Eliciting empathy for users: When to use which tools and techniques?
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ABSTRACT
This essay deals with gaining empathic insight in the user during the course of the design process with the purpose of designing a product better suited for its intended users. Various well-defined tools and techniques exist to gain empathic insight in the user group. Although these tools can be easily described, it is also important for the designer to use them efficiently during the various stages of the design process, in order to get the most reliable insights during the appropriate phase. This paper categorises these tools and techniques in relation to the various stages of product development and thus provides a framework for their fitting use in the field of user-centred design.

Keywords
Empathic design, user-centred design, design tools & techniques

INTRODUCTION
Empathy is an important aspect of user-centred and interaction design. Dayton et al. (1993) categorize it as a core attribute needed by all user-centred design practitioners. They also classify it as “hard to acquire” as opposed to knowledge and skill attributes which are easier to obtain.

This is no surprise, as there is no emphasis on eliciting empathy for users in conventional design education. The use of empathy in a design process, while important for avoiding ego-design or design for stereotypes, is often not deliberate or explicit. However, there are several tools and techniques suitable for gaining empathic insight, and while some of them have empathy as their primary goal, some of them have it as a by-product, and are therefore more easily overlooked.

This paper gives an overview of empathy eliciting tools and techniques as found in literature. To help designers apply them in practice, a framework of when they can be applied in the Delft design process as described by Roozenburg and Eekels (2001) is created.

LITERATURE REVIEW
What is empathy?
To be able to tell whether a tool or technique elicits empathy, we must first define what empathy for users is and how it is attained. Mattelmäki and Battarbee (2002) define design empathy as “people being seen and understood from where they stand, not as test subjects but as persons with feelings”. They also quote Sanders, who divides user research into three areas, each with their own focus and type of information: say (interviews), do (observations) and make (physical and visual aids to allow people to visualise and describe their expectations and dreams). Sanders claims that these categories should be explored simultaneously to achieve an empathic understanding of the users. However, it may be argued that it is possible to gain useful partial empathic understanding by exploring only one of the areas.

Mattelmäki and Battarbee (2002) add to this that not only the content is important for empathising, but the format matters as well: when applying tools for eliciting empathy, designers thought that typed and printed matter was invented, while handwriting was perceived as real.

It appears that the core of empathy for a designer is to have personal contact or a connection with the users.

Tools and techniques
Probes and primes
Probes are packages with materials prepared by designers that are given to users for self-documenting part of their lives. They can contain all sorts of materials like diaries, workbooks and cameras and are used to gather information as well as to sensitize users to a following part of research. It is in that latter function that they are also known as primes.

Gaver et al. (1999) were one of the design teams pioneering the use of probes. They developed their cultural probes as an informal, friendly tool for gathering inspirational data. An important characteristic is that the materials are designed especially for each project, so the users get a glimpse of what the designers are like. According to Gaver et al., this makes the users more willing to show parts of their lives, thus giving the designers access to more intimate information.
Mattelmäki (2005) states that probes answer to designers’ needs for empathic understanding. His reasons for applying probes include enhancing design inspiration, gathering information and creating a dialogue with the user.

**Observation**

Conventional observational research as taught to design students focuses on a product and expected interactions. Users are brought into a laboratory and are given a product and some tasks to accomplish with this product (Kanis and Rooden, 2005). Although subjectivity is an acknowledged factor in this kind of observational research, it does not elicit empathy.

Leonard and Rayport (1997), have a different approach to observational research: they put it at the foundation of their set of empathic design techniques. Their method of observing customers takes place in the customers’ natural environment, in the course of normal, everyday routines, giving researchers access to a host of information they claim is not accessible through other observation-oriented methods.

**Playacting, direct-experience storyboards and simulators**

There are several related techniques involving playacting, walking in the user’s shoes and documenting this.

Burns et al. (1994) have experimented with playacting as a way of designing that is “more visceral and experiential as intellectual and reflective”. They have done workshops in which designers generate ideas and evaluate them by acting out scenarios involving these ideas. Props, mock-ups and rapid prototyping are used to support this process. In such a re-enactive situation, designers are faced with having to think through the implications of a new design idea in somebody else’s shoes. In this way, playacting could allow designers to empathise with users when evaluating ideas.

When the process of playacting is documented with photos and the scenarios are presented as storyboards, it is called photo-boarding.

Direct-experience storyboards are described by McQuaid et al. (2003) as “walking in the users shoes, while doing tasks, taking photographs and adding notes to them”. They implemented this technique in a redesign project, working with the product that was to be adapted. Both the experience of making the storyboards and the storyboards themselves elicited empathy, because they are concrete and personal. Most designers are visual orientated; therefore the use of pictures is a good tool to create empathy.

