Contextual Workshops:
User Participation in the Evaluation of Future Concepts

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ABSTRACT
Involving the users in the design process in order to understand their current situation and to generate new ideas for the development of future products and services is highly relevant to achieve a good result. There are several Participatory Design activities available for generating new ideas and concepts. There are also several activities available for the development of specific concepts and ideas. However, there are few if any activities available that address the choice of which concepts and ideas that should be further developed when there are several alternatives.

In this paper we present an activity designed for this purpose: Contextual Workshop. The activity uses visual presentations of ideas and concepts as a basis for focus group meetings with presumptive users. Furthermore the focus groups consist of members who already know each other and the workshops are conducted in the context of use for the presented ideas and concepts. Several advantages but also drawbacks with the activity Contextual Workshops are possible to identify and these are also discussed in this paper.

Keywords
user participation, concept evaluation, context of use, focus group, affinity diagram.

INTRODUCTION
Participatory Design is founded on democratic values and has been used in user-centered system development since 1970s [5]. In order to develop new ideas and concepts, information from different sources should be collected, for instance from market research and field studies of the intended situations [15]. The term concept is used here to represent an idea not elaborated in details; it could be a

vague idea about a whole system (e.g. a connected home), a suggestion for a service (e.g. remote control a sauna in the connected home from the mobile phone), or a new use of an interaction technique (e.g. voice interaction with an electronic TV program guide). However, developing systems for the future by involving users in the design process is a complex task that can be conducted using various activities. Function Analysis is one such method used to discover what future features, products and services (hereafter referred to simply as products) should do but not how they should be implemented, e.g. what functions they should provide [13]. Another activity is Future Workshop that supports the generation of visions of future use in a specific area [11]. Many of the activities are used either in the beginning of the design process (e.g. to investigate the market and generate new ideas) or during the development of a specific idea when a prototype is available (e.g. to evaluate the product). Involving the users from the beginning of the design process when no prototypes have been developed demands a good understanding of the context of product use [17]. As a consequence, there is also a need for activities that involves users in the evaluation of new concepts to choose one or a few for further development.

In this paper, we present the activity Contextual Workshop that has been developed and used to get information about users' expectations, reactions, and attitudes towards future ideas and concepts concerning future products. Contextual Workshops involve users in the early phase of the design process through workshops conducted in the context of use, such as the home environment, and with a group of people that know each other, such as a family. The activity is based on discussions where visual presentations of ideas act as sources of inspiration as well as boundaries for the discussions. These presentations describe various scenarios of use.

BACKGROUND
Participatory Design should be seen as a whole set of

activities with the common purpose of involving the user actively in the design process and of emphasizing the importance of context of use. When working with this approach, we needed some kind of activity to get user feedback into the concept evaluation phase as well. Inspired by other Participatory Design activities such as Future Workshop [11] and Cooperative Prototyping [5] we developed Contextual Workshop as an activity that lets the users get involved in the very critical phase in the design process where decisions about what concepts and ideas to continue to develop, must be taken.

The activity Contextual Workshop was developed and evaluated in the framework of the European project InHoMNet about the Connected Home [10] that Nokia Home Communications was a member of. The aim of the project was to connect appliances (such as a TV, a Set Top Box, and a home controller) in the home environment with the purpose of building a platform to a networked home, the connected home. Contextual Workshop was used to involve the user in the concept evaluation phase of the design process in order to explore the users' needs and attitudes towards the connected home. In the study, the ideas and concepts were presented for the families as 12 storyboards. The workshop took place in their own home environment, e.g. in their kitchen. Six workshops were conducted by two designers, one acted as a moderator and the other was responsible for note taking.

The creative design could be seen as an exploration of the design space in a divergence phase and in a convergence phase [14]. There are different ways of involving the users in this process. Before starting the divergence phase, information about the users and the market is collected for instance, by conducting ethnographical studies and market research. In the divergence phase the design space is explored with the purpose to generate ideas. A common view in Participatory Design that is important to emphasize is the *meaning* of the users' participation; they are not just a source of information, they are potential inventors [7]. The convergence phase starts with the aim of evaluating the number of ideas generated in the previous phase, the designers must decide what ideas to develop further. Contextual Workshop is an activity that involves the users in this step as well. Later in the convergence phase the users can be involved in for example evaluations with simple paper mock-ups or Cooperative Interactive Storyboard Prototyping [16]. In the end of the convergence phase, when the exploration of the design space is almost done and the designers know more about what ideas to develop, the actual use can be studied further when the users interact with more advanced prototypes.

CONTEXTUAL WORKSHOPS, CW
Contextual Workshops (CW) is based on workshops with users in the context of use (of future products) by conducting focus group meetings guided by visual presentations of ideas. Visual presentations can be among other thing storyboards, paintings, animations, and video clips. CW is aimed at involving users early in the convergence phase of the design process when new ideas need to be explored and evaluated. Using CW, several ideas can be tested at the same time. Context understanding is important through the whole development process [17] and therefor the evaluations should take place in the context of the presumptive use.

