THE MAKING OF A MOCK-UP: A STORY ABOUT HOW IDEAS ARE FRAMED USING REALITY AS SCAFFOLD

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ABSTRACT

As part of a research project about user involvement in textile design we have carried out two Design:Labs (Binder & Brandt 2008) engaging different stakeholders in designing textile products for Danish hospital environments. In this paper we follow a mock-up session done as part of the second Design:Lab, where we meet a group working with the intensive care ward.

Looking back at the video recordings from the session it became clear, that the participants continuously drew on elements from reality as they interacted with tangible materials and each other. We therefore claim that reality is an important element engaging in the hypothetical space of the Design:Lab, as it can function as a scaffold for ideas, ease the communication within the group, as well as help communicating ideas to people who have not participated in the Design:Lab.

INTRODUCTION

The research project "*User-driven innovation and communication of textile qualities*" has been running since spring 2008. It is a three year long collaborative innovation and research project with participants from The Technical University of Denmark (DTU), The Danish Design School, Kolding Design School and two Danish textile companies; one fabric producer and one yarn producer.

The main focus of the project has been to experiment with various ways of involving end-users and other stakeholders in developing new textile qualities and new textile products for Danish hospital environments. One of the ways we have tried to involve different stakeholders has been through so called Design:Labs (design laboratories) (Binder & Brandt 2008) in which stakeholders with different backgrounds have been engaged in investigating the possibilities of using textiles in creating the healing hospital environment of the future. Through two Design:Labs we have involved ar-

chitects and engineers planning a future Danish hospital as well as textile designers and design researchers. In this paper we wish to analyze a mock-up session at the second of these two laboratories.

At the first Design:Lab the participants explored existing hospital envi-

Figure 1: Visualization of the "crying-chair " (in Danish: tudestolen)", a chair in which relatives can hide and cry without being seen.

Figure 2: Visualization of the "relative-module" (in Danish: pårørende-modul). A piece of furniture relatives can take with them around in the hospital to make their stay at the hospital more private.

ronments and existing user practices through pictures, scenarios and personas and examined ways to improve this environment's healing capabilities. This Design:Lab resulted in a number of ideas for textiles products which were afterwards illustrated by a design engineer. These can be seen in Figure 1 and 2.

At the second laboratory some of the ideas were developed further among other through a mock-up session. During this session the participants explored tangible materials, such as plasticine, cardboard, pipe cleaners etc. and various textiles supplied by the involved fabric manufacturer. This exploration can be seen as an activity of making, in which the participants visualized their ideas through tangible mock-ups. It is this activity of making and how the participants performed it, we analyze in this paper.

In the following we meet a group of six who during the two Design:Labs worked with the intensive care ward environment. The group consisted of a facilitator (design researcher), an architect, two engineers, a nurse (now working with hospital design) and a textile engineer now being a PhD student at DTU (and second author of this paper). We meet the group during the mock-up session which was the last part of the second Design:Lab. The group chose to create a piece of

furniture for patients and relatives at the intensive care ward, through which they tried to merge their two earlier ideas presented in Figure 1 and Figure 2 – the "crying-chair" and the "relative-module".

EMPIRICAL FOUNDATION

The two authors of this paper both participated in the two mentioned Design:Labs, the first author planned the Design:Labs and facilitated a group which is not studied in this paper, the second was a participant in the studied group. Participatory action research (Whyte 1991) has thus been carried out.

In order to investigate the posed problem, i.e. how a mock-up session could be used to develop the ideas for textile solutions generated at Design:Lab 1, an exploratory qualitative inquiry has been made. Video recordings, photographs and created artefacts constitute the empirical data, which has subsequently been analysed. The material have been analysed by three researchers from DTU (the two authors and a fellow researcher) and the video has in addition to this also been analyzed by an interaction specialist in connection with the Participatory Innovation Conference 2011.

The Design:Lab participants were professional architects, engineers, nurses and textile developers who were at the

moment either designing a Danish mega-hospital or working with designing textiles for hospital environments. The participants were thus well suited for participation in designing textile products for hospitals and the situation presented in this paper is therefore highly realistic.

