-used; people get so many emails a day, that they do not read all of them. *'Email is not always that effective, only if you click on 'high priority'. Making a phone call is more effective, but a postcard per physical mail can have big impact. Willem also said that emailing won't be the most effective channel. And I assume that counts for David too.'* (Excerpt from a phone meeting on May 4th with Kirsten from UR team)
We decided that to effectively communicate within the company's communication culture it would be best to:
– Communicate short messages and often.
– Use a variety of ways; email, phone calls, post and meetings
– Make use of the short gatherings R&D has weekly and monthly.

On April 12th, a lunch meeting at the R&D department took place where Kirsten and Jonas explained the method contextmapping and the project.

Segment selection
On the 23rd of March a workshop took place with the UR team and Henk, Pete and Finn (a stakeholder who was only involved at the beginning) to discuss which customer segment to focus on. Then the UR team discussed this choice with each stakeholder by phone and/or email. The 'Recently Retired' were chosen.

Concluding, in the start up phase, the stakeholders had met me, in face-to-face meetings or phone calls, because I conducted interviews with each of them. They had received several emails and phonecalls from the UR team to invite them to the project and to discuss their needs and to offer them opportunities to give their input.

The use of the webtool (June/July)
During the first contacts in the period March/May, the stakeholders were told that there would be an interactive website which would keep them updated during the user study. On the first of June I emailed every stakeholder with a link to the website and invited them to log in with their personal username and password. Figure 5.8.8 is what they would see, once they were logged in.

On June 6th the first user page was online, and twice a week I sent the stakeholders an email to say that there was new information about a particular user (see figure 5.8.9).

In the first two weeks some stakeholders visited the site, but no reactions were left. Instead, stakeholders replied by email to me (see figure 5.8.10). The reactions were so rare, that we (myself and the UR team) decided to intervene. The UR team were asked to leave a message for the stakeholders who were in the same department. Soon Henk left one message. Kirsten posted a few questions on the site in the hope of encouraging stakeholders to react to these questions. As a result, Leo became active and left three messages on June 15th (see figure 5.8.11) for one of his reactions).
On June 12th Derya sent me an email (see figure 5.8.10). I replied that it would be great if she would post this on the site, and I asked her if I could post it for her. She agreed, and I posted this reaction on the webtool on the 12th.
No other reactions were left. We were disappointed and thought that there would be other priorities causing this low activity.
On June 14th I received an email from David (figure 5.8.10), who asked me what kind of feedback he should give.
This email made me understand that the use of the webtool was not as intuitive as I had hoped. I had not realised that the stakeholders might think that the users would see their reactions, which was not the case. In the previous study and in the pilot testing of this webtool, this seemed clear to the stakeholders. I replied to David to explain the purpose and function

Global

R&D

– David - internet programme manager (country 3)
– Wouter - user generated content project manager (country 2)
– Pete - head of R&D centre (country 1)
– Henk - UR team manager (country 1)

Marketing

– Kai - consumer segmentation expert (country 3)
– Wim - marketeer (country 2)

OpCo's

Marieke - strategy and business planning (country 1) & Derya - market research (country 2)

Figure 5.8.7 The stakeholders and their backgrounds.

Table 5.8.1 The stakeholders have different interests for being involved in this project.

STAKE-HOLDER	SPECIFIC INTEREST FOR OUTCOMES
Pete, R&D, country 1	*'Explore the contextmapping method... maybe they (stakeholders) see the value, and would like to do something like this again in their own area, because they have seen the whole process.'*
Derya, marketing, country 2	*'The method (contextmapping) and a high level description of the segment, and the key findings, with a 'so-what-factor'*
Wim, marketing, country 2	*'Most of all ideas for new services and good argumentation for these concepts'*
Kai, marketing, country 3	*'Just the segmentation itself'*
Leo, R&D, country 1	*'Detailed service concepts with an added value for that target group'*
Henk, R&D, country 1	*'usefulness of contextmapping method'*
David, R&D, country 3	*'I am interested in the segment group, because it is a segment group that we have not done yet a lot of work.'*
Marieke, Strategy, country 1	*'For me it is all relevant, lifestyle, the method, the concepts…I would like to get insight in how customers communicate, also in their own houses in their daily lives.'*
Wouter, R &D, country 2	*'Good to get a feeling of other segments and how their needs look like.'* *'Customer needs, their fundamental needs. So I don't care too much about the methodology behind.'*

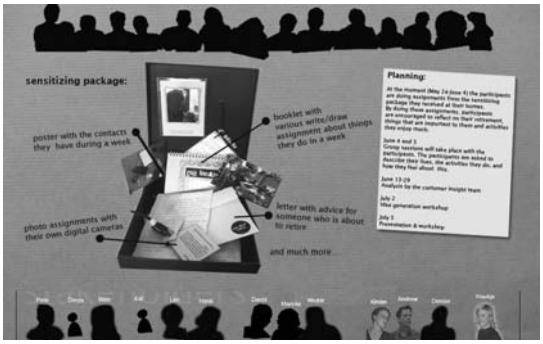


Figure 5.8.8 The introduction page of the webtool. This was online on June 1st. After logging in, the stakeholders' photos become visible.

June 6:

Dear Wouter,
In a number of group sessions we have met the recently retired participants of this project. We have heard many interesting stories and had the chance to peek into the lives of these people . On the website, Janny, our first participant is introduced and a fragment of her sensitizing package is revealed.

Please check & leave a message on the following website:
http:// test.studiolab.io.tudelft.nl/company .
Each Wednesday and Friday the website will reveal data fragments of a new participant. Friday the 8th a new participant will be added.
your inlogname: wouter
your password: orange

regards, froukje sleeswijk visser

Figure 5.8.9 Email to each stakeholder.

June 6:

Dear Froukje,
Thanks much for the heads-up. I'll take a look at the site shortly. Good luck for the sessions with the remaining people.
Pete

June 12:

Hi Froukje, just had a look on the site, it gives a good impression of the people that were interviewd. the two of them seem to be quite different from their interest and CV. So it will be interesting to see what the outcome is.
Derya

June 12:

Will do - sorry for the delay - I am having a crazy week. :) Wouter

June 14:

Hi Froukje-
I have visited the site and I like what I see, but I am a bit lost in terms of what kind of feedback I should leave. Also I feel a bit like a "voyeur" in this context. Possibly this feedback might interest you as I think it is relevant to the project you are running. Maybe you can give me a bit more information on what kind of feedback you are seeking on the site. Also I am not clear: are the participants in the study (such as Piet) viewing our feedback also? I assumed this to be the case but it wasn't clear to me.
Thanks for your help. David

Figure 5.8.10 Some reactions by email of stakeholders after visiting the webtool.

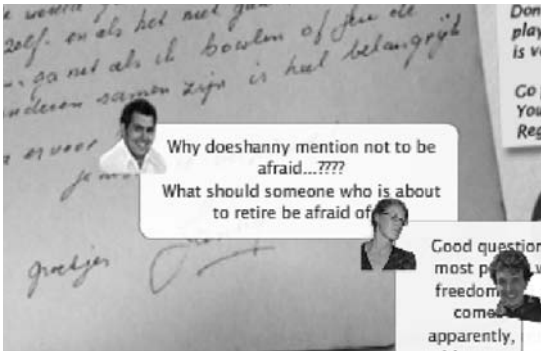


Figure 5.8.11 Some reactions of stakeholders.

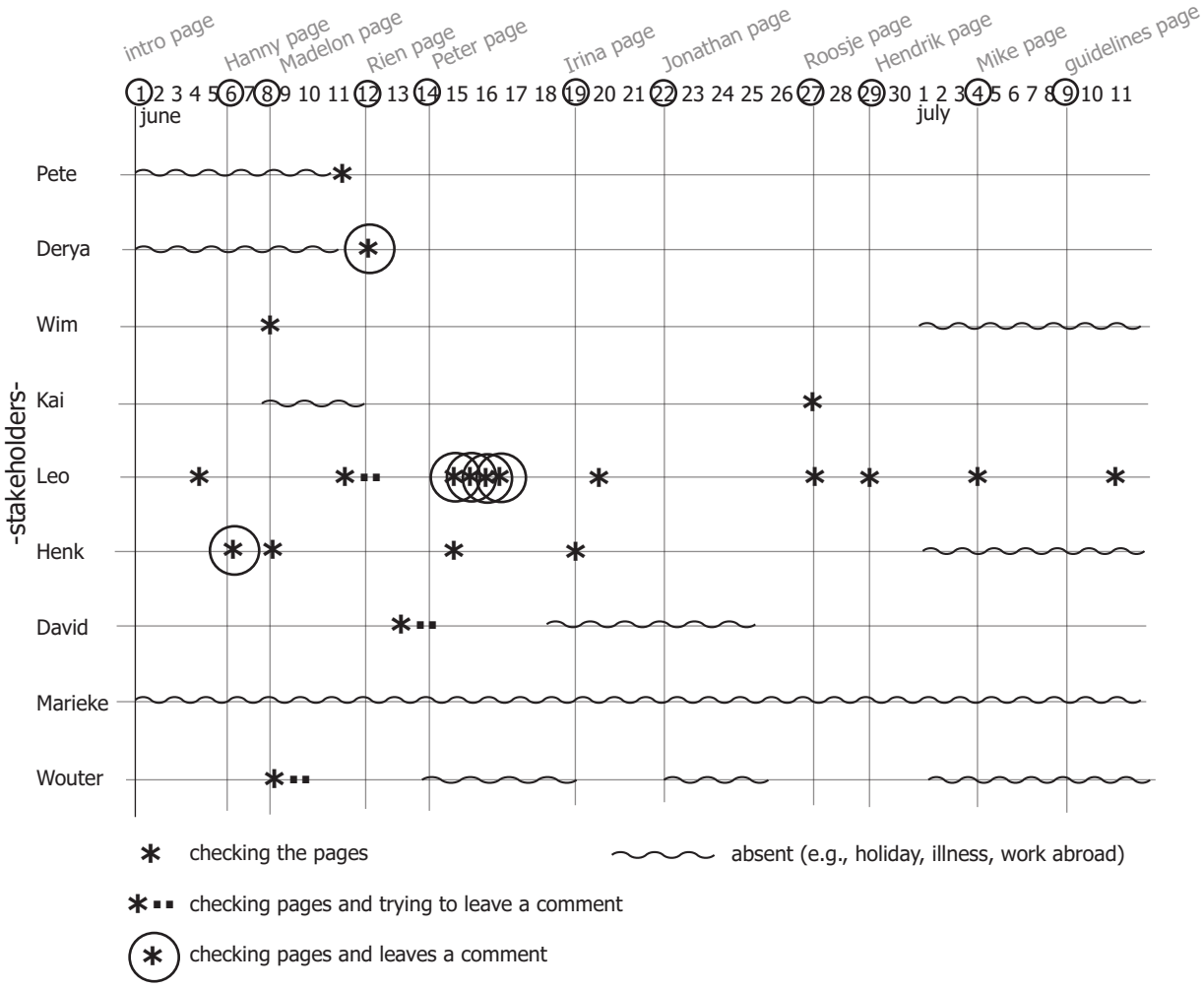


Figure 5.8.12 Logs of the webtool.

of the webtool, and in the following update I explained to all stakeholders that this was a secure webtool, and that the users were not able to log in (the stakeholders had to log in with a password). Again, we intervened; the UR team phoned a number of stakeholders and explained to them that their reactions would be valuable for the project progress. Henk and Leo (the ones who had reacted so far) replied that there was too little information about the users and that they found it difficult to react to this.

Although the reactions were really poor in number, and the ones which were posted were encouraged by the UR team or by me, the logs of the site (see figure 5.8.12) show that most stakeholders visited the webtool only once. Some tried, and clicked to leave a message, but did not confirm to post it.
Because of the lack of reactions by the stakeholders, discussions on the webtool did not start. As a result, I could not post theme-boards of their reactions. Figures 5.8.12 and 5.8.13 shows how little reactions are left on the webpages. Different abstraction levels of the information did not appear on the website. Instead, I posted a tile with guidelines to design for this user group (which is an implication of the gained knowledge). Only one stakeholder visited this page. I cannot draw conclusions from the use of this tool about 'switching between abstraction levels' since they hardly made use of the tool. I also received many out-of-office replies in my mailbox, indicating that during this period of six weeks many of the stakeholders were away form their office.

Towards the end of June, more and more stakeholders cancelled their attendance at the workshop on the July 5th. Some were on holiday, but there was also a reorganisation (announced in May) going on, affecting the atmosphere, their responsibilities and their

Figure 5.8.13 All pages of the webtool as they appeared over time.

timetables. We decided to postpone the workshop to September 17th.
On the second of July we (the UR team, Jonas and myself) had an evaluation discussion.
First we discussed the method contextmapping and the results the project delivered. The UR team was quite satisfied with the results. When discussing why the webtool did not function as intended, the following aspects were discussed:

– The main problem has been in the organisation. It is difficult to change something in a large corporation. *'We are in the process of a large reorganisation, affecting all of us, but still our company is large, which makes it difficult.'* (Andrew). *'I think we did the best we could. People acknowledge that, especially if you look at the many mails that you received. If people take the effort to reply to emails, it definitely means something...but unfortunately it did not go further than that'* (Andrew)

– The webtool might have failed because it did not show overview. The user pages were too 'naked'. A stakeholder had no clue how to react and in what sense. *'You see people, their age and a fragment of their life, but not anything about the scope of the project.'* (Froukje) *'It might have been better if we placed some conclusions earlier on, but we had not realised that before.'* (Andrew)

– Representing the users in this way did not fit the way the stakeholders are used to seeing them. It was too different for them. *'I think, this way of representing the users was a step too far. All our efforts in using real names and their photos wouldn't be needed. A few fictive users, such as personas, would have been sufficient.'* (Kirsten). *'It seems like they have no interest in knowing the users individually.'* (Kirsten) *'There were not so many marketers involved. They have more affinity with consumer research, but still the ones who participated are not used to such a form, the openness of the webtool, the little fragments and the representation of real people.'* (Andrew)

– The focus was not clear enough to get them engaged. *'Here, if you ask someone to have some time to participate in your project, you have to offer something. Raising questions does only create confusion. I think that is what happened here.'* (Andrew). *'I have the feeling that interest was lacking for some stakeholders. In the beginning they say; well yes, interesting, it does not cost a lot of time and I am interested in the segment group, but because it is not their own project, they loose interest soon and are not truly involved.'* (Kirsten). *'The need of the stakeholders to be engaged is actually rather small. It is not their project, it is outside their department, and during the contextmapping study it is unclear for them if they will do something with the content later on.'* (Hans)

Around July 5th, I wanted to send a questionnaire round the stakeholders about their experiences with the website (see figure 5.8.14). Instead of being able to meet them face-to-face, I thought this would be the best option to receive feedback on the webtool. I wanted to know what they thought of it, what they thought of these personal stories and if and why they did (not) leave a reaction. In a discussion with the UR team, the UR team preferred to postpone these questions until September, because the stakeholders might be overloaded with emails from me by now and get the idea that this project belonged more to me than to the UR team. The main reason for this was that I had been sending an update email twice a week for six weeks.

The workshop with the stakeholders (September)
The UR team had put much effort into creating tools to communicate the rich experience information for the workshop, especially as they wanted to explore what kind of output the stakeholders were most interested in. The following tools were created:

– A banner in flash, posted on their internal website, explaining the entire project and the results (see figure 5.8.16). This banner started with an introduction about the customer segment and the contextmapping method, then showed some raw data, and interpretations, five personas, specific data about internet and mobile services, video fragments of the users talking, connecting the findings to other research information (about trends of internet and mobile use), and ended with a set of design guidelines, personas, and scenarios for concept ideas.

– A goodybag to give away at the workshop, containing a print of the banner, a key-holder with one of the personas, a Delft blue tile with a design guideline, magnets with pictures of the possible concepts, etc. The room of the workshop was fully decorated with materials from the probe packages, such as their social connection poster, and the packages were put on tables (see figure 5.8.15).

Kirsten would give a plenary presentation, by means of the flash banner, then a discussion for next steps would follow, and I would have time to ask the stakeholders about feedback of the webtool.

On the day of the workshop only two stakeholders showed up; Marieke and Wouter.
After an informal presentation about the method, the involved users and the outcomes, Kirsten ended the presentation with: *'There are different ways of going forward with this and that is where you as stakeholders come in again. I'd like to discuss the best way to go forward with this for you and your work. We have worked out three possi-*

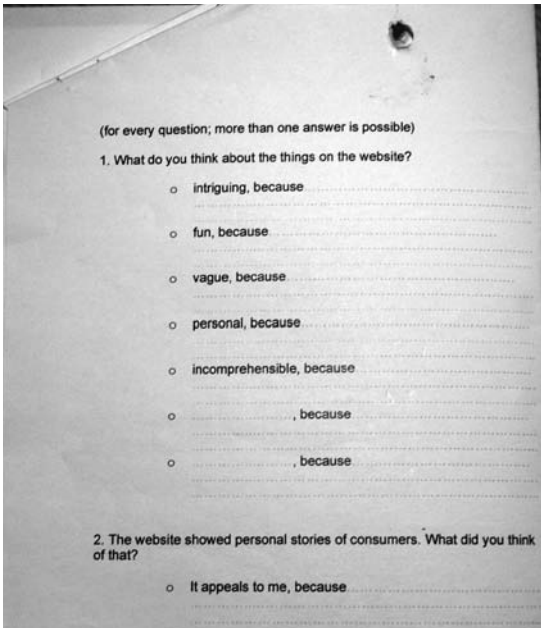


Figure 5.8.14 Two of the five questions in the questionnare.

Figure 5.8.15 The workshop day: the stakeholders are checking the deliverables after a plenary presentation.

ble directions...' Then Kirsten presented the personas, the design guidelines and the service concepts.
Each of these outcomes could be very valuable according to the two stakeholders, but what was more striking was that they kept on saying that they saw the value of this project, but were not taking any action on it, confirming our earlier observations of the stakeholders not having a 'stake' . The following quotes exemplify this idea:

– '*It would be so valuable for them.' (Froukje: 'Who is them?) 'Them, hmmm, I don't know really*'
– '*I would like to discuss this with the proposition team, but also with market insights*'
– '*I am not the right guy pushing this forward*'
– '*Can you give me something digitally, like a document? If I tell people like, hey, look R&D is into this and this, I would like to be able to send something directly.' (not seeing the value of the goodybag for this) 'Make sure you get some credit from the management', 'I am not sure if we have a team looking into that*'

At the end we evaluated the webtool.
Wouter admitted that it was not '*high on his agenda*' and that there was no urgency for him. '*The project as such runs without my interaction, that was my assumption. There was no urgency for my involvement*'. When I asked him what he thought about the look of the site and if he liked reading the users' stories and fragments, he said it was too long ago. '*I cannot say that, I do not know anymore, I lost track somewhere in the middle*'

Marieke explained that she wanted to see the bigger picture, which clearly means that she prefers to tap into abstracted information, and that this webtool did not satisfy her because it only showed raw data.
'*I like to know the result, so every time getting one person, is nice to know, but what added value is there for me to spend a lot of time on that specific person? I prefer to just wait a little bit to the end results and then give my opinion, or add knowledge I have....I like to see the bigger picture.....Maybe it is my problem but I could not see the link between the pages*'

When I asked if they felt uncomfortable about peeking into the lives of these people, as one stakeholder had emailed me about, they did not have that feeling. Stories like this are fun to comment on in a setting when there is time (like a workshop) or when you know each other. This webtool was quite distant, online, and not all stakeholders knew each other personally (only by name). We concluded that in this setting this type of information might not have been the best way. '*The stakeholders enjoyed seeing what we have done, but did not want to know all the ins and outs.*' (Kirsten)

To receive feedback from the other stakeholders, we decided to not send round the questionnaire anymore. Too much time had passed in between. The UR team would phone the other stakeholders and ask for their feedback.
However, this did not happen. The reorganisation and other projects took all the attention. Soon, two of the three members of the UR team changed jobs.
The data, and the analysis is still available for anyone to pick up the project but, a year later, the materials have still not been used.

showing real people

a diagram showing that retirement is an emotional transition, not a moment

selection of <5 participants for persona creation

showing raw data elements

video fragments to give a sense of how they talk

coupling quantative trends information to quotes

storyboard to present a product idea. The main character is sketched and the context is realistic; learning lessons from study 4

Figure 5.8.16 An interactive banner (in flash) contained the overall information. Starting with the goal, to the method description (contextmapping), to an overview of the users, the sessions, the insights about the lives of recently retired (e.g., retirement as an emotional transition, the benefits, and how they relate to computers, internet, mobile phones etc), video fragments of two users, opportunities and threats, next steps (personas, guidelines, new service concepts).

We can conclude that the ambition in this study of engaging the stakeholders has been too high, despite several interventions in engaging stakeholders at a level in which they would actively contribute and feel responsible for the outcomes of the project. The company culture and organisation of the different stakeholders has been overruling the possible success of communication. Nevertheless, this study has given insight into what factors influence the success of rich experience communication, and the development and evaluation of the tool considerations provide valuable insights into efforts for engaging stakeholders with the project.

Factors that have influence on the engagement of stakeholders with the project.

Stakeholders have no 'stake'
It is a common problem to get stakeholders from other departments involved; they all had other tasks to do and other priorities. In this study, the context-mapping project has been a 'side-thing' for all stakeholders, which means that their motivation to spend time on it is quite low. The stakeholders did not have a direct motivation to be involved. Although many expressed the fact that they were interested 'in being kept updated', they were quite passive in taking the initiative or leaving reactions. It was not their project, and they did not know or understand what their contribution could be so far.

Confusion by current reorganisations within the company
This project took place in a company, which was occupied with one reorganisation after the other. The UR team was formed about two years ago and their tasks, and relationships to other departments, was not clear or established yet. There have been several reorganisations in the last five years, and during this study another large reorganisation took place, including the position of the UR team. The UR team was performing new tasks, and the network of stakeholders was in full development during this study. The UR team was exploring how to relate to other departments. The dynamics of reorganisations, leading to shifts of responsibilities and new connections, has been a barrier for successfully communicating rich experience information. This suggests that feeling in charge of a project and motivated to create successful outcomes is a necessary condition for successful communication of rich experience information.

Aim of project was not clear
This project was set up to explore how the UR team could provide input to other departments. This role was new for them. One of the aims in this study was to find out, based on a set of collected rich experience information, what kind of deliverables they could best produce to be valuable for other departments. This could be, e.g. product concepts, design guidelines, or personas. By not being very clear, it was also difficult for remote stakeholders to understand what to contribute. The expectations of the stakeholders varied a lot. And who takes the action was a bit unclear. In the final workshop the UR teams wanted to get reactions from the stakeholders and decide how to continue, whereas the stakeholders were waiting for a specific action assignment. Who is asking the questions and making decisions? This suggests that the roles and responsibilities of each stakeholder should be clearer. When the aim of a project is not clear to the stakeholders, they have difficultiy in knowing what their role and responsibilities are.

The manager of the project was perceived as an external consultant.
Some of the stakeholders perceived the project as belonging to me. The interventions I made were quite intrusive: 1:1 interviews, telephone calls related to the project, present in the company building and many emails (about 15 to each stakeholder, in a period of 2 months). For the stakeholders, this might have given the impression that it was 'some external project', and as a result they did not see the importance of, or benefit directly from, being involved with the UR team. The stakeholders did not develop a sense of responsibility by contributing to the site, as my interventions (emailing them as soon as a new post was revealed) probably made them think that I was the editor of the site and in charge of the study.

The stakeholders were not a team.
The webtool considers the stakeholders as a team. The stakeholders were all placed in one line at the bottom of the site and approached in the same way. These stakeholders were not a 'team' in daily practice. This suggests that connecting the stakeholders is an important issue. Now they were communicating with me or the UR team, and not with each other.

Reflection on the considerations and use of the tool
The website to stimulate involvement did not function as intended. Hardly any reactions, questions, interests of stakeholders or developments concerning the development of stakeholders took place. It would have been a more successful project if stakeholders had been engaged and if I had been able to research their behaviour regarding needs for ab-

straction levels. The possibility for stakeholders to switch between layers of information could not even be explored, because there has been only one layer of information: raw data and background information. There is no data to explore this assumption.
However, by the development and use of this tool, we can still evaluate what we could do better next time.
A webtool showing real people and little snippets of their daily lives needs some introduction page or overview for remote stakeholders. The website may have failed because it didn't show overview. The consumer pages with their personal character were too 'naked'. A stakeholder has no clue about what to react to. David's email was an indication for this. The website needed a better explanation, and the instructions needed to be more focused. The instructions were given, although not in the most effective way.
It is hard to evaluate what the stakeholders thought of the personal style of the webtool. In all other studies, personal details were appreciated. The more the better, has been my impression. This study showed that this personal style led to confusion. When they are not used to such forms of user data, and when they are not involved enough, it can give a confusing impression.
Concluding, the design and use of this webtool, has given more insight into mechanisms such as personification, ownership and motivation. This study has also shown that finding an appropriate balance between raw data and abstracted information is one of the biggest challenges in successful communication.

BACK TO THE FRAMEWORK

This study has given insight into what aspects are of influence on the communication issue in a situation of a large corporation. It showed how the engagement of different stakeholders failed, in spite of the developed tools and many interventions.

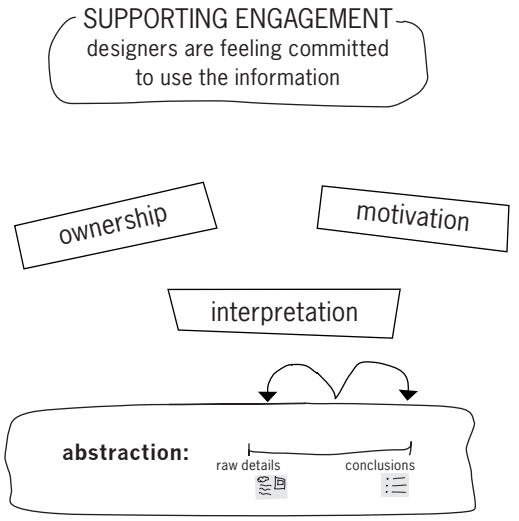
Different stakeholders need different abstraction levels
We started with the assumption that different stakeholders have different needs of abstraction levels of rich experience information and proposed a webtool to address these differences and engage them with the project. For different reasons, this webtool did not succeed in engaging the different stakeholders. In this way, this study confirmed that different stakeholders have indeed very different needs towards the presentation of the information. In order to engage various stakeholders within a company, these different needs have to be addressed. Further research is needed on how to optimise tools, webtools or other forms of tools, to stimulate stakeholders to become curious and feel involved in the project. When the motivation of stakeholders to participate is low, it is likely that the communication will fail again. When stakeholders are not holding the 'stake', they cannot be motivated and feel part of the project.

Active recipients are a necessary condition
The company context, such as organisational issues, structure of departments, attitude towards users, defines to a large degree the success of communication of rich experience information. This study showed that in this company with these departments involved, it has been difficult to support engagement of different stakeholders. An important factor which did not allow the engagement of the stakeholders was the absence of contact moments between the stakeholders. When stakeholders work in different departments, in different buildings or countries, and do not know each other personally, it is logical that they do not know what they specifically can add to the project. The result is that they take a more passive attitude, which causes failure of communication. Rich experience communication needs active recipients, motivated to digest this specific type of information. An open and active attitude of the receivers towards the results of such study is a necessary condition, which should be stimulated by the researchers in the form of tools that motivate them to become open and active.

User-Centred Design attitude
In this study quite some resources have been invested in learning contextmapping, in order to innovate and deliver more user-centred input for other departments. However, outside the R&D department who initiated this study, the results did not fit in the daily business of this company.
It stayed a rather exceptional project. The company context did not allow the infusion of this type of information in the fuzzy front end. Although stakeholders might say they are interested in such methods and in getting closer to their users, the structure of departments and organisational issues are overruling such innovations taking place in their process. This is a barrier for many corporations to truly have a more user-centred design process.

The design of the webtool
The webtool evokes personal reactions to personal stories of the users. This is a valuable way of communicating rich experience information, because it helps to open up and connect with the users. However, the lesson learnt is that this webtool also needs to

show an overview or introduction about how to use the tool. When an overview or introduction is not part of the webtool itself, stakeholders can easily get lost, and will not understand what to add and why.



