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The liquid drop model applied to the designer's dilemma of 'getting under the skin' of old users

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Introduction

Due to its minimal exterior surface, the sphere is one of the most common naturally occurring shapes. Physically, as the spheres' surface area strives to shrink as much as possible, it yields surface tension and surface energy.

Now, let's consider the sphere in the shape of a liquid drop of water as a *model for a design process*: the future end users are inside the drop and the designers and manufacturers outside. The end users' relevant world of conceptions is projected on the inside wall of the sphere, clearly visible from both sides due to transparency.

Instead of discussing existing design methods that aim at bridging or annihilating gaps between users and designers, we want to highlight an approach for designers that helps us increase reflexivity of what is beyond our grasp when interacting with users. The first steps are to become aware of the gaps, identify them, and then manage them. This *emphasises* and makes *visible* to both parties the existing *differences* in conceptions. The tension between these differences is considered to be the *potential* for mutual *learning* which benefits future design processes involving the same communities of practice. This will be exemplified by four cases relevant for designers and implemented in the area of *ageing and design*.

There are two possible but opposing overall approaches to this: The first and most obvious is to use methods that at the very least prevent designers from making many unintentional and unnecessary mistakes. The field of participatory design is full of such methods.[1] They strive to help the designer gain access to the same world as the users he or she is studying. In action research it is even more emphasised. There, the relationship becomes a cooperation between the designer and the user. At the same time as these methodological approaches eliminate the differences, they tend to miss out on the potential associated with the different world views.

An opposite overall approach is to proceed through documentation and analysis of examples of previous design situations where the gaps between users and designers have been considerable (to say the least), but which were not revealed until afterwards, and then more or less by chance, or because the product had to be withdrawn from the market due to disinterest from end users. Confronting many twofold situated examples simultaneously can clearly propel the process forward. It can even establish a learning environment and learning material that is more future-oriented than a bunch of fruitful participatory design projects.

The method of revealing and reinforcing differences for the sake of the design outcome can also be directly applied in new design projects or ones in the planning stage. The prerequisite then is not only informed consent from all parties but a shared interest and belief in the meaningfulness of joyfully exaggerating characteristics and differences rather than smoothing them over. In other words, using the image of the liquid water drop as a metaphor, the characteristics and differences are clearly visible from both sides.

The implementation area of this paper is ageing and design. It is a good example of a world that is not always accessible using prevalent methods by researchers who, in addition, have not yet reached this phase of life. These two factors give rise to tension and difficulties. At the same time, this is an area of growing significance as the proportion of older users in the general population is on the rise. The most obvious and foreseeable gap between the old user inside the liquid drop and the designer on the outside, is of course, age but also the

life situation: old users most often have retired while designers and manufacturers are still caught up in their careers, thus experiencing a different life situation. This is the way modern society is organised but can be seen as an obvious difference between the outside and the inside.

When the Ageing and Design Programme was launched at the Department of Design Sciences at Lund University, Sweden in 2003, it was the result of several years of critical discussions. It was not self-evident that old people were the right focus of a design programme. One question raised was whether we risked only reinforcing stereotypes of old people. But there were other reasons as to why it took so long. What were they? Why was it difficult?

One reason is that ageing research to a great extent is normative and seems to be a concept separated from the idea of our own ageing process, meaning that we have well-established, but not necessarily accurate, perceptions of what is good and bad for old people. Another explanation is that old people for the most part are invisible in publications that describe their needs and the processes in which the solutions are designed. Old people do not appear to be involved, which leads to a shortage of subjective experiences and a voice of their own. The focus is primarily on their diseases and physical functions, as well as the artefacts that have been suggested to solve their problems. Since their input, their contexts and their participation in the design process have been grossly under-represented, they have been neglected as users.

This situation has been captured in the terms 'lay end user' introduced by Ann Saetnan et al. [2] and 'implicated actors' formulated by Adele Clarke.[3] 'Lay end user' was introduced to differentiate between those involved and not involved in the expert discourse. 'Implicated actors' are defined as 'those silent or not present but affected by the action'. These implicated users consist either of those who are physically present but discursively constructed and targeted by others, or of those who are physically present but who are generally ignored or made invisible by those in power. Old people belong to both these groups. They are definitely present, not in the laboratory or design studio, but in their own lives and in their own contexts.

