Creating shared experiences and aims among stakeholders in a design process

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Abstract

This paper discusses a methodological approach to design that engages both presumptive users and other stakeholders. It involves workshop sessions that generate series of prototypes that both speed up the design process and increases the possibility for the end result to be regarded as meaningful by all stakeholders. Both users and other stakeholders participate in these workshops.

The method is technically simple. The objective is that ideas that are developed are grounded the in the lives of the participants. Instead of general descriptions that are reduced and without detail, we encourage actual descriptions of real situations that make sense to the participants. These narrations should cover the whole context of the situation. We ask the participants to tell us about incidents that they regard as important and meaningful.

The work proceeds by the participants locating opportunities and possibilities and generate ideas that seem desirable.

These ideas are developed into scenarios, both written and drawn and most importantly staged and videotaped them into video-prototypes. 'Quick-and-dirty' prototypes help to illustrate the scenarios.

Finally all participants look at all the video-prototypes that have been made and now have the possibility to discuss and criticise them.

These workshops give the participants shared understanding of each other's needs, desires and constraints. They also support all the different competencies involved in the design process to construct the same overall aim. The video-prototypes are design artefacts that represent these and can be re-cycled in the development process. They are rich descriptions in action that reveal needs, desires and constraints that are relevant for the product to be developed. But at the same time they are reduced from irrelevant information.

Since the descriptions are made with scenarios and simple prototypes they do not only rely on spoken language. Since they are constructed through hard work, containing both doing and making, the representations are limited relevant aspects.

Keywords

Design, workshop, design process, method, innovation, cooperative design, prototype, sketch, user, design space.

BACKGROUND

Design processes can be talked about in many different ways. Usually this reflects the background of the speaker. This paper focuses on design of artifacts that are non-trivial including software and services. I.e. the processes are more complex than problem solving which means that you cannot fully state all requirements beforehand. This is what Horst Rittel coined as 'wicked problems' (Rittel, 1973). Of course there are other motivations for staring a design process than problems. Imagining new opportunities that become available due to progress in developing new materials or techniques is another common starting point.

Sequential processes

The 'old' way of describing a design process is as a linear track where different activities are carried out. One common model for this is *the waterfall model* where every activity is contained within a box, with a result arrow on one side leading to the next box. This arrow often represents a written report that is delivered to the 'next' discipline.

There is definitely a trend in some fields away from the approach with sole experts to approaches that support understanding of the user's contexts, needs and desires. Still this is often done in a way where social scientists do the work of understanding and then toss a report over the wall to the designers. This is problematic from both discipline's views. However rich descriptions the social scientists can make they often tend not to understand what triggers designers and therefore are not satisfied with their work. The

designers on their hand tend not to find the reports meaningful and are not able to generate design ideas out of them. (conversation with Peter Tolmie). This is a waste of understanding since it is evident that not all relevant understanding and knowledge gained from an activity lets itself be represented in words or in a prototype. And if all knowledge could be represented this would contain far too much irrelevant information.

Concurrent multi-disciplinary processes

There have been experiments where the process deliberately concurrently engages people from relevant disciplines in the innovation process. One example is the research project *interLiving*. One of its objectives was to develop artefacts that use information and communication technology to facilitate intergenerational communication within families. A multidisciplinary team of researchers used a cooperative design approach and worked together with several families throughout the thee years that the project lasted. The researchers with backgrounds in computer science, ethnography and design were all engaged in most of the activities (Westerlund, 2003). The workshop methodology described later on in this paper was used and further developed in the interLiving project.

Another example is *the Innovation Pipeline*, an approach being developed and used at Pitney Bowes by Austin Henderson among others. He argues "for a product to make money for a company, it has to simultaneously meet (at least) four interacting sets of needs" (Henderson, 2005:26). It must be *technically feasible* to build the product. It must provide *value to the user*. This includes usability, but also enablement of novel or more effective user work practices. Its value to the customer must be something your company can capture and supply to the customer at a profit, i.e. *business value*. It must be a coherent with your *company strategy* and be designed to advance that strategy.