< —
This is the end of the studies.
In the following chapter the findings
of these studies are discussed.
— >

6

The developed framework

The previous chapter presented the studies one by one. In the description of each study, the conclusions address the specific situation of that study. Each study ended with a 'back to the framework' section to present relevant findings for the framework. This chapter brings the findings over all studies together in the framework.
Section 6.1 presents the filled in framework. It describes the identified elements and their relations with the three qualities of successful communication. This section presents the answer to the first research question, stated in chapter 1: 'What elements play a role in a successful communication process of rich experience information?' Section 6.2 presents a set of guidelines for user researchers to apply the knowledge gained in the framework to their practices. These guidelines are developed by clustering the mechanisms in the framework based on my experiences during the studies. These guidelines are an answer to the second research question, stated in chapter 1: 'How can rich experience information be successfully communicated in the design process?' Section 6.3 discusses the findings and implications of the filled in framework and the guidelines. Section 6.4 ends with a reflection on the communication model.

6.1 THE FILLED IN FRAMEWORK

In chapter 3 I proposed that successful communication can be realised by aiming at three intended qualities (empathy, inspiration, and engagement), that there are all kinds of means to apply, and that there are mechanisms that can help to understand how the means can influence the intended qualities.
The framework served as a structure for organising the findings of the studies. It turned out to be a useful structure from the beginning of the studies to the final conclusions in this chapter. It supported me in bringing together the findings of each study and connecting the partial findings to a coherent whole. The framework in chapter 3 had an empty middle field between the aims and means for successful communication. This field is now filled with various mechanisms. Section 6.1.1 presents these mechanisms, sections 6.1.2 to 6.1.4 present identified relations between the mechanisms and the three qualities of successful communication, and section 6.1.5 discusses the relations between the qualities.

6.1.1 The mechanisms in the framework

The studies identified and explored several mechanisms that contribute to the aims of successful communication. In the 'tool considerations' section of each study, one or more mechanisms were introduced. The expectations about the relations of these mechanisms with the aims of successful communication were evaluated in the 'conclusion' section of each study. Before the studies, the framework had an empty middle field. It missed the links between means and aims in the framework. In the course of the studies, this middle field has been filled in with mechanisms relating aims with means. Figure 6.1 shows an overview of the mechanisms identified during the studies and table 6.1 provides a description of each mechanism. These mechanisms are processes and activities that designers go through. Each of the mechanisms has its role in the framework, and they are often linked to other mechanisms as well. Table 6.1 does not extensively elaborate on the exact definitions and functions of each mechanism (many of them are psychological processes designers go through), but it shows a concise overview of the mechanisms that were identified by the eight studies. Precise grounding of these mechanisms in specific domains (e.g. cognitive pychology) would introduce a whole new body of theories, which would derive from the practice-based focus of this thesis. I rather present a set of working definitions for communication of rich experience information.

mechanisms	what is it?
interpretation	Interpretation is the process of receiving a message and translating this message to at least one higher abstraction level. In interpretation one makes a construct and grasps the sense of it. Spiggle (1994) distinguishes two meanings of 'interpretation' (1) a more abstract conceptual layer of meaning constructed from or imposed on data; and (2) assessing the intentions and inferences of those one is studying, making sense of experience and behaviour, and seeing or understanding some phenomenon in its own terms, grasping its essence (e.g., interpreting a cultural form). Especially the second meaning of interpretation is what I refer to.
imagination	Imagination is the process of forming a mental image of something never before wholly perceived in reality. This can either be the experience of another person, a product idea or a user experience that does not yet exist.
connection	Connection is the process of identifying with and experiencing a close contact with the (real or fictive) user. This mechanism is closely related to imagination.
immersion	Immersion is the process of diving into the rich experience information, and absorbing the information. It is a process of opening up and being receptive. In comparison to interpretation, this activity is a less goal-directed one, and gives more freedom for being surprised. Interpretation is e.g., reasoning why a part of the information surprises you. Immersion is creating a state in which you can get surprised. Immersion can precede interpretation.
personification	Personification is the process of relating the information to individual people. It is the process of perceiving the rich experience information belonging to individual people in real life situations.
interactivity	Interactivity is the process of handling the information in more than one, predetermined and prescribed, way. This allows designers to select, categorize, and organise the information as suits them best. It provides them with freedom to make their own structures and patterns.
motivation	Motivation is a process of enhancing an internal force, a drive, that actuates a behavioural pattern, thought process, action or reaction. Being motivated influences the behavioural and cognitive processes and can support a more intense dedication.
ownership	Ownership is an attribute to the state of being motivated. Ownership is perceiving something as belonging to yourself. It is a feeling of possessing something, such as the research results or interpretations over these results. This feeling can be supportive to a feeling of being in charge, responsible, proud, involved with the research results. Mongiat and Snook (2007) also listed ownership as a factor of engagement. They refer to 'authorship' as transferring power that permits stakeholders to become co-authors.
curiosity	Curiosity is a state of being attracted to something and wanting to see, hear, know more. Someone who is curious cares (Latin: *cura*) about what is perceived (van der Vorst, 2007). Curiosity is closely connected to motivation.
sensitization	Sensitization is a process where someone creates awareness for his own or someone else's experiences. It involves a stepwise process over time into deeper levels of knowledge. This way tacit knowledge becomes more explicit.

Table 6.1 The mechanisms of communicating rich experience information.

Figure 6.1 'hmmm, which mechanisms did I find during the studies? —>

communication

of rich experience information into the design process

qualities

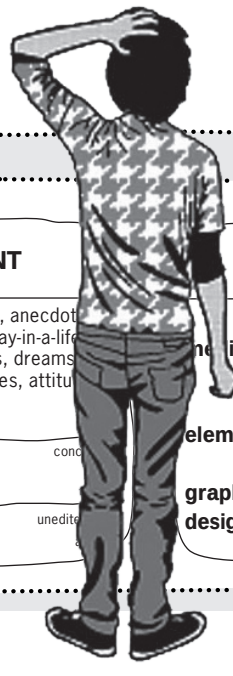
ENHANCING EMPATHY
designers are creating a deep understanding for the user

PROVIDING INSPIRATION
designers are triggered to create product ideas

SUPPORTING ENGAGEMENT
designers are feeling committed to use the information

mechanisms

interactivity
imagination
connection
sensitization
personification
interpretation
immersion
ownership
curiosity
motivation
.....



operational means

CONTENT

snippets of everyday life, anecdot
experiences, routines, day-in-a-life
social structure, feelings, dreams
needs, motivations, values, attitu
meanings, people, ...

abstraction: raw details conc

amount of info: selections unedite little

FORM

ium: poster, report, video, web, storyboard, animation, cardset,...

elements: photo, quote, diagram, text, sketch,...

graphic design: lay-out, font, style, handwriting, size,...

PROCESS PLAN

people: amount, designers, marketers, managers, researchers,...

activities: workshop, project, meeting,...

time: planning, agenda, set-up,...

In the following sections, the relations of these mechanisms with the intended aims are presented. The first quality, achieving empathy with users, has been more profoundly investigated than the other two. Based on a psychology literature review I was able to identify several mechanisms to support achieving empathy and explored these in detail. The result is a detailed process to achieve empathy in which these mechanisms, in a specific order, play a role.
The second quality, providing inspiration, is more broadly explored. The findings comprise the preferences of designers and what elements in the content and form of the presented information they find inspiring. The result is an overview of what elements trigger designers to be inspired to create product ideas. Here several connections to the means field were prominent.
The third quality, supporting engagement, is also broadly investigated. The focus in the studies for this quality was on the contextual aspects of company practice (e.g., different departments, changing team members etc). The result is an overview of factors that play a role in engaging designers and other stakeholders (marketers, managers, engineers, etc) with rich experience information and which mechanisms can be stimulated to support engagement. Here, issues that appear are often of an organisational, rather than an individual, nature.

6.1.2 Enhancing empathy with users

Empathy has been the most investigated of all three qualities. Based on a literature study about empathy, especially within therapeutic psychology, I proposed a process in which several of the mechanisms could play a role (Kouprie and Sleeswijk Visser, 2009). The focus of the studies regarding this quality was on 'if' and 'how' these mechanisms play a role. One study (study 6) focused in detail on this process of a sequence of mechanisms by investigating if making designers address their own experiences would help designers to achieve more empathy with users. Findings from the other studies provide insight into how designers achieve empathy and how this can be supported. Below, the relations with the most relevant mechanisms are discussed. Figure 6.2 presents how this process addresses the mechanisms towards enhancing empathy.

Empathy as a process

—>
Figure 6.2 The process of empathy is a route through half of the mechanisms in the framework

Based on psychology literature I proposed a process of empathy in design (see figure 6.3), which was applied in the workshop of study 6. This process provides a fundamental understanding of the mental process of achieving empathy and using that understanding in designing. Knowing that achieving empathy can be viewed as a process can be helpful by providing structure to the communication process. It can be used to structure and organize design activities and to provide guidance for developing specific tools and techniques to support designers in achieving empathy with users. Applying this process had a positive effect on the designers' empathy with users. It supports the possibility to both immerse in the user's world, and to reflect on it with the designer's own experiences. By using tools which combine raw data (e.g., video fragments, quotes) and suggestive leads towards interpretations, designers are supported in following all phases of the process. The raw data supports their curiosity (*discovery*), allows them to dive into the user's world (*immersion*) and supports designers in understanding the user's feelings (*connection*). Next to raw data, suggestive leads towards interpretation (e.g., coding, patterns, diagrams) help designers to step out of the user's world and back (*detachment*) into the role of designers, creating insights for ideation. These four phases are each related to the identified mechanisms (see study 6).

Study 6 zoomed in on one phase in which designers are encouraged to connect

communication

of rich experience information into the design process

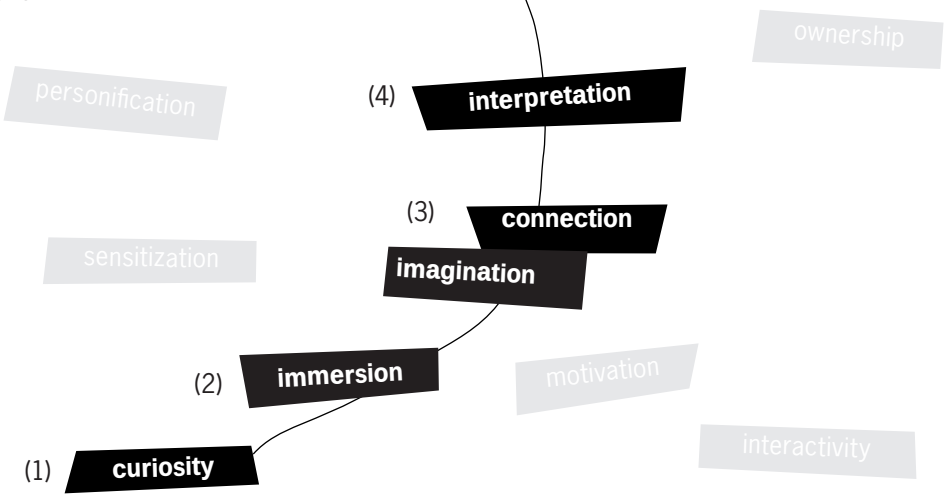
qualities

ENHANCING EMPATHY
designers are creating a deep understanding for the user

PROVIDING INSPIRATION
designers are triggered to create product ideas

SUPPORTING ENGAGEMENT
designers are feeling committed to use the information

mechanisms



operational means

CONTENT

snippets of everyday life, anecdotes, experiences, routines, day-in-a-life, social structure, feelings, dreams, needs, motivations, values, attitudes, meanings, people, ...

abstraction: raw details — conclusions

amount of info: selections — unedited; little — all

FORM

medium: poster, report, video, web, storyboard, animation, cardset,...

elements: photo, quote, diagram, text, sketch,...

graphic design: lay-out, font, style, handwriting, size,...

PROCESS PLAN

people: amount, designers, marketers, managers, researchers,...

activities: workshop, project, meeting,...

time: planning, agenda, set-up,...

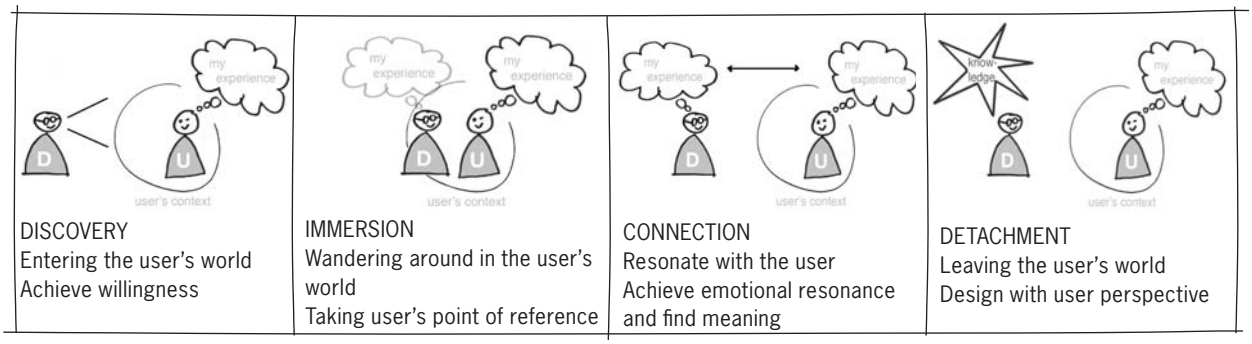


Figure 6.3 The process of achieving empathy in design consists of four phases: discovery, immersion, connection and detachment. (Kouprie and Sleeswijk Visser, 2009)

with the users, by explicitly allowing and sharing the designers' own experiences when studying the users' information. This led to a more open atmosphere, where designers are more receptive to the users' stories.

Motivation, willingness and ability to achieve empathy

As mentioned already in chapter 3, empathy is an ability which differs from person to person. Ability, motivation and willingness are factors which influence the level of empathy which designers can or want to achieve. The motivation of designers is crucial in achieving empathy. When designers do not see the advantages of empathy in design, the results can be unsatisfying. If a designer is not motivated (for any kind of reason) to dive into the users' world of experiences, his empathy will not increase. In study 6, a designer left the workshop earlier, because she felt misled by the topic of the workshop. This event had a negative influence on the other designers in the group and they were less willing to open up to the rich experience information. A designer can also be tired, or not interested in the user group. If they do not feel part of the research, or do not know how knowledge about the users' experiences can benefit their idea generation, they feel less engaged, which directly influences the level of empathy for the users.Designers (people) differ in their empathic abilities, which makes it difficult to study the effects of our efforts on their empathic ability. Furthermore there are different traditions in design. Many designers are taught and are experienced in creating products, without necessarily 'deep understandings' of their users. In study 6, the motivation, ability and group dynamics overruled all other intended factors to enhance the designers' empathy with users.

Personification to support empathy

Personification as a mechanism was already suggested in the structure of the framework in chapter 3, and has still a prominent place in the detailed framework. In order to gain empathy with users, the information needs to show individual people to whom designers can relate. A designer in study 1 explained: '*I don't believe in designing for target groups, I like designing for a person in mind.*' Designers make empathic inferences when seeing information about other people and can easily construct coherent wholes. The users serve as anchors in the information, e.g. the names and photos to which designers can point and relate. The studies show that photos and names of users attract much attention in information. Photos and names of users in the information are used as reference points in design teams (see, e.g. the Action posters in study 7, where the data fragments were clustered around a real picture of each user).

Achieving empathy involves cognitive and emotional components. To make an emotional connection, personification of the information helps to achieve empathy. A designer in study 4 described the 3D house in which a family of four people was depicted: '*I consider it as a very good and healthy interaction. What is on their mind?*

How are these people interacting, besides physically and timewise, but what is on their mind. I got a feeling'. Study 3 showed that personification of the information seemed to overrule the effect of interactivity and inclusion of raw data. The study compared different tools for the effect on empathy and varied on interactivity and inclusion of raw data. However, the tools which represented the users as four individuals elicited more empathy than the other three tools.
In the study where design students received different versions of transcripts (study 2), students with the anonymous transcripts found it much harder to create a mental image of the users, which I regarded as an indicator of empathy. It took them longer to read the transcript compared to students who received a personalized transcript. An interesting question about personification is if a representation of rich experience information can be too personalized and hold designers back from creating an understanding which is useful for designing. In study 3, some students said they appreciated the assignment to create identity cards of the users based on the transcripts they were given, because the act of imagining the personality of the users was perceived as supporting empathy with the user *and* as inspiring them. Other students, however, thought that this exercise was less useful during a design activity. Elaborating on the many details about personalities would distract them from finding product solutions. This difference I also found in study 6, where one designer in a workshop mentioned that he values immersing himself in the personal details of the users, but just for a short time because it is not the core activity of designing.

Sensitizing to support empathy
An empathy process requires a structured investment of time. Not having or taking time is often the first barrier for an empathic process. Having time to browse through the material and having it all around supports designers in achieving empathy, but there is often little time planned for such activities. By starting up the discovery phase of the empathy process before the actual immersion, designers can immerse themselves deeper and there is more time for the other phases. By providing designers little triggers before a meeting or workshop they start their sensitizing process. Studies 4,6,7,8 all made use of a sensitizing time (varying from a few days to a few weeks) in order to make the designers curious, to show them beforehand some fragments of the information and to motivate them for immersion in the information.
The sensitizing tool and mirroring letter in study 7 showed the effect of using the time before the actual workshop. The webtool showing little data fragments of the users, triggered the curiosity of the designers and stakeholders and provided them with knowledge about the users before they started the workshop. The mirroring letter asked them to choose one of the users and compare your own experiences with that user. Knowing a bit about the participating users beforehand can be a strong catalyst; in study 7, the designers and stakeholders were proud and enthusiastic to present 'their' favorite users at the start of the workshop.
In study 4 the users were also introduced beforehand by several tools (e.g. coffee mugs depicting two of the personas) that were placed in their coffee corner. This raised the designers' awareness about the upcoming workshop in a playful way. Immersion is a mechanism which is an essential part of enhancing empathy and by sensitizing immersion can start days or weeks before the workshop.

6.1.3 Providing inspiration for product ideas
The quality empathy was more thoroughly investigated, whereas the quality inspiration was more broadly explored. Designers easily express themselves in terms as 'being (not) inspired', but what mechanisms exactly play a role was harder to find out than the case with empathy. In chapter 3, inspiration was defined as

'fuel for creativity which is embedded in the users' context', and mechanisms of creativity are discovery and imagination. In the investigation of what mechanisms affect the designers' inspiration, I explored curiosity (which is related to discovery), imagination, interpretation and interactivity as mechanisms. The findings of the studies indicate that these mechanisms can indeed support inspiration, but the studies especially showed that the representation of the information has a larger effect on the designers feeling inspired or not (in the means field of the framework) (see figure 6.4).

—>
Figure 6.4 The mechanisms that play a role in providing inspiration

The studies revealed several instances where forms of information representation were experienced as more or less inspiring for designers. In general, designers are sensitive to how the information is presented and this affects their judgement on the information as 'inspiring' easily. Below, the relations with the most important mechanisms are discussed.

Rich experience information is perceived as inspiring input

Idea generation is an iterative process of diverging and converging, in which selections of information from different sources are intuitively and quickly made. In all studies designers appreciated this type of information during their design activities and all express a desire to be 'inspired' by rich experience information. It triggers their **curiosity** and **imagination**;

- *'Yes, it helps. It helps very much in generating ideas. What those people are doing. It is easy to imagine. Particularly the text and the words express that very well.' (study 1)*
- *'It intrigues me what kind of role products or services play in the lives of people. I find this kind of information very fascinating.'* (study 5)
- *'For us, the value is the rich background you get from such a project. It is positive information, including feelings and everyday routines.'* (study 5)
- *'So often research results contain the opinion of the researchers within, but this information is true and pure.'* (study 5)
- *'Proof I do not have, but inspiration I definitely had.'* (study 6)
- *'Conclusions are ok, but I want to know for whom I am designing...creativity is personal and emotional, so I cannot be inspired by only conclusions.'* (study 6)
- *'You need this kind of information, I enjoyed it, it gives you new ideas'* (study 6)
- *'For us it was a useful tool, because it is so personal, and you see how consumers use their shoes. You see things which you totally do not expect'* (study 7)

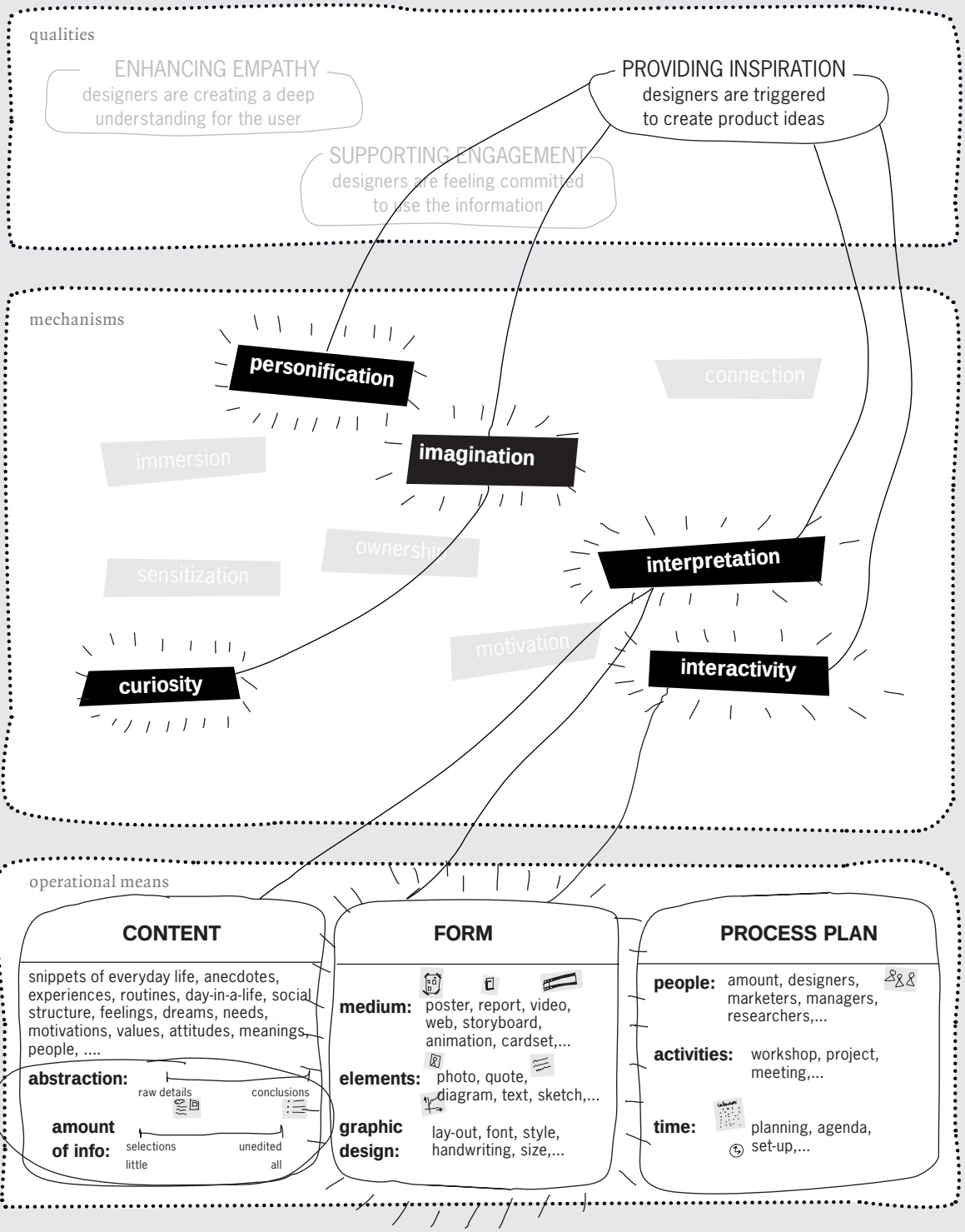
Although they all express to be inspired, it is rather difficult to put your finger on what exactly inspires them, and what mechanisms are playing a role. Instead, designers are able to provide well-articulated reactions to the abstraction level, amount and form of the representations in relation to their inspiration. The designers in the studies enjoy the little everyday stories and checking the photos and videos. In some studies the designers were not used to so much raw data filled with the anecdotes of users, but they appreciated this type of information very much. In studies 4,5,6,7 the design teams got very excited by browsing through the information and having this type of information at hand.

Interpretation of the information by designers supports inspiration

The process of sense making of the information is related to creating ideas. Structuring the information, identifying patterns and creating product ideas are all creative activities, in which new combinations are tried out. Involving designers in interpretation activities allows them to make intuitive interpretations themselves and create structures which are meaningful to them for idea generation. The interpretation process supports designers in raising new questions, which supports their creativity. The abstraction level and amount of information are related to how much the designers felt inspired.

communication

of rich experience information into the design process



– **Abstraction level of information**
I explored several combinations of raw and more abstracted data in the studies to see how variations on this can influence their inspiration. In study 3 and 5 only raw data was provided. In studies 1,2,4 and 7 selections of raw data and suggestive leads towards interpretations were provided. These suggestive leads towards interpretations were e.g. color-coded words (study 1), paraphrases (e.g. statement cards study 2), a storyboard with clash moments (study 4) and theme posters (study 7). The tools in studies 2, 6 and 8 contained conclusions besides raw data elements. These conclusions had the form of, e.g. a bullet list with main findings (e.g. the report in study 2), a public presentation by the researcher of the main findings (study 6) or personas, design guidelines or even product directions (study 8). Over the studies I noticed that designers have very different preferences towards suggestive leads and levels of abstraction. They all value raw data elements, but how much guidance they like in interpreting the information varies widely. Suggestive leads are valued by some designers, but they are also avoided on purpose by other designers who prefer to decide for themselves what they take in.
– *'I did not read the color coded words on purpose'* (study 1)
– *'These color coded words are very helpful in reading through the data, and knowing where to start'* (study 1)
– *'So often research results contain the opinion of the researchers within, but this information is true and pure'* (study 5)
– *'Very rich information, maybe too rich...I was lost in the stories of these people....I expected information in a more structured form, like personas, categorized and analysed.'* (study 6)
In each study, I noticed different preferences towards the desired level of abstraction of the information. Raw data elements are appreciated and are experienced as inspiring to all, although some feel slightly uncomfortable when they are not used to rich data. For other designers the amount of raw data cannot be enough. Designers differ even more in their reaction to suggestive leads towards interpretations in the information. This suggests that designers vary much in their preferences towards abstraction levels. The balance between raw data and suggestive leads to interpretation is subtle and each designer has his own preferred level of abstraction. The studies, however, showed that the *combination* of raw data elements' with some presence of suggestive leads towards interpretations or even conclusions' is inspiring the majority of designers.

– **Amount of information**
In most of the studies the amount of information was perceived as (too) much. Some designers appreciated this variety and large amount, but many also felt uncomfortable with so much information. Many of them are not used to studying large amounts of data, but quickly scan and make intuitive choices in selecting which data elements to take in. In studies 5, 7 and 8, I have to admit that they indeed received a lot of information at once, and were not able to investigate it all in the time planned. The design teams, although a bit uncomfortable with the load in the beginning, all expressed the need for more time because they had the unsatisfactory feeling that the information contained more inspiring elements than they had discovered so far. For example, the Action posters in study 7 presented all the information with many text elements at once, and were perceived as overwhelming in the beginning.
On the other hand, designers also appreciated the large amount of data, because that enabled them to choose for themselves what elements to study in more detail. *('I prefer to decide for myself how to filter the information')* (study 1).
Just as designers differ in their preferences towards inclusion of suggestive

leads towards interpretations, they also differ much in the amount of information. In study 1, some designers read one or two of the cards of the personal cardset in detail, where others scanned all cards, and were looking more for differences between the cards. When looking at the reactions of the designers across the studies, it looks as though most of the time the information was perceived as too much, but many of them also valued the richness after their first impression. I think it is also a matter of comfort.

