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A framework for empathy in design: stepping into and out of the user's life

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In user-centred design, a widespread recognition has surfaced for the importance of designers to gain empathy with the users for whom they are designing. Several techniques and tools have been developed to support an empathic design process and several issues are indicated that support an empathic process, but precise definitions and a framework of what makes 'empathy' is missing. Although the need for empathic approaches in design has been repeatedly stressed, a fundamental basis of the concept of empathy is missing. The goal of this paper is to inform the discussion in the design community by applying the concept of empathy as it has developed in psychology. This paper presents a review of how empathy has been discussed in design and psychology literature, and proposes a background framework for supporting empathic approaches in designing. The framework presents empathy in design as a process of four phases, and gives insight into what role the designer's own experience can play when having empathy with the user. This framework can be applied to three areas: research activities, communication activities and ideation activities.

Keywords: empathy; user experience understanding; user research; designing

1. Empathic design

Consider a multi-disciplinary design team consisting of marketers, engineers, product designers, usability professionals, etc. The team has received a brief to design a communication product for elderly people, but none of them belongs to the user group himself. How does the design team make appropriate design choices for others who are unlike themselves?

The problem of understanding the user and his or her experience has a central place in user-centred design (Sanders and Dandavate 1999, Koskinen and Battarbee 2003, Sleeswijk Visser *et al.* 2005). The design literature of the past two decades has explored several ways of bringing contextual and affective factors into design. By 'empathic design' (Koskinen *et al.* 2003), designers attempt to get closer to the lives and experiences of (putative, potential or future) users, in order to

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increase the likelihood that the product or service designed meets the user's needs. Practitioners acknowledge the need to inform designers about user experiences and their context (Leonard and Rayport 1997, Buchenau and Fulton Suri 2000), and a number of tools and techniques have been presented (Fulton Suri 2003a) aiming to support designers to 'step into the user's shoes' and 'walk the user's walk' in order to design products that fit the user's life.

But, although the need is acknowledged, and techniques have emerged, a fundamental understanding is lacking of what empathy in design is, and how it can be achieved. In this study, we review the concept of empathy as discussed in design and in psychology and propose a framework of how empathy can be supported in designing. We have reviewed the interaction design and design research literature, which has a strong focus on user involvement and user experience. The design literature addresses empathy as a quality of a design process (Section 1.1) which can be influenced by individual ability and the willingness of the designer (Section 1.2) and several techniques have been proposed to enhance empathy in design (Section 1.3).

In the remainder of this article, we refer to all people who are involved in product idea generation (including marketers, engineers, usability professionals, etc.) when we mention designers.

1.1. *The 'empathic' as a quality of designing*

The adjective 'empathic' in relation to design was introduced in the late-1990s (Battarbee and Koskinen 2005) when companies started to realise that only listening to customers' responses on questionnaires was not enough to develop successful products (Leonard and Rayport 1997, Sanders and Dandavate 1999). This led to the view that designers should be more sensitive to users, be able to understand them, their situation, and feelings: to be more empathic. In the book 'Empathic Design' (Koskinen *et al.* 2003), several design practitioners discuss the role of empathy in design. All indicate that empathy is a necessary quality for developing products that meet customer needs. Mattelmäki and Battarbee (2002) and Fulton Suri (2003b) stress the need for qualitative research to inform and inspire designers to create 'more useful and enjoyable things for people [they] may never meet'. Empathy supports the design process as design considerations move 'from rational and practical issues to personal experiences and private contexts' (Mattelmäki and Battarbee 2002).