Therefore people at Pitney Bowes are trying to work concurrently from all four dimensions. They are creating collaborative teams composed of researchers and developers. "The researchers usually include technologists (e.g., physicists, mathematicians, mechanical and software engineers) and user-centered innovators (e.g., anthropologists, designers, HCI specialists). But the team must also include those who can address the business and strategic value of the ideas (e.g., marketing, finance, manufacturing, sales, and operations). These teams must work to iteratively innovate, develop, and evaluate concepts against this full spread of needs." (ibid: 27)

Henderson writes; "We are learning firsthand how hard it is to keep everyone happy. But that is exactly why new-product development is tough. With our Innovation Pipeline, we believe that we are attending to the whole problem throughout the innovation process in a coherent and reasonably efficient way. By integrating the many needs that must be met to create a technically feasible product that is valuable to users and will make a good business for our company, we are sharply increasing Pitney Bowes chances of getting really useful products into real users hands." (ibid: 29)

Requirements vs. prototyping

Design processes can basically start with two different approaches. They can start with requirements or with sketching and prototyping activities. Michael Schrage describes this as simply two different innovation cultures "some innovation cultures are specification driven; others are prototype driven" (Schrage, 1996). While IDEOs "David Kelly argues that oraganizations intending to be innovative need to move from *specification-driven prototypes* to *prototype-driven specifications*" (Schrage, 1996).

Design Space or Working 'backwards'

Design work should be considered as an inquiry (Gedenryd, 1998). He also suggested that design could be seen as working 'backward' from the future situation of use. This shows that it is actually the future situation of use, the imagined solutions, that are actively used when designing. These possible solutions are referred to as the *design space*. (Westerlund, 2005)

Basically we can describe a design process as the activities done in order to construct knowledge and understanding of the possibilities available, i.e. the design space and developing at least one of these into a design that can be produced or made public in an appropriate way. It is important to recognize that we learn and get experience of the design space both when finding 'stuff' that works, i.e. fit into the design space, as well as when finding 'stuff' that does not work.

Design instruments

Designers use a lot of different methods and techniques to understand the design space. Sketching, prototyping and scenario writing are some of these methods. They are far more important than just for representing what we are thinking of, for representing our ideas. They talk back and therefore become part
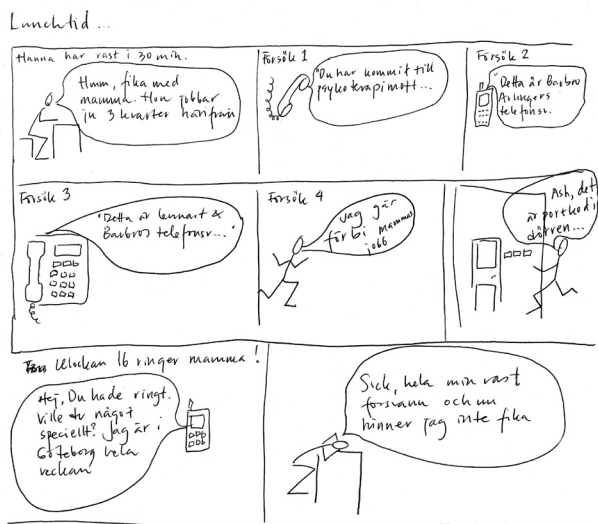
Figure 1&2. The workshop activities can be divided into four diffrent parts: 1. Scenarios are told and represented, 2. Ideas fir solutions are generated

of our process of thinking and influence it. (Gedenryd, 1998) One might say that sketching and prototyping is 'doing for the sake of knowing'.

These methods and techniques are sometimes called design instruments. They are important not only to the creator since they allow shared access. When collaborating in design processes these design instruments are crucial since the help to articulate the 'discussion', (Design Instruments Workshop in Semmering 2005)

REALITY BASED VIDEO PROTOTYPES

This section presents and discusses one design instrument that enables collaboration in design processes, aka participatory design or cooperative design. It is a methodological approach to design that engages both presumptive users and other stakeholders. The activities involves workshop sessions that generate series of video prototypes that both speed up the design process and increases the possibility for the end result to be regarded as meaningful to all stakeholders. Both users and other stakeholders participate in these workshops. At CID (the Centre for User Oriented IT-design at The Royal Institute of Technology in Stockholm) we have conducted several series of workshops in different kinds of projects. The workshops were one of the methods used to create design ideas and to acquire understanding of presumptive users needs and desires. The different projects have involved families, distributed workers, people with different kinds of disabili-

ties and elderly people and their caretakers. In these projects the workshop methodology has been one of several methods that were used to construct knowledge of the design space, we have triangulated with the help of the different methods. *Triangulation* refers to using more than one research approach to address the same question (Mackay, 1997).