Form and especially aesthetics determine the impact on inspiration

Designers are highly sensitive to the way the information is represented. When asking designers what inspired them, they often refer to elements about the form or the aesthetics of the information. Designers always have comments on the aesthetics of the tools: *'I would choose another font'*, or *'why not a landscape format?'* Designers are form givers themselves and the aesthetics of the information can invite them to put their mark on it. The personal cardset tried to evoke that behaviour by leaving white space and providing non-permanent markers, but apparently the cards looked too finished. The Action posters (study 7) managed to encourage the designers to make the information their own. These posters had a playful and unfinished look (the information on the posters looked like quite random clusters of post-its at first glance) and had a lot of space left to be filled in. Playful, but well cared for aesthetics, seem to invite designers to naturally add their own notes, sketches and ideas.

The form in which the information is presented has much impact on their inspiration too (if the carriers of the information did not have video, designers missed video; if the information was on posters, they suggested cards or vice versa in interviews afterwards). Designers want to leave their own mark on the form and aesthetics of the information. **Interactivity** is a mechanism that supports designers to organise and structure the information how they want. Interactivity facilitates browsing, choosing, discussing the information in such a way that they can use it the way they prefer themselves. Interactive tools support designers in making their own organisations. It is important to leave room for the designers: to let them select and restructure the information, and to discover for themselves what they think is relevant to them. The feeling of freedom and responsibility that this brings is an important condition for inspiring designers. Designers want to choose for themselves. This suggests that tools that support interactive use support designers in their creativity, since they allow them the freedom to select, discuss and browse the information as they intuitively like to do.

Personification to support inspiration

Personification supports designers in getting inspired because it triggers inspiration, which was observed in studies 1,2,4,5 and 6. Designers appreciate details in the information. Elements that inspire designers are background details (the clock ticking on the video in study 6), personal stories (the anecdotes, although textual, were absorbed by designers) and visual elements such as photos and videos. Having these details available, designers can more easily imagine what the user's context and experiences is really like, and that supports them in having a more profound view of who they are designing for. The following quote from a designer in study 4 is about a sketched animation, in which the characters have names, but no background information is provided about the users; *'I didn't feel energy in it. It did not feel real. Life is more spontaneous'*. In study 1 the designers said they felt greatly inspired by the personified data. Reading the real stories of people triggers them to get ideas. Information is livelier when real people are represented. Designers differ, however, in their preferences for the level of personal details. Study 3 examined how designers appreciate elaborating about the per-

sonal characteristics. Some appreciate the juicy details about the characters, whereas other designers were not so interested in the personal details of the characters after their first impression.

6.1.4 Supporting engagement with rich experience information

The third quality is explored in the setting of two longitudinal case studies. This way, I could explore the motivational aspect of designers and stakeholders to use the information (curiosity, feeling of ownership, commitment and need of abstraction level) (see figure 6.5) and I could get insight into what organisational and cultural factors in a multi-disciplinary environment can play a role in communicating rich experience information. This quality has evolved from engaging designers to engaging designers *and* various stakeholders, such as marketers, strategists, engineers, managers and directors, in a company. The findings are based on study 4 and the last two studies (study 7 and 8), where designers and stakeholders were involved over a longer period of time, during the conducting of the user study and after the user study. I have tried to cooperate with smaller companies in a case study for my research project, but many were cautious to collaborate and integrate the results of the contextmapping study in running projects. The design firm in study 4 took the chance, but also used extra resources to invest in method development.

In study 4 three designers of a small design firm underwent a one-day interpretation workshop with unedited raw data. These designers were highly engaged since they were involved in conducting the user study. As many authors in literature addressed, involving designers in user research, allowing them to set up the research questions, meeting the users and interpreting the data, supports them in being committed to the results (see chapter 2).

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Figure 6.5 The mechanisms that are explored and identified in relation to supporting engagement with rich experience information

Studies 7 and 8 were conducted in collaboration with large multinational corporations, in which the design process is divided within different departments. Here I explored how different stakeholders could be supported in engaging with the information. An important note is that at the beginning of this research in 2004, I had a rather naïve idea about designers. When I graduated in Industrial Design Engineering, I thought that designers in practice do much more than just creating product ideas, such as collecting information about users. I have realised that this is a rather academic view on designers' work practice. The 'designer' in industrial practice has a smaller set of tasks than I thought. Many different people have their role in the fuzzy front end of product development, of which designers are not the most prominent ones. This changed my original idea that rich experience information should not only be communicated to designers, but to other stakeholders as well. Studies 7 and 8 described the situation where stakeholders from different departments received rich experience information.

I first discuss the organisational and cultural factors that were observed in relation to supporting engagement, and then I discuss the findings about our interventions relating to providing ownership of the information, preferred level of abstraction for interpretation and end with the role of motivation for engagement.

Organisational and cultural factors that influence engagement

Time, money, organisational structure, communication standards and the attitude towards users determine, to a large degree, the success of communicating rich experience information as stated in chapter 3. In both study 7 and 8, there were boundaries as to where I could intervene and try to affect the stakeholders' engagement. Studies 7 and 8 have shown that, although there are many possible efforts in engaging designers and stakeholders, the effects remain limited to the possibilities in the organisational structure and mindset of the company. People change jobs halfway through the project and reorganisation influences the com-

communication

of rich experience information into the design process

qualities

ENHANCING EMPATHY
designers are creating a deep understanding for the user

PROVIDING INSPIRATION
designers are triggered to create product ideas

SUPPORTING ENGAGEMENT
designers are feeling committed to use the information

mechanisms

personification

connection

immersion

imagination

ownership

interpretation

sensitization

motivation

curiosity

interactivity

operational means

CONTENT

snippets of everyday life, anecdotes, experiences, routines, day-in-a-life, social structure, feelings, dreams, needs, motivations, values, attitudes, meanings, people, ...

abstraction: raw details — conclusions

amount of info: selections — unedited; little — all

FORM

medium: poster, report, video, web, storyboard, animation, cardset,...

elements: photo, quote, diagram, text, sketch,...

graphic design: lay-out, font, style, handwriting, size,...

PROCESS PLAN

people: amount, designers, marketers, managers, researchers,...

activities: workshop, project, meeting,...

time: planning, agenda, set-up,...

mitment of stakeholders to the project. The organisational setting in these two studies was very different (see table 6.2).
In both studies, the initiative for a contextmapping study came from the companies and not from us. The initial motivation to make a success of the project was high in both studies. Time and money issues were carefully considered and available for conducting a contextmapping study. In study 7, designers, marketers and managers were in discussion several times over a period of 7 months before the final proposal for collaboration was approved by the marketing and the R&D departments. We would conduct a contextmapping study for them and stakeholders from different departments would be involved during the user study and would use the outcomes directly in their new product development process. In study 8, the Customer Insight Team, consisting of three members, would execute the contextmapping study by themselves and would be supported by us. Here, the Customer Insight Team was officially given time and money to conduct the contextmapping study. This team was set up to couple user insights to the outcomes of R&D activities, in order to better serve other departments with the outcomes of R&D. This team was in charge of, and responsible for, the project, and hoped to learn with what kind of output and in what form they could serve other departments. They would create different forms of output and in close contact with stakeholders decide what would be most useful for other departments. (They created personas, design guidelines and product concepts based on the rich experience information.)

Table 6.2 Organisational differences between studies 7 and 8.

	study 7	**study 8**
contextmapping study conducted by:	external researchers (Froukje and Remko, StudioLab)	internal R&D team: the User Research team of R&D, with guidance by Froukje and Jonas (StudioLab)
stakeholders	designers, engineers, marketers, managers, directors. They knew each other personally.	engineers, marketers, strategists, managers (no designers). They did not know each other personally
use of rich experience information for:	direct implementation in product development process	to be determined later (during or after the study)

– The organisational structure was in that sense very different in both studies. In study 7, we were hired as external parties to conduct the study for them and in study 8 the intention was to internalize this method in their company. In both studies, the stakeholders were based in different countries. In study 7, the stakeholder team were all 'receivers' of the information. The brand division for which this project was performed consisted of a small group of people (<60) and the stakeholders knew each other personally and were used to working together. In study 8, the company consisted of many people (>6000) and the stakeholders did not know each other personally and were not used to working together on a project regularly.
Engaging the stakeholders was successful in study 7 and failed in study 8. The main reason for this was the difference in organisational structure. In study 7, the stakeholder team felt responsible and were used to working together on a project. In study 8, this was not the case, and the stakeholders had no 'stake' to be engaged with. Although a lot of effort was put in (by me and by the Customer Insight Team) to engage the stakeholders (involving them in decisions during the project, and the creation of a webtool to support them to add their ideas and feed-

back), they did not feel committed. For these stakeholders, this project was more remote. They had other priorities, had no clear idea of their role in the project and did not have a clear idea how this project could benefit them directly. It was not directly related to, e.g. one product division.

– The standard communication channels in both companies were email and intranet. Therefore, a webtool was created in both studies to engage the stakeholders. In study 7, this webtool was a success in terms of engaging the stakeholders. Almost all stakeholders actively used this webtool. It made them curious about the user data and it showed the other stakeholders that they were participating in the project (by leaving messages on the webtool).
In study 8, the webtool was hardly used, because the stakeholders had other priorities (*'The project as such runs without my interaction, that was my assumption. There was no urgency of involvement for me'*) and it was not clear to them what their contribution could be (*'I have visited the site...but I am a bit lost in terms of what feedback I should leave'*).
After the workshop, the physical tools (posters, cards, goody bag, key labels with personas, tiles with guidelines, etc.) did not have much success. Also, leaving traces to keep the rich experience information alive and present after a workshop did not succeed as intended in either study. For example we did not succeed in hanging the posters with the user information and the team's interpretations on the walls as intended.

– The attitude towards users also played a large role in supporting engagement with the information. In both studies, the initiators of the project (both times a designer) were driven to learn from users and their experiences in everyday life as starting points for ideation; but in both companies, conducting user research for inspiration, rather than for validation, was new to them. In study 7, most stakeholders were open to using invalidated data from only nine users as a starting point for ideation. This was actively stimulated by involving them during the user study and explaining the aim of the study again and again. But in study 8, stakeholders were too remote to have close contact and to make this point of inspiration versus validation clear. As a result, the other stakeholders were sitting on the fence waiting to see what the project would deliver.
Although organizing the information by user has been appreciated in almost all studies, in study 8 this seemed not to support the stakeholders in becoming engaged. The webtool represented nine users, with their real identity and a snippet of raw data. The stakeholders were not used to such personal information, and this might have been an indication that personification of the information did not support their engagement as well, as expressed by one of the Customer Insight members: *'A few fictive users, such as personas, would have been sufficient...It seems like they (the stakeholders) have no interest in knowing the users individually.'*

Providing ownership to support engagement
In both studies **ownership** of the results was promoted. The stakeholders were invited to contribute with their participation, and their knowledge during the user study. In study 7, the webtool, the mirroring letter and the Action posters with unfinished aesthetics stimulated the stakeholders to take an active role. The webtool asked them to leave messages, the mirroring letter asked them to dive into one of the users' experiences and the Action posters invited them to collaboratively 'finish' the posters with their interpretations. This resulted in the stakeholders being more committed to the results.
In study 8, the stakeholders were supported to play an active role by the webtool and by arranging several contact moments in between to involve them in deci-

sions during the project (e.g. segment selection). This failed, since the stakeholders had no 'stake' and no clear role. The webtool which invited all stakeholders to add their contributions did not work out as intended. They left hardly any messages. There was no direct **motivation** for them to be engaged and contribute their efforts to the project, and as a result they did not feel responsible.
When looking at the initiators in the companies, there is an interesting observation about who feels ownership of a user study project. In study 7, the initial request came from R&D but, after several months of negotiation, marketing had become as much involved as R&D at the start of the project. At the end of the first idea generation workshop, R&D asked for an additional workshop to further investigate the rich experience information. In the second and third workshop only R&D was involved. The stakeholders from marketing did see the value, but were fine with the fact that R&D took over and 'owned' the project. *'Yes, indeed, the second workshop and the second contextmapping study are all R&D initiative...They (marketing) accepted this, because it is our shared goal to create with concepts'* (R&D manager, evaluation interview of the project).
In study 8, the project was initiated by an internal team in the R&D department. The other stakeholders were involved but did not contribute much. In both studies, the designers and engineers from R&D felt very much empowered by a sense of being so close to the users. Marketing and strategy in both projects did not feel empowered but found this information useful to connect to or initiate other research projects.

Interpretation of the information: different needs of abstraction levels
In study 7, the marketer and the manager in the design team were more interested in the patterns of the information and the 'take away' conclusions. This observation led to the insight that rich experience information needs to offer several abstraction levels of the information to satisfy different stakeholders. In study 8 the webtool was designed in such a way that raw data and abstracted data would be available, so that stakeholders could choose where to tap in. Unfortunately, the webtool was not used much and, as a result, the abstracted information, which would be generated by the stakeholders, could not appear. However, in the interviews with the stakeholders at the start of study 8, the marketers and strategists confirmed that they were more interested in interpreted information; *'I like to know the result, so every time getting one person (refers to the webtool), is nice to know, but what added value is there to spending a lot of time on that specific person? I prefer to wait a little bit to the end and then give my opinion, or add knowledge I have...I like to see the bigger picture.'* (a strategist during the workshop). Concluding, in both studies marketers and strategists have a preference for more abstracted data, whereas designers are more interested in the richness of the unfiltered data elements. So, different stakeholders have different needs concerning abstraction levels.

Motivation as a necessary condition for engagement
Finally, the motivation of stakeholders, which I tried to stimulate by triggering curiosity, providing ownership and giving them active roles in the project, has been the most important mechanism to support their engagement. It is a necessary condition to engage the team with the rich experience information.

6.1.5 Relations of the three qualities
Above, I discussed the three qualities as separate entities, but it is the combination of these qualities that defines successful communication. Besides the relations between the mechanisms and the qualities, I also looked at the relations between the qualities.

Engagement as a supportive quality to the other qualities

The quality 'supporting engagement with the information' as described in chapter 3 encompassed (1) the motivational aspect of designers to study and use the information and (2) the organisational setting (time, budget, company culture) of designers and other stakeholders in different phases of the design process. The studies showed that the motivational aspect of designers play a large role in a successful outcome. The motivation of designers and stakeholders depends much on the attitude towards users in the company. Even when a designer might have enough intrinsic motivation, but is restricted (e.g. the company culture does not allow designers to go to field visits with researchers), engagement is hard to realise. Especially, studies 7 and 8 have shown that despite many efforts to engage designers and stakeholders, the effects remained limited to the possibilities in the organisational structure and mindset of the company. Engagement with the information appears to be more a supportive quality for the other two qualities. When designers are engaged with the information, it will positively affect their empathy with users and will inspire them more. This suggests that the other two qualities depend on the quality engagement; that empathy and inspiration cannot take place without designers being able to become engaged. Then supporting engagement is a condition, which is necessary to let the other two qualities flourish. Without engagement through sufficient space, through time and through a positive attitude towards users, the other two qualities will not be supported sufficiently.

Concluding, the quality engagement has a supportive role for the other two qualities and is more affected by external organisational aspects of the company.

Relation of empathy and inspiration

An empathic understanding is said to provide inspiration. Several scholars, have indicated that an empathic understanding benefits inspiration;

'*We propose that designers consider a mindset that allows them to derive inspiration for ideation from empathy for the emotional experiences of the people who will live with their design.*' (Sanders and Dandavate, 1999)

'*Empathic design is using the designers' understanding to inform and inspire the creation of more useful and enjoyable things for people we may never meet.*' (Fulton Suri, 2003a)

In the studies I looked for instances which would confirm or weaken this relation between empathy and inspiration. The studies have showed that indeed these two qualities are strongly related, and strengthen each other. E.g.; '*I like designing for a person in mind*' (study 1). In study 1, the mechanism personification was found to support both empathy and inspiration. Also when the information is presented in a way that it can be used interactively, the designers are more inspired and achieve more empathy. In study 2, the design teams who used interactive tools created more ideas and made more references to the users than the design team who used a non-interactive tool.

Enhancing empathy, by, e.g. showing various video clips of the user, also supports designers in getting inspired. Most mechanisms have an effect on both qualities. But in study 5, designers were immersed in the data, but this did not support them in creating product ideas in the same session. The designers had a lot of data and time to immerse themselves in the data at the beginning of the workshop (one day). When they were asked to go into the creative mode of divergent thinking for product ideas, they were not able to do so. If a designer becomes over-immersed in the data, he also could lose his creative ability to reflect and invent possible solutions. The same counts for engagement. When designers are

overly engaged with rich experience information they might not be able to consider other viewpoints (e.g. company business, etc). In the studies, however, the designers have never been too empathized or too engaged.
My assumption in chapter 3, that successful communication comprises enabling empathy, inspiration and engagement, is both strengthened and is given more substance by the studies. The studies have revealed that engagement is a supportive quality to the other qualities, and that empathy and inspiration can empower each other. When designers are not engaged, they will have difficulty in achieving empathy with the users and with being inspired to generate ideas. But when the project (and company) encourages designers' engagement, empathy and inspiration get more opportunity to take hold.

6.2 A NEW LAYER: THE GUIDELINES

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Figure 6.6 The prescriptive framework for researchers. It presents five guidelines which can be applied when choosing what means to use, what mechanisms to address and what aims to strive after.

The framework has provided insight in what mechanisms can play a role in communicating rich experience information. The second research question of this thesis is a 'how'-question: **How to successfully communicate rich experience information?**
Based on the knowledge of this framework and on my experiences along the studies I developed a set of guidelines to support user researchers, the senders of the information to successfully communicate rich experience information. These guidelines are developed for user researchers, who have the role of transferring, translating and guiding designers to deploy the information in generating solutions for the future (see chapter 1). During this research project I have been presenting (in workshops and education) my experiences in the studies to students and practitioners. In these presentations I included pragmatic-oriented elements, such as guidelines. The development of these guidelines was in parallel line with the development of the framework. Along the way, I noticed more and more relations between the mechanisms and the guidelines, which resulted in a close connection of the guidelines with the framework. The guidelines (except the first one) cluster several mechanisms and can be regarded as another layer *over* the framework (see figure 6.6).

Table 6.3 The guidelines are not directly related to the three qualities, but the qualities in several ways.

qualities –> / guidelines	empathy with users	inspiration for product ideas	engagement with the information
make a good communication plan	focus on a deep understanding of the user	focus on triggers for new product ideas	focus on deep understanding and new product ideas
representing real people	put oneself in the position	detailed information supports ideas for real people	curiosity towards real people
sensitizing designers	immersion time	incubation time	be involved over time
addressing designers' own experiences	connecting with the user by an emotional understanding	imagining how a future product could enhance the user's experiences	increasing tacit knowledge about users
making communication participatory	supports a deeper understanding	freedom to make one's own thing	ownership of the results

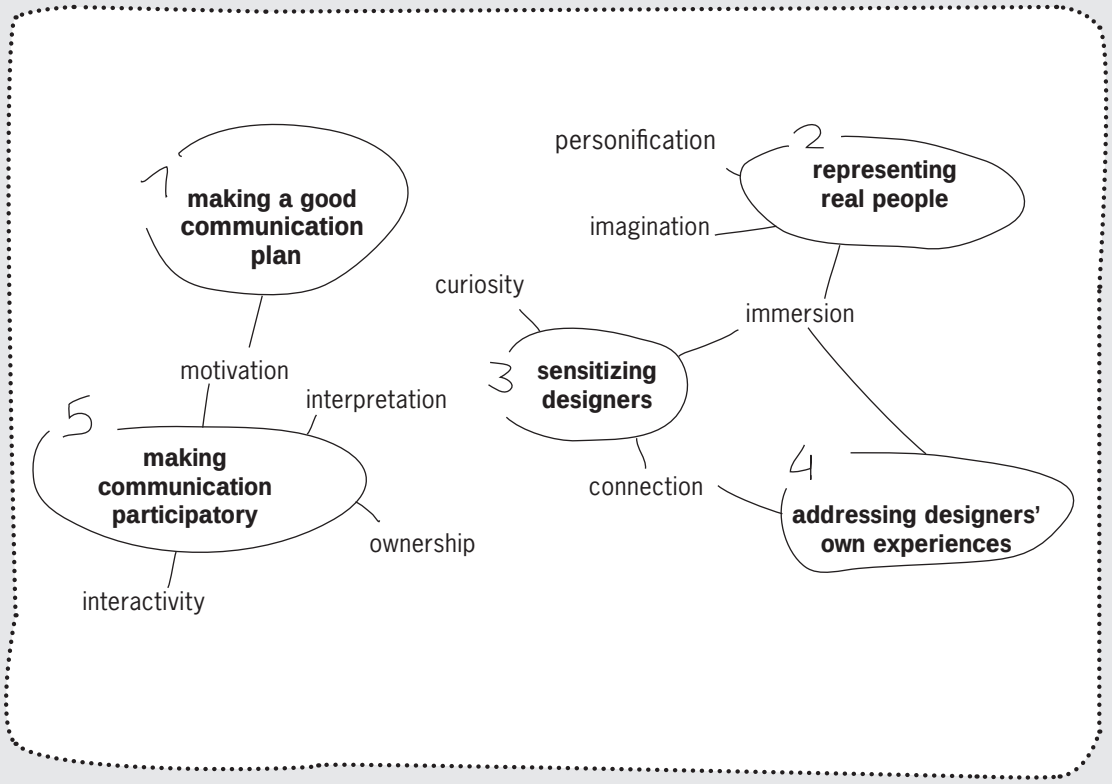
Guidelines

for communicating rich experience information to designers (and marketers, managers, engineers)

ENHANCING EMPATHY
designers are creating a deep understanding for the user

PROVIDING INSPIRATION
designers are triggered to create product ideas

SUPPORTING ENGAGEMENT
designers are feeling committed to use the information



CONTENT

snippets of everyday life, anecdotes, experiences, routines, day-in-a-life, social structure, feelings, dreams, needs, motivations, values, attitudes, meanings, people, ...

abstraction: raw details — conclusions

amount of info: selections (little) — unedited (all)

FORM

medium: poster, report, video, web, storyboard, animation, cardset,...

elements: photo, quote, diagram, text, sketch,...

graphic design: lay-out, font, style, handwriting, size,...

PROCESS PLAN

people: amount, designers, marketers, managers, researchers,...

activities: workshop, project, meeting,...

time: planning, agenda, set-up,...

For example the guideline '*representing real people*' can activate mechanisms like *personification*, *imagination* and *immersion*. Some of the guidelines are a kind of mega-mechanisms, such as '*sensitizing designers*' (based on sensitizing) and, '*representing real individual people*' (based on personification). Others are more like a theory such as '*addressing the designer's own experiences*' and '*making communication participatory*'. '*Making a good communication plan*' is rather a pragmatic recommendation, but essential to success. Every guideline relates to the intended qualities of successful communication. Table 6.3 shows that all of them cover the intended qualities.
Below, each of the guidelines are described. Chapter 7 describes tips and tricks for each of these guidelines.

– **Making a good communication plan**
This guideline does not relate to specific mechanisms, but is based on my own experiences in conducting user research and communicating the results. It comprises the preparation and focus of the communication. It might be a much used advice, but for communicating rich experience information, a good plan for who to involve, when and how, helps a lot in making the communication successful. In the end it is the designers involved that make it happen and they have to be **motivated** to use the information in their design activities. Having insight into the needs of the designers and what their preferences are, helps to support an effective use. Setting up a strategy for communication helps to decide what means to use and what mechanisms to address and what aims to strive for.

– **Representing real individual people**
Explicit references to realistic individual people is a fundamental principle of communicating rich experience information, because experiences are always coupled with the person undergoing the experiences. The findings of the studies confirmed that representing real individual people is a valuable contribution for successfully communicating rich experience information. It supports designers to get close to the individual users who participated in the user study, and identify with them. The detailed personal information supports designers to create ideas for real people in mind, instead of an abstract target group. Showing and telling stories of real people support designers to **immerse** in the experiences of the users. For understanding rich experience information and using this knowledge in designing, traces of the people to whom the experiences belong have to be present in the results. One technique that relies on this guideline is personas (Grudin and Pruitt, 2002). By representing the results in the form of a few individual persons, the user researcher emphasises that the results are about everyday people. But there is more than personas; representing the real people that participated in the research, either by using names, photos, their handwriting, their quotes provides a sense of authenticity, purity and realness about the users. Information about real individual people supports designers to make references to the individual users (**personification**), stimulate designers' **imagination** about the users' contexts, and supports designers to be able to connect with the users. Showing the people emphasises that users are human beings, like designers are also human beings. Furthermore, it is a great way to structure the information without losing much richness. Images of people stimulate empathy, support creativity, support building trust, serve as binding elements and as anchors to organise the information (Sleeswijk Visser and Stappers, 2007a). Ethical issues, however, need to be taken in consideration when planning to retain the users' identities such as photos and names.

– **Sensitizing designers**
This is one of the mega-mechanisms in the framework, but relate to **curiosity**, **connection**, and **immersion** as well. Sensitizing is a process where people are creating awareness for either their own experiences, the users' experiences experiences or the topic of investigation. In contextmapping studies users undergo a sensitizing period before they participate in a generative session (Sleeswijk Visser et al., 2005). This allows users to become aware of their own experiences, and are better able to express these in a generative session. Moreover, after the sensitizing period and the generative session, users have become aware of aspects of their experiences, which do not easily forget. When prototypes of product ideas are created these 'sensitized' users can provide valuable feedback on the prototype based on their own experiences (Sleeswijk Visser and Visser, 2005).
In communicating rich experience information the same process of sensitizing can support the recipient designers to become more aware of their own experiences (to be able to connect with the users' experiences), the users' experiences or the topic of investigation by triggering them with little snippets in advance, before the 'official communication moment' (see figure 6.7). It supports their thinking process and designers are able to create awareness about their own experiences, the users' experiences or the topic of investigation, days to weeks before the presentation moment. Sensitizing involves the process of communication over time. It concerns the planning and timing of the communication plan, and creating space for immersion, incubation and connecting with the rich experience information. With a good planning of sensitizing activities, the process does not need to be more time consuming for the designers, and the effect of the communication process will have even more impact. It means planning, but it is not necessarily more time consuming.

Figure 6.7 The communication of rich experience information is often scaled down to one moment, which is a meeting, a presentation or a workshop of on or two hours.

Understanding rich experience information needs immersion time. Spreading out the information over time can be efficient way to digest rich experience information. It is information which needs time to digest to create personal meaning from it. When communicating the information to a secondary person, in this case designers, making use of time is a key element. Also, when designers have little time available (e.g. only one hour to listen to the presentation of the results), sensitizing can serve to more immersion and deeper understanding, without requiring much more time from the designers.

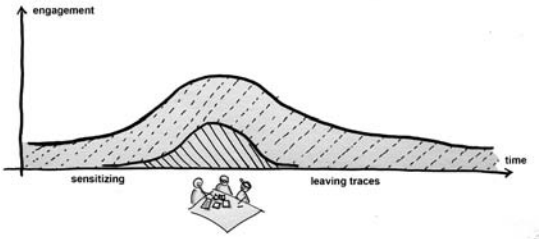


Figure 6.8 The communication is not *a moment* of presenting results in a meeting or workshop, but *a process spread over time* (van der Lugt et al, 2005). It starts with sensitizing the recipients, and ends with leaving traces.

Just as involving them before the presentation moment, they can also be stimulated to keep on using the information by leaving traces after the presentation moment (see figure 6.8).

– **Making designers addressing their own experiences**
This guideline relates to recommendations in literature that experiences can be best understood by experiencing them subjectively (e.g., Fulton Suri, 2003a) and is further explored in study 6. When designers are stimulated to become more aware of their own experiences, they are better able to connect and relate to the users' experiences. Stimulating designers to tell stories about similar experiences of themselves or from relatives creates an atmosphere that is safe and personal enough for team members to come forward and contribute their

own stories (Raijmakers et al., 2006). By creating awareness of what is different for the users than for yourself, designers can better understand what the experiences of users are. Empathy is a process of four phases; discovery, immersion, connection and detachment. In the **immersion** phase designers wander around in the users world, and in the **connection** phase they connect with the users by allowing feelings they have based on their own experiences (see figure 6.9). This leads to a deeper understanding of the users' experiences, and as well to a more open and personal atmosphere in a design team.

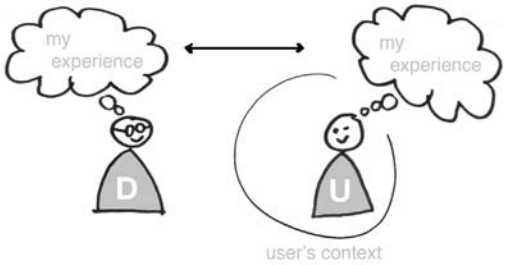


Figure 6.9 The connection phase in the empathy process, where the designer resonates with the user by recalling explicitly upon his own memories and experiences in order to reflect and be able to understand the users' experiences.