Goodman et al. (2007) use the experiential technique of simulators to gather user data for inclusive design, focusing on capability loss. They simulate the functional effects of the capability loss in the designer to help him or her sympathise with the user and gain an internalised understanding. Examples are using spectacles to stimulate various kinds of vision loss and arm and hand restraints simulating some of the effects of arthritis. The technique works well because it is tangible, stimulating and experiential and most designers prefer this kind of information. Two major drawbacks are the limits on what can be simulated and the failure to account for context factors like support and coping strategies.

**Personas and narratives**

Personas are fictional users, often based on real people. They represent the end users during the design process. They can be presented in various ways, like factual descriptions or photographic montages and help to focus on the needs of the end users, creating empathy and providing in-depth insight into needs and lives if they are well-made (Goodman et al., 2007).

Personas are flexible in use because they are adaptable. Once created, their use is cheap, but the creation process can take a lot of time. Also, the focus on representative individuals can sometimes make it hard to communicate the range of characteristics in a target group.

Narratives are personas combined with a scenario. They are a representation of how this user would interact with the designed object or service while performing a task (McQuaid et al., 2003). Narratives can be used to give a wide range of possible interactions, since a set of personas can be combined with a set of scenarios.

**WHEN TO APPLY THE TOOLS AND TECHNIQUES**

One can easily see that each of these techniques has its advantages and disadvantages, which influences their suitability for different phases of the design process. Based on the characteristics of each technique, it is now classified with the phases it fits best.

**Product idea generation**

This is the phase in which a company decides what product or service would be a valuable addition to their product portfolio. Another outcome of this phase could be a problem that will be solved by the product to be developed. Probes and personas are suitable tools and techniques because they give a broad view on users’ lives and needs. Playacting and simulators can be applied as well, because they allow designers to experience first-hand the problems the user might have.

**Analysis**

In this phase, the context of the product to be developed is analysed, as well as the technological possibilities. Obtained information is used for developing the list of requirements and later on in the process for generating and developing ideas. Most tools and techniques can be used to elicit empathy in this phase. Probes are handy to get a broader insight in the users’ daily lives. Observation can be used for more specific activities or times of the day. Narratives can be used instead of observation of activities. While they are of course less
realistic, they also consume fewer resources. Playacting, simulators and direct-experience storyboarding are good for gaining experiential understanding of the users’ activities. Direct-experience storyboarding is especially helpful for redesigns. Personas are not useful in this phase, as their main value lies in generating and evaluating ideas, not in gathering information.

Idea generation
During this phase, the solution phase is explored by generating a wide variety of ideas. Feasible ones are selected for further development based on the criteria developed earlier. Playacting, simulators, personas and narratives can be used to see very quickly whether an idea would fit the users’ lives. Furthermore, while probing is not an obvious activity for this phase, inspiration gained through them in an earlier phase can be very useful while generating ideas.

Concept development
In the concept development phase, the used tools and techniques need to enable the designers to compare the concepts and get insight in which concepts are likely to be preferred by the users. Personas, narratives, playacting and simulators are useful tools to evaluate ideas and can help the designers to select ideas suitable for further development.

Concept detailing
The concept is detailed, materials and production techniques are chosen and technical drawings are made in this phase.

Materialization
In this last design phase, the product is optimised and prepared for manufacturing. Also, a business implementation plan is made, including a marketing plan etc.

In this phase, only small changes are made to the design, so only techniques that capture this kind of details are suitable. Observation, playacting and simulators can be applied, if sufficiently detailed prototypes are used.

A summary of the tools and techniques and their applicability in the design process is given in figure 1.

![Figure 1. Overview of when to use which empathy tool/technique.](image)

DISCUSSION AND CONCLUSION
It is clear that while designers have a wide field of choice in techniques and tools for eliciting empathy for their users, they need to be careful to select the right method for the right situation.
designer, whether the researcher and the designer are the same person etc. Other factors are method-specific. For example, personas are cheap to use but expensive to develop; for the time being simulators can be used only for a limited range of physical user characteristics, not for cognitive or emotional ones and direct-experience storyboarding and observation are more effective for redesigns than for coming up with new products in an analysis phase. Nevertheless, the phase of the design process is a driving factor, and I hope this framework can help designers in selecting the appropriate tools.

In future work, it would be interesting to add tools and techniques not listed here, as well as to investigate combining different techniques to gain a better empathic understanding than by using them separately.

REFERENCES