All the earlier-mentioned authors agree on seeing empathy as a quality of designing. But what exactly is meant by this empathic quality of designing? Metaphors have been the most prominent way of describing how empathy can be achieved. Battarbee *et al.* (2002) describe it as 'leaving the design office and becoming immersed in the lives, environments, attitudes, experiences and dreams of the future users' and 'internalizing the requirements of the users' (Battarbee 2004). This 'immersing' and 'internalizing' suggests that designers become users by releasing their own view: they merge with the users. Others describe empathic design as 'an imaginative projection into another person's situation' (Koskinen and Battarbee 2003), or a 'particular kind of imagination' (Fulton Suri 2003b). These terms 'projection' and 'imagination' imply that being empathic is a range of activities where designers should imagine what it would be like for themselves to be (in the position of) the user. These subtle differences in wording reflect the nuances found in the psychological literature in Section 2, but have not explicitly been discussed in design literature previously.

Empathic understanding goes beyond knowledge: when empathising you do not judge, you 'relate to [the user] and understand the situations and why certain experiences are meaningful to these people' (Battarbee 2004), a relation that involves an emotional connection (Battarbee and Koskinen 2005).

Concluding, 'the empathic' is an acknowledged quality of the design process, but its definitions stay rather vague.

1.2. Ability and willingness as required qualities of designers

Besides being a quality of the design process, empathy is described as an *ability* people have, and differs for individuals. McDonagh (2006) defines empathy as ‘the intuitive ability to identify with other people’s thoughts and feelings – their motivations, emotional and mental models, values, priorities, preferences, and inner conflicts’. When designing a product for elderly people, the designer does not have knowledge about being aged from his own experience. Every individual has his or her own unique experiences and these define his or her empathic horizon. The term ‘empathic horizon’ (McDonagh-Philp and Denton 1999) is used to indicate the limits on a designer’s individual ability to empathise beyond certain characteristics of his or her group, such as nationality, background, age, gender, culture, experience and education. Baron-Cohen and Wheelwright (2004) have developed a measure of someone’s level of empathy, called the ‘empathy quotient’ (EQ, which is different from other ‘emotional intelligent quotient’). The empathic horizon of designers can change over time and be extended by training and experience.

Next to ability, the willingness of the designer plays a role. ‘Design empathy requires direct and personal engagement and is dependent on the designer’s willingness’ (Battarbee 2004). One can think of the designer’s personal connection with the user that motivates him (e.g. a special interest into the user group, because it is familiar to him), his emotional state that hinders him (e.g. tired, or a workshop at the end of the day) or his commitment to the project (e.g. how much the designer is responsible for the project). This suggests that the situation determines to a large degree the level of empathy which can be achieved.

Training and practical experience can enhance the designer’s empathic understanding of users. Suggested ways to increase the designer’s ability and willingness include training of designers in research skills, and supporting an active and open attitude towards users. These suggestions require time and effort. In composing a design team, this ability and willingness of individuals should be taken into account. One designer in a team can have a large influence on the others, by expressing empathic reactions. To develop empathy is an individual act, but by discussing it in a team, the discussion serves as a trigger for others to make more connections, which will lead to increased understanding.

1.3. Empathic techniques

Several authors describe a variety of tools and techniques that are regarded as particularly helpful for promoting empathy. We have divided these techniques into three main classes: techniques for direct contact between designers and users (research), techniques for communicating findings of user studies to design teams (communication) and techniques for evoking the designer’s own experiences in a domain relevant to the user (ideation) (Figure 1).

First, direct contact with users is much emphasised by practitioners (McDonagh-Philp and Bruseberg 2000, Mattelmäki and Battarbee 2002, Fulton Suri 2003b). Most authors recommend having designers conduct observation studies, e.g. to follow the user in his context (Leonard and Rayport 1997). Sanders and Dandavate (1999) and Sleeswijk Visser *et al.* (2005) discuss how generative sessions with researchers and users, preferably with designers present, can assist users to explore and express their contexts of product use.