– Making communication participatory

Rich experience information does not flourish in formal textual reports. It is individual, fragmented, ephemeral and multi-layered information (see chapter 1). This knowledge can only be gained by active recipients of the information, and understanding what is between the lines. The meaning of the information is best understood when the receiver of the information is not a passive recipient but is actively involved in sense making of the information. The characteristics of rich experience information, require that designers, the users of the information, take an active role and become participants in involved in creating the outcomes of a user experience study. Tools and workshops to feed the design process with the results of user experience studies should allow the recipients to make their own interpretations. Tools that allow designers to be participative in interpreting the message are most fruitful for a deep understanding of the user (Sleeswijk Visser et al, 2007). By showing ambiguity and surprise in incomplete and diverse sets of data, designers are challenged to 'fill in' and make associations (**interpretation**), which triggers their creative process. Unfinished aesthetics as a means to invite the designers as interpreters of the information supports them to finish the tools collaboratively. Hints in the representation towards inferences help them to discover paths in the data and make sense of the information. When information is presented as a set of fixed findings, designers might respond more passively and question and search less for triggers, which might inspire them.

By inviting the recipient designers to organise, select and categorize the information themselves (**interactivity**) and inviting them to add their own insights to the results, and to facilitate this process by tools that allow their input, even visually, they are stimulated to create a deep (personal) understanding and use the knowledge in designing. Tools that invite designers to add their traces of their interpretations (annotations, drawings) promotes **ownership** over the results. A participatory communication tool is a document which allows input from various stakeholders (users, user researchers, designers, marketers, etc). The tool is not the end result and given as a fixed set with data to the receiver, but evolves over time by the people who use the information, and leaves their interpretations visible. This makes it a participatory tool, which invites the recipients to participate in forming the document.

The form and aesthetics of the materials on which the information is presented to designers plays a crucial role. If the receivers of the information are able to add *their* interpretations to the information, they will feel more **motivated** (responsible, committed and involved) in the end results.

6.3 DISCUSSION OF FINDINGS

The findings of this research project are collected in the framework and in the guidelines. Here I will discuss some basic tension fields that have surfaced from the findings.

Empathy versus inspiration as an aim
Two aims of providing designers with rich experience information are that designers can achieve empathy with users and are inspired to create product ideas. User researchers and designers can decide where to put the emphasis: the focus might be more on a deep understanding of the user (as in study 6), more on developing new product ideas (as in study 4), or on both aims equally. In study 6, the process and tools of the workshop were designed to support designers to connect with the users and create a deep understanding. In study 4, the tools were rich visualisations of the information, such as an animation of the morning routine, a 3D-house and a storyboard. These tools supported designers in quickly getting an impression of the morning ritual in a family with young children. The participating designers were well trained and skilled to create product ideas. This suggests that, depending on the goals of the project, the emphasis on aims (empathy and/or inspiration) and accordingly the tools and processes can be different. Being aware of which aim to address helps user researchers to choose what mechanisms to address and what means to deploy. For example, when empathy is the main aim of providing designers with rich experience information, more time for immersion would be needed than for ideation. Moreover, user researchers should be aware of the capabilities of the designers receiving the information. For example, if rich experience information is new to them, they might need more guidance in the process of making sense of the information. Communication does not end with the presentation of research results: it should continue smoothly into ideation.

A delicate balance between immersing and ideating activities
In the guidelines, it is often recommended to provide designers substantial time to immerse themselves in the information in order to wander around in the users' worlds. This is a necessary step for achieving a deep understanding of the users' experiences. In the studies, almost all designers experienced this immersion as a useful activity. However, in the workshops we facilitated we noticed that designers had a hard time stopping immersing. In study 4, the designers were so immersed in the data, that it was difficult for them to start ideating. In study 7, the designers continued reading the users' stories, while we tried to encourage them to create ideas and write these down. The designers in this study were so intrigued by the real world stories of real people, that they preferred to continue with browsing in the data. This suggests that a deep immersion in the information requires from designers cognitive and affective capabilities, which do not easily go hand in hand with creative ideating. A deep and intense immersion supports empathy, but can simultaneously detract from inspiration. User researchers should guide designers step by step in stepping into the users' world, but should also guide designers in a gradual process of stepping back out of the users' world. There should be a break, some time in between, for incubation and change, to allow for the diverging mode of ideation.

The power of showing people
One extensively discussed mechanism is personification, which relates closely to the guideline 'representing real individual people'. Showing real individual people in the information gives designers the opportunity to get close to the users to

whom the experiences belong, which is supporting their empathy with the users. The designers mention that the personified information inspires them. These findings suggest that personal details of users are necessary elements in order to stimulate empathy with users and provide inspiration.
There are, however, two issues to take into consideration. The first is that some designers are not used to such personal information (yet), and are uncomfortable with the information or do not know how to deal with it. In study 8, the various stakeholders were not used to this type of personal information (on the webtool) about individual users, which has been one of the reasons why they did not pay much attention to the information. User researchers should then clearly explain why the information is presented in this way. The second issue is about ethics. This thesis promotes the use of personal user information. The more personal details that are given - real name, real photo, interior of the house, real quotes - the better designers can empathize with users and feel inspired. This is, however, a tricky business, when taking into account ethical rules of privacy. But considerations of privacy demand that users who participate in research should be protected, because they give personal information that should not be used for purposes other than the research. Therefore, results of user research are treated as confidential in general and the sources are often anonymized to protect their identity. Research to collect rich experience information aims at getting close to (a small number of) users and treat them as real individual people. This is a fundamental part of both the research and the communication. The relation with users is therefore different from many other types of user research (e.g. demographic segment information). User researchers should be aware of this different way of relating to the user and convey this to all the stakeholders involved.
In most of the studies it was explained to the users that they were partaking in research which was part of product development, and that their contributions were valuable to the design process. On consent forms the users agreed that their information and their identity could be maintained in representations of the information for use within the company. User researchers should know for what purposes and in what further activities in the development process the represented information would be used. If the information might be spread to different departments and stakeholders, which I also encourage in this thesis, there could be problems with maintaining their identities. User researchers can then decide how to deal with the identity of the users.
In some of the studies, and as well in publishing these studies, I had to anonymize the information in later stages. Often this distracts from the evocative quality and elicits unwanted connotations (e.g. blocked-out eyes make people look like criminals) (Sleeswijk Visser and Stappers, 2007a). I anonymized the information by using fictive names and/or photos so that the information still provides a sense of being close to the users.

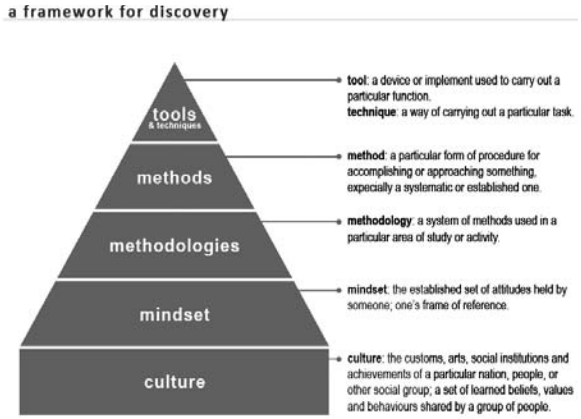
The relation between the self and the other
One of the guidelines is to make designers address their own experiences in order to create empathy with the users. This is one phase of the process of gaining empathy, in which designers connect on an emotional level with the users by relating to their own feelings and experiences. There is an interesting debate going on if this truly supports designers in creating more empathy with users. On the one hand, if designers address their own experiences, they are better able to understand the users' experiences on a subjective level. On the other hand, an opposite effect may result. When designers bring up their own experiences they might think that they already fully understand the users based on their own experiences; they may then not really connect with the users, resulting in little empathy for the users, and an even greater (because unaware) reliance on their own knowl-

edge and experiences, overlooking their limitations. In study 6, I investigated this issue in detail and could not find clear evidence that addressing the designers' own experiences supports achieving empathy for the users; but I did find that this activity evoked a more personal atmosphere within the design team, which supports openness to the others' experiences.
The point I want to make here is that designers should create awareness about their own experiences in order to acknowledge their own boundaries and to be able to understand the users' experiences. Two recent publications also address this point. Steen (2008), in his doctoral thesis, discusses the relation between the self (a designer) and the other (a user or a fellow team member). He suggests a reflexive practice, in which the designer attempts to be more aware of, and articulate about, his own role in the relationship with the other. McDonagh (2008) states that *'one of the attributes of effective designers is that they are open about their limitations and embrace the opportunity to learn through others'.* Knowing that you cannot know everything about the user is a key issue of understanding the other.

Motivation of designers
In the findings the motivation of the designers and other stakeholders to open up for the users, and be receptive towards the information, is addressed as an important mechanism, or better even a necessary condition for each of the three qualities. This suggests that user researchers should start with finding out the receivers' motivations in the first place. These factors may be personal (character, inclination), organizational (management support), topic-related (involving a very different user group) or project-related (budget).

Beyond individual motivation: The changing company attitudes towards users
A critical aspect of engaging stakeholders with rich experience information is how user involvement projects are valued within a company. The tools that I have designed and developed in studies 7 and 8 (the webtools, the posters, the cardsets, etc) try to achieve a larger aim than merely engaging stakeholders with the project. The larger aim is trying to change their process into a more user-centred process, and trying to change the attitude of people towards users. The developed tools have some potential to change this attitude, or at least to support such a change. In study 7, the manager of the R&D department confirmed that this project had an impact on their attitude towards users (e.g. the annual event for employees would be a 'consumer safari' that year, because they want their employees to get closer to their users); but when aiming to change design, the tools and techniques are just a small piece on top of the pyramid (see figure 6.10).

Figure 6.10 This framework for discovery by Sanders (2008) shows how changes towards a more user-centred design process include various aspects in an organisation, of which mindset and culture are the most difficult ones to change.



The pyramid shows that the tools and methods which user-centred design practitioners are introducing, must go a very long way to take a hold in the company. A tool must be introduced via methods of serving specific purposes. A set of methods begins to form a methodology, but it will not change unless the people who use the results have an open mind towards users. All these layers must grow and be reinforced many times before the culture of the company towards users can change from within. My tools and interventions took place on the top level (tools & techniques) of this pyramid. The bottom levels (culture and mindset), however, determine to a large degree the success of the communication as studies 7 and 8 showed. Concluding, it just takes a long

time and a lot of effort. My interventions and tools are a little step which might help, but a mindset towards full engagement, let alone a culture, I cannot change alone. It may take years...

6.4 CONCLUSIONS

The communication scheme of a sender sending a message in a carrier to a receiver has been an oversimplified representation to describe the process of communicating rich experience information, as already suggested in chapter 3. Communication is a process which has specific qualities to be fulfilled: it addresses a variety of mechanisms; it consists of iterations; it implies particular roles of senders and receivers; and, finally, it requests implementation in the early stages of the design process. This research project has shown that the role of a user researcher is not solely a producer of knowledge, but a facilitator in supporting designers to achieve empathy with users, to be engaged and inspired by the experiences of users in their everyday lives, and to use this fruitfully in their design activities. The knowledge gained in this thesis supports user researchers in this facilitator role by showing which mechanisms can be addressed (the framework, section 6.1) and how to put these mechanisms into practice (the guidelines, section 6.2). Figure 6.11 presents the communication scheme which applies to this research. It started with the simplified scheme of a sender sending a message in a carrier to a receiver (see figure 1.11) and evolved in a more complex scheme (figure 6.11). The scope has widened, connecting to the source of information, its purposes in design, and the organisational context. The eventual success lies not in the accurate reproduction of the intended message by the receiver (as in the classical communication model), but in new and relevant product ideas designers create with the help of rich experience information.

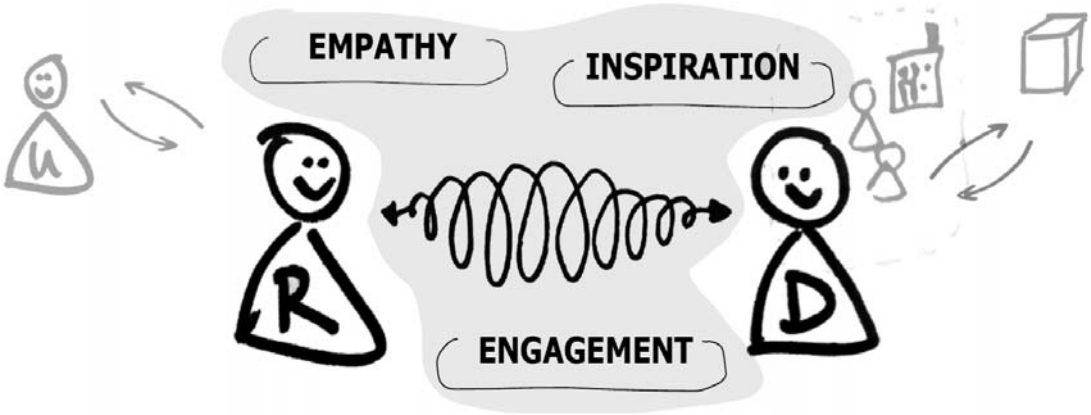


Figure 6.11 The scheme shows that the communication is a process in which user researchers are facilitators supporting designers in their aim for the three qualities that define successful communication.

In this research project I uncovered and elaborated on a wide variety of mechanisms (immersion, imagination, interpretation, interactivity, ownership, motivation, personification, curiosity and connection) that can be addressed when helping designers to achieve empathy with users, and to be engaged with and inspired by rich experience information. These are the three qualities of successful communication of rich experience information to designers as defined in this thesis.

The developed framework has been a useful structure to organise and connect

the knowledge gained from the studies and to summarize the findings. It shows which mechanisms operate in practice when aiming at the three qualities of communication. It also gives insight into the underlying processes that take place in the designer's mind when he uses rich experience information during his design activities. Finally, it helps to select operational means to use in communication, and it accommodates guidelines on how to use them.

Based on the elements and relations in the framework and on my own experiences (creating tools to communicate the information) during the studies, I developed a set of guidelines that support user researchers in translating the insights from the framework into applicable knowledge. These guidelines are basic principles in achieving successful communication of rich experience information by designers. The following chapter presents tips and tricks, illustrated with various examples of communication tools, to support user researchers in applying these guidelines in their own practice.

7

Tips and tricks for the guidelines

Information about the experiences of people in their everyday lives is a valuable source of information and inspiration for designers, in order to create products which fit the richness and complexity of the everyday lives of people. This information has specific characteristics: it is individual, fragmented, ephemeral and multi-layered information (see chapter 1). It contains many implicit details, which would not survive in many of the standard communications channels which are commonly used to present research findings in design practice. The aim of providing designers with this type of information is to support them in achieving empathy with users and in creating product ideas. In this thesis I have explored several innovative ways to communicate this type of information to designers and to other stakeholders such as managers, engineers, marketers, etc.

Chapter 6 concluded with five guidelines for communicating rich experience information to designers based on the findings and experiences over the eight studies.

1. Making a good communication plan
2. Representing real individual people
3. Sensitizing designers
4. Stimulating designers to address their own experiences
5. Making communication participatory

Based on these guidelines, this chapter presents a set of tips & tricks for user researchers. It gives illustrations of these tips and tricks in order to support user researchers in promoting empathy, inspiration and engagement while communicating the information to designers. The illustrations come largely from the tools developed during the studies in this thesis, but also include tools from student projects and fellow researchers. I can imagine that some readers might only read this chapter. So I apologize for repeating myself here and there in earlier chapters.
The tricks and tips are created for user researchers. I use the term "user researcher" to refer to the sender, the person who has the role of informing others about the results of user experience studies and who is responsible for successfully communicating the results. This does not at all mean that I think this role should be taken by researchers only; it is more than likely that this role can be taken by a designer, a researcher, a human factors specialist, etc. Often this type of user research, which is set up for inspiration, will be conducted by people from the design team. Then the challenge is still to convey rich insights to the other members of the team. I hope that these tips and tricks are helpful for all people in the user researchers' role and in charge of communicating the information, making sure that the results have the proper impact on the design process. The following tips and tricks are organized on the five guidelines.

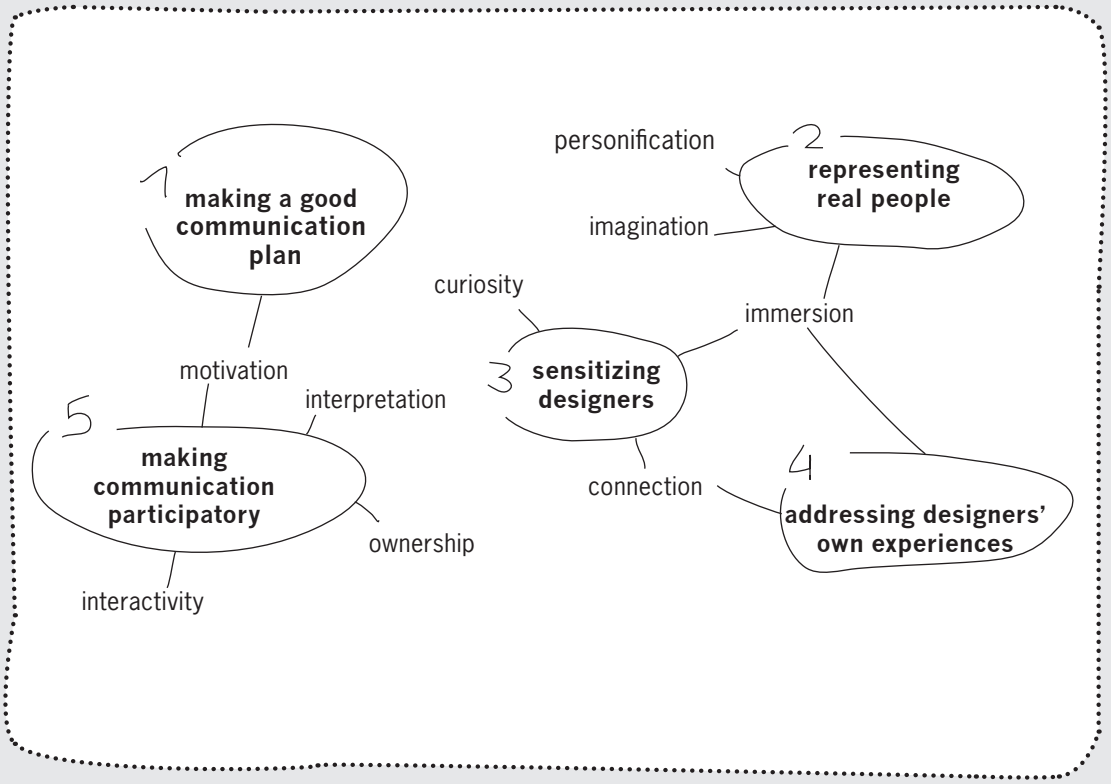
Guidelines

for communicating rich experience information to designers (and marketers, managers, engineers)

ENHANCING EMPATHY
designers are creating a deep understanding for the user

PROVIDING INSPIRATION
designers are triggered to create product ideas

SUPPORTING ENGAGEMENT
designers are feeling committed to use the information



CONTENT

snippets of everyday life, anecdotes, experiences, routines, day-in-a-life, social structure, feelings, dreams, needs, motivations, values, attitudes, meanings, people, ...

abstraction: raw details — conclusions

amount of info: selections (little) — unedited (all)

FORM

medium: poster, report, video, web, storyboard, animation, cardset,...

elements: photo, quote, diagram, text, sketch,...

graphic design: lay-out, font, style, handwriting, size,...

PROCESS PLAN

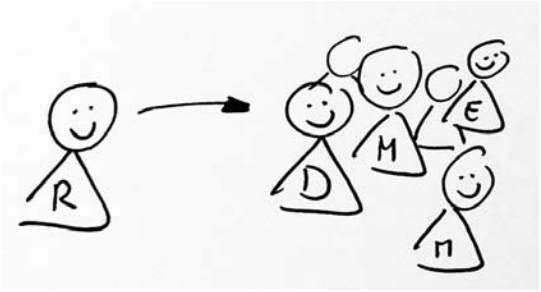
people: amount, designers, marketers, managers, researchers,...

activities: workshop, project, meeting,...

time: planning, agenda, set-up,...

This might be common advice, but planning a communication strategy at the start will support the impact of the findings. For planning a communication strategy, the company context culture and receivers' needs are aspects to take into account. For communicating rich experience information, a good plan for who to involve, when and how, helps a lot to make your communication successful. Specifically, it could support the engagement of various stakeholders with the information.

1
Figure out who the receivers are and what their needs are



I have referred to the receiver of the information as 'the designer'. This is a rough simplification of the real world. There are all kind of designers; interaction designers, experience designers, conceptual designers, engineering designers, product designers, service designers etc. Besides designers, the receivers can also be marketers, managers, directors, strategists, engineers, secretaries, external clients, etc., and they all have different needs and preferences towards the information. Some look for overview, and others for details. Some prefer quick access, and others prefer well-documented and illustrated information. Find out who will receive the results, what they expect, what their needs are and how much they know already.

When the results do not fit their way of working, they could be less motivated to use the results. Try to discover what they expect from the results, and base your strategy on that.

2
Make your tools fit with the current channels of communication in the company

Find out the communication channels which are common for the receivers and adapt your strategy and tools to that. They can have many informal meetings, hardly meet in reality, have video conference meetings or travel a lot to meet face-to-face. Companies have different dominating communication channels; email, telephoning, face-to-face contact or a frequently used intranet. In each company the impact of a communication channel can also be perceived differently (e.g. a telephone call might have more impact than emails).
Insight into the communication channels of the company, e.g. storing documents in power point files helps to decide in what communication channels to present your results. Find out what would be possible. Your solutions could provoke or surprise them, but still be acceptable within their company culture.

This webtool was successful in engaging various stakeholders with the user information in this company. One reason for this was that it fit their communication culture (frequent emails and many short messages per email/sms/phone etc). The webtool was frequently updated with small amounts of information about users.
[source: study 7]

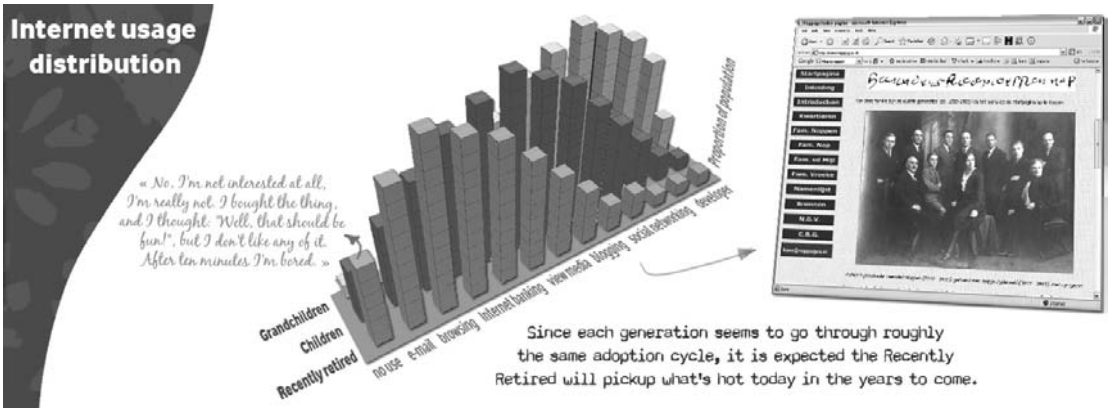
3
Make the findings fit or extend the current communication channels the organisation uses

For example, the exchange format in larger companies is often a powerpoint file in which information is documented. Your tools should enrich, but not aim to replace, these standardized documentation forms. Within powerpoint files images and text can survive. Deliver quotes and images that can be included in these documents. Give them stuff which different stakeholders can use for their primary work activities.

Besides providing the team after the workshop with extra prints of the user data posters, a DVD was created containing parts of the poster in small pdf-files, making it easy to re-use such elements in other (powerpoint) presentations.
[source: study 7]

4
Couple the results to other knowledge they already have

Especially when you communicate to marketers, managers and external clients, convincing them of the value of this information can be a challenge. Satisfy their need for validation by showing that there are other research results which can be complementary. Acceptance might be higher when they can place or categorize this information within their knowledge of other research results, like demographic, trend, market and product information. Present your findings and connect these to knowledge they already have. This shows that this information is complementary to other knowledge.



Quotes and pictures from a contextmapping study are coupled to a trends diagram. [source: study 8]

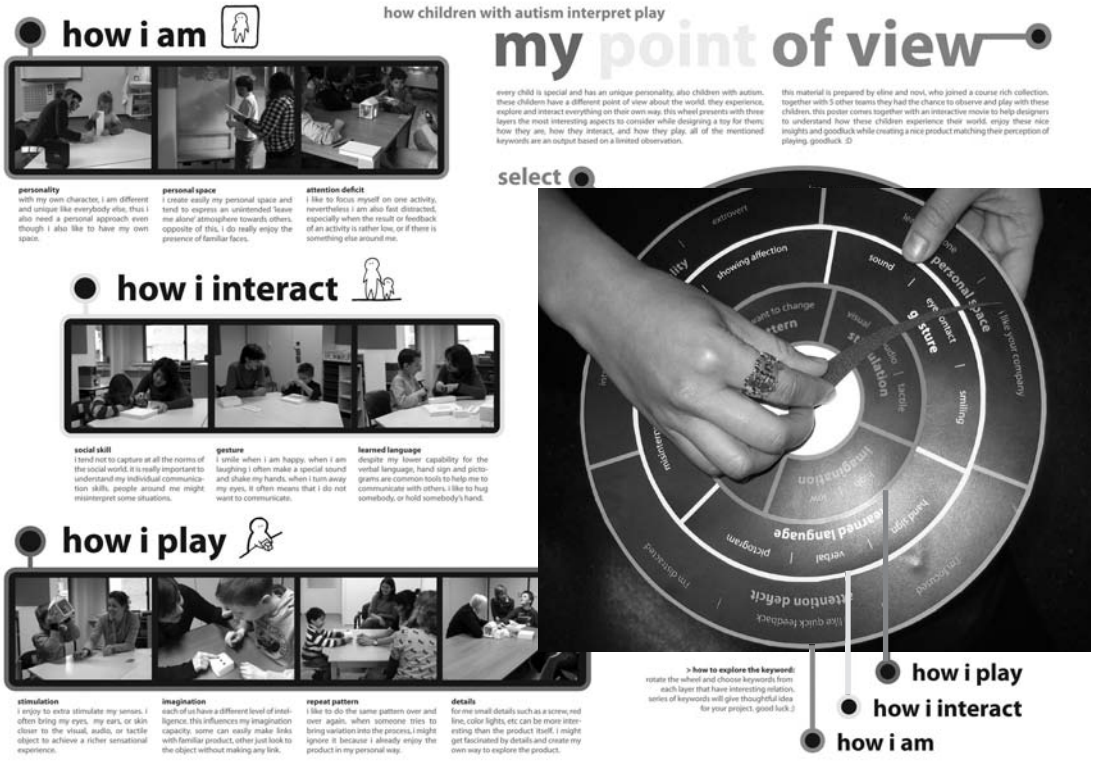
5 Clearly explain the goal and function of the rich experience information again and again

It is a big step forward when a company invests in a user experience study, but this does not imply that they know how the results can be most valuable to them. Therefore clearly explain the goal and function of a user experience study again and again.
In general, many people associate research results with validation of information, or with evaluating product concepts. The results from user experience studies are often not validated (e.g. a small group of users) and the aim is not to present validated information, but to inform and inspire the design process. Especially when people are not used to open-ended info, the goal of the user experience results needs to be made clear not just at the start, but repeated at several stages.

6 Choose your target

Tune the representation to the specified goal of the user study. Is there more emphasis on achieving empathy with the users or more on inspiration for creating product ideas or both? The accent of the project can be, e.g. to enliven the user group or to create product ideas (see also section 6.1); if the aim is to enliven the user group, bring in more personified data, which will enable designers to immerse in and connect with them. Elements showing details of the users' lives serves this purpose well; e.g. a day-in-a-life, filled in agendas, maps of their routes. If the aim is to provide, e.g. a quick glance into the users' context and come up with product ideas, more abstracted representations of users in a detailed context can be used to support the designer to quickly step into the shoes of the users.