The definition of the term context that we have used here is: "a description of a complex situation that an individual finds herself in." The term includes the physical environment, the people being there, the social interaction, the culture, the atmosphere, and other features that surround and create the actual situation – the context. It is very important that the usage context is defined in the scope of the idea description as well as the product's functionality, the intended users and their goals with the use of the product. CW is one way to come closer to such a description.

CW is based on focus groups conducted with an already established user group (e.g. a family) in the context the product is intended for (e.g. a home environment). The focus group method is a comprehensive research method that is used to collect data through structured and controlled group interviews [20]. The method is flexible and changes according to the purpose and the environment. Hackos and Redish [8] (among others) have criticized focus groups. One critique is that it often does not include real users but gatekeepers such as supervisors, managers, and others who made decisions about the products. Another critique is that it is not conducted in the users' environment. Using focus groups with real users in the context of use helps to avoid the risks mentioned above.

In a focus group session it happens that the group tend to compromise a lot, in a way that makes their decisions always ending up in some kind of no-man's-land; *conformity* ([4]; [19]). The decision the group takes is actually something no member in the group can stand behind. This is common in groups of people that do not know each other that well; everybody wants to be polite. It is also common when the group members have different experience of the topic for the discussion. In order to avoid this risk, CW involves groups where the group members know each other very well – like a family. It could also happen that the group, if they don't have that much experience of the subject under discussion, start to take decisions that are much more extreme than the group members would express if they had been interviewed alone, this is known as *polarization* ([4]; [19]). This is simple to avoid if the focus group is used only to get hold of the participants' opinions and not forcing them to take

decisions that should be representative for the group. In CW the group members do not take any decisions, they just discuss various situations and scenarios.

To communicate the concepts, the designers illustrate the situations and scenarios in visual presentations. These are made so that the whole group can get hold of the content at the same time. If there are text as well, someone in the group reads for the others (like a storyteller). In this way, the designers' communication language for expressing the concepts is visual, textual, and oral.

A good system design is achieved by involving those who are responsible for design decisions in the collection and interpretation of information with regards to users in the intended context of use [1]. Therefore, the workshops should be prepared, conducted, and analyzed by the designers themselves. As a consequence, the designer need to be skilled in understanding the user's language since language is the user's tool used to communicate thoughts, opinions, ideas, needs and so on. Understanding the user's language is therefore very important in the CW as it also contributes to the process of developing a common language for the users' and the designers' work together.

Workshop Procedure
A workshop consists of four sessions: an introduction session, a practical session, a brainstorming session, and a discussion session. The practical session is conducted as a focus group meeting.

The workshops are led by a team consisting of a moderator and an assistant. The team should be skilled in interview technique and picking up among other thing attitudes, new ideas, advantages, and problems with existing products. The moderator runs the workshop while the assistant observes the users, makes notes, documents the discussions, and helps with practical issues. During the workshop, the moderator makes sure that no person in the group dominates the discussion and steers the discussion when it goes outside of the area of interest. However, since the group members already know each other and every member has a role that should be taken into account, e.g. the children in a family could be very talkative by their nature. The natural behavior is important to respect and must be maintained as much as possible. To make sure that all the users' opinions are captured, the practical and discussion sessions are tape-recorded.

The workshop starts with an introduction session when the workshop leaders and the users present themselves for each other. As laugher is an icebreaker, the next part is about doing some short but funny exercises, e.g. doing some drawings. The workshop leaders also participate in the exercises. The purpose of the exercises is to create a relaxed atmosphere and to bring the users and the workshop leaders closer.

After the drawing and laughing, the practical session starts. The visual presentations are used in this session. The users go through the presentations one at the time, give comments on them, and discuss them. The moderator is passive as long as the users have something to say and the subject under discussion keeps on track. The moderator starts to ask follow-up questions when the users do not have more to say and the moderate would like to get more information.

During the brainstorming session the users use their imagination and imagine that the services, concepts, and ideas in the visual presentations are available to them in real life. After that, they write down their opinions and thoughts about them on sticky notes, one opinion on each note. Then, the users are asked to organize the notes in clusters and to label them with appropriate headlines. The purpose of doing this is to get closer to the users' thoughts, ways of thinking, and opinions.

The brainstorming session is followed with a discussion whose purpose is to summarize the two previous sessions. In this way, the moderator makes sure that everything is captured and the users have an opportunity to add something if they want to.

Data Analysis
The designers who are in charge of the workshop (both the moderator and the assistant) should analyze the data collected during the workshop. All the data should be included in the analysis process: the assistant's notes, the users' sticky notes, and the tape recordings. Before starting the analysis, all the data should be transcribed. After that, for each group the material is analyzed in two different ways, this is done as a co-work between the two designers.

First, the transcription material is divided under the following headings: positive, negative, questions and suggestions. Thus, the users' attitudes, both negative and positive, are identified as well as new ideas and concepts are captured. The designers do not communicate with each other at the beginning when they go through the material. When they have gone through all the material they go through each heading cluster together (positive, negative, questions, and suggestions). Consequently, they have the possibility to reorganize the material in the clusters and duplicate some of the material. After that, the clusters are documented.