Second, communication techniques have been proposed when direct contact is not possible, which in practice is often the case for limited resources (e.g. budget and timing). External researchers conduct the user study, and interpret and communicate the user data and findings to the design team. For enhancing empathic communication, raw data (photos of users in their home environment, original quotes in their handwriting, etc.) has been advocated as a way to let designers make personal connections to the users’ experiences (McDonagh-Philp and Bruseberg 2000, Fulton Suri 2003a, Sleeswijk Visser *et al.* 2005). Sleeswijk Visser and Stappers (2007)



Figure 1. Three classes of techniques: for research, for communication and for ideation. From left to right: observation in the user's home, a persona representation including an insight and a quote, and a role-playing session of a design team.

discuss how the style in which users are visually depicted can promote or hinder empathic understanding. A growing range of storytelling techniques, including personas, scenarios, storyboards and role-playing, has been developed and applied to help designers appreciate the user experience (Buchenau and Fulton Suri 2000, Go and Carroll 2004, van der Lelie 2005, van der Lugt and Sleswijk Visser 2007).

Third, designers can also step into parts of the user's experience by simulating the user's condition. A variety of role-playing techniques has been described, and promoted under names 'product handling', 'experience prototyping', 'bodystorming' and 'informance' (Buchenau and Fulton Suri 2000). With role-playing techniques (Laurel 2003), sometimes supported by theatrical props or suggestive environmental atmospheres (Keller and Stappers 2001), the designer takes the perspective of the user, and acts out the user's life. Buchenau and Fulton Suri (2000) refer to exploring new product concepts or interactions with such simulations as 'experience prototyping'. 'An Experience Prototype is any kind of representation, in any medium, that is designed to understand, explore or communicate what it might be like to engage with the product, space or system we are designing'. Focusing on situations can bring the designer new ideas, e.g. by wearing a blindfold and going for a walk a designer learns which obstacles you face as a blind person. Then the focus of understanding the user is on behavioural and experiential aspects instead of user characteristics.

Empathic techniques cover direct contact, communication and stimulating ideation by enhancing imagination. Although many such tools and techniques are presented in design literature, they are described 'as is', and little argumentation or generalisation is given for those wishing to apply or extend the techniques. One reason for this is that much of the work is exploratory, and many presented cases are first attempts in a new field. But also we are lacking a shared language, or even a consensus of what aspects ought to be described, addressed or argued when promoting empathy in design.

1.4. Partial conclusion on 'the empathic' in design

Empathy serves to inform and to inspire designers to create products that fit the user's needs. Many authors mention the 'empathic' factor in design and indicate avenues of inquiry; however, the definition of what 'the empathic' exactly is stays rather intuitive. It is related to a *deep understanding* of the user's circumstances and experiences, which involves *relating to*, more than just *knowing about* the user. Moreover, the literature suggests, but does not elaborate, a wide range of psychological mechanisms, from creating awareness, emotional understanding, projecting, relating, connecting, to internalising the user's experiences. At this moment we think that the description 'deep understanding of the user and his or her experience including the situation and feelings' seems the common umbrella for this, but a structural overview is missing.

Design researchers have proposed a variety of tools and techniques for use in an empathic design process. Their active role, their ability and their willingness are addressed in making the use of empathic techniques a success. But can the concept of empathy be defined, refined and applied to evaluate, improve and tune the tools and techniques to better serve an empathic design process? We (the authors) are designers ourselves and feel the need to improve techniques to enhance empathy with users in designing. In order to deepen this fundamental understanding, we reviewed the development of the term empathy in the discipline of psychology, in order to provide a framework to support further efforts in the development of empathic design.

2. The construct ‘empathy’ in psychology

Empathy has been an important concept in psychology, entering from the philosophy of art in the late nineteenth century, developed in psychotherapy in the first half of the twentieth century, and in the past decade, receiving renewed attention within design. However, these three periods are almost unconnected: very few cross-references exist, either from the design literature to the psychological literature or from the psychological literature back to the arts. We reviewed the psychological literature by searching disciplinary databases and journals, and by consulting psychologists and libraries. The review of the psychological literature was aimed at selecting experimental and theoretical elements which appear fruitful for structuring the design activities.