Target= A quick impression of the users' context as input for ideation.
An abstract picture of a user in her kitchen. This image serves well to quickly step into the shoes of the user, because it invites the designer to identify with that user, and imagine that situation from his own perspective. [source: Maartje Huinink, graduation project.'07]



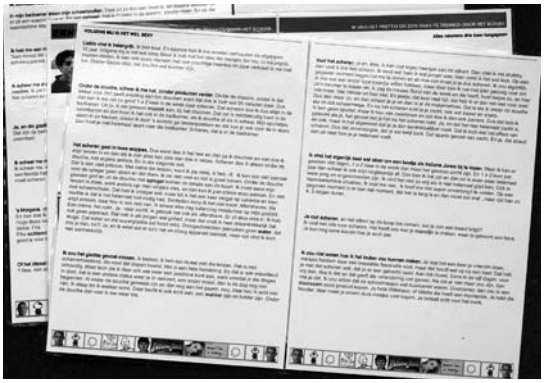
Target = Trigger for inspiration
This paper wheel and a website with videoclips of users (autistic children) serve as a starting point for ideation. The paper wheel invites designers to make choices for investigation and ideation (about play, interaction and the users themselves). According to their choices of the wheel the designers can watch related videoclips about the users. [source: Eline Persyn and Novi Rahman, elective course Rich Collections.'09]

Target = Trigger for inspiration
This cardset is created for designers to quickly get an overview of aspects that play a role in 'stopping with smoking'. This is a quick way to make implicit experiential knowledge explicit during an idea generation. [source: Lianne Sleebos, graduation project '07]

Target = Empathy with the users
This picture on the first page of an online report immediately draws the attention to the individual users who participated in a user study. The user study was set up as input for a new service for 'a membership organisation for older people, which takes care of everyday worries and supports social networks.' [source: Southwark Circle Project, Participle '08]

7
Leave tangible traces of the results in the organisation

Create a life for the information after the workshops or presentations. Printed quotes on cards, posters, coffee mugs, stickers, magnets, tiles and email updates, etc. remind people about the results. Coffee corners, restrooms and elevators are great places to leave traces.



This cardset contains the entire narrative of eight men about their shaving experiences. This tool provides designers with detailed information and can be used multiple times during the design phase and maybe even in new projects. [source: study 1]

During a presentation of the results of a user experience study to higher management, the room was decorated with large textballoons presenting quotes of the users. The users were also present themselves at this meeting. [source: consultant project StudioLab '08]

The poster on the left presents the findings of a user study about the experience of entering high capacity buildings. This poster was kept at the board room of this company. [source: Victor Visser, graduation project '05]

These coffee mugs were used for sensitizing designers, but are still being used in this company 2 years later. [source: study 4]

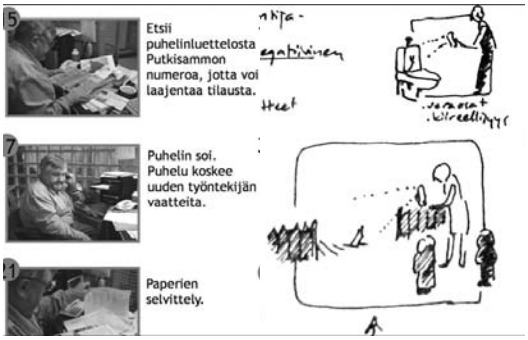
Persona cards which can easily be exchanged and reused for reference. [source: Pruitt and Adlin (2006)]

A key holder with the logo of the user experience project and a tiny persona booklet. This was one of the elements provided in a goodybag, given to stakeholders at the end of a presentation about the research project to take to their departments. [source: study 8]

A board with magnets with personas' quotes were provided by the user experience team to hang on the employees' office doors . [source: pictures taken during a visit at Microsoft '04]

8
Couple raw data elements to insights and product ideas

Raw data elements, e.g. photos, screenshots from videos, quotes, are convincing elements in communicating rich experience information. Make these elements survive after the presentation of workshop. If possible create a format in which designers are invited to write user quotes or attach photos to document their product ideas, e.g. provide photos and/or quotes on stickers which can be added to sketches.



Presentation sketch of product ideas including visuals from the user research. [source: Vaajakallio and Mattelmaki (2007)]

This is a concept drawn on a seperate piece of paper during an idea generation workshop, where the rich experience information and the design team's interpretations were written on posters. At the end of the workshop, the concepts on the seperate sheets were taken along by the team, whereas the posters containing the data and interpretations remained apart. This example shows that in this case that the tool that not supports the team in coupling the info with product ideas in later stages. [source: study 7]

Suggested readings for making a good communication plan:

– du Perron, B., Kischkat, A. (2007) Digital consumer connections. An alternative to direct consumer contact. Esomar. part 5 / Co-creation and client participation. Qualitative '07.
This paper provides guidelines to keep users interested and motivated to share their everyday experiences to the company by online tools. These guidelines have a different aim, but are as well useful for engaging stakeholders with rich experience information.

– Lillis, G. (2002) Delivering results in qualitative market research. London: Sage Publications.
This book provides general guidelines for communicating research results, e.g. how to structure a story, key issues, etc.

– Pruitt, J., Adlin, T. (2006) The Persona Lifecycle: Keeping people in Mind During Product Design. San Francisco: Morgan Kaufmann Press.
This book provides many examples for representing personas in different ways, such as stickers, magnets, beer glasses, balloons, etc.

– Rosenthal, S.R., Capper, M. (2006) Ethnographies in the front end: designing for enhanced customer experiences. Journal of Product Innovation Management, 23, 215–237.
This paper advices in how to couple formal market research with ethnographic findings.

– Sleeswijk Visser, F., Stappers, P.J. (2007a) Mind the Face. Proceedings of DPPI, Helsinki, 119–134.
This paper provides guidelines for representing faces in rich experience information. For the purpose of 'getting to know the user', representations can slightly different than for 'quickly stepping into the shoes of the user'.

– Sleeswijk Visser, F., Stappers, P.J. (2007b) Who includes user experiences in large companies? International conference on inclusive design, Royal College of Art, London, 1–5.
This paper describes the different attitudes of R&D and marketing towards rich stories of individual users (see also study 7 and 8).

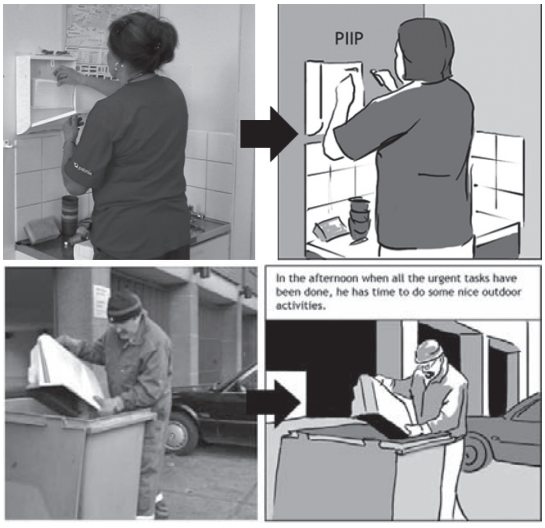
Instead of representing users as a group of people, such as target groups or consumer segments, this guideline promotes representing the users as real individual people. People have the ability to make empathic inferences when seeing data about other people. The method Personas (Pruitt and Adlin, 2006) is based on this principle. But this guideline is different from the persona technique. Personas are fictive representations of users, whereas this guideline explicitly recommends representing real and individual people: real, because users are everyday people like you and me; individual, because experiences belong to individual people. Showing the real people who participated in the research emphasises the fact that the information is about people. Moreover it supports credibility, because the source is clear.

1
Give users a prominent place

Show users in every document or presentation (preferably in their own context). Besides the fact that showing the actual users enhances credibility, it emphasises that this information is about real everyday people. In formal reports they are often anonymised and are given one line of text in the method section. Pictures and names of the users (either fictive or real, are a great way to anchor the information.

This can be the initial slide of a presentation, which is already beamed when people walk into the room, or the first page of a report, or an image in the emails. Often a workshop begins with a short overview of the study and main insights. Here show that these people were real. Show video fragments.

This is the first slide of a powerpoint presentation about a contextmapping study. This slide was already beamed when the design team entered the room for the meeting. [source: study 7]



Photos of the actual users are added in a scenario to add credibility. [source: Vaajakallio and Mattelmaki (2007)]

This collage is the second slide of a powerpoint presentation. The pictures are taken on the researcher's first visit at the users' workplaces, when she delivered the sensitizing packages. [source: consultant project StudioLab '08]

2
Consider ethical issues

Often user research findings leave out personal information about the users who participated. In contrast, representing real people embraces to retain the personal identity, or at least personal details, of participating users, like names, photos (preferably also taken by themselves), handwriting, etc. The researcher must consider carefully how the information will be used, e.g. if it is going to be used by several departments, it might be more useful to use fictive names. To be able to use their photos and real names, permission is needed. When aiming to use their real names and photos, ask the users at the start of the study to sign consent forms.
If you cannot use their original photos or names (for reasons of privacy), use photos from your private collection or from magazines. If you do not have permission there are many other ways to maintain small details without revealing identity, such as handwriting, photos without the user, or abstract representations of the user.

This is the third page of a report which describes the results of a user experience study about teenagers and technologies. It introduces the class of teenagers who participated in this project. Although the faces of these teenagers were also shown, a picture of everybody's shoes still reveals a lot of personal details about the teenagers [source: Alexopolous et al. (2004)]

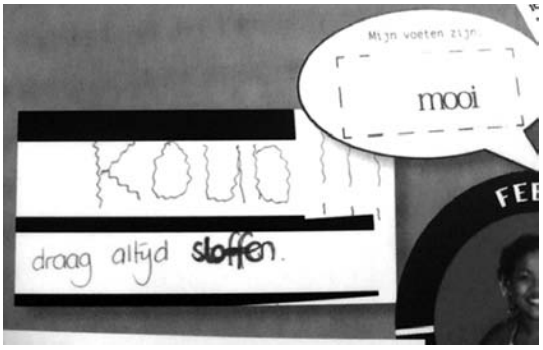
Three categories of images of people. A famous person; Snoop Dogg, a stock photo of a business man, and a everyday person (from the authors private collection). Only the third image is natural, approachable and more open for interpretation. Avoid stock photos since they show a stereotype. Stock photos represent flat characters, which is not likely to be as rich and complex as real people are. Unlike the businessman, the real person suggests to have a life beyond to what is shown in the image. [source: Sleeswijk Visser and Stappers (2007a)]

Some image manipulations for preserving privacy. Ethical guidelines often warn against showing the actual participants, and as a result the images are often cropped, abstracted or otherwise anonimysed. These manipulations, however, can influence the perception of that user, e.g. blocking the eyes make it looks as if the person was a criminal. The fourth image retains an expressive face, even though the original person cannot be recognised. [source: Sleeswijk Visser and Stappers (2007a)]

3
Show raw data elements

Providing receivers with different abstraction layers of the information supports their interpretation process. The lowest layer is unedited raw data. Raw data elements provide many details offering inspiration for designers and bring evidence from the real world. They express personal aspects. For example, show self-made photos, handwriting, annotations, pieces of transcript, video fragments.

The combination of a self made photo and an annotation by the user about that photo is convincing material to show to designers. It is mainly visual, authentic and also explains what to read in the picture. [source: study 8]



The handwriting provides cues about the user and makes the information more authentic. [source: study 7]

The designers who received these cartoon style materials said that they missed the details. They preferred real pictures over cartoons; 'It does not convey the presumed richness of the user study.' [source: study 4]

4
Give insight into the life behind the users

Use elements in the presentation that invite the receiver to get a view into the user's life; e.g. a day-in-the-life or a page of his/her agenda. This works well because such elements tell a story about a person. Insight into a few aspects in a day or a week of someone's life, helps to construct a coherent whole of that person over time.

This persona sheet shows a week from her agenda to give a bit of background information about this persona. [source: freelance project Sleeswijk Visser '06]

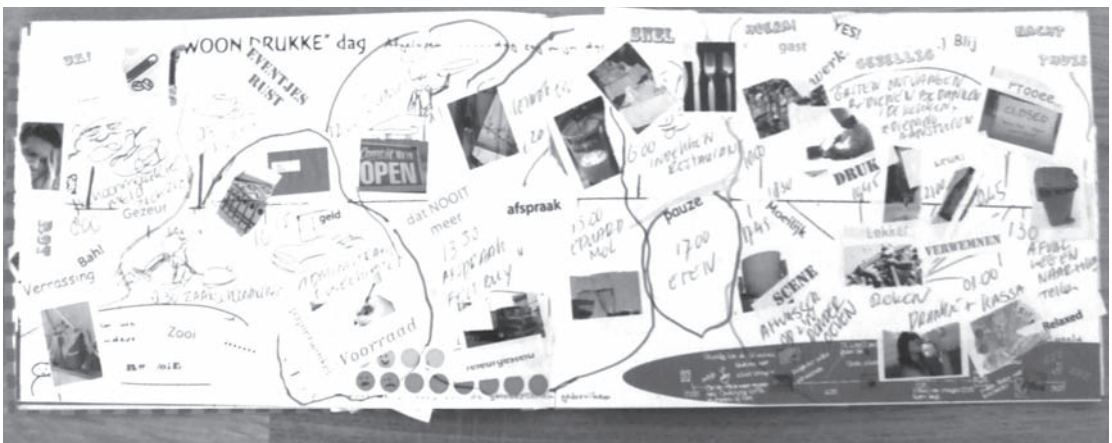
A day in a life of a restaurant owner shows many aspects about his life (his activities, who he meets etc). [source: consultant project StudioLab '08]

5
Represent small numbers of people

People can easily remember faces and names, but only a few at a time (7 +/- 2). You can represent them by:

– Give the users individual names, real or either fictive
– If 8 users participated in the study, show the 8 users. When selecting quotes for presentation, take care that you do not select only the most surprising or extreme ones. Some users are more verbally active or give more explicit information than others. If you only refer to the few extreme ones, the information does not give a sense of realistic people.
– If more users participate in the study, give an overview of all of them, but show details of just a few (e.g. 3 or 5). Then they serve as anchors of the information.

This cardset with 8 cards represents 8 users. Two of them expressed rather general stories, not revealing surprising or catchy quotes about their shaving experience. But also these two were represented by a card. The design teams who used these cards found the information very realistic and credible. [source: study 1]



6
Show multi-layered character of experience information

Experience information about the everyday lives of users is rich because it contains not only stories of actual events, but also values, emotions and motivations. Emotions serve well in communicating the experiential aspect of this information. When selecting raw data fragments, e.g. quotes, look specifically for elements that contain feelings or values about something.

'I should throw them away really...'

This quote comes from a user study about knick knacks at people's homes. Somehow this quote expresses more than just the words: the user would like to throw them away, but does not feel like. [source: Annet Hennink, graduation project '07]

Suggested readings for representing real people:

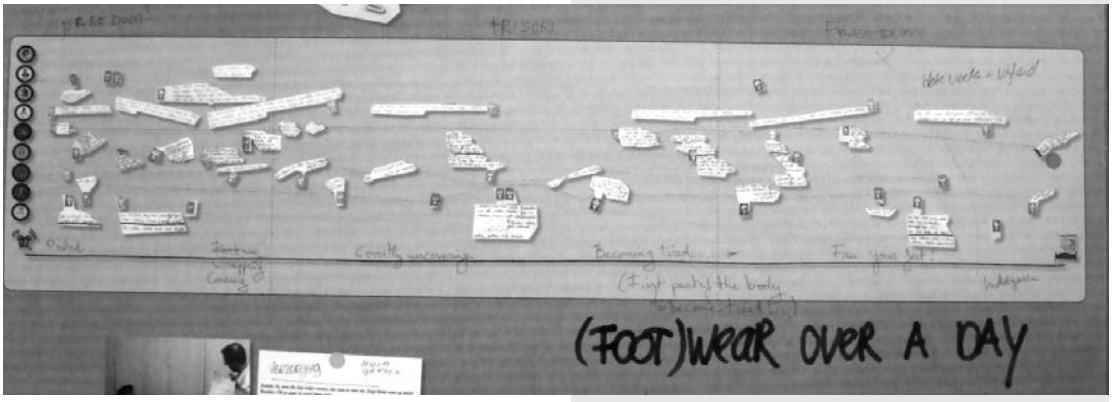
– McCloud, S. (1994) Understanding Comics: the invisible art. New York: HarperCollins.

– McCloud, S. (2006) Storytelling secrets of comics, manga and graphic novels. New York: HarperCollins.

Both these books provide theory and guidelines for how to tell a story and how to use graphic design to enhance the storytelling.

– Pruitt, J., Adlin, T. (2006) The Persona Lifecycle: Keeping people in Mind During Product Design. San Francisco: Morgan Kaufmann Press.
This book explains why personas can be so successful; personas make it able to relate to 'individual' people.

– Sleeswijk Visser, F., Stappers, P.J. (2007a) Mind the Face. Proceedings of DPPI, Helsinki, 119–134.
This paper provides guidelines for representing faces in rich experience information.



A timeline over a day showing how the feet of people 'feel' over a day. This overview of nine users provides many starting points for interpreting the information. [source: study 7]

Sensitizing means 'becoming sensitive to...'. This is a fundamental principle for communicating rich experience information, because this supports empathy and inspiration. Just as users are given little triggers to reflect about their daily lives before entering a generative session, designers can be triggered to create awareness about the topic of study and/or the users.

1
Support direct contact with users

Although this thesis focuses on indirect contact between designers and users, direct contact can be promoted without much effort. Involve designers in the user study. This might seem difficult, but there are many ways in which involvement can cost little time and have a large effect on engagement.

– Plan a meeting, teleconference, lunch talk to share early plans for set up. Invite them to give their view on the choice of target group, and their view on what the results should be like.
– Let designers give feedback on proposal of the user study set-up letters, questionnaires, probe set-ups, workbooks which users will receive. Tell them that you need their expertise, 'the designers' view' on the created materials, and they will take a look and might add their own ideas to it. This stimulates a feeling of ownership.
– Organize sessions and meetings with users in the company building. Then they do not have to make an extra effort to attend a user session somewhere else.
– Let them shake hands with one or more of the users. Having seen people in real life gives more information, like interpersonal cues.

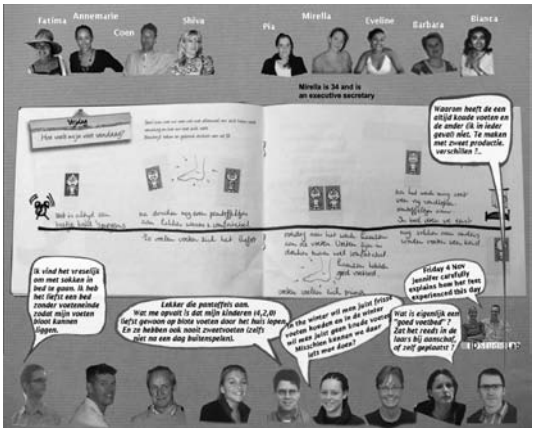
The researcher and the designer from the company are bringing sensitizing packages to the users together. This way the designer meets the users face to face and gets an impression of the users' work or home environment. {source: study 7]

Various stakeholders are watching a generative sessions of users 'live' through monitors. After the session a lunch was provided for the stakeholders and the users together to promote contact and discussion. [source: consultant project StudioLab '08]

2
Send little triggers which are easy and fun

Make use of postcards, email updates and interactive websites. A website might be a bit of work, but a postcard with the message 'the field studies have begun, in two weeks we will report findings' can catch more attention than an email. Make sure access is easy for them and invite designers to participate. It will trigger their curiosity. These triggers could be focused on the topic of the study, involved users, or even first insights.

These posters are hanging in the corridors of the company, making all employees curious to a running project where two ethnographers are going around the world to visit families and study their computer use in homes. [source: picture taken during a visit at Microsoft '04]

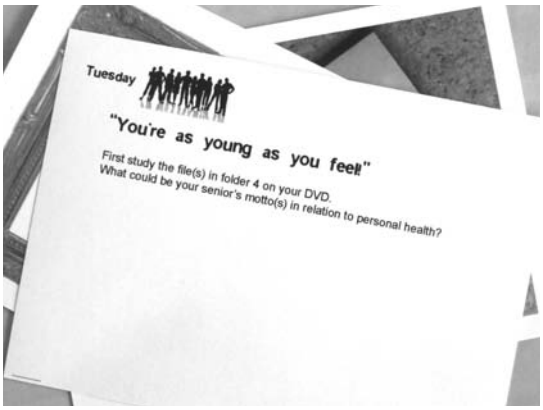


This webtool revealed snippets of the user data in the weeks prior to the workshop. The stakeholders could leave reactions. [source: study 7]

An advent calendar was placed in the coffee corner of the design department a few days before the idea generation workshop to trigger curiosity. [source: study 4]

3
Give designers an assignment as preparation for the idea generation workshop

Sensitize participants of the workshop just before the presentation. Give designers little snippets of information or an exercise which they have to bring to the session as their individual input. This will make them more engaged with the workshop.



These cards and a DVD containing transcripts of interviews and viceoclips of home oservations were sent a few days before the workshop to the designers. At the start of the workshop the designers discussed each others' cards filled with interpretations and insights about the users and made one poster for each user, instead of a plenary presentation of the researcher. [source: Carolien Postma, PhD student, case study '08]

4
Give immersion time

This kind of information requires time to dive into the other's experiences. So make an explicit instruction to take the time, and wander around in the materials. Often designers immediately go in the mode of solution minded thinking. Here immersion is needed to give space for creating empathy with users. Encourage exploration of the users' lives and contexts and hold back from solution minded thinking.

This process plan reserved one hour and 15 minutes for immersing, which was something the designers did not expect. They thought it was a lot of time, but afterwards they said that the immersion was the most variable part.

Suggested readings for sensitizing designers:

– van der Lugt, R., Sleeswijk Visser, F. (2007) Creative sessions for interpreting and communicating rich user information International conference on inclusive design Royal College of Art, London, 1–5.
This paper describes how a creative session can be organised including rich data of users.

– van der Lugt et al. (2005) Enhancing involvement: explorations with use of place and time in creative group processes. In: (Eds: Fischer, O. Weerd Nederhof, P.) The 1st creativity and innovation community workshop, 157–173.
This paper describes how the time before and after a creative session can be effectively used.

– Mattelmaki, T., (2006a) Design Probes. Doctoral Thesis. University of art en design Helsinki, Finland.

– Gaver et al. (1999) Cultural Probes. Interactions, 6(1), 21–29.

Both these authors describe how probes are used. Mattelmaki's book and Gaver's paper provide many examples for elements in probe packages which can be used for sensitzing designers as well.

– Pruitt, J., Adlin, T. (2006) The Persona Lifecycle: Keeping people in Mind During Product Design. San Francisco: Morgan Kaufmann Press.
The authors describe ways how to give designers a role during field visits.

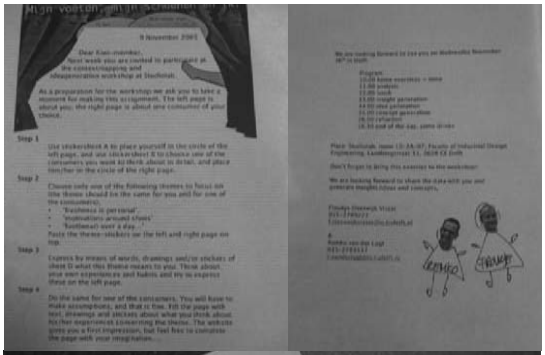
– Sleeswijk Visser et al. (2005) Contextmapping: Experiences from practice. CoDesign, 1(2), 119–149.
This paper explains the sensitizing phase in the contextmapping procedure.

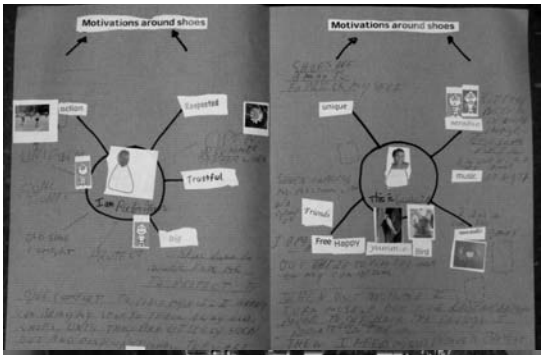
When designers are stimulated to become more aware of their own experiences, they are better able to connect and relate to the users' experiences. Empathy is a process of four steps: discovery, immersion, connection and detachment. The connection step means connecting with their own experiences. This leads to a deeper understanding of the users' experiences, and also to a more open and personal atmosphere in the workshop.

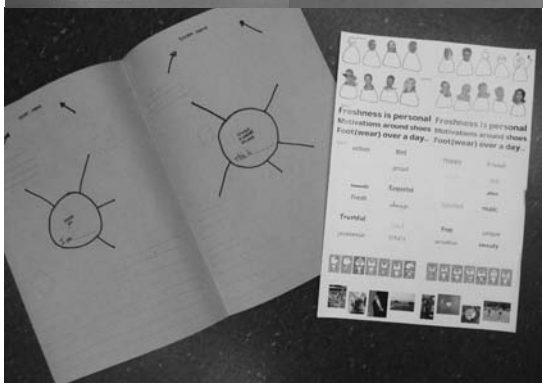
1
Support designers to talk about themselves

Do an introduction round in which the designers express something personal about the topic.

Designers fill in a few cards about their own experiences and are asked to compare these with the cards filled with user information during an ideation workshop. [source: study 6]







Prior to an idea generation workshop, the designers filled in a mirroring sheet, in which they elaborate on one of the user's experiences (based on the information available on the webtool), and on their own experiences (about footwear). When the workshop started this material was used as an introduction round. [source: study 7]

2
Let designers do the same exercise about the topic as the users did

Make cards or a map in which designers have to do one of the things that the users did during the study.

These idea generation workshops started with designers doing one of the exercises which the users also did during the user study. [source: Andre Weenink, graduation project '07]

Suggested readings on making designers address their own experiences:

– Fulton Suri, J. (2003b) The experience evolution: developments in design practice. The Design Journal, 6(2), 39–48.
This paper describes several techniques such as role-playing and experience prototyping, that support designers to become more aware of how a product idea might be experienced.

– Sleeswijk Visser, F., Kouprie, M. (2008) Stimulating empathy in ideation workshops. Proceedings of Participatory Design Conference, Indianapolis,174–177.
This paper gives guidelines in supporting empathy with users by explicitly addressing the designers own experiences.

– Steen, M. (2008) The fragility of human centred design. Doctoral Thesis, Delft University of Technology.
Marc Steen discusses extensively about the relation of the other and the self (user and designer) in human centred design.

Rich experience information cannot be communicated as a set of facts. Designers are active recipients of the information and by a process of understanding and sense making they are able to act upon this information in their design process. By giving designers the means to organize, structure and finalize the information, they are able to make sense of it.

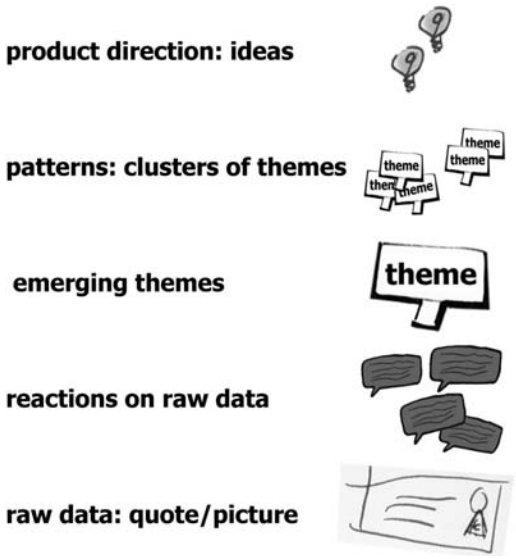
1
Involve more stakeholders for participation

Try to involve more people than the ones who asked for the information. They may need to convince others. The results might not only be beneficial to the ones who requested it. The more the user experience study and the results are visible and present in the organisation, the more curious people become. This supports more grounds for acceptance in the organisation of the company. For example:

– A secretary who is in charge of recruiting users might be very valuable, because he has close contact with many of these users (email or telephone contacts) and can convey a feeling of contact.
– Higher management. Even if they are not directly involved, let them know about your project (by email, short lunch talk, informal talk at the coffee machine). Their curiosity can be raised, and the designers might feel excited by the fact that their directors know about it, which might motivate them more.
– Colleagues who are around; invite peer designers, engineers, marketers to come and see and participate.

