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Co-constructing stories: a participatory design technique to elicit in-depth user feedback and suggestions about design concepts

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ABSTRACT

In this paper we introduce a participatory design technique for early, formative concept evaluations to elicit in-depth user feedback and suggestions, revealing attitudes and motivations of users. The technique is motivated by the link between memories, experiences and dreams, and is based on the assumption that users can make better judgments about novel design concepts if they link them to their past experiences. The technique involves user sessions consisting of two main phases, one focusing on recollecting past experiences in related contexts, and one focusing on envisioning future experiences that can be enabled by the use of the concept. In both phases, designer-user dialogue is established through storytelling. Storytelling is used by the designer to set the stage and to present the concept and by the user to communicate his past and anticipated future experiences. The technique results in joint stories about novel concepts. In this paper we explain the technique in detail. We discuss its theoretical background and relation to other user research methods. We share the insights that we gathered through first pilots. The paper concludes with a discussion about the use of this technique in the design process and future research.

Author Keywords

Design Research Technique, User Experience Design, Participatory Design, Storytelling, Concept Evaluation.

ACM Classification Keywords

H5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

INTRODUCTION

For the last two decades meaningful and engaging experiences have become the pledge of design. However, it is challenging to design for user experiences, as individual differences and the situations in which people interact with the products are influential in shaping the experience (Karapanos et al, 2008). Thus, to inform their design process, designers need to have a deep understanding of users and the use contexts.

In a previous study, we investigated what type of feedback designers consider valuable (Ozcelik

Buskermolen et al, 2012). The study revealed that when designers present early design concepts to end-users, they consider contextualized and grounded feedback most valuable. Moreover, they appreciate real-life stories of users as these are informative, inspiring and trustworthy. Based on insights from that study, we developed a participatory design technique for early, formative concept evaluations to elicit in-depth user feedback and suggestions specific to the design concept. The technique utilizes storytelling and sketching to elicit past experiences of users and anticipated future experiences enabled by the design concept. This paper informs about this technique called *co-constructing stories*. In the remainder of the paper we discuss the motivation for the technique and explain the technique itself. We compare the technique to related techniques proposed in the literature. We share the insights gathered through first pilots and conclude the paper with a discussion about the use of this technique in practice and the future research that will be carried out.

MOTIVATION

For the last two decades the focus in the design of human-product interaction is no longer solely on the users' behaviour and cognition but also on the users' experience (Desmet and Hekkert, 2007). Products are no longer treated as commodities but as "creators, facilitators and mediators of experience" (Hassenzahl, 2010). Designers are appointed not only to design usable products but also distinct and desirable user experiences. Thus design research and practice show a great interest in building an understanding of experience and developing and utilizing tools and methods that help designers to design for user experiences.

Hassenzahl (2010) describes experience as an episode that one went through. It is shaped by a person's senses, feelings, thoughts, motives and actions. Although the designer cannot guarantee the emergence of a certain experience for the user, he can increase the likelihood through applying the available knowledge about experience. Forlizzi and Ford (2000) argue that user experience is shaped through the interaction of the user, the product and the use context. In order to be able to craft this experience, the designer should have a deep understanding of the users and the context in which the product will be used. The main motivation for the development of co-constructing stories technique is to help designers in obtaining a deep understanding of users and their current and anticipated use contexts.

CO-CONSTRUCTING STORIES

Co-constructing stories is a participatory design technique for early, formative concept evaluations to elicit in-depth user feedback and suggestions. The development of the technique is motivated by the link between experiences, memories and dreams (Sanders, 2001), and is based on the assumption that users are better prepared to judge whether novel design concepts will enable valuable experiences in the future if they revive their past experiences first. To achieve so, the technique combines generative techniques and storytelling principles into a practical procedure.

The technique is developed for co-located user-designer dialogue. It consists of two phases: sensitization and elaboration (Figure 1). The sensitization phase aims to make participants think about their past experiences, so that in the elaboration phase they can better envision the future. The sensitization phase starts by a basic fictional story told by the designer introducing the context of interest and setting the stage for dialogue. After the story ends, the designer asks the user whether he recognizes the story, why or why not. He engages in a dialogue with the user, through non-directive questions, aiming to evoke relevant past experiences. With these questions the designer encourages the user to supplement the basic story with real life contents. As a result of this dialogue, user stories revealing past experiences are elicited that enrich the designer's understanding of the current context of use.
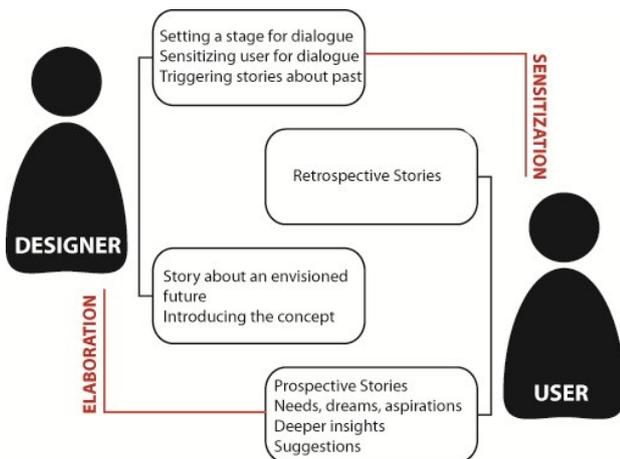