EXISTING LITERATURE

Binder & Brandt (2008) have proposed the term Design:Lab to describe a participatory inquiry in which stakeholders engage in open collaboration. They see the Design:Lab as deliberately staged activities during which a controlled environment for exploration is created. They mention, that in the laboratory the participants can negotiate how much of the world outside is taking in or left out of the hypothetical space.

We see the participatory inquiry that we write about in this paper as a Design:Lab and wish to use this term to highlight the controlled nature of the environment created. During the Design:Lab our participants seemed to take elements of the outside world into the controlled environment as Binder & Brandt (2008) mention. Using the Design:Lab term makes it possible for us to analyze the division between reality and hypothetical space and how elements of reality is used in the Design:Lab.

Brandt (2001) has looked at how mock-ups can support collaboration during design processes and sees them as "things-to-think-with" as well as boundary objects. She argues, that design problems are framed and re-framed through the design process and that tangible mock-ups seem to support the creation of a common language game and thereby a common ground to communicate around (Brandt 2005).

In this paper we will also use the term boundary object to emphasize different objects' ability to facilitate communication between the participants. And as Brandt argues, we see how a common language game appears around a mock-up, but what we also find interesting is that the mock-up and the evolving language game has clear connections to reality.

Figure 3: The facilitator shows a technical drawing of the future intensive care ward and asks: "How much space is there for such a chair?"

THE MAKING OF A MOCK-UP

As an introduction to the mock-up session two textile developers from the involved fabric manufacturer made a presentation of a variety of textiles. During this presentation, the participants could touch and manipulate the textiles and ask questions about them. After the presentation, the participants had the opportunity to choose materials for their mock-ups from what we called "The inspiration room". In this room the presented textiles were available as well as a range of other materials such as pieces of felt, foam, colored plasticine, colored paper, colored wooden sticks, pipe cleaners and small plastic dolls. These materials were spread on large tables the participants could walk around and choose from. After selecting a range of materials the participants went back to their respective workrooms and started shaping their mock-ups.

SHOWING REALITY

The group working with the intensive care ward decided to start working on the "crying-chair" and the "relative-module". At first the participants sat shaping a mock-up each, but they soon started talking about what they were working on, showing their progress and sharing their visions. One participant tried to describe her idea using a coffee filter and the metaphor of an oyster and also mentioned the

functioning of a roll-front cabinet. She though quickly gave up finishing her mock-up. It seemed like she had a hard time making it look and work as she envisioned and that the other participants did not really understand her visions. Another participant referred to his lack of modeling abilities and finished his mock-up very fast, avoiding showing it to the rest of the group.

As these two participants sat looking at the other participants working, the

facilitator grabbed a technical drawing of the future intensive care ward (see Figure 3). The participants knew this drawing from their daily work designing the hospital for which the ward was designed.

The facilitator asked how much space they actually had to work with and where in the room this space was situated. This seemed to trigger especially the two participants no longer creating mock-ups and a participant just finishing his plasticine mock-up. These three participants eagerly started discussing the drawing, showing with their arms how much space the furniture could occupy. One participant sat down in his chair and raised his right arm, showing the position of the surrounding furniture and explained how uncomfortable it would be sitting next to it (see Figure 4).

In this first part of the session we see, how one participant made a connection to reality when trying to explain her idea with principals already of existence; the oyster and the roll front cabinet. She hereby aimed communicating her idea and vision through language game they already had in common. By bringing in the technical drawing the facilitator also tried making a connection to reality (the participants reality, as they knew the drawing), through a tangible material. This instantaneously drew attention and was used as a

Figure 4: A participant is showing with his arm how high the bed is compared to the existing chairs in the intensive care ward.

boundary object which the participants pointed at and drew upon.

FRAMING IDEAS THROUGH A DESIGN ICON

While discussing the technical drawing a participant suddenly mentioned that they could use "The Egg" (see Figure 5), the famous design icon by the Danish architect Arne Jacobsen. One of the other participants immediately reacted to the comment and suggested putting a pole in the top of The Egg and hanging it in the lifting system in the sealing. On this cue the three "available" participants started developing the idea further. One molded the chair, one molded the pole to hang it in, while the last of the three participants sat talking about how the pole could be designed for the chair to turn but still be sturdy.