2
Show suggestive leads to interpretations

Hints in the representation of information towards inferences help designers to make sense. Present different abstraction levels for interpretation. Raw data helps designers to get a feel for the user and his situation, whereas interpreted data, such as insights by the researcher, can guide the designer to see patterns and interpret their meaning.
Presenting more than one abstraction level (e.g. raw data, selections, themes, patterns, product directions) helps receivers to make their own interpretations and to make sense of the information. Carefully collect extracts from raw data and offer hints for interpretation by means such as key issues and their relations. The information does not present a final result, but rather a map showing possible routes, risks and opportunities to support the designer's interpretation. When you have analysed the data, try to represent the information leaving out the highest abstraction level you made yourself (e.g. patterns level). Combine raw data and suggestive interpretations. You have your conclusions formed already, but present in the materials one step back of your analysis process. This encourages designers to create their own conclusions and feel ownership of the results.



Abstraction levels of the data.

This interactive DVD captured multiple perspectives of the city Lagos. The viewer can choose to observe from a distance (wide) or experience Lagos from within (close). [source: Koolhaas (2005)]

We hebben pas onze hele badkamer verbouwd en ook op verlichting gelet en nou weet ik niet precies hoe het komt maar de ene ochtend zag ik het wel en de andere ochtend zag ik het niet. Moet ik die **spiegel** nou nog verder naar me toe halen of worden mijn ogen slechter? Maar gelukkig kan ik op het gevoel nog een heleboel, hoor. Wij het badkamer raam ok gewoon open hebben, ook als het nog 2,3 graden vriest. Dat is niet om wakker te worden hoor, dat ben ik al, maar gewoon lekker. Alleen in het weekend, dat je zegt van gewoon even lekker uitgebreid baden, dat we dan even de verwarming aan doen! 'S avonds, heb ik vaak een claim op de badkamer. We hebben een behoorlijk grote wastafel, maar die is dan toch te klein voor twee, Ik krijg er niet veel **tijd** voor van mijn vrouw. M'n vrouw vraagt vaak: 'Wil jij je niet even om de hoek scheren?', want daar staat ook een spiegel. Maar meestal is het wel zo dat ik me eerst scheer, en dan douchen. Ondertussen gaat mijn vrouw verder in de badkamer ermee. We lopen elkaar niet in de weg dan.

Excerpt from the personal cardset, where themes; 'spiegel' (mirror) and 'tijd' (time), are highlighted in color to guide the designer. These highlighted words are themes identified by the researcher, but the designer is free to discover other themes as well. [source: study 1]

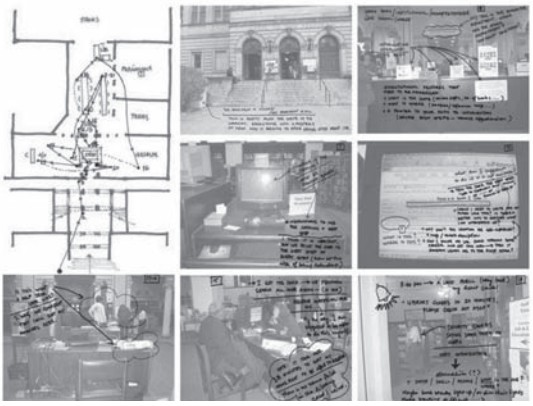
Three large posters represent three main themes (interpretation by the researcher). Each poster is then filled with a selected set of raw data grouped around the users. The design team can write on the posters and add their interpretations and product ideas, either by pen, by post-its or by stickers (indicating level of importance). [source: study 7]

3
Make work of each interpretation visible

Ideally represented information contains various abstraction levels;
– Selections of rich raw data (made by the researcher)
– Interpretations by researchers (categorizations, dimensions, insights)
– Interpretations by designers (and other people involved) of a deep understanding
– Interpretations towards product ideas by the designers.

By keeping the interpretations of each contributor visible, a document develops, and belongs to all contributors.
Show your role in the information. Make your interpretations visible. It is subjective data, and the researchers' conclusions are also subjective.
The researcher has selected, categorized and visualised the data and interpretations. As raw data is convincing to show, it is about real situations, so is it pure and clear to show what the researcher's interventions are. Show your annotations and parts of your analysis, and explain the reasons why you are showing them.
When you can show only a selection, try to show explicitly that you made this selection. For example:
– When showing a video fragment, show the uncut file, e.g. let the player play 29 seconds, but load the video of an hour'.
– Explain why you chose to show this selection specifically (e.g. data about only three of the eight users)
– Give a glimpse of what is not there, e.g. show the workings of the analysis phase.

Interpretations are made by users, researchers and designers on different levels.



Photos of the situation in a library, with a transparant sheet with annotations of the researchers to explain what they saw happening their during their observations. [source: MacQuaid et al. (2003)]

Sometimes interpretations by users about other users' experiences can provide interesting insights. This is a video screenshot of a documentary to communicate the everyday experiences of elderly people to designers. This woman reads out loud a letter she has written to one of the personas. This is interpretation over interpretation, creating space between content and meaning to fill in by intepreters. [source: Raijmakers et al. (2006)]

Photos of the analysis process are important to present to the designers who have not been involved in the analysis. It conveys that the research is not a magic secret process, but a rather immersive process of folding all data out and a profound process of structuring, (re) structuring and categorizing. These images were used in a powerpoint when the results were communicated to higher management. [source: study 6]

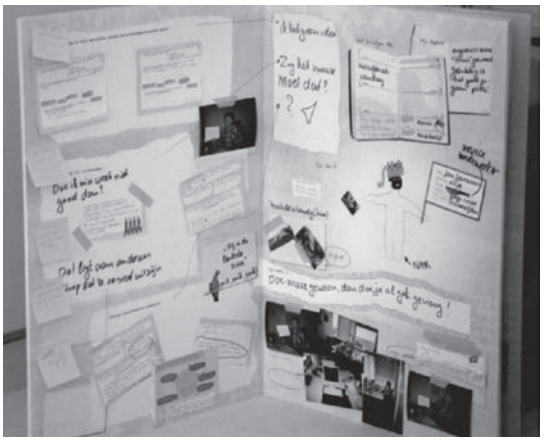
4
Make interactive and tangible tools

Things you can physically exchange, organize, hold in your hand, share, and refer back to support more intensive use than digital presentations. With digital presentations or a report one person of the team is 'holding' the information. Provide the designers with materials which are exchangeable, such as cards. Provide them with additional tools and materials to help them to structure their interpretations and ideas, e.g. post-its, markers, big (pre-structured) sheets.

This wall of postcard format booklets was used by a student design team. The booklets contain research findings on (upperleft) market & trends, (upper right) the company, (bottom left) children's play and learning, (bottom right) five personas based on rich experience information. These booklets have been used throughout the design process for verification, inspiration or as a reference. This plastic curtain of booklets is sent to the company, including suckers to attach it to a window in the company, instead of a standard report. [source: Floor Borgonjen, student IDP project '08]

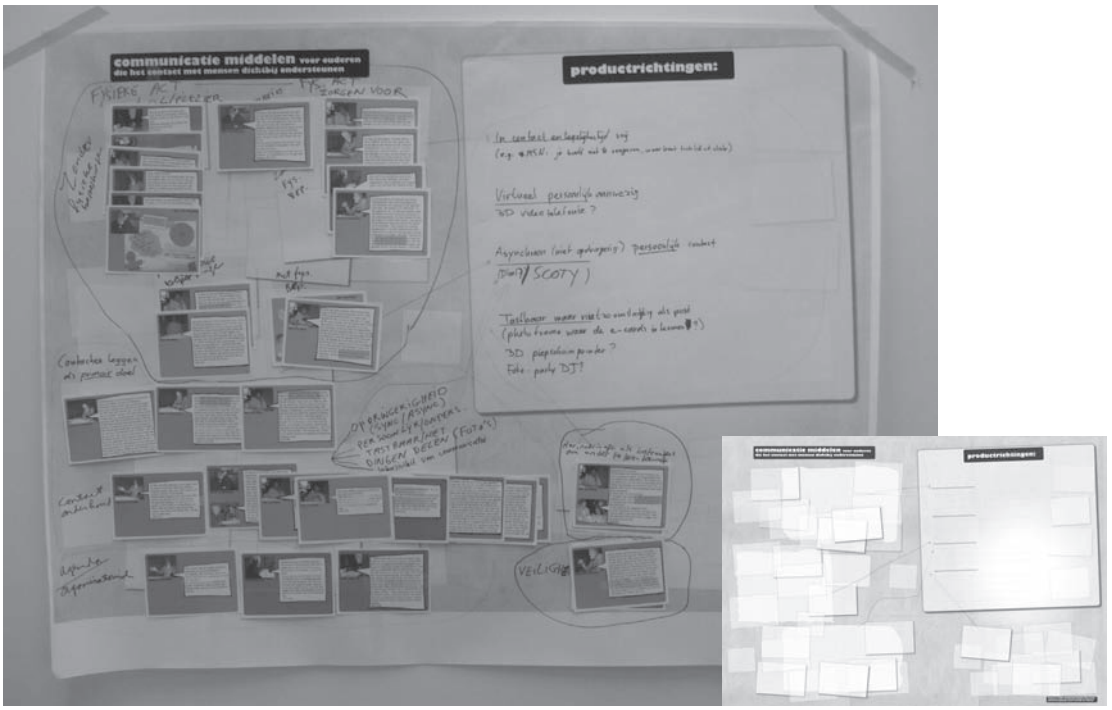
By providing tools which are not 'finished' in an ideation workshop, designers can collaboratively 'finish' the tool. By making this action visually explicit, the teams are supported in creating insights into collaboration. Such tools invite designers to explore directions, without forcing them in one direction.

On these posters, there is a white space above each quotes to be filled in by the design team, to paraphrase this quote. [source: study 7]



This figure illustrates a persona creation during a workshop. The poster (black and white print on a foam board) provides a basic lay-out. Designers can create a persona with theirown selected data. By giving them the means to start (e.g. a given composition), the designers are able to create a rich persona description in a short time. [source: consultant project StudioLab '07]

This poster served as a basis to support designers to structure the raw data quotes. In a little two hours they were guided in the process of immersing, interpreting, and finding directions for product ideas. [source: study 6]



Suggested readings for participatory communication:

– Raijmakers et al. (2006) Design Documentaries: inspiring design research through documentary film. DIS2006, ACM Press, 229–238.
They describe a study in which different forms of personas are explored.

– MacQuaid et al. (2003) When you can't talk to customers: using storyboards and narratives to elicit empathy for users. Proceedings of DPPI, Pennsylvania, 120–125.
This paper describes a user study and how it was communicated to the design team. They explain that communicating the findings one step before showing the finished personas is more engaging.

– Sleeswijk Visser, F., Stappers, P.J. (2007a) Mind the Face. Proceedings of DPPI , Helsinki, 119–134.
This paper provides guidelines for representing faces in rich experience information. For the purpose of 'getting to know the user', representations can slightly different than for 'quickly stepping into the shoes of the user'.

– Sleeswijk Visser et al. (2007) Sharing user experiences in the product innovation process: Participatory design needs participatory communication. Journal of Creativity and Innovation Management, 16(1), 35–45.
This paper describes this guideline in detail.

– Stappers, P.J. (2005) Creative connections: user, designer, context, and tools. 3AD Bristol. The Appliance Design Network, 5–9.
This paper discusses the advantages of tangible prototypes in the fuzzy front end.

– Koolhaas, R. (2005) Lagos wide and close: an interactive journey into an exploding city. www.submarine.com
This interactive DVD captured multiple perspectives of the city Lagos. The viewer can choose to observe from a distance (wide) or experience Lagos from within (close).

These tips and tricks can help user researchers in communicating their user research results.
I believe that there are many more innovative ways than are presented here. I encourage all practitioners to share their own success and failure stories and to keep working together on improving user-centred design processes, and specifically to dare to think further than the existing where possibilities of representing and visualizing the information is concerned. I hope that this thesis encourages user researchers to think beyond the powerpoint presentations and computer laid out posters, and that it inspires them to find other engaging ways to invite designers to create a deep understanding and get truly inspired by this source.

These tips and tricks can help practitioners in communicating their user research results. Many of these guidelines are even more successful when practitioners have knowledge about information design. Besides the books and papers referred to in this chapter, these books and articles provide valuable theories and guidelines in the field of information design.

– McCloud, S. (1994) Understanding Comics: the invisible art. New York: HarperCollins.

– McCloud, S. (2006) Storytelling secrets of comics, manga and graphic novels. New York: HarperCollins.

Both these books of McCloud provide many tips and tricks and underlying theory of storytelling and making cartoons.

– Lidwell et al. (2003) Universal Principles of Design. Massachusetts: Rockport Publisher. This book explains in great detail many universal principles in graphic and information design.

– Tufte, E.R. (1997) Visual Explanations: Quantities, evidence and narrative. Connecticut: Graphics Press. This books provides much information about visualing information by e.g., diagrams.

– www.mapwizard.nl
This website shows the work of Klaas van der Veen, who is an expert on information design. He explores the possiblities in information design and cartography, resulting in strong visuals, which allow uncompleteness and ambiguous elements to survive.

– Meyer, A.D. (1991) Visual data in organizational research. Organization science 2(2), 218–236. This paper describes the benefits of visual data in relation to textual data. It provides theories drawn from cognitive psychology, neurophysiology, linguistics, and artifical intelligence about how data can be perceived.

8

Looking back on my journey

This research project has been an exciting journey. In this chapter I reflect on the research project as a whole: First on the research aims as stated in the introduction, then on the research approach. In the third section, I propose directions for further research and in the last section I conclude with a personal note.

8.1 REFLECTION ON RESEARCH AIMS

In chapter 1, two aims of this research project were stated, distinguishing a knowledge aim and a design aim. But here I add a third, societal, aim: the implementation in education.

8.1.1 Knowledge aim

The aim was to develop knowledge about communicating rich experience information in design. I have built a framework, and filled this with the findings of explorative case studies in collaboration with companies. In this framework, I organised relevant elements of successful communication, such as the means, mechanisms and aims. Some of its ingredients (e.g. empathy), had been mentioned, even emphasised, in the design literature before, but were not yet structurally made explicit, or connected to mechanisms and operational means. The framework has unfolded the processes that can take place when setting up means by which to achieve the aims of successful communication of rich experience information in design. The resulting knowledge can be employed to inform and inspire designers about user experiences in everyday life.

Direct involvement of users

This project addressed a theoretical aim of the user-centred design methodology (giving users a place in the design process) but was embedded in design practice). Conducting the studies in daily industrial practice brought in a load of practical and pragmatic issues with organisational, cultural and communication barriers. By choosing for practice, I wilfully did not follow the main advice given in the literature: involving the designers in direct contact with the users. Still, this principle came back, albeit less strongly, in many of the mechanisms and means. For example two of the guidelines, 'sensitizing designers' and 'making communication participatory', suggest involving designers in user research activities, but not necessarily by direct contact. Sensitizing designers aims at increasing the designers' awareness about the user experiences by providing little snippets of the data days to weeks before they start to work with the information. This allows them to get acquainted with (some of) the users. Involving designers in sense making activities, by making communication tools participatory, supports designers in creating a deep understanding of the information, instead of passively receiving information. Both these guidelines support designers to get closer to the users, but take into account that designers often do not currently conduct the user research themselves in many companies.

Company specific case studies

In the eight studies, a wide variety of products, situations, designers and other stakeholders were involved. The settings were company specific and cannot easily be compared one to one. There was the small design firm consisting of six designers (study 5), and the large multinational telecom company (study 8). There were companies creating fast-moving consumer goods, high-tech consumer goods, services, etc. The case studies showed great variability among individual designers and stakeholders, each with their own attitudes, skills, and specialisation. Yet from the several studies, a general picture does emerge, which is captured in the framework.

Relevance of knowledge
I expect that the gained knowledge in this thesis is relevant for a large group of companies. Below I discuss the relevance of the knowledge for companies that are more or less experienced in user-centred design and whether the findings in this thesis are representative of global companies (since the participating companies were all based in The Netherlands).

Companies with different degrees of expertise in user-centred design
For most of the participating companies in the studies it was rather new to implement user-centred design methods in the fuzzy front end. This helped to acquire cases (most had heard of involving users, and were open to trying this out), but this also meant that they had little experience with the subject or with its content, or of knowing how to use it in idea generation and concept development. This provided opportunities to investigate the communication problem in all its facets of real practice. At the same time, their participation in this research project helped *them* in applying the rich experience information gathered by research methods; know-how to which they had no other way of access. Design literature and handbooks have described ways to collect rich experience information, but rarely address ways to make use of the information. For the more experienced companies in user-centred design, I expect that the knowledge in this thesis supports them in making more effective and efficient use of the user information they collect. They may recognize the mechanisms in the framework, but for them insight into the relations between the means, mechanisms and the aims are most likely new. For them the systematic investigation of the communication problem in this thesis can help them understand and improve their own practices.

The Dutch situation and the global situation
The generalization of the findings may be limited by the fact that the empirica studies all took place in the Netherlands, and that it therefore reflects the current state of Dutch industry rather than a global perspective. This may be less of a problem if we consider that most of the participating companies are internationally orientated companies (the participating designers and stakeholders had several different nationalities, and some were located in Germany, England and France). Rather, the question may be whether the participating companies represent other companies regarding their need for knowledge about implementing rich experience information. Based on discussions with international fellow researchers, designers in industrial practice, and on the report of Wakeford (2004), who presented an overview of the developments in user-centred practice of leading US firms, I would say that the participating companies are representative state-of-the-art in industry: a large group of companies is only starting to explore more user-centred methods within their practice. In Scandinavia there is a large academic movement with a focus on user-centred design innovation, and their publications address similar issues to those addressed in this thesis.

There are, however, two issues that may limit the relevance of the findings in this thesis: one is the period of change in which this research project took place. The other is that the findings are based on generated rich experience data by only one method, which was contextmapping.

– **Time issue: in the middle of a shift**
  This research project took place between 2004-2008, a period in which companies showed a growing interest in investing in user-centred methods in the

fuzzy front end of the design process. In 2004, I had difficulty in getting companies to participate in a study. In 2008, I had to refuse several requests from industries. My research project took place in the middle of these developments.

By 2008, companies in the Netherlands are already much more willing to invest in user-centred design methods and are paying attention to making deliverables more inspiring. For example, some of the interviewed companies in chapter 2 have been changing their practice in this direction: one market research firm (M2) started to promote the use of video reports and visual forms (such as info graphics) as a distinctive feature of their services for communicating research results to their clients since 2008. Another market research firm (M1) started collaborating with a design firm (D2) to structurally combine consumer insights and design. These developments show that there is a lot of movement in the issues addressed in this thesis. Companies are becoming more interested in and open to user research for inspiration, rather than only user research for validation, resulting in a more open attitude towards users and different ways of representing the findings of user studies.

I sometimes questioned myself if my findings would be different if this research project were to take place in the next five years. I expect that it will be much easier to get companies to participate in the case studies, because they are more receptive towards user research for inspiration. Therefore, I also expect that the acceptance of more creative and participative tools (for example the Action posters from study 7 with the raw data elements) to represent and communicate the user information will be higher. Studies that will investigate the *engagement* of designers and stakeholders with the information will reveal more details than was the case in my research project. However, the findings about underlying principles and mechanisms for the other two qualities (empathy and inspiration) are more universal (for example *imagination* is a universal mechanism for supporting *empathy* and *inspiration*). Concluding, I expect that the elements and their relations in the framework are not specifically time bound.

– **Contextmapping and other methods**

Another limitation in this research project is the use of a single method of gathering user data: contextmapping. There are several other ways to collect rich experience information, e.g. in-depth interviews, observations, ethnographic methods. I chose to use this method to generate the rich experience information for two reasons: one is that this method delivers varied and rich elements about people's everyday experiences. The resulting data consists of photos, videos, anecdotes, and artefacts, which are representative elements to some degree for generated data by other methods as well; the second reason is that I already had much experience with this method, and it was a pragmatic choice to apply this method in the studies. I would have liked, for example, to explore more with data on video, generated by observational research. Video materials can contain much richness about the experiences of people and provide plenty of context, but I also had to finish this research project in a specific period and had less experience in other user research methods. Concluding, for this research project contextmapping has definitely served as a sufficient method, since it generated rich experience data and could be easily generated, but data generated by other methods could have opened up other challenges.

8.1.2 Design aim

The second aim of this research project was to provide methods and tools to be applied by practitioners in design practice. Based on the insights from the frame-

work and learning experiences during conducting the studies, I developed a set of guidelines to support practitioners to put the theory of this thesis into practice (chapter 7: tips and tricks for user researchers). These guidelines comprise practical aspects, such as '*find out what the needs of the receivers are*', as well as fundamental aspects such as '*show suggestive leads towards interpretations in the information*' which is related to mechanisms in the theoretical framework. Chapter 7 provides several illustrations of tools created in this research project, but also from other similar projects, to give tips, tricks and examples to apply the guidelines. Moreover, I have continuously shared my insights with practitioners and students during the research project by conducting the studies in close collaboration with companies, by giving several presentations and workshops, and by the presence of the created tools, which serve as carriers of this knowledge.

8.1.3 Implementation in education

An additional aim of this research project was to directly infuse the findings in education and in practice, and in this way prepare the new generation of designers with appropriate skills and knowledge. There is a growing need for designers with research skills, and researchers with design skills, who can bridge the two domains, and can implement rich experience information in the design process in an effective way. In several workshops and courses, the findings from this project have been brought into design education (see table 8.1). In 2006, the first generation of students graduated with contextmapping skills and has easily found jobs in which they can spread their skills and knowledge within the companies. The number of requests from companies for graduate students with such skills has been rising substantially in the last three years.

There is however also a critical issue here. Contextmapping was brought to the educational programme while it was still in development. The advantage is that we learn from the questions and solutions of the students, and what we learn from collaborating in practice is immediately fed back to the students.

The disadvantage is that the teaching of the method was not consolidated enough and we have seen several examples of students not using the method as intended. Students get an introduction of contextmapping in the Master course Context & Conceptualisation. If they want to apply the method in their design projects (such as graduation projects), they are supervised by us to set up the contextmapping study. But the method soon became very popular among large groups of students, and many of them used this method in other design projects, and we could not

Table 8.1 Sharing my findings with practitioners and students has been a substantial part of this research project

At Delft Technical University, faculty of Industrial Design Engineering in the courses:	Context & Conceptualisation and in the elective course RichViz! (we have published about this in Stappers and Sleeswijk, 2007; Stappers et al., 2007a; Stappers et al., 2007b; van der Lugt, 2008).
Several workshops and guest lectures at other education and professional institutions:	Faculty of Architecture, TU Delft, Human Technology Schools in The Hague (2008) and Groningen (2004-present), Cultureel Maatschappelijke Vorming at Rotterdam (2007), Design Academy Kuopio Finland (2006), National Taiwan University (NTUST)(2008). (Kivi contextmapping Masterclass (TU Delft, NL)(2004), Creatief met de eindgebruiker Masterclass (Hogeschool Utrecht, NL)(2008), and JIDPO (Tokyo)(2008).

support all of them. This is the danger of putting methods into practice, while still developing them. The method might appeal to many students because of the creative elements that are part of it (e.g. creating sensitizing packages), but it also has critical points. One is that it is a time consuming method. The other critical point is that the goal should be very clear to collect such information in order to be worth investing time in it. Many students use the method without formulating clear goals to use the resulting information, spend weeks on collecting rich data, and end up with a delay in their project and a low quality of the findings they generated, which are of little use in their design activities.
Although we appreciated the wave of enthusiasm from the students, it is now time to refine this method, and education should put efforts into updating the courses. I have two suggestions: in the Master course Context and Conceptualisation students should get an introduction about several user research methods to get insight into the everyday contexts of users, so that they do not get the idea that this is *the* method; secondly, more emphasis should be placed on the purpose for applying this method. If students become more critical, besides their enthusiasm, of the exact reason for choosing to apply this method in their design process, the results of their contextmapping studies will have more quality.
Furthermore, I might suggest in this thesis that all designers should learn to conduct research and vice versa, but I truly believe that there are many designers who have core qualities in other design specialities, such as conceptualizing, form-giving, detailing. Although, the shift towards more user-centred design requires a new generation of designers with design and research skills, this does not at all imply that the other qualities of industrial designers are less relevant. Now there is a need for more user research specialists, but not all designers should move in here. If all designers were excellent only in combining social science and creativity skills, we would lose all the excellent designers who are great in detailing and form-giving!

8.2 REFLECTION ON RESEARCH APPROACH

I took a rather special and complex approach in this research project by having the multiple roles of a researcher, a user researcher and a designer. It has been an explorative, designerly-driven and systematic approach to the problem, in which I looked from different perspectives at the problem. The advantage of this approach is that it allowed me to research the 'live' phenomenon in context, addressing a variety of factors that can play a role. The result is a wide exploration of the phenomenon and how it unfolds in the context of design practice. This has given a realistic view on the phenomenon in question. There are, however, a few critical aspects which I experienced in applying this approach:

In a broad exploration it is difficult to know how deep to go
Addressing several disciplines more or less in depth has been an essential part of this approach, in order to build the knowledge from different perspectives. A difficult part of this approach, however, is that a broad exploration addresses several disciplines, with the limitation of going deep into each of these disciplines. Most of the literature addressed in this thesis comes from the design research discipline, but I have touched on topics that address psychology (empathy), creativity theory (inspiration), organisation management (engagement), information design (communication) and design methodology (design activities) as well (see figure 8.1). I had difficulty in choosing how far to go in all these related disciplines during the research project. For example, I dived deeper into psychology, to learn about empathy, and less into e.g. organizational literature, but I was not sure if this choice was right.

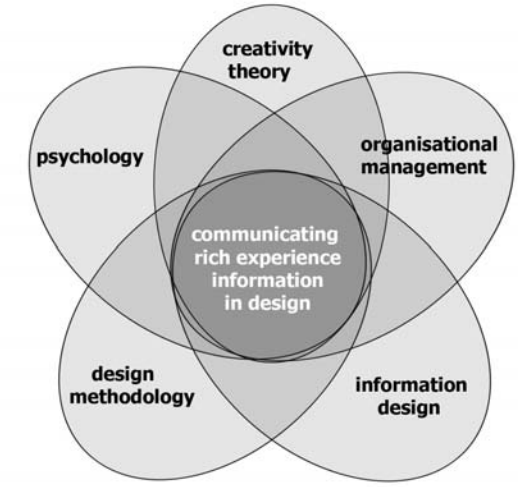


Figure 8.1 Related disciplines of the topic.

Keeping the different roles in balance
Another critical aspect of my approach concerns the different roles I played, especially in the case studies. My presence in itself constituted an intervention that affected local (power) dynamics. By positioning myself as a user researcher and becoming a member of a company team, it was sometimes difficult to keep my main aims clear. For example, in study 8, I think that my role as user researcher has overruled my role as researcher of the communication phenomenon. For instance, by sending many emails to the stakeholders from the user researcher's role (updates of the webtool), the stakeholders might have thought that the project belonged to me, instead of an internal team at R&D. As a result, I was not able to conduct interviews afterwards, because this team did not find it appropriate to spam the stakeholders more at the end of the project. As a result I have not been able to collect much data about their developments of engagement.

Permission to publish
Conducting research with companies has the advantage of observing real design practice, but has the disadvantage of constraints for publishing my observations. In several studies I took photos or video recorded idea generation workshops, but since the generated product ideas are confidential I could not show this to others. Another issue is that I promote 'showing real individual people' in communicating user information, and that I did not always (especially in the first studies) have permission to show the users' names and pictures. As a result, I often spent quite some time to anonymizing the users who are clearly presented in most of the communication tools I created. In the last two studies, where I follow a team of stakeholders, much of the data I collected is about these individual team members. For example, they also appear with their faces on the webtool and had to replace the photos of the stakeholders by photos of other people to be able to publish this thesis (study 7 and 8).