Figure 1. Phases of co-constructing stories

The second phase starts with designer's fictional story that introduces the concept in an envisioned context. When the story ends the designer elicits positive and negative feedbacks about the concept by asking what the user liked and disliked in the story. Then, the designer asks the user to envision how the story would be like if the main character in the story were the user himself. The user is asked to sketch the situations he envisions, while he is thinking aloud. The designer facilitates this envisioning process with non-directive questions. With these questions, the designer encourages the user to supplement the basic story about the concept with contents representing anticipated future experiences, based on his needs, dreams and aspirations. As a result, the designer and user co-construct rich stories about the

use of the concept in potential future use contexts. The whole session lasts about forty-five minutes and is video recorded.

RELATION TO OTHER USER RESEARCH METHODS

Co-constructing stories is a participatory design technique and it utilizes storytelling. In this section we discuss the technique in relation to other methods which were developed in this field.

Participatory Design

The cultural probes technique (Gaver, Dunne, and Pacenti, 1999) is among the first and the most well-known participatory design methods. It is a projection technique, aiming to gather information about people and their activities through self-documentation by using the materials (diaries, cameras, recorders) provided by the designer. Cultural probes reveal information about users' current activities and do not address people's expectations about the future. It is the designer's task to interpret these views into the users' everyday life and use the interpretations to come up with concepts which will enrich people's life. In contrast, co-constructing stories serves several different purposes. The first phase helps users to relive relevant past experiences which facilitates thinking about the future, and it provides designers with materials helping to establish empathy with users. The second phase helps designers and users to build more credible and convincing stories about future experiences.

Sanders (2001) argues that experience involves past, now and future. Thus she developed generative techniques (Sanders, 2000) to collect dreams and aspirations of people. Users are given a toolkit with simple components and they are asked to make artefacts, such as collages or mock-ups, to describe their past or ideal experience for the domain under consideration. The main interest of the researcher is the story that the person tells while he is describing the artefact, as it is believed to reveal latent needs and dreams. With our technique we are aiming to elicit stories about past and future experiences that are relevant to the design in a more direct manner, creating empathy with the user.

Sleeswijk Visser et al. (2005) combined cultural probes and generative techniques into a practical framework called contextmapping. It aims to elicit contextual information in order to inform and inspire the design team. The framework has two main phases where participants are involved: the sensitization phase and the session. Cultural probes are used to sensitize the participants to the context of interest and generative techniques are used during the group session. It is a very effective framework in reaching latent, contextual information; however, it requires quite some time and effort in comparison to traditional user studies regarding the preparation and execution of the study. Moreover it generates a rich set of data (Sleeswijk Visser et al, 2005) which requires another step from the designer to make sense of the data and use it. With co-constructing stories we are aiming to elicit similar type of data in a shorter period of time, as the sensitizing phase is integrated in the session. Another difference is that the contextmapping technique is much less story-oriented.

Storytelling

"Story is a key mechanism through which human experience has been shared for generations" (Gruen et al., 2002). Therefore, it is not surprising that design tools and methods based on storytelling have been widely used to support user experience design. Gruen et al. (2002) distinguish two types of stories used in this field: fictional stories and customer stories. Fictional stories are created by the design team about a novel design concept, explaining the use and the value of the design concept. The Storify tool (Atasoy and Martens, 2011) aims to help the designer to create that kind of stories.

Customer stories, or user stories, are collected from people who might be prospective users of the design concept. These stories are the collection of retrospective experiences which reveal emotions and concerns of people (Makela and Mattelmaki, 2002). Several tools and methods have been developed to elicit retrospective stories from users (Makela and Mattelmaki, 2002; Landry and Guzdial, 2006). Studies employing these tools and techniques show that in order to elicit retrospective stories the recollection process of people should be facilitated. In our technique we are trying to facilitate people's recollections with non-directive questions and by inviting them to sketch, as the sketching process might help cueing the memory.

Besides these two ways of using storytelling in the design process, recently, storytelling has also been used to evoke ideas from users related to future practices, such as the fictional inquiry method (Dindler and Iversen, 2007), instant card technique (Beck et al., 2008) and storytelling group (Kankainen et la., 2011) . Although we believe that these techniques and methods are effective in revealing people's dreams about the future, we miss the information about where these dreams are grounded. Without this information designers may find it difficult to interpret the outcome and use it in their design process. Thus in co-constructing stories we intent to reach the reasoning behind the futuristic visions of people by asking them to build these visions based on their past experiences.

INSIGHTS GATHERED FROM FIRST PILOTS

A pilot study was conducted to build experience with and refine the method. The case for the study was a concept of a design studio containing a multi-touch table and interactive wall display to support design collaboration. The pilots were done with four design students who were experienced with design collaboration.