As general awareness increases of the growing number of old people and that this development can result in innovations and new markets, it is the task of policy makers, authorities and related businesses to set the necessary priorities. One of these is making the business world aware of this new opportunity. But what is being conveyed? Is it really the needs and preferences of old people or is it the standardised normative concept of old age that is behind it all? The normative concept tells us that any increase in the segment of old people creates an increased demand for rollators and other aids. Rollators can be improved with rubber wheels that provide more stability; other aids, like pill boxes, can be made automatic and exported. When old people themselves are allowed to voice their opinions of what they need, though, it is often other types of products and services they request, ones that provide them with continued control over their lives rather than being associated with helplessness and disabilities.[4] But what is it then that we export? Swedish design? Or Swedish inability to come up with customer-centred designed processes?

The liquid water drop model — a system with two perspectives

The liquid water drop model is a virtual system with the user on the inside and the designer and manufacturer on the outside. Designers and manufacturers are usually employed in organisations with the task of making products for the

users who reside inside the drop. One can argue that the outside, the inside and the border between the two constitute an entire system. The designers are, by occupation and training, the most qualified in the system in designing products, while the users are the most qualified in describing their experiences with products and thus, knowledge future needs. The overall system thus represents sets of human activities that are related to each other, either directly or indirectly.[5] The impediment with indirect relations is that the designer considers him or herself as having the right to interpret the needs of the users, and designing products based on these interpretations, without directly relating to the user.

It is thus better to adopt the approach of direct interaction between the designer and the user, of trusting individuals in the system to transcend their boundaries by meeting the user. But to what extent can we grasp their perspectives? We will present four examples which illustrate the possibilities and constraints in attempting to do so.

Can we bridge the gap by putting ourselves in their situation, i.e. 'getting under their skin'?

As already stated, the tension between old users and designers arises in part because the notion of being old is discursively constructed. But there are also differences in perspective and in experience. One way is to try to understand old users and their acceptance or rejection of communication technologies, as an example, by trying to understand their life situation as they articulate it. This in turn requires methods to make this articulation possible. Another way is to perform participative observations masked as an old person. In one case a researcher dressed up as an old lady, put on make-up and lived for periods with old homeless women in Washington D.C. She made friends with them, tried to experience and understand their life situation. When the field work was over she disappeared from the streets and from the group of women she had joined. In addition to the ethical considerations that can be raised, this study as well as other dubious examples of empirical experiments provide us with unexpected knowledge. The most serious doubt is whether the disguised researcher can really claim to understand the experiences, intentions and expectations of these women. Aren't the results more about her rather than about the old women she wanted to describe? Wouldn't the results be more accurate if she had not pretended to be an old homeless woman but let their voices speak for themselves? Getting under the skin of old users is more than trying to dress up like one or 'walking in their shoes' for a time.

Can we bridge the gap by letting the users steer methodology?

To take on the liquid drop model requires a reflexivity for the designer starting with the analysis of his or her own preunderstanding. One example of how hard this can be is the established view that an old person left alone to watch television is a sign of abandonment and involuntary loneliness. A study of elderly TV viewers revealed that this was a blind spot deeply rooted in the culture and norms of what is valued in modern society. It also revealed that the discovery was independent of the given methodology, but more the case of the researcher following her intuition that there was something more behind the phenomenon that the most frequent TV viewers are old people. The aim of the

study was to examine the relationship between being isolated in one's home and the level of understanding of what was going on in the community and in the world outside of one's home. The television watching habits and programme selections were unproblematic to map, until the day when the old subjects spontaneously started to relate that they were not really interested in what they watched. When asked why they then spent so much time in front of the television, their answers revealed that the television usage had become an accepted way of satisfying their needs to feel socially integrated, to have company but at a comfortable distance, as well as to be alone and contemplate. This last need can be quite difficult to satisfy in a society where activity is more valued than passivity, especially in old age.[6]

Can we bridge the gap by mutual learning?