When the small mock-up in plasticine and pipe cleaner was done the participants showed it to the rest of the group (see Figure 6) and the whole group started verbally developing it further together. They mentioned that a sound system could be implemented into the chair as well as small pockets for magazines and other personal things. They also talked about how the chair could be moved around via the lifting system and how the users could write their experiences on the fabric to make it more personal. They even talked about a fabric for the chair which the patient could bring home when leaving the hospital as a kind of "souvenir" (see Figure 7).

In this situation The Egg is a clear element from reality brought into the Design:Lab and here becomes a boundary object. As all of the ideas suddenly emerging were clearly connected to the day's previous discussions, it seems that The Egg assisted framing the thoughts the participants had had during the day. The participants had e.g. discussed the importance of being able to personalize the intensive care ward, which now, with The Egg to frame the thought, became the idea of a chair fabric to write stories on and pockets for magazines.

CREATING A ROOM FOR REALITY

After the fast development of the hanging chair, one participant started almost whispering to one of the other participants about a suggestion she in reality had heard about on how not yet

Figure 5: The original Egg by Arne Jacobsen

Figure 6: The plasticine model of Hang On receives almost everybody's attention

Figure 7 The Egg made out of white plasticine and a pipe cleaner. The blue plasticine represents pockets and the orange represents tags written on the fabric.

Figure 8: Participant sharing a suggestion she in reality had heard about while turning herself away from table and lowering her voice.

established artists and designers could lend their art and designs to hospitals and thereby get it exhibited. She explained how both parties would benefit from this and told that an artist had actually made her aware of this possibility (see Figure 8).

Through her body language and lowered voice it seems, that she thought, that the conversation did not fit into the hypothetical space of the Design:Lab. Instead she created a small room of reality inside the Design:Lab by pulling away from the hypothetical space the table symbolizes (turning away and lowering voice) and engaging in a normal colleague to colleague idea sharing process.

JUST A REPRESENTATION

As the facilitator started summing up which concepts they had, the group tried to give "The Egg" a name. As the group had earlier talked about a "Cozy Corner", the facilitator suggested "Hanging Cozy Corner". One of the participants quickly responded to this by suggesting "Cozy Egg", which did clearly not resonate with the rest of the group. Everybody responded *"No no no"*, one participant said *"we simply do not want The Egg"* and another again said *"The Egg is just to show, that the main element is the pole"*. Shortly after, a participant instead tried to suggest calling it "Hang on", which both sym-

bolized that the chair hangs in the lift system and that it helps the patient and relatives to "hang on" to life. It is a place where they can find comfort, where they can cry and let their emotions run loose. This name, which had a clear element of humor, resonated better with the group and they agreed on it. The humoristic aspect was taken further as the group presented the results of the day to the other two groups and Hang On was presented as designed by Arne Jacobsen's cousin Bjarne Jacobsen from the small city Tilst (see Figure 9).

This situation signalizes that the group members used the reality The Egg symbolizes to portray which kind of chair they imagined hanging in the room, but that they still were very much aware, that The Egg was supposed to be just a representation of the future hanging chair. Giving it a very different name and making fun with designer names shows that the group distances itself from The Egg and acknowledge the impossibility of the real Egg being present at Danish hospitals. They hereby drew a strict line between reality and the hypothetical space of the Design:Lab.

During the mock-up session the participants several times showed that they were well aware that they moved back and forth between reality and a hypothetical space. This is e.g. evident

from Transcript 1 below, where one of the participants says *"Then we are almost over in a realism phase…"* (freely translated from Danish).