Concluding: I believe that this approach has the potential to investigate a topic which is in development, provides many opportunities for exploration and connects to several disciplines, but my learning lessons are
- I would frame the literature study better at the beginning of a research project; particularly when choosing which disciplines I would (not) study in depth.
- I would be more aware of the conflicting roles.
- I would be more aware of the constraints of publishing when the data (user data and my research data) shows the individuals involved.

8.3 RECOMMENDATIONS FOR FURTHER RESEARCH

This research project has introduced the phenomenon of rich experience information and has revealed many different aspects. There are however many aspects which could be given further consideration. Below I list a few which merit further research.

- **Small and medium enterprises**
  Although one small design firm participated in the studies (study 6), the majority of the participating companies were large multinational corporations.

The small design firms, especially, expressed the need for more pragmatic knowledge of user-centred design methods. Christine de Lille started her PhD project a year ago at the StudioLab, which focuses on user research methods for small and medium enterprises.

- **Making rich experience information useful after idea generation**
  Although, I focused on communication tools for use in the fuzzy front end, I noticed that it attention needs to be paid at communication tools after conceptualization. In the studies, it has been hard to create tools that keep on being used over a longer period of time. There have been moments in workshops (especially in study 5) that idea generation creates many ideas, but that there is no structure yet to consolidate the emerging ideas the designers get and discuss. In study 7 the designers asked for an additional workshop to work out the many ideas that were popping up. Although the lead-in process of sensitizing worked very well, the lead-out of leaving traces in the company organisation has failed several times. Further research could focus on innovative ways to maintain the rich experience information as useful input after an initial idea generation. During refining of concepts, early prototyping, and concept testing, this information could be valuable as well.
- **Possibilities of new media tools**
  The tools I have created made limited use of new media technologies. This was a conscious choice, since new media offer many possibilities, but creating them is time-intensive. My focus could then have shifted to making tools instead of doing research. However, the two webtools used in the last two studies show much potential for communicating rich experience information. Further research could focus on sharing rich experience information with new media tools.
- **Empathy process**
  Based on psychological literature I developed a four-step process for achieving empathy. This process was applied in study 6 during a workshop and supported the designers in achieving empathy. This process could be extended to include other design techniques, e.g. role playing, experiential prototyping, etc. Further research could focus on an investigation of mapping this empathy process in design techniques.

Personal note

I started this research project because I wanted to investigate how information about everyday experiences can be useful for designers in their design activities. The key players in my research project were the designers: designers who design beautiful and useful products that enhance the everyday lives of people. On an evening in the last week of writing the manuscript I realised that the key players in my thesis actually changed from the designers to the user researchers. I printed out all chapters and browsed through the chapters. The studies are filled with designers' work, but the guidelines are written for user researchers! When I realised this, I felt slightly disappointed because my intention was to focus this research project on the practice of designers. It was not my intention in the beginning of this research project to end with a set of design guidelines for user researchers. I created the guidelines for the user researchers, because they are in charge of communicating rich experience information in such a way that it is useful and inspiring for designers. By focussing on the senders' role I could be explicit about what they can do to satisfy designers. In the end it is not so strange that the user researchers became the key players. It is more than likely that the people in the senders' role are trained as designers or at least familiar with the design profession.

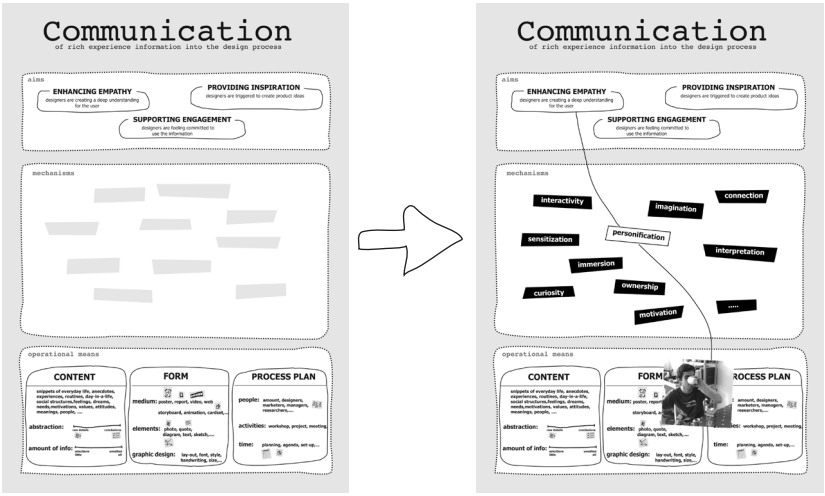
Summary

Products play a role in our everyday lives. There is a growing awareness that insight into the experiences of people in their everyday lives is of great use for designing products, especially in the early phases of the design process where new product ideas are generated. The main question in this thesis is 'how can rich experience information be communicated to designers?'. The aims are that designers are informed and inspired to create products that fit and enhance the lives of people.
Rich experience information is about the experiences people have in their everyday lives. This includes a variety of aspects of the context of use (physical and social situation, moment of the day, culture etc.), and the user's state (excited, tired, concentrated etc.). 'Rich' refers to the diverse and multi-layered character of the information. Take for example the shaving experiences that men have. The electric razor or the blades play a limited role in the experiences of shaving. The experiences are influenced by many other aspects: it can take place in the bathroom environment, under bright light, where moisture creates a veil on the mirror. The shaver's partner might want to use the mirror as well, and could complain about the little hairs left in the sink. The shaver actually is often postponing the shaving, until he has to, and then must do it in a hurry. He actually enjoys shaving much more when he is on holiday. Then he shaves wet, takes more time for it, and feels like taking more care of himself.
For designers, insight in this kind of aspects that infuence the users' experiences (in this example of shaving) helps them to imagine in what contexts the product to be designed will be used.
For many companies, gathering and collecting this type of information in the fuzzy front end of the product development process is new. In the last ten years, several methods have been developed to gather this type of information, such as cultural probes, generative techniques and applied ethnography. These methods often make use of various tools and techniques (e.g. diaries, photo cameras), which people can use to document their everyday lives. In observations, open-ended interviews and generative group sessions their experiences are further explored.

In academia, design students are taught all aspects of the design process. A design students starts with collecting information for the design problem, and might go into the field to conduct a user study himself as a preparation for idea generation.
In industrial practice, this is a different story. A designer has a much smaller set of tasks, e.g. idea generation, conceptualisation. Gathering information about users is often performed by other specialists, such as marketers, strategists, user research consultants. As a result, the information that designers receive is often represented in a report full of diagrams and bullet lists showing only the abstract end conclusions of the research. Although this information is useful, it does not convey the richness of the information and insight in the users' experiences. New communication tools are needed to convey the richness as well.
In short, rich experience information, as inspirational input for the design process, is a recent development. It is rather unknown how designers can use this information fruitfully in designing. There is a lack of knowledge about which elements play a role in communicating this information with designers as well as a lack of practical guidelines for creating communication tools for the content, form and process.
In this research project I investigated the current situation in design practice, designed tools to communicate this type of information, and created a frame-

work to organise the elements which play a role in this communication. The thesis is structured around the development of this framework: chapter 3 presents the scaffolding of the framework, based on a literature review and on interviews with practitioners (chapter 2). This framework is filled in by a set of case studies (chapter 5). Chapter 6 discusses the developed framework and presents a set of guidelines for practitioners. Chapter 4 describes the research approach for the studies. Chapter 7 presents tips and tricks for these guidelines and chapter 8 reflects on the aims, methods and results of this research project.

The framework consists of three fields to organise the elements (see figure). The top field contains the aims of successful communication. The bottom field contains the means that can be applied. These means are subdivided in content, form and process. In this bottom field the user researcher makes concrete choices for the communication. The middle field contains mechanisms, which connect the means with the intended aims.



The framework has three fields: (from top to bottom) the aims, mechanisms and means. In the empirical studies the mechanisms in the middle field are identified and explored. The picture on the right shows one mechanism linking means and aim.

The three aims in the top field are:
– **Empathy**: supporting designers to empathise with the users
– **Inspiration**: supporting designers to get inspired to create product ideas
– **Engagement**: supporting designers to interact with the information

In this research project I filled in the middle field with mechanisms which link choices of means on the bottom field with aims on the top field. In design literature several recommendations were given to achieve one or more of these aims, but insight was missing how choices, made in the means level, affect these aims. For example; when a designer wants to achieve empathy with the user, he or she must be able to imagine that particular user, and to connect on an emotional level. The mechanism 'personification' is a process by which designers can relate to individual users. Representing the user by a photo is one of the means to support this. The figure shows this connection by a line from the photo, through personification, to empathy. In the studies, several of these mechanisms and their relations with elements in the top and bottom field are explored.
In total eight studies were conducted. In the first three studies, design students took part in idea generation sessions, using different tools that represented rich experience information. These studies focused on finding which elements in

these tools inspired them and supported them in achieving empathy. In the next three studies I explored the use of various tools in idea generation sessions with designers in practice (a small design firm, a design department of a large company and a research department from a large company).
During these studies I realised that designers had a much smaller set of tasks than what I thought and that this type of information should also be useful for other people besides designers, such as marketers, engineers, managers etc. Therefore the last two studies took place in practice over a longer period of time (weeks to months) in collaboration with two product development companies. I observed and intervened in their practice how the communication process could be facilitated within multidisciplinary teams.
The results of the studies are the identified mechanisms and their relations with the qualities and means and a deepening of the terms in the framework. Based on this framework I developed five guidelines for user researchers:

1. **Making a good communication plan**
   When setting up a communication plan, researchers easily overlook the needs and purposes of the designers who receive the information. Rich experience information requires different forms of documentation, representation and delivery, which are not part of current practice. Insight in who wants the information for what and when helps to choose where to put the emphasis (e.g. empathy, inspiration and engagement or all together) and accordingly choosing what content, form and process to apply.
2. **Representing real individual people**
   Explicit references to real, individual people support designers to understand the experiences. 'Real', because users are not hypothetical stereotypes, but people living their everyday lives like you and me in all their shades and nuances. 'Individual' because rich experience information contains experiences that belong to individual people. Representations of the actual users trigger the mind's powerful ability to extrapolate from partial knowledge of people and to create coherent wholes and project them into new settings and situations. Glimpses of users' lives can satisfy our curiosity and stimulate our imagination. The subjective ability of making empathic inferences about the users is part of a creative act, which can support the creative design activity. Moreover, the individual users can serve as anchor points in the data set.
3. **Sensitizing designers**
   Sensitizing is a process of making people sensitive for an area of experiences (e.g. shaving). In the preparation leading up to a workshop, designers can already be provided with little snippets of information. This can already trigger designers to get a notion of and get curious and aware about the users and their experiences. Sensitizing involves the process of communication over time. It concerns the planning and timing of the communication plan, and creating space for immersion in the users' experiences.
4. **Addressing the designers' own experiences**
   Experiences can be best understood by experiencing them subjectively. When designers are stimulated to become more aware of their own experiences, they are better able to connect with and relate to the users' experiences. Moreover, by becoming aware what is the same and what is different in the users' experiences and the designers' experiences, designers are able to better understand for whom they are designing.
5. **Making communication participatory**
   This multi-layered information does not flourish in formal textual reports. Insight into the users' experiences can only be gained if designers become ac-

tive recipients of the information, and understand what is between the lines. Designers can be invited to create their own insights relevant for their idea generation by taking them along (a part of) the interpretation process and by using unfinished, open-ended aesthetics. The communication tools can serve this process by providing a combination of raw data elements and interpretations simultaneously. Suggestive leads towards interpretations help designers in this interpretation process.

The framework has unfolded the processes that can take place when deploying means to achieve the aims of enhancing empathy, getting inspired and being engaged with rich experience information. These guidelines support user researchers to successfully communicate rich experience information to designers. In this way the sense making process can be supported in situations where designers and users do not meet, which is often the case in industrial practice.

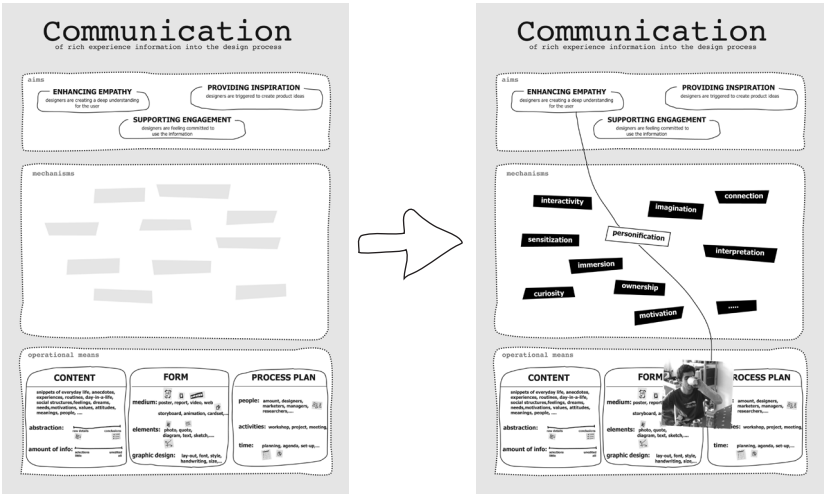
Samenvatting

Producten spelen een rol in ons dagelijks leven. Er is een groeiend besef dat inzicht in de alledaagse belevingen van mensen van groot nut is bij productontwikkeling. Dit speelt vooral in de vroege fase van het ontwerpproces, waar nieuwe product ideeën worden ontwikkeld. De kernvraag in dit proefschrift luidt 'Hoe kan belevingsinformatie aan ontwerpers worden overgedragen?', met als doel ontwerpers te informeren en inspireren om producten te ontwerpen die passen in de context waar hun product uiteindelijk gebruikt gaat worden.
Belevingsinformatie gaat over wat mensen in hun dagelijkse leven meemaken en wat ze daarbij voelen. Het omvat een variëteit aan aspecten van de context en de toestand (is deze blij, moe, geconcentreerd etc.) van de betreffende persoon, die een rol spelen bij hoe hij of zij een product of situatie beleeft. Context aspecten kunnen bijvoorbeeld de locatie, sociale situatie, tijd, cultuur etc. zijn. Deze informatie bestaat uit meerdere lagen, en bevat een veelheid van elementen.
Neem bijvoorbeeld de vraag hoe mannen het beleven om zich te scheren. Het scheerapparaat of mesje zelf speelt maar een beperkte rol in die beleving. De beleving wordt mede bepaald door allerlei andere aspecten: scheren kan plaatsvinden in een vochtige, hel verlichte badkamer, met een beslagen spiegel. Zijn partner wil de spiegel tegelijkertijd gebruiken, en zeurt over de viezige scheerresten in de wasbak. Hij stelt eigenlijk het scheren net te lang uit, totdat het weer moet, en dan doet hij het haastig. Deze persoon vindt scheren op vakantie bijvoorbeeld wel leuk, neemt er dan meer tijd voor, en geeft hem het gevoel dat hij goed voor zichzelf zorgt.
Veel ontwerpers hebben baat bij dit soort fragmenten om zich de context van het gebruik in te beelden. Het inspireert hen op een andere manier dan bijvoorbeeld de zakelijke mededeling dat de gemiddelde natscheerder 3,4 mesjes per maand koopt.
Voor veel bedrijven is het verzamelen en toepassen van belevingsinformatie in de vroege fase van het ontwerpproces nieuw. In de laatste 10 jaar is een reeks aan methoden ontwikkeld waarmee dit soort informatie kan worden verzameld, zoals cultural probes, generatieve technieken en toegepaste etnografie. Deze methoden maken veel gebruik van tools en technieken waarmee mensen hun alledaagse belevingen in kaart kunnen brengen (bijvoorbeeld door ze een dagboekje of een camera te geven). Tijdens observaties, open interviews en generatieve groepsessies wordt dan verder in hun belevingen gedoken.

Een ontwerper in opleiding leert alle facetten van het ontwerpproces. Hij of zij gaat gewoonlijk zelf op zoek naar relevante informatie. Voor belevingsaspecten kan een van zijn zoektochten een zelf uitgevoerd belevingsonderzoek in het veld zijn.
In de industriële praktijk gaat dit doorgaans heel anders. Hier heeft de ontwerper nauw afgebakende taken zoals product ideeën ontwikkelen en conceptualiseren. Het verzamelen van informatie over de gebruikers wordt vaak door andere afdelingen of zelfs extern uitgevoerd (marketeers en gebruikersonderzoekers). Het gevolg hiervan is dat de informatie, die deze ontwerpers krijgen aangeboden, vaak al door en door geanalyseerd en geïnterpreteerd is , en daarom weinig tot de verbeelding van de ontwerpers spreekt. De resultaten zijn vaak abstracte eindconclusies, die worden gepresenteerd in rapporten vol met diagrammen en bullet-lijstjes. Dit soort overdrachtsvormen zijn zodanig zijn opgesteld dat het niet de rijkheid van de belevingsinformatie kan overdragen. Om juist deze rijkheid goed over te brengen zijn andere vormen van weergave nodig, en andere wijzen van overdragen.
De aandacht voor belevingsinformatie als inspiratiebron voor ontwerpen is een recente ontwikkeling. Er is een gebrek aan kennis over hoe het overdragen van belevingsinformatie aan ontwerpers in zijn werk gaat of kan gaan. Ontwerpers

en onderzoekers in de praktijk hebben behoefte aan praktische richtlijnen om bevindingen over belevingen van gebruikers succesvol te kunnen overbrengen en gebruiken. Zowel wat betreft inhoud, vorm, als proces van overdragen bestaat behoefte aan inzicht en vernieuwing.
In dit promotieproject heb ik naast onderzoek naar de stand van zaken in de bestaande ontwerppraktijk, tools ontworpen om belevingen over te dragen, en een model opgezet om de verschillende elementen die bij de overdracht komen kijken te kunnen plaatsen en ordenen. Dit proefschrift is rond het ontwerpen van dit model opgebouwd: hoofdstuk 3 beschrijft de opzet van het model, opgesteld op basis van een literatuur studie en interviews met mensen uit de praktijk (hoofdstuk 2). Het model wordt verder gevuld met de bevindingen uit een reeks case studies, die in hoofdstuk 5 beschreven worden. In hoofdstuk 6 presenteer ik de algehele bevindingen in de vorm van een ingevuld model, en een set richtlijnen voor de praktijk. Hoofdstuk 4 beschrijft de onderzoeksaanpak die hierbij gebruikt is. Hoofdstuk 7 geeft 'tips & tricks' die uit de richtlijnen voorkomen. Tenslotte reflecteer ik in hoofdstuk 8 op de doelen, methoden, en resultaten van het project.

Het model onderscheidt drie velden boven elkaar (zie de figuur). Het bovenste veld bevat de doelen die nagestreefd worden bij de overdracht van belevingsinformatie. Het onderste veld bevat de middelen die daartoe ingezet kunnen worden. Deze middelen zijn onderverdeeld in de inhoud, de vorm en het proces. Dit is het niveau waarop de onderzoeker concrete keuzes maakt voor elementen in de opbouw van de overdracht. Het middelste veld bevat mechanismen waarmee een brug wordt geslagen tussen (meerdere) elementen op de bovenste en onderste niveaus.



Het model bestaat uit drie velden: van boven naar beneden: doelen, mechanismen, en middelen. In de case studies zijn de mechanismen geïdentificeerd en verkend. De figuur rechts geeft aan hoe één zo'n mechanisme een verbinding legt tussen doel en middel.

De drie doelen in het bovenste veld zijn:
- **Inleving (empathie)**: ontwerpers ondersteunen om zich in te kunnen leven in de gebruikers
- **Inspiratie**: ontwerpers inspireren bij het creëren van product ideeën
- **Betrokkenheid**: ontwerpers betrekken in de manier waarop de informatie wordt overgedragen

De design literatuur vermeldt weliswaar adviezen om één of meer van deze doelen aan te spreken, maar niet hoe keuzes in de inhoud, vorm en proces hieraan bijdragen. Wat mist is een invulling van de mechanismen in het middenveld, die doelen en middelen met elkaar in verband brengt. In de studies heb ik een aantal mid-

delen ontwikkeld, mechanismen geïdentificeerd en geëxploreerd, en het begrip over de doelen uitgediept.
Het mechanisme 'personificatie' is een voorbeeld van een invulling van het middenveld. Wil een ontwerper empathie ondervinden met een gebruiker, dan moet hij of zij zich die persoon kunnen voorstellen, en ook emotioneel een verbinding kunnen leggen. Personificatie is het expliciet aangeven dat onderzoeksgegevens verbonden zijn aan een individu. Middelen die hierbij helpen zijn een foto van dat individu, of zijn naam. Deze elementen helpen de ontwerper zich een beeld te vormen van de persoon bij wie de belevingen horen. In de figuur rechts is het verband foto-personificatie-empathie aangegeven. In de studies zijn verscheidene mechanismen en hun relaties met de elementen uit het bovenste en onderste veld verkend.

In totaal zijn acht case studies uitgevoerd. In de eerste drie studies hebben ontwerpstudenten ideeën gegenereerd met behulp van verschillende tools die belevingsinformatie representeren. Hierin heb ik vooral bestudeerd in hoeverre deze tools hen inspireerden en ondersteunden bij hun inlevingsvermogen. In de volgende drie studies heb ik ideegeneratie sessies georganiseerd met ontwerpers van productontwikkelingbedrijven (een klein ontwerpbureau, een ontwerp afdeling van een groot bedrijf, en een research afdeling van een groot bedrijf). Hier heb ik vooral gekeken hoe zij gebruik maakten van de verschillende tools.
Gedurende de studies bleek steeds meer dat ontwerpers een redelijk nauwe taak binnen het ontwerp proces hebben, en dat andere betrokkenen zoals marketeers, ingenieurs and managers ook gebaat zijn bij het ontvangen van belevingsinformatie in de vroege fase van het ontwerpproces. Daarom heb ik tenslotte twee case studies verricht in een werkelijke bedrijfscontext. Bij beide studies heb ik gekeken naar hoe ontwerpers en deze andere betrokkenen gebaat zijn bij dit soort informatie en hoe de tools zouden kunnen passen in hun werkprocessen. In deze studies werd het ontwerpproces over enkele maanden heen gevolgd.
Het resultaat van de studies is een model dat de mechanismen, middelen en doelen toont en met elkaar in een verband brengt, en zo inzicht geeft in het overdrachtsproces. Vanuit deze kennis zijn vijf richtlijnen ontwikkeld:

1. **Maak een overdrachtsplan**
   Vaak wordt bij het opzetten van een gebruikersonderzoek niet goed stil gestaan bij de mensen die de informatie uiteindelijk zullen gebruiken. Belevingsinformatie vereist andere vormen van documentatie, presentatie en overdracht dan gebruikelijke vormen. Inzicht in wie welke informatie wanneer nodig heeft, helpt bij het kiezen welk van de drie doelen van overdracht het meeste aandacht nodig heeft, en welke middelen hiervoor ingezet kunnen worden.
2. **Laat de echte individuele mensen zien**
   Expliciete referenties in de informatie naar echte individuele mensen helpt ontwerpers zich in te leven in de gebruikers. 'Echt' omdat gebruikers geen hypothetische stereotypes zijn, maar gewoon alledaagse mensen. 'Individueel', omdat belevingen toebehoren aan individuele mensen. Representaties van de echte gebruiker stimuleert het vermogen van de ontwerper om te kunnen extrapoleren vanuit klein stukjes kennis over deze mensen naar een coherent geheel en dit te projecteren in nieuwe situaties. Een korte blik in het leven van gebruikers kan onze nieuwsgierigheid bevredigen en onze verbeelding stimuleren. Het subjectieve vermogen om empathische interpretaties te maken over de gebruikers is deel van een creatief proces, wat het ontwerp proces kan ondersteunen. Bovendien kunnen de representaties van individuele gebruikers als kapstok dienen in de dataset.
3. **Maak ontwerpers ontvankelijk voor informatie**
   In de aanloop naar een workshop is het belangrijk om de ontwerpers ontvan-

kelijk te maken voor de belevingen rond een bepaald onderwerp (bijvoorbeeld scheren). Door ontwerpers van te voren van kleine stukjes informatie te voorzien kan hun nieuwsgierigheid naar en bewustwording van de gebruikers en hun belevingen, worden opgewekt. Met een dergelijke voorbereiding zullen ontwerpers zich tijdens de workshop beter kunnen verdiepen in de beleving. Een goede planning en timing zijn hierbij een vereiste.

4. **Spreek de ontwerper aan op zijn eigen belevingen**
   Belevingen kunnen het beste begrepen worden vanuit de eigen, subjectieve, beleving. Indien ontwerpers worden gestimuleerd om zich bewust te worden van hun eigen beleving, zijn zij beter in staat om contact te maken met, en aan te sluiten bij, de belevingen van gebruikers. Bewustwording van de overeenkomsten en verschillen van belevingen van ontwerpers en gebruikers stelt de ontwerpers nog meer in staat om te begrijpen voor wie ze eigenlijk ontwerpen.
5. **Maak de ontwerper deelgenoot van de informatieoverdracht**
   De rijkheid van belevingsinformatie past niet goed in formele rapporten met voltooide, gesloten boodschappen die de ontwerper passief ontvangt. Pas als ontwerpers actief betrokken worden bij de informatieoverdracht en begrijpen wat er tussen de regels staat, kunnen zij inzicht krijgen in de gebruikersbelevingen. Ontwerpers kunnen worden uitgenodigd om hun eigen inzichten te creëren, die belangrijk zijn voor het genereren van hun ideeën. Dit gebeurt door hen (deels) mee te nemen in het interpretatieproces en gebruik te maken van onafgemaakte, open vormgeving. Een voorbeeld hiervan is een poster, die geclusterde data fragmenten toont, waarvoor de ontwerpers zelf nog de beschrijving van de thema's moeten formuleren. De tools voor informatieoverdracht kunnen dit proces faciliteren door het aanbieden van een combinatie van ruwe data en de interpretaties ervan. Met suggesties worden de ontwerpers dan begeleid naar een interpretatie die zowel recht doet aan de gebruiker, als aan de werkstijl van de ontwerper.

Deze richtlijnen ondersteunen gebruikersonderzoekers om te zorgen dat belevingsinformatie op succesvolle wijze kan worden gedeeld worden met ontwerpers. Op deze wijze kan een belangrijk onderdeel van ontwerpen ondersteund worden in situaties waar ontwerpers en gebruikers elkaar niet daadwerkelijk ontmoeten, wat meestal het geval is in de industriële praktijk.

References

A

Ackoff, R.L. (1989) From Data to Wisdom, Journal of Applied Systems Analysis, 16, 3–9.

Adams, M.E., Day, G.S., Dougherty, D. (1998) Enhancing new product performance: an organisational learning perspective. Journal of product innovation management, 15, 403–422.

Aldersey-Wiliams, H., Bound, J., Coleman, R. (1999) The Methods Lab, user research for design. Published by the Design for Ageing Network (DAN) for the Presence Conference, Royal Geographical Society.

Alexopolous, T., Lee, S., Lin, A., Sheppard, A. (2004) Tweens: Technology, personal agency and engagement. Media Design Program, Art centre college of design, Pasadena.

Amabile, T. (1996) Creativity in context, New York: Westview Press.

Archer, B. (1995) The nature of research, Co-Design, no.2, 6–13.

Avison, D., Lau, F., Myers, M., Nielsen, P.A. (1999) Action Research. Communications of ACM, 42(1), 49–97.

B

Babbie, E. (2004) The practice of social research. (10th edition). Belmont: Wadsworth/Thomson Learning.

Bacharach, S.M. (1989) Organizational theories: Some criteria for evaluation. The Academy of Management Review, 14 (4), 496–515.

Baron-Cohen, S., Wheelwright, S. (2004) The Empathy Quotient: An investigation of adults with asperger syndrome or high functioning autism, and normal sex differences. Journal of Autism and Developmental Disorders, 34(2), 163–175.

Bate, P., Robert, G. (2007) Bringing user experience to healthcare improvement. The concepts, methods, and practices of experience-based design. Oxon: Radcliffe Publishing Ltd.

Battarbee, K., Koskinen, I. (2005) Co-experience: User experience as interaction. CoDesign: International Journal of CoCreation in Design and Arts, 1(1), 5–18.

Beyer, H., Holtzblatt, K. (1998) Contextual Design: defining customer-centred systems. San Francisco: Morgan Kaufmann.

Bødker, S., (2000) Scenarios in user-centred design-setting the stage for reflection and action. Interacting with Computers, 13, 61–75.