2.1. Origin of empathy

Several authors on the history of psychology have addressed the origins of empathy (Wispé 1987, Duan and Hill 1996, Håkansson 2003, Nilsson 2003, Jahoda 2005). The construct of empathy originated in 1873 in art history, when Vischer used the term ‘Einfühlung’ (German for feeling-into) to describe a process in which a woman projects her entire personality upon an *object*, and in some sense merges with this object. The psychologist Theodor Lipps (1851–1914) applied it to explaining aesthetic experiences ‘Einfühlung [...] is the fact that the contrast between myself and the object disappears’ (Lipps 1903), and then applied the term to people’s experience and knowledge of other *people*’s mental states (Nilsson 2003). This addressed a fundamental problem of philosophers and psychologists, namely, how we come to know other people’s minds. Lipps proposed that people knew and responded to each other through *Einfühlung*, which was preceded and brought about by projection and imitation, especially imitation of affect. For example, smiling when you see someone else smiling.

Titchener translated the German term *Einfühlung* into the English term *empathy* (from Greek *em* – into and *pathos* – passion, feeling). In 1915, he wrote that empathy is important in imagination: ‘We have a natural tendency to feel ourselves into what we perceive or imagine. (...) This tendency to feel oneself into a situation is called empathy, on the analogy of sympathy, which is feeling together with another’. The distinction between *empathy with* and *sympathy for* has been a returning element in both scientific and popular accounts, empathy referring to an instrumental understanding, sympathy to an absorbed feeling. When you feel sympathy for someone your concern is for the other person’s well-being; you feel like *you are* the other. When you have empathy with someone your concern is to understand the other person; *you feel as if* you are the other. Wispé (1986): ‘Empathy is a way of “knowing”. Sympathy is a way of “relating”’.

Over the years, the concept of empathy developed in sociology, psychology and psychotherapy, and a shared jargon evolved, indicating the subject and object of empathy as the empathiser and empathee, respectively, and the realisation that empathy is not an instantaneous quality, but evolves in a process over time. Practitioners in these fields have addressed several issues within the concept

of empathy. Three issues will be discussed in the following sections: the merging of ‘affective’ and ‘cognitive’ mechanisms (Section 2.2), the question of whether the perspectives of the empathiser and empathisee, psychotherapist and patient, designer and user should coincide or remain separate (Section 2.3) and the steps that are taken to empathise (Section 2.4).

2.2. *Affective and cognitive empathy*

Most of the psychological literature distinguishes two components of empathy: affective and cognitive (Figure 2). The affective component is seen as an immediate emotional response of the empathiser to the affective state of the empathisee. 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.

The cognitive component was added by Mead: the understanding by the observer of the other person’s feelings (Baron-Cohen and Wheelwright 2004). The empathiser sees or hears about the situation of the empathisee 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 emphasised the role-playing activity, and suggested 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 discussed separately 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 brains make use of several affective and cognitive components (Damasio 1994).

For designers, awareness of both components is essential. One of the two components will not suffice for 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) seems to be the core mechanism of empathy. Creating the right balance between affective resonance and cognitive reasoning is a basic issue of empathy. We think designers should gain understanding of the user (cognitive), by feeling the user’s emotional state (affective).

2.3. *Perspective taking: becoming the empathisee or staying beside the empathisee*

A second important issue is whether the empathiser shares or understands the empathisee’s feelings. Both the metaphors from the design literature, as the early notions discussed in Section 2.1, suggest there is a difference.

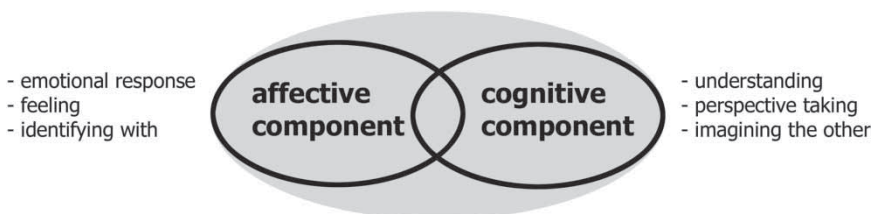


Figure 2. The components of empathy.