The sessions started with a story constructed by the first author about a design student who is getting prepared for a group meeting that will take place the day after. The story was shown to the participants through a video prepared by flipchart animation and voice-over. The story stopped when the main character comes to the meeting room where his friends are waiting. Then the participants were asked what might happen in the meeting. They were asked to elaborate by concentrating on the last group meeting they had. The participants were provided with drawings of a regular meeting room which has a table, a whiteboard and a flipchart (Figure 2). They were invited

to sketch the situation on these drawings while they were describing it. The participants told two to three retrospective stories per person. Then the participants were shown the second story, in the same manner, where the main character and his friends were having the group meeting in a room equipped with a multi-touch table and an interactive wall display. After the story the participants were asked what they liked and disliked about the story. Then they were asked what the story would be like if they were the main character in the story. They were told that the interactive wall display and the multi-touch table could do anything they wanted. Participants were provided with several copies of a sketch of the future meeting room containing a multi-touch table and interactive display (Figure 2). The participants were invited to sketch on these drawings while they were telling their stories. After the session the participants were interviewed to find out how they experienced the session.
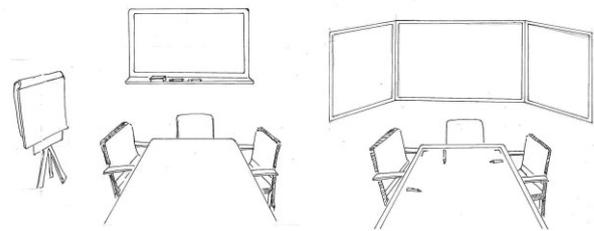

Figure 2. Templates for sketching past experiences (left) and future envisions (right)

The participants very much appreciated starting the session by watching a video. They found that it was an easy and stress-free start. The videos immediately caught the attention of the participants.

The pilots taught us that stories used for sensitization should not be directly related to the context of interest but they should build the interest towards that context. In the first pilot the sensitizing story of the designer was about a co-design meeting. When we asked the participant to refine this story, he tended to comment on it, like what he would do the same and what he would do differently, instead of sharing his own experiences. Thus in the following pilots we created a story about preparation for a meeting instead of about the meeting itself. This story elicited more stories about the past experiences of the participants. Thus we recommend avoiding the direct match between the sensitizing story and the context of interest. Establishing an indirect relation appears to be more effective in sensitizing participants.

To ease the recollection of their past experiences participants were invited to sketch the situation on the provided templates. Participants acknowledged that sketching helped them to remember more. They also appreciated the templates as they made the sketching easier.

Participants stated that having talked about their past experiences, they could talk more comfortably about the future. By looking at the sketches of their past experiences, they felt they could make better judgements about whether and how the new concept can contribute to their experience, which confirmed our assumptions. The

following quote from one of the participants illustrates her opinions about this process: "I think envisioning the future was harder than recalling the past because then you do not only analyse what happened but you also think of how this system could support me even better. But I think when you do the recollection first and you already point out that for instance a shared screen is a handy tool...that does help you to think of other solutions for the future which will support you even better."

The future stories of the participants enriched our initial story. We elicited ten distinct stories about the previous collaborative design meetings that participants had. In the second phase based on these stories they elaborated how they envision using the concept in collaborative design meetings in the future. In these stories participants described the setting in detail, including people, the concerns and the habits of people, the environment, the goal of the meeting, the materials and methods used in the meeting and the outcomes. They elaborated their needs and expectations in these settings and how the concept can be adapted to meet those. Thus these stories not only revealed feedback about the current proposal but also suggestions about how it can be developed further.

CONCLUSIONS AND DISCUSSION
Our experiences so far have shown some advantages of the technique over similar tools and methods. First of all, the technique elicited feedback about the future concept which is both deep and specific to the concept. Designers find such feedback both useful, as it is inspiring and trustworthy, and usable, as it is specific to the concept and structured (Ozcelik Buskermolen et al., 2012). Secondly, the technique elicits stories from the users, thus it reveals grounded feedback as stories indicate reasoning. Moreover, stories are easily remembered, communicated and they establish a shared vision among the members of the design team (Gruen et al., 2002). Last but not least, the sensitization takes less effort in comparison to other similar techniques as it is integrated in the session itself, rather than being a prior activity. However it is still effective, as participants can talk about two to three cases in twenty minutes and reveal several anecdotes. To conclude, we believe that the technique will help eliciting in-depth feedback that is specific to the concept, in relatively little time.

It may be argued that the outcomes of design research tools that are based on dialogue depend to a considerable extent on the skills of the facilitator. This argument is also relevant to the current method. However, it may be argued that good results can be obtained by skilled people applying suitable tools, and that neither skilled people nor suitable tools by themselves will provide good results.

LIMITATIONS AND FUTURE WORK
In this paper we introduced a participatory design technique and how it can be applied. We have not yet discussed how the generated stories can be analyzed and communicated with the rest of the design team. We acknowledge it as a very crucial component of the technique and we will work on it in our future studies. Also, we plan to carry out further studies with real design

cases of companies and real users. Finally, we plan to evaluate the technique with designers from different companies, to learn if they find it useful and want to use it in their design process.

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