Learning takes place among individuals in a system. Learning is defined in many ways but can be argued to be a process where new knowledge is acquired and present conceptions are changed. Such change is a process oriented type of learning, sometimes described as transformational learning. It starts with an individual who begins to critically reflect on his/her preconceived perspectives and how they have constrained the understanding of current experiences. Thereafter, gradually or suddenly, the individual begins to modify his or her preconceptions to make them better reflect the current situation.[7] However, when the designer's organisation requires a quick response to user needs and does not allow time for critical reflection, there is a risk that they will rely on the same perspectives and conceptions over and over again. In such cases, the liquid drop model would be a way for designers to emphasise critical reflection on a constraining preconception and learn about the users on the inside of the drop.

Another example of constrained perceptions can be observed in a recent study carried out with a mobile phone manufacturer in Sweden. Users were interviewed about their experience with the products. The users were concerned about the person at the other end being able to hear them and expressed it as 'the hearing ability in the receiving end'. The mobile phone designer on the outside of the drop interpreted the expression 'the receiving end' as referring to the telephone itself and not the person who was receiving the call. In this situation it was obvious that the designers in the manufacturing company were focused on their product to the extent that the comments of the users were misunderstood or dismissed.

Can we bridge the gap by convincing?

Another risk of missing the point is when the designer is so focused on the product that she puts herself in the position of convincing a resistant user to test an application. With the best of intentions, the designer may want to ensure that old users are not excluded from opportunities to try new technology. In such a situation the user experiences hardly come into question. The tensions this creates can be illustrated by this interchange between an old person (L) and a representative (P) for a local government run project to test shopping terminals in the homes of old people.

L: But I think my grocery shopping works out fine the way it is, so we can forget about using this grocery shopping computer, can't we?

P: No, I'm afraid not.

L: But why?

P: We are going to do the shopping this way instead so that we home helpers can serve you better. Now when Lena comes, she takes your list and goes out to do the shopping. She's gone about an hour. When she comes back, you have been sitting here all alone instead of the two of you spending time together.

L: But that's no problem, is it?

P: I had planned to type in your order here today so you would get the groceries tomorrow and you two can do something else together.

L: But you can't force a person to do that, can you? How can you tell me what to do?

P: No, I can't. But the fact of the matter is that you'll get better service this way. And it's also a political decision. That affects you too, you know.

L: Yes, but I'm content with how things are now. Why change something that is working so well?

P: You should have the same right as everyone else to have your groceries delivered to your door, which means that you will have more time with your home helper.

L: But surely that cost!

P: Not for you because you are already receiving home help.

L: But I mean for the municipality.

P: Yes, but just take advantage of it.

L: But am I the only one who doesn't want it?

P: No, no. My grandmother who is 80 wouldn't even have a coffeemaker in the house until last Christmas. It's the same with this machine — there is a general resistance.

L: Yes, but a coffeemaker isn't the same thing.

P: Wouldn't it be fun to try?

L: No. Don't I get twice as much help then if two home helpers are going to come?

P: Yes, but the one just types in the order and then she leaves.

L: Yes, but it's still double up? Isn't that a waste of resources?

P: Yes, in the end it's double up.

L: And sometimes I need to buy a few things in between.

P: But this will teach you to plan.

L: If I try it but don't want it, can I then go back to the way things were?

P: Yes, we'll change it back....

L: I'll test it once, but then you can take it back.

P: OK, then I'll come back and remove it . . . Is there anything you want to order now?

L: I can't say. Lena and I usually go through it together. She knows what I need.

P: OK, but you ought to be able to think of something?

L: Yes, but she has to buy it at different shops.

P: Hmmm

Conclusions

The liquid water drop as a model can serve as a complementary design approach with its potential based on the learning opportunities associated with the revealed, recognised and exhibited differences between the views of end users and of designers, rather than striving for consensus. We risk failure if we pretend to be the user, if we trust established norms, if we focus only on the product or regard the user as a passive producer of test results. Instead, the

relationship must build on increased reflexivity, a shared interest and learning. In that way the tensions between designers and users will create the necessary energy required to achieve good results.

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