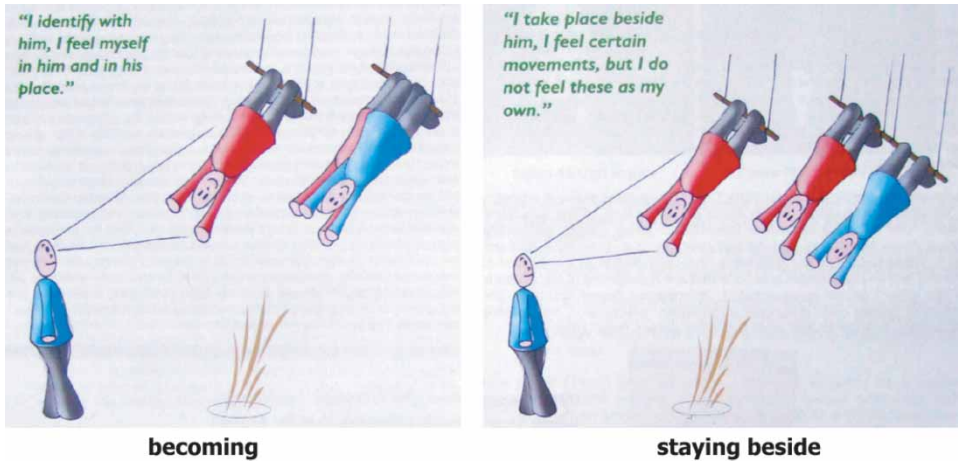


Figure 3. Left: according to Lipps, the viewer becomes the other. Right: Stein states that the viewer does not disappear, but takes a place beside the other.

Lipps had stated that *Einfühlung* takes place when the boundaries between the empathiser and the empathisee disappear, and explains this with an example of having empathy with an acrobat (Figure 3). In contrast, the philosopher Edith Stein believed that the boundaries should not disappear. The empathiser should understand the feelings of the empathisee (Nilsson 2003). Also Rogers (1959) advocated the difference, describing empathy as a state '[...] to sense the hurt or the pleasure of another as he senses it and to perceive the causes thereof as he perceives them, but without ever losing the recognition that it is as if I were hurt or pleased and so forth' (cited in Håkansson 2003).

This dichotomy reflects the split between affective and cognitive mentioned above, between 'resonating emotion' and 'reasoning perspective'. Thus, just as affective and cognitive components are interwoven, becoming and staying beside the empathisee are related.

The distinction is relevant for designing, because the various techniques in the field of design address both possibilities. When observing the user in the user's environment, the designer stays beside the user. One reason is that the designer is aware of his intervention in the user's context and has a researcher's role to play. By, e.g. role-playing, the designer can become the user for a moment.

2.4. *Empathising as a process*

Stein proposed a process of achieving empathy consisting of three phases (Stein 1917, cited in Nilsson 2003). These phases are: (1) the emergence of the experience; (2) 'the fulfilling explication' of the experience; and (3) the 'comprehensive objectification' of the experience. She argues that in the first phase you perceive a past experience of somebody else; in the second phase you get pulled into this experience, you stand next to the person facing the object of his emotion; and in the third phase you withdraw from the other's experience and you are back in the first state, though with a richer understanding of the experience of the other.

After Stein, psychotherapists such as Theodore Reik and Carl Rogers proposed variants of this process. Rogers referred to the middle phase as 'temporarily living in' the empathisee's experience (Rogers 1975, cited in Håkansson 2003). Table 1 compares these process models. In the 1980s, several variants of such processes were published (Barrett-Lennard 1981, Gladstein 1983, Kohut 1984). Although these processes differ in their details, their structure is fundamentally the same as those shown in Table 1.

Table 1. Phases of empathy distinguished by different authors.