Second, the transcription material is mixed together and then a new dividing is done. At the same way as in the previous step, the designers go through the material in silent first and then they go through the clusters together. By doing this new groups and headings will hopefully appear. The designers together label the clusters with headings that are

characteristic for each cluster.

The last step is to make an affinity diagram for each participant group and heading. Affinity diagrams are included in several design methods such as Contextual Design [3]. A designer team uses affinity diagrams to bring the team together, share the data, and interpret the data in agreement. The purpose of the diagram for our design team (the moderator and the assistant) is to develop a common interpretation of the data. Since the designers themselves conduct the workshops, the data analysis process is affected by their understanding of the group. This understanding helps the designer to interpret the users' comments, utterances, and contributions.

DISCUSSION

There are several advantages and also some drawbacks with CW that it is important to be aware of.

Advantages
The advantages of using CW are among other things based on the form of the procedure.

Concept Evaluation
The workshops provide data about the users' attitudes, users' preferences, and qualities in use. As a result, the designers get feedback on concept level, on function level and on design level.

Effectiveness
Since the workshops are conducted in groups, more data can be collected in the same amount of time as in methods based on individual participation. This advantage is characteristic for methods where data is collected using qualitative methods conducted in groups such as focus groups. Moreover, group discussion can generate new ideas because when a person starts talking about an idea, it can trigger associations, thoughts, and ideas in other people.

User and Context Understanding
An advantage of the method is to begin to understand the user and the context of use in the very beginning of the convergence phase of the design process, when ideas exist but need to be explored and evaluated by the users. Conducting the workshops in the context of use helps the designer to better understand the users. By visiting families in their residence for example, the designer observes the home and the technology of the home. This understanding is an important resource when analyzing the data.

Use of the Context
Conducting workshops in the context of intended use helps users make use of the current situation to express their need in the future as they can refer to things in the existing environment. However, the context also helps users to generate new thoughts or ideas, which is not the primary purpose of CW but which may be regarded as a positive side effect. For example, if a workshop is conducted in the users' home, the user looks around and sees her cookbook and that gives her a new idea. Another advantage of being in the context of use is that the user has the opportunity to evaluate new ideas at once. For example, if the idea is about using an electronic notice board, the user can look around and think where to place such a device.

Designer Introspection
The method gives the opportunity for designer introspection. The workshops assist the designer in reflecting about the interaction between the design, the users, and the context in a way they can not do by their own.

Well Established Group
As the group members already know each other, workshops are conducted in a more relaxed atmosphere. One of the drawbacks of building a group of people who do not know each other is that they are not comfortable with each other which effects the discussion and consequently the collected data.

Disadvantages
CW has some limitations that it is important to reflect about before and after the workshop is conducted.

Data Collection
The first disadvantage of the method concerns the kind of the data that can be collected. Because no specific prototype is employed in the method, designers do not obtain information about presumptive use. The interaction that is studied is based on what the participants believe they would do and not on an interaction with an existent system. Therefore, the workshops do not show behavior since people do not report on what they really experience.

Choice of Participants
Another disadvantage is a limitation in possible workshop participants, which is a general problem to most Participatory Design methods and not specifically problematic for CW. Participants must be representative product users and they should not be decision-makers in the design process.

Group Dynamic
The dynamic of the group could affect the participants negatively. In the presence of people with dominant personalities there is a risk that their opinion affects the rest of the group and consequently the discussion would take another form than it would have in another group constellation. If the group members do not know each other that well, there are also risks for polarization and conformity.

Scenarios
The scenarios used in the methods are generated to

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illustrate new ideas and concepts of various situations of importance for the context of use. The choice of these scenarios is important for the results since the purpose is to help the user to imagine a situation. The choice of these scenarios is not easy as there is always a risk that the scenarios may be considered inappropriate for some users. The choice of the scenarios should be based on user information collected by other methods, such as market research and field studies.

CONCLUSION

Using CW, several ideas and concepts can be evaluated at the same time with the users in the context of use. It is important to note that data gained by this method is mainly about the users' expectations and attitudes and not about the actual presumptive use.

However, CW can contribute to the convergence phase of the design process in four different ways: (a) the understanding of the user and the context of use that is a crucial ingredient in the design process of developing usable products, (b) the possibility to get insight in the users' attitudes towards ideas and concepts early in the design process, (c) the insight about the possible areas of use regarding the ideas and concepts, (d) the qualities in use that are important to the users.

These contributions help the designer in the important task to select which concepts and ideas generated in the divergence phase that should be developed further.

WORK FOR THE FUTURE

An interesting work for the future is investigating the influence of the visual presentation on the data generation. Therefore, the method should be tried with other visual presentations such as video clips or animations. Another interesting work for the future is using the method in another context such as a work context. The relationships between a group of people who work with each other are not the same as between family members. It would be interesting to investigate how the kind of group relationship influences the data.

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