Brandt, E., Binder, T. (2007) Experimental design research: Genealogy-intervention-argument. Proceedings of International Association of Design Research. Hongkong.

Bruseberg, A., MacDonagh, D. (2002a) Focus groups to support the industrial/product designer: a review based on current literature and designers' feedback. Applied Ergonomics, 33, 27–38.

Bruseberg, A., MacDonagh, D. (2002b) Developing a toolkit to support collaboration for new product development (http://www.cs.bath.ac.uk/ffianneb/)

Buchenau, M., Fulton Suri, J. (2000) Experience Prototyping, New York: DIS 2000, 424–433.

Bueno, M., Rameckers, L. (2006) Understanding people in new ways. Personas in context: forging a stronger link between research and its application in design. Design Research ESOMAR.

Buijs, J., Valkenburg, R. (2005) Integrale productontwikkeling. Derde druk. Utrecht: Lemma BV.

Buur, J., Binder, T., Brandt, E. (2000) Taking Video beyond 'hard data' in user centred design. Participatory Design Conference, New York.

Buur, J., Sondergaard, A. (2000) Video Card Game: augmenting the user centred design discussion. Designing Augmented Reality Systems Conference (DARE 2000), ACM Press, Elsinore.

Buxton, B. (2007) Sketching user experiences. Getting the design right and the right design. San Francisco: Morgan Kaufmann.

C

Cagan, J., Vogel, C. (2002) Creating breakthrough products: innovation from product planning to program approval. New York: Financial Times Prentice Hall.
Callahan, J., Lasry, E. (2004) The importance of customer input in the product development of very new products. Journal of R&D Management, 43 (2),107–120.
Carroll, J.M. (1995) Scenario-Based Design. Envisioning work and technology in system development, New York: John Wiley and Sons.
Chandler, K., Hyatt, K. (2002) Customer-centred design: a new approach to usability. Prentice Hall
Cooper, A. (1999) The inmates are running the asylum. Indianapolis: Sams
Corbin, J., Strauss, A.(1990) Grounded Theory Research: Procedures, Canons, and Evaluative Criteria. Qualitative Sociology 13 (1), 3–21.
Cross, N. (2007) From a design science to a design discipline: Understanding Designerly ways of knowing and thinking. In: Ed: Michel, R.) Design Research Now. Birkhauser Verlag AG, Basel.
Csikszentmihalyi, M. (1998) Creativity: flow and the psychology of discovery and invention. New York: HarperCollins.

D

Damasio, A. (1994) Descartes' error: emotion, reason, and the human brain. New York: Putnam Press.
Deshpande, R, Zaltman, G. (1982) Factors affecting the use of market research information: a path analysis. Journal of Marketing Research, 14, 14–31.
Desmet, P.M.A., Hekkert, P.P.M. (2007) Framework of product experience. International Journal of Design, 1(1), 57–66.
Dewey, J. (1934) Art as Experience. New York: Berkley Publishing Group.
Diggens, T., Tolmie, P. (2003) The 'adequate' design of ethnographic outputs for practice: some explorations of the characteristics of design resources. Personal and Ubiquitous Computing, 7(3–4),147–158.
Dorst, K. (1997) Describing design-a comparison of paradigms. Doctoral thesis. Delft University of Technology.
Dorst, K. (1999) An introduction to design as reflective practice. In: (Eds: Roozenburg, N.F.M., Dorst., K.) Ontwerp theorie en Methodologie. Reader TU Delft. IDE409
Duan, C., Hill, C. (1996). Current state of empathy research. Journal of Counseling Psychology, 43, 261–274.

E

Easterby-Smith, M., Thorpe, R. and Lowe, A. (1999) Management Research, an introduction, London: SAGE Publications.

F

Forlizzi, J., Ford, S. (2000) The building blocks of experience: an early framework for interaction designers. Proceedings of the conference on Designing interactive systems: processes, practices, methods, and techniques, New York, 419–423.
Fulton Suri, J., Marsh, M. (1997) Human Factors in Design- suggestions for effective communication in multi-disciplinary teams. Proceedings of the Human Factors and Ergonomics Society.
Fulton Suri, J., Marsh, M. (2000) Scenario building as an ergonomics method in consumer product design. Applied Ergonomics, 31(2), 151–157.
Fulton Suri, J. (2003a) Empathic Design: Informed and inspired by other people's experience. In: (Eds: Koskinen, I., Battarbee, K., Mattelmaki, T.) Empathic Design. Finland: IT Press.

Fulton Suri, J. (2003b) The experience evolution: developments in design practice. The Design Journal, 6(2), 39–48.

G

Gaver, W.W., Dunne, T., Pacenti, E. (1999) Cultural Probes. Interactions, 6(1), 21–29.

Gaver, W.W., Beaver, J., Benford, S. (2003) Ambiguity as a resource for design. CHI 2003 Proceedings CHI'03, Ft. Lauderdale. New York: ACM Press, 233–240.

Gaver, W.W., Boucher, A., Pennington, S., Walker, B. (2004) Cultural probes and the value of uncertainty. Interactions, 11(5), 53–56.

Gilmore, T., Krantz, J. Ramirez, R. (1986) Action Based Modes of Inquiry and the Host-researcher Relationship, Consultation, 5(3), 160–176.

Gilmore, D.J., Velázquez, V.L. (2000). Design in Harmony with Human Life. In: (Eds: Szwillus, G., Turner, T.) CHI 2000 Extended Abstracts, ACM Press, 235–236.

Gladstein, G.A. (1983) Understanding empathy: Integrating counseling, developmental, and social psychology perspectives Journal of Counseling Psychology, 30(4), 467–482.

Glaser, B., Strauss, A.L. (1967) The discovery of grounded theory: Strategies for qualitative research. New York: Aldine de Gruyter.

Glover, J.A., Ronning, R.R., Reynolds, C.R. (1989) Handbook of creativity. Plenum Press: New York.

Go, K., Carroll, J.M. (2004) The Blind Men and the Elephant: Views of Scenario-Based System Design. ACM Interactions, 11, 44–53.

Gray, C., Malins, J. (2004) Visualising research. A guide to the research process in art and design. Aldershot: Ashgate.

Green, W.S., Jordan, P.W. (2002) Pleasure with products: beyond usability. London: Taylor Francis.

Griffin, A., Hauser, J.R. (1996) Integrating R&D and marketing: a review and analysis of the literature. Journal of Product Innovation Management, 13 (3),191–215.

Grønhaug, K., Haukehal, W. (1997) The cumbersome route from research data to knowledge use. Journal of creativity and innovation management, 6(3), 151–160.

Grudin, J., Pruitt, J. (2002) Personas, participatory design and product development: an infrastructure for engagement. Proceedings of Participatory Design Conference. Malmo, Sweden, 144–161.

Gupta, A.K., Wilemon, D. (1988) The credibility-cooperation connection at the R&D-marketing interface. Journal of product innovation management, 5, 20–31.

H

Hanington, B. (2003) Methods in the Making: a perspective on the state of human research in design. Design Issues, 19(4), 9-18.

Hekkert, P.P.M., Schifferstein, H.N.J. (2008) Introducing product experience. (Eds): Schifferstein, H.N.J., Hekkert, P.P.M. Product experience, Amsterdam: Elsevier.

Hummels, C.C.M., Djajadiningrat, J.P., Overbeeke, C.J. (2001) Knowing, doing and feeling: communicating with your digital products. Interdisziplinäres Kolleg Kognitions- und Neurowissenschaften, Günne am Möhnesee, 289–308.

I

ISO 13407. (1999) Human-centred design process for interactive systems, International Standard EN/ISO 13407:1999.

J

Jahoda, G. (2005) Theodor Lipps and the shift from "sympathy" to "empathy", Journal of the History of Behavioral Sciences 41 (2),151–163.
Jordan, P.W. (2000) Designing pleasurable product. An introduction to the new human factors. London: Taylor & Francis.

K

Keller, A.I. (2005) For inspiration only. Designer interaction with informal collections of visual material. Doctoral thesis, Delft University of Technology.
Kelley, T., Littman, J. (2001) The art of innovation. London: Profile Books.
Kolb, D. (1984) Experiential learning. Englewood Cliffs, New York: Prentice-Hall.
Koskinen, I., Battarbee, K., Mattelmaki, T. (2003) Empathic design. User experience in product design. Finland: Edita Publishing
Kouprie, M., Sleeswijk Visser, F. (accepted, publication date June 2009) A framework for empathy in design: stepping into and out of the user's life. Journal of Design Engineering, Special Issue on design and emotion.
Krippendorff, K. (2007) Design research, an oxymoron? In: (Ed: Michel, R.) Design Research Now. Birkhauser Verlag AG, Basel.
Kujala, S. (2003) User involvement: a review of the benefits and challenges. Behaviour and Information Technology, 22 (1), 1–16.

L

Laurel, B. (2003) Design Research. Methods and Perspectives. Massachusetts: MIT Press.
van der Lelie, C. (2006) The value of storyboards in the product design process. Personal Ubiquitous Computing. 10, 159–162.
Leonard, D., Rayport, J,F. (1997). Spark Innovation through Empathetic Design. Harvard Business Review 75(6),102–113 .
Lidwell, W., Holden, K., Butler, J. (2003) Universal Principles of Design. Massachusetts: Rockport Publisher.
Lillis, G. (2002) Delivering results in qualitative market research. Sage Publications, London.
van der Lugt, R. (2008) Iedereen is een ontwerper...? In: (Eds: Puik, E., Cremers, A., van der Lugt, R.) Techniek van Venus. Utrecht University of Applied Sciences.
van der Lugt, R., Sleeswijk Visser, F. (2005) Widening involvement in creative group processes. Proceedings of the 9th European Conference on Creativity and Innovation, Lodz, Poland.
van der Lugt, R., Sleeswijk Visser, F. (2007) Creative sessions for interpreting and communicating rich user information. International conference on inclusive design Royal College of Art, London, 1–5.
van der Lugt, R, Janssen, S., Stappers, P.J. (2005). Enhancing involvement: explorations with use of place and time in creative group processes. In: (Eds: Fischer, O. Weerd Nederhof, P.) The 1st creativity and innovation community workshop, 157–173.

M

Malterud, K. (2001) Qualitative research: Standards, challenges, and guidelines. The Lancet, 358 (9280), 483–488.
Mattelmaki, T. (2005) Applying Probes-from inspirational notes to collaborative insights. CoDesign: International Journal of CoCreation in Design and Arts, 1(2), 83–102.
Mattelmaki, T., (2006a) Design Probes. Doctoral Thesis. University of art en design Helsinki, Finland.
Mattelmaki, T. (2006b). Handouts of presentation at 'user inspired design course' (November 2006) Helsinki.
Mattelmaki, T., Battarbee, K. (2002) Empathy Probes. Proceedings of the Participatory Design Conference, Palo Alto, 266–271.

McDonagh, D. (2008) Do it until it hurts!: Empathic design research. Journal of design principles and practices. 2, 1–8.
McDonagh, D. (in print) Empathic Research Approaches to Support the Designer: a Supra-qualitative Research for Designing Model. Design Issues.
McDonagh, D., Denton, H. (1999) Using focus groups to support the designer in the evaluation of existing products: A case study The Design Journal, 2(2), 20–31.
McCloud, S. (1994) Understanding Comics: the invisible art. New York: HarperCollins.
McCloud, S. (2006) Storytelling secrets of comics, manga and graphic novels. New York: HarperCollins.
MacQuaid, H.L., Goel, A., McManus, M. (2003) When you can't talk to customers: using storyboards and narratives to elicit empathy for users. Proceedings of DPPI2003, Pennsylvania, Pittsburg,120–125.
Mead, G.H. (1934) Mind, self and society. Chicago: University of Chicago Press.
Meyer, A.D. (1991) Visual data in organizational research. Organization science 2(2), 218–236.
Miles, M.B., Huberman, A.M. (1994) Qualitative Data Analysis: an expanded sourcebook. Thousand Oaks: Sage Publications.
Miller, G. (1956) The Magical Number Seven +- Two. Psych.Review, 68, 81–97.
Mongiat, M., Snook, K. (2007) Exchange Pieces: tools and strategies for engagement in design. Proceedings of Include, RCA, London, 1–7.
Muller, W. (1989) Design discipline and the significance of visuo-spatial thinking. Design Sudies, 10(1), 12–23.
Muller, W. (2001) Order and Meaning in Design, Lemma Publisher, Utrecht, the Netherlands.

N

Nielsen, L., Madsen, S. (2006) Storytelling as method for sharing knowledge across IT projects. Proceedings of the 39th Hawaii conference on system sciences, 1–9.
Niven, A., Imms, M. (2006) Connecting with clients. Re-thinking the debrief. MRS 2006.
Nilson, O. (2003) Empathy and emotions: on the notion of empathy as emotional sharing. Doctoral thesis. Umea University, Sweden.
Nimkulrat, N. (2007) The role of documentation in practice-led research. Journal of Research Practice 3(1), article M6.
Norman, D.A. (2004) Emotional Design: Why we love (or hate) everyday things. New York: Basic Books.
Norman, D.A. (2005) Human centred design considered harmful. ACM Interactions, 12 (4), 14–19.
Nussbaum, B. (2004) The power of design. Businessweek, May 17, 69–75.

O

Ottum, D., Moore, W.L. (1997) The role of market information in new product success/failure. Journal of Product Innovaton Management 14, 258–273.
Overbeeke, C.J., Wensveen, S.A.G., Hummels, C.C.M. (2006) Design research - generating knowledge through doing. In: (Eds: Michel, R., Léchot Hirt, L.) Drawing new territories - Geneva: Swiss Design Network, 51–69.

P

Pasman, G. (2003) Designing with precedents. Doctoral thesis, Delft University of Technology.
du Perron, B., Kischkat, A. (2007) Digital consumer connections. An alternative to direct consumer contact. Esomar. part 5 / Co-creation and client participation. Qualitative '07.

Porter, C.S., Porter, J.M. (1999) Design for usability; input of ergonomics information at an appropriate point, in an appropriate form, in the design process. In: (Eds: Jordan, P.W., Green, W.S.) Human Factors in Product Design. London: Taylor Francis.
Porter, C.S., Chhibber, S., Porter, J.M.,Healey, L. (2008) What makes you tick - An investigation of the pleasure needs of different population segments. In: (Eds: Desmet, P.M.A, van Erp, J., Karlsson, M.A.) Design & Emotion Moves. Cambridge Scholars Publishing Newcastle upon Tyne, UK, 310–347.
Preece, J., Rogers, Y., Sharp, H. (2002) Interaction design: Beyond human-computer interaction. New York: Wiley.
Pruitt, J., Adlin, T. (2006) The Persona Lifecycle: Keeping people in Mind During Product Design. San Francisco: Morgan Kaufmann Press.
Pruitt, J., Grudin, J. (2003) Personas: Practice and theory. Proceedings of DUX 2003.

R

Raijmakers, B., Gaver, W.W., Bishay, J. (2006) Design documentaries: inspiring design research through documentary film. Proceedings of DIS06: Designing Interactive Systems: Processes, Practices, Methods, & Techniques, 229–238.
Raijmakers, B. (2007) Design documentaries. Using documentary film to inspire design. Doctoral thesis, RCA London.
Redstrom, J. (2006) Towards user design? On the shift from object to user as the subject of design. Design Studies, 27(2), 123–139.
Reik, T. (1949) Listening with the third ear: The inner experience of the psychoanalyst. New York: Grove.
Rhea, D. (2003) Bringing clarity to the fuzzy front end. A predictable process for innovation. In: (Ed: Laurel, B.) Design Research: methods and perspectives. Cambridge, MA: MIT Press, 145–154.
Rogers, C.R. (1975) Empathic: an unappreciated way of being. Counseling Psychologist, 5, 2–10.
Roozenburg, N.F.M., Eekels, J. (1995) Product Design, Fundamentals and Methods. Chichester: Wiley.
Rosenthal, S.R., Capper, M. (2006) Ethnographies in the front end: designing for enhanced customer experiences. Journal of Product Innovation Management, 23, 215–237.
Ross, P. (2008) Ethics and aesthetics in intelligent products and system design. Doctoral thesis, Delft University of Technology.

S

Saakes, D.P., Keller, A.I. (2005) Beam me down Scotty: to the virtual and back! Proceedings of DPPI. Conference of Designing Pleasurable Products and Interfaces, Eindhoven, 482–483.
Sanders, E. B.-N. (2000) Generative tools for codesigning. Collaborative Design, London: Springer Verlag.
Sanders, E.B.-N. (2001) Virtuosos of the experience domain. Proceedings of the IDSA Education Conference. Boston.
Sanders, E.B.-N. (2005) Information, Inspiration and Cocreation. Proceedings of the 6th International Conference of the European Academy of Design. Bremen Germany.
Sanders, E. B.-N., (2008) A Framework for Discovery, Internal presentation for NBBJ Architects.
Sanders, E B-N, Dandavate, U. (1999) Design for Experiencing: New Tools. Proceedings of the First International Conference on Design and Emotion. Delft, The Netherlands.
Sanders, E.B.-N., William, C.T (2001) Harnessing People's Creativity: Ideation and expression through visual communication. In: (Eds: Langford, J., Mc-

Donagh-Philp, D.) Focus Groups: Supportive effective product development. London: Taylor and Francis.
Sanders, E.B.-N., Stappers, P.J. (2008) Co-creation and the new landscapes of design. Special issue of CoDesign, 4 (1), 5–18.
Schifferstein, H.N.J., Hekkert, P.P.M. (2008) Product Experience. Amsterdam: Elsevier.
Schon, D.A. (1983) The Reflective Practitioner. New York: Basic Books.
Schuler, D., Namioka, A. (1993) Participatory Design: Principles and practices. Hillsdale: Erbaum.
Scrivener, S.A.R. (2002) Characterising Creative-production Doctoral Projects in Art and Design. International Journal of Design Sciences and Technology, 10 (2), 25–44.
Sleeswijk Visser, F., Visser, V. (2005) Re-using users: Co-create and co-evaluate. Personal and ubiquitous computing, 10(2–3), 148–152.
Sleeswijk Visser, F., Stappers, P.J., van der Lugt, R., Sanders, E.B.-N. (2005) Contextmapping: Experiences from practice. CoDesign: International Journal of CoCreation in Design and Arts, 1(2), 119–149.
Sleeswijk Visser, F., van der Lugt, R., Stappers, P.J. (2005) Participatory design needs participatory communication. Proceedings of the 9th European Conference on Creativity and Innovation, Lodz, Poland, 173–195.
Sleeswijk Visser, F., van der Lugt, R., Stappers, P.J. (2004) The Personal Cardset-a designer-centered tool for sharing insights from user studies. Proceedings of Second International Conference on Appliance Design, Bristol, 157–158.
Sleeswijk Visser, F., Stappers, P.J. (2007a) Mind the Face. Proceedings of DPPI (Conference on Designing Pleasurable Products and Interfaces), Helsinki, 119–134.
Sleeswijk Visser, F., Stappers, P.J. (2007b) Who includes user experiences in large companies? International conference on inclusive design, Royal College of Art, London, 1–5.
Sleeswijk Visser, F., van der Lugt, R., Stappers, P.J. (2007) Sharing user experiences in the product innovation process: Participatory design needs participatory communication. Journal of Creativity and Innovation Management, 16(1), 35–45.
Sleeswijk Visser, F., Kouprie, M. (2008) Stimulating empathy in ideation workshops. Proceedings of Participatory Design Conference, Indianapolis,174–177.
Sonneveld, M.H. (2007) Aesthetics of tactual experience. Doctoral thesis, Delft University of Technology.
Spiggle, S. (1994) Analysis and interpretation of qualitative data in consumer research. Journal of consumer research, 21(3), 491–503.
Stappers, P.J. (2005) Creative connections: user, designer, context, and tools. 3AD: third international conference on appliance design. Bristol: The Appliance Design Network, 5–9.
Stappers, P.J. (2007) Doing design as a part of doing research. Design Research, an Oxymoron? In: (Ed: Michel, R.) Design research now: Essays and selected projects. Birkhauser Verlag AG, Basel, 81–97.
Stappers, P.J., Sanders, E.B.-N. (2003) Generative tools for context mapping: tuning the tools. In: (Eds: McDonagh, D., Hekkert, P.P.M, van Erp, J., Gyi, D.) Design and Emotion: the experience of everyday things. London: Taylor and Francis, 77–81.
Stappers, P.J., Sleeswijk Visser, F. (2006) Contextmapping: two researchers discuss contextmapping and how it is used to inform and inspire designers with experience-based data. GEOconnexxion International Magazine, 22–24.
Stappers, P.J., van der Lugt, R., Sleeswijk Visser, F., van der Lelie, C (2007a) RichViz!. Delft: StudioLab Press.

Stappers, P.J., Sleeswijk Visser, F. van der Lugt, R. (2007b) Teaching contextmapping to industrial design students International conference on inclusive design, Royal College of Art, London, 1–10.
Stappers, P.J., Sleeswijk Visser, F. (2007) Bringing participatory design techniques to industrial design engineers. Proceedings of EPDE (Engineering and Product Design Education Conference), NewCastle, 117–122.
Steen, M. (2008) The fragility of user centred design. Doctoral Thesis, Delft University of Technology.
Stein, E. (1917) Zum Problem der Einfühlung. Halle: Waisenhauses.
Strauss, A., Corbin, J. (1990) Basics of qualitative research: Grounded theory procedures and techniques. Sage Publications.
Stringer, E.T. (1999) Action research. (2nd ed.) Thousand Oaks, CA: Sage Publications.
Smith, P.G., Reinertsen, D.G. (1992) Shortening te product development cycle. Research-Technology Management, 59, 44–49.

T

Tufte, E.R. (1997) Visual Explanations: Quantities, evidence and narrative. Connecticut: Graphics Press.

V

Vaajakallio, K., Mattelmaki, T. (2007) Collaborative design exploration... Envisioning future practices with make tools. Proceedings of DPPI (Conference on Designing Pleasurable Products and Interfaces), Helsinki, 223–238.
Veldhuizen, H.G. (2008) Market intelligence for product excellence. Doctoral Thesis. Delft University of of Technology.
van Veggel, R.J.F.M. (2005) Where the two sides of ethnography collide. Design Issues 21(3), 3–16.
van der Vorst, R. (2007) Nieuwsgierigheid. Hoe wij elke dag worden verleid. NW A'Dam.
Vredenburg, K., Isensee, S., Righi, C. (2002) User-centered design: an integrated approach. New Jersey: Prentice-Hall.
Vreeke, G.J., van der Mark, I.L. (2003) Empathy, an integrative model. New Ideas In Psychology, 21(3), 177–207.

W

Wakeford, N. (2004) Innovation through people-centred design-lessons from the USA. DTI global watch mission report.
Wallas, G. (1926) The Art of Thought. New York: Harcourt Brace.
Wensveen, S.A.D. (2005) A tangible approach to affective interaction. Doctoral thesis. Delft University of Technology.
Whyte, W.F. (1991) Participatory action research. Sage Publications, New York.
Wispé, L. (1987) History of the concept of empathy. In: (Eds: Eisenberg, N., Strayer, J.) Empathy and its development pp 17–37, Cambridge: Cambridge University Press.
Wright, P., McCarthy, J., Meekison, L. (2003) Making sense of experience. In: (Eds: Blythe, M.A., Monk, A.F., Overbeeke, K., Wright, P.C) Funology: From usability to enjoyment, 43–53.

Y

Yin, R. (1994) Case study research: Design and methods (2nd ed.). Beverly Hills: Sage Publishing.
Ylirisku, S., Buur, J. (2007) Designing with Video. London: Springer.

Z

Zahay, D., Griffin, A., Fredericks, E. (2004) Sources, uses, and forms of data in the new product development process. Industrial Marketing Management, 33 (7), 657–666.

www.mapwizard.nl(retrieved on October 2008)
www.submarine.com (retrieved on January 2009)
www.wordnet.princeton.edu (retrieved on January 2009)
www.dictionairy.reference.com (retrieved on January 2009)

Author's publications

2009

Keller, A.I., **Sleeswijk Visser, F.**, Lugt, R. van der, Stappers, P.J. (2009) Collecting with Cabinet: Or how designers collect visual material, researched through an experiential prototype. Design Issues 30 (1), 69–86.

Kouprie, M., **Sleeswijk Visser**, F. (in print, publication date June 2009) A framework for empathy in design: stepping into and out of the user's life. Journal of Design Engineering, Special Issue on design and emotion.

Stappers, P.J., van Rijn, H., Kistemaker, S.C., Hennink, A.E., **Sleeswijk Visser, F.** (2009) Designing for other people's strengths and motivations: Three cases using context, visions, and experiential prototypes. Journal of Advanced Engineering Informatics, 23, 174–183.

2008 **Sleeswijk Visser, F.,** Kouprie, M. (2008) Stimulating empathy in ideation workshops. Proceedings of PDC (Participatory Design Conference), Indianapolis, 174–177.

2007 van der Lugt, R., **Sleeswijk Visser, F.** (2007) Creative sessions for interpreting and communicating rich user information. International conference on inclusive design Royal College of Art, London,1–5.

Sleeswijk Visser, F., Stappers, P.J. (2007a) Mind the Face. Proceedings of DPPI (Conference on Designing Pleasurable Products and Interfaces), Helsinki, 119–134.

Sleeswijk Visser, F., Stappers, P.J. (2007b) Who includes user experiences in large companies? International conference on inclusive design, Royal College of Art, London, 1–5.

Sleeswijk Visser, F., van der Lugt, R., Stappers, P.J. (2007) Sharing user experiences in the product innovation process: Participatory design needs participatory communication. Journal of Creativity and Innovation Management, 16(1), 35–45.

Stappers, P.J., van der Lugt, R., **Sleeswijk Visser, F.**, van der Lelie, C (2007a) RichViz!. Delft: StudioLab Press.

Stappers, P.J., **Sleeswijk Visser, F.**, van der Lugt, R. (2007b) Teaching contextmapping to industrial design students International conference on inclusive design, Royal College of Art, London, 1–10.

Stappers, P.J., **Sleeswijk Visser**, F. (2007) Bringing participatory design techniques to industrial design engineers. Proceedings of EPDE (Engineering and Product Design Education Conference), NewCastle, 117–122.

2006 Stappers, P. J., **Sleeswijk Visser, F.** (2006) Contextmapping: two researchers discuss contextmapping and how it is used to inform and inspire designers with experience-based data. GEOconnexxion International Magazine, 22–24.

2005 **Sleeswijk Visser, F.**, Visser, V. (2005) Re-using users: Co-create and co-evaluate. Personal and ubiquitous computing, 10(2–3), 48–152.

Sleeswijk Visser, F., Stappers, P.J., van der Lugt, R., Sanders, E.B.-N. (2005) Contextmapping: Experiences from practice. CoDesign: International Journal of CoCreation in Design and Arts, 1(2), 119–149.

Sleeswijk Visser, F., van der Lugt, R., Stappers, P.J. (2005) Participatory design needs participatory communication. Proceedings of the 9th European Conference on Creativity and Innovation, Lodz, Poland, 173–195.

van der Lugt, R., **Sleeswijk Visser, F.** (2005) Widening involvement in creative group processes. Proceedings of the 9th European Conference on Creativity and Innovation, Lodz, Poland.

2004 **Sleeswijk Visser, F.**, van der Lugt, R., Stappers, P.J. (2004) The Personal Cardset-a designer-centered tool for sharing insights from user studies. Proceedings of Second International Conference on Appliance Design, Bristol, 157–158.

About the author

Froukje Sleeswijk Visser was born on April 23d 1976 in Rotterdam. After high school she went to Florence in Italy to study photography for one year. In 1996 she started her studies Industrial Design Engineering and with a few in between breaks she received her Master's degree in 2003. In 2004, her academic career started with a PhD study on communicating rich experience information in design at the ID-StudioLab at Delft University of Technology, the Netherlands. From 2006 she started her own company, ContextQueen, to conduct inspirational user research and concept development.
In 2009, she became an Assistant Professor at the Delft University of Technology to continue her research and teaching. This is a parttime job, which allows her to dedicate more time to her own company.
Next to being busy with designing, creativity and stories of people about their everyday lives, which are her main interests in work life, she enjoys photography, documentaries, music, dancing, vans (VW T3), travelling, good food and most of all being close to the sea in her free life.

f.sleeswijkvisser@tudelft.nl