The workshop method is technically simple. The objective is that ideas that are developed are grounded the in the lives of the participants. Instead of general descriptions that are reduced and without detail, we encourage actual descriptions of real situations that make sense to the participants. These narrations should cover the whole context of the situation. We ask the participants to tell us about incidents that they regard as important and meaningful. Although both desirable and problematic experiences are interesting for the process, most stories concern problematic incidents.

Although the stories often tend to describe problematic situations like technology breakdowns we will not get complete descriptions of the problems. Instead we will have the core of the situations described. The situation will be subjectively analyzed by the participants. The actual impact will be highlighted in the stories. This reduction will make the situation more available to design activity than say a list of requirements that are abstract.

The work proceeds by the participants locating opportunities and possibilities and generate ideas that seem desirable. Since multiple ideas are generated our
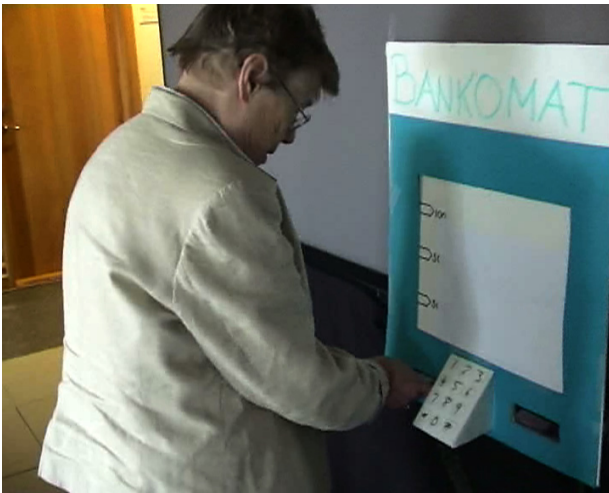
Figure 3 & 4. The workshop activities can be divided into four diffrent parts: 3. Scenarios are acted out with simple prototypes and props and are tapped on video into video prototypes. 4. Finally there is time to look at all the video prototypes that have been made during the workshop. Now is the time to reflect, critizise and generalize.

experience is that it is most fruitful not to negotiate these into a single idea. Instead each idea is kept and represented. Later on there is always time to screen the ideas.

Some of these ideas are developed into scenarios, both written and drawn. And most importantly the scenarios are staged and videotaped into video-proto-types. 'Quick-and-dirty' prototypes help to illustrate the scenarios.

Finally all participants look at all the video-proto-types that have been made during the workshop. Now everybody has the possibility to discuss and criticise them.

SHARED UNDERSTANDING

These workshops give the participants shared under-standing of each other's needs, desires and constraints. Since both users and other stakeholders participate in these workshops the developers participating have first hand information and construct understanding and knowledge about the design space.

The workshop activities also support all the dif-ferent competencies involved in the design process to construct the same overall aim. The video-prototypes are design artefacts that represent these and can be re-cycled in the design process. Since the descriptions are made with scenarios and simple prototypes they do not rely only on spoken language. They are rich descriptions in action that reveal needs, desires and constraints that are relevant for the product that is de-

veloped. But at the same time they are reduced from irrelevant information.

Elisabeth Sanders emphasises the importance of design instruments that support understanding not only what people say but when "all three perspectives (what people *do*, what they *say*, and what they *make*) are explored simultaneously, one can more readily understand and establish empathy with the people who use products and information systems." (Sanders, 1999, italics by me)

"Traditional design research methods were focused primarily on observational research (i.e., looking at what people do and use). Traditional market research methods, on the other hand, have been focused more on what people say and think (through focus groups, interviews, and questionnaires)." (ibid)

In summary the workshop methodology supports aspects that were mentioned earlier in this paper. It supports:
- concurrent multi-disciplinary design processes
- prototype-driven design and
- aquiring knowledge and experience about the design space

The workshops can be seen as a kind of 'sketching' activity; sketching the future use of the products and services. The sketching is done by saying, doing and making. This works well in certain cases but not as good in other ones. Therefore there needs to be more work done in developing design instruments for com-plex interactive products and services.

I end with a quote from Austin Henderson. "User-centered innovations, yielding concepts that would be

of great value to users, never make it to product, or they get watered down, re-engineered, and washed out on the way to becoming unusable products. … in general [we] tend to look at the development of products much too narrowly. [„,] We believe that development can be more effective if all these needs are considered concurrently." (2005: 25)

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Note:

Design Instruments for Interactive Systems Design was a Convivio Workshop, 8.-10. September 2005 in Semmering, Austria. No material is publicly available yet.

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