Phase	1	2(a)	2(b)	3
Stein (1917)	Emergence of the experience: perceiving a past experience of someone else	Fulfilling explication: 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 internalising 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 being sensitive to what someone is experiencing	Living: temporary 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

All these authors describe the movement of an empathiser stepping into and stepping out of the empathee's life; and in between, the empathiser wanders around in this other person's life. The stepping in is needed for deep understanding, the stepping back for competent action. What serves as a process to guide psychotherapists in helping their patients may well also guide designers in helping users. Therefore, in empathic design, this stepping into and stepping out of the user's world are important phases to distinguish and to achieve. In the next section, we translate these issues into a framework for empathy in design.

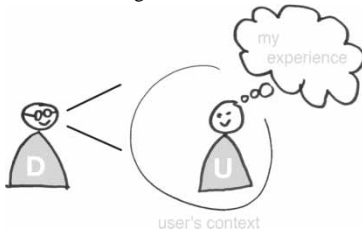
3. The process of empathy in design practice

The above describes issues derived from psychological literature which are essential to apply and develop techniques and tools in design. We propose a framework that can be applied to design practice, which is based on processes of empathy as described in Section 2.4 and integrates the factors of ability, affective resonance and cognitive reasoning. The framework shows a process consisting of four phases. It is based on the principle that a designer steps into the life of the user, wanders around for a while and then steps out of the life of the user with a deeper understanding of this user. These phases are (1) discovery, (2) immersion, (3) connection and (4) detachment. In each phase the relation of the designer with the user changes. The framework is presented in Table 2. This framework can be used to support further developments of empathic techniques in design. The framework shows that empathy includes both cognitive and affective efforts, and that empathy can be enhanced by a stepwise process. The four phases in the framework might seem obvious steps, but making each of these phases explicit and discussing them separately supports practitioners in understanding and applying empathic

Table 2. Four phases of empathy.

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/her willingness to explore and discover the user, his/her situation and experience

Immersion

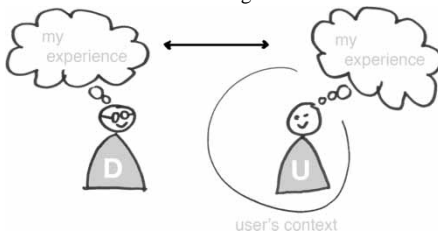
Wandering around in the user's world
Taking user's point of reference



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

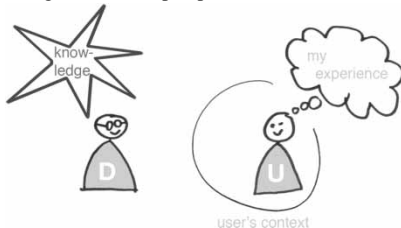
Resonating with the user
Achieve emotional resonance and find meaning



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

techniques. The different perspectives of the designer in each phase become more explicit, and give him better insight into what roles can be taken. When designers have more knowledge about the fundamentals of empathy, they can choose specific techniques and tools and use them in the right order.

Since the willingness of the designer determines to a large degree the level of empathy he or she achieves, the first phase in the framework ‘discovery’ is needed to support the designer’s curiosity and motivation.

The second phase ‘immersion’, might be the most important phase in realising an empathic process. In this phase, the designer takes time to wander around in and be surprised by various aspects of the user’s world. This phase requires time. Without this phase, the knowledge about the user’s world will not increase. In design practice, this phase is often not given sufficient time. Designers can be reluctant to immerse themselves, as this activity is not directly solution focused, and therefore the activity may not be perceived as relevant beforehand. By explicitly having the task to wander around, to immerse, without making judgments and implementations the designer becomes open-minded and experiences the user’s world for a while.

After having been deeply immersed, the designer can make emotional resonances by including his own experiences. The second and third phases are closely related, but by dividing them into two, we emphasise the explicit phase of bringing in the designer’s own experiences in order to understand what the user feels and what it could mean to the user.

In the last phase, the designer becomes the designer again and can use his increased understanding for generating ideas that better fit the user’s world.