DISCUSSION

From the mock-up session we see how the participants brought in elements

A:	That's on a good day that it looks like that.
B:	Yes.
A:	You'll often experience that there is more stuff in the ward.
B:	But I don't think that we can expect, that, if there is something that - if they - But now we are almost into the realism fase, then
A:	mmm
C:	Yes, Okay we are.
B:	Erhm because then we have to say that it has to fill as little as possible because the moment it first becomes… too space requiring, then… the tendency to use it will be minimal

Transcript 1 English transcription freely translated from Danish by the authors.

of reality by mentioning oysters, roll front cabinets, showing the technical drawing, re-creating The Egg and leaning away whispering about suggestions from reality to a colleague. Furthermore, the participants seemed to be aware of the difference between reality and the hypothetical space of the Design:Lab. They expressed it verbally, as in the above transcript, but they also showed it in the situation where two participants made a discrete "space" by whispering and by wanting a name for the chair with no associations to The Egg. The Egg was just a representation! Bringing in reality to the Design:Lab was hence done in different ways, through verbal descriptions, different physical artifacts representing reality and through private discussions. When reality was brought in, it was also used in different ways. The oys-
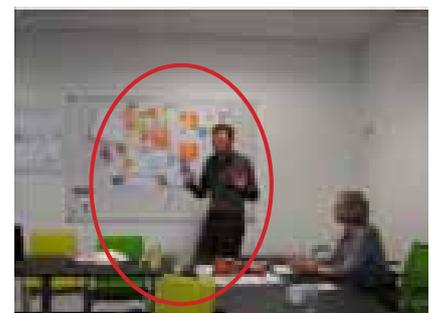
Figure 9 A participant presents the result of the intensive care ward group. The mock-ups are placed on the table in front of him. He lifts them up when he introduces them to show them to the audience.

ter and roll-front cabinet was used to describe a functionality, the technical drawing was used as a common point of reference and The Egg was as a scaffold framing different thoughts they had had during the day. One suggestion from reality a participant shared with another participant was not used as an element in the Design:Lab but turned into a normal colleague to colleague conversation.

Using reality thereby had different purposes and also different effects. The participant bringing in oysters and the roll front cabinets wanted it to assist her explaining her idea which did not seem to work. The other participants did not understand her visions, maybe because the elements of reality were only used orally and not physically represented. It proved to be too difficult for the other participants to mentally transform the words into an understanding of her idea.

The facilitator on the other hand brought in the technical drawing to assist the participants' idea generation by making it more specific in regards to the intensive care ward. This seemed to work very well as it became a boundary object which assisted the participants' communication and made it possible for them to agree on how much space was available for the new furniture. This instantaneously triggered the development of ideas.

The Egg, though probably not intentionally brought into the Design:Lab, became a scaffold for issues addressed during the day which were now turned into concrete ideas. The group had e.g. talked about the possibility of personalizing the hospital and leaving traces in the environment which was made possible through the option of "tagging" the chair.

It was obvious, that the chairs' reality element got the groups attention as they seemed very eager with the idea making jokes with the designer name, suggesting that it could be used on a monorail etc. Actually Hang On received a lot more attention than the oyster idea which was skipped before it had been developed and also more attention than the three other mock-ups created during the mock-up session. .

Using reality as a scaffold to frame ideas also seemed to make it easier to bring ideas out of the hypothetical space of the Design:Lab and share it with others. The familiarity of Hang On made it easy for the intensive care group to communicate to the other groups at the end of the Design:Lab day. The mix of reality and fiction in Hang On made it easy to joke about it, which made the other group participants as well as us as researchers remember Hang On long after the Design:Lab.

CONCLUSION

Binder & Brandt (2008) mentions that the participants in a Design:Lab can negotiate how much of the world outside is taking in or left out of the hypothetical space of the Design:Lab. In the mock-up session described we see how the participants bring in reality in different ways, for different purposes and with different results. Our experience with this mock-up session has therefore refined our understanding of how reality can be used and which role it plays in a Design:Lab. Primarily we have acknowledged that reality can become boundary objects which can assist the communication. Also we have seen, that the communication is best facilitated if reality is brought into the Design:Lab through physical elements such as a technical drawing or a mock-up of The Egg.

With regards to The Egg we have seen that reality not only can work as a boundary object, but also can become a scaffold on which thoughts and ideas can be framed and through which they can be communicated both internally and externally.

Reality is an integrated and important part of participatory encounters where hypothetical spaces are created – such as a Design:Lab. Rather than trying to create the perfect hypothetical space we therefore believe it can be beneficial to use reality to assist communicating (through boundary objects), framing thoughts and ideas and make it easier to communicate these thoughts and ideas out of the hypothetical space.

ACKNOWLEDGMENTS

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