This framework can be used to structure and organise design activities and to provide guidance for developing specific tools and techniques. The framework is not limited to specific activities e.g. a role-playing exercise, an observation study or a communication process, but rather provides a fundamental understanding of the mental process of achieving empathy and using that understanding in designing. It suggests a stepwise process which can be applied in various ways ranging from a small exercise to the planning of a design project over a longer time. According to the different factors of each project or activity (e.g. time scales, design problems, skills of the designers), researchers and designers can apply the process of this framework in their own ways.

We illustrate the way the framework can be helpful by applying it to each of the classes of techniques mentioned in Section 1.3 (research, communication, ideation).

In research, when e.g. observing a user, the designer should realise there are differences and similarities between his life and the user’s life and how to make use of these similarities and differences. A designer could e.g. after a field visit in a user’s home, which is mainly the immersion step, make a mindmap of these similarities and differences to help him detach from the user’s perspective and interpret his/her observations.

Communication of user study results could support both possibilities to immerse in the user’s world and to reflect on it with the designer’s own experiences. Communication tools should convey the flavour of the user’s world, as well as an understanding of it. By using tools which combine raw data (e.g. video fragments, quotes) and suggestive leads towards interpretations designers are supported in following all steps of the process. The raw data support their curiosity (discovery), allow them to dive into the user’s world (immersion) and enable understanding of the user’s feelings (connection). Next to raw data, suggestive leads towards interpretation (e.g. coding, patterns, diagrams) support designers in stepping out of the user’s world and back into the role of the designers, creating insights for ideation. Tools in which designers are participative in interpreting the message are most fruitful for a deep understanding of the user (Sleeswijk Visser *et al.* 2007). Data represented in stories, storyboards or in personas serve very well in allowing designers to step into and walk around in the user’s world, and connect with the user (Pruitt and Adlin 2006).

Finally, in ideation activities there could be several loops of the process taking place in order to explore and develop ideas. To evaluate if an early idea would fit the user’s needs, the designers could step in the user’s world, discover what aspects would have influence on the product use, wander around, try to understand how the user would feel and evaluate (detachment) how the idea can be improved according to the imaginary user’s situation. Some activities do not involve all

phases of the process naturally; e.g. during role-playing, designers are trying to connect with a user who is not there. Without having insight into qualitative user data, the main source addressed is their own experience, which is rich and useful, but one should be aware of its limitations.

A detailed case description of applying this framework in an ideation workshop is presented in Sleswijk Visser and Kouprie (2008) and in Sleswijk Visser (2009). This is only one implication, and we think that there are many possibilities to apply this framework in activities of designing.

4. Conclusion

The framework presented in this study gives insight into three key elements of empathy in design. (1) Motivation is crucial for an effective process. When designers do not see the advantages of empathy in design, the results can be unsatisfying. (2) Being aware that the process involves a combination of affective resonance and cognitive reasoning regarding the user's life can enhance empathy. Experiencing and reflecting can alternate the designer stepping into and stepping out of the user's life. Flexibility in this stepping in and out may be a key element of training designers at designing with empathy. (3) A process of empathy in design practice requires a structured investment of time. Not having or taking time is often the first barrier for an empathic process. Insights into the process of empathy can help designers to decide to use their time effectively according to the framework. For example, if designers follow an elderly person for a day, they have mainly invested their time in the first two phases of the process of empathy in design practice. If designers spend a few hours of observation and use their time, during and right after the observation, to go through all four phases explicitly, they can enhance their empathy.

We have presented a framework for applying empathy in design. The framework is based on fundamental findings from psychology brought to a designer's perspective. It is intended to contribute to the design discipline by helping to structure current approaches in empathic design. This framework gives insight into the process of empathy for the role of designer in relation to the user, and can be used to apply existing empathic research and design techniques, support development of new empathic tools and techniques and foster discussion about the emerging role of empathy in the design process. We hope the discussion about empathy in design and the development of empathic design tools and techniques continues, and that this article provides a new impulse to do so.

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