

User workshops: a method for eliciting user needs

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Abstract:

In many of the design cases designers may not have the required knowledge about users' needs, and it may be difficult to empathize with users. In order to meet the needs of users, designers should gain knowledge about them, and users can be consulted to elicit their tangible and emotional needs. However the users may have difficulties in expressing their needs or they may not be aware of them. This paper presents a method called user workshops, which investigates tangible and emotional user needs by letting them imagine and express a usage context and design problems, and to experience a concept development process.

In user workshops, by taking certain steps users are asked to create a product for their personal use. In order to prepare them to conceptualize a product they are asked to prepare mood boards with given images considering a theme related to the product usage. This process directs them to consider their needs and to define problems related to the product and their emotional relation with it. Later the users are asked to express their concept product solutions verbally and visually in the form of sketches and cardboard and/or play-dough mock-ups. This method proposes means for designers to empathize with users.

Key words: User workshops, participatory design, empathy

1. Introduction

Valtonen characterizes the changing role of designer in the past five decades together with the recent developments in design. Once in the 50's the designer was practicing like an artist as the creator of the product, in the 60's he was involved in industry. In the 70's ergonomics was the main issue, and in the 80's the role of the designer was perceived as a coordinator between different units of the company, then in the 90's creating experiences for users and brand building became the designer's duty. Now the role is shifted to the member of the product development team, who has a significant role in taking strategic decisions of the company, and a creative force pushing innovation and raising competitive capacity of the company (Valtonen, 2005). This new role also assigns the designer the duty of identifying user needs and considering them while designing. The concept of user satisfaction is changing in addition to these developments. Not only should the performance of the product satisfy the user, but also giving pleasure with experience of product use is becoming a central issue in product design practice. Therefore obtaining knowledge about user experience and the context of use becomes an important focus of user research.

The designer's knowledge about the user group is limited in many of the design cases. In order to be able to design and innovate products that meet users' needs and expectations, the designer needs to obtain knowledge about users, and in order to propose pleasurable experiences, he needs to empathize with the user. Traditional user research techniques generally evaluate an outcome of a design activity or an existing product; therefore they are not suitable for obtaining knowledge input to earlier phases of the design process. Having lack of information related to users and not being able to empathize with them can lead designers to design on the basis of their intuitive judgments and stereotypes. Thus the outcome of such a design activity is a failure in satisfying user's tangible and emotional needs.

Since users become experts in using the products, they can provide knowledge related to their problems and they can be helpful in identifying their tangible and emotional needs. In order to elicit user needs and to be able to empathize with them, users can be the main source of required knowledge. However there are some complications related to this consultation process. For research activities, which aim to provide input for the design process, users may have difficulties in expressing their experiences related to the product use and their emotional needs, or they may misinterpret their problems in relation with the context of use (Bruseberg

and McDonagh-Philp, 2001). In the field of participatory design, several tools, techniques and methods are developed in order to address these research problems. Among these, there are (1) *cultural probes* (Gaver *et al.*, 1999) for exploring user experience and the usage context remote from usage environment during the course of usage experience; (2) *generative tools* (Sanders, 2000; 2001) for providing tools for users to express their experiences; (3) *visual evaluation tools*, such as mood boards, product personality profiling, and creative activities with users for incorporating with focus groups (McDonagh *et al.*, 2002). All these research tools are developed based on the thought that if appropriate tools are provided for users, they can express their tangible and emotional needs and provide the knowledge required for understanding their experiences and the context of use.

As users become experts in using the product, besides providing knowledge about their needs, they may propose solutions for their design related problems, which are certainly beneficial for designers to observe. Thus, by observing those solutions, designers can obtain a better understanding of users' needs and problems. This paper presents a method called user workshops, which aims to investigate users' tangible and emotional needs and user defined problems, by directing them to experience creative activities and by letting them to express the context of use and problems related to the product usage. In user workshops, users are asked to create product concepts by taking certain steps. By this way, they are directed to define problems related to the usage, while considering their tangible and emotional needs. This activity helps designers to get to know users and empathize with them. The method presented in this paper is the first author's Master of Science thesis project, and it was employed in three fictional cases with different user groups (see Table 1).

Case 1: “Device for listening to music” performed with young educated people

- Mood board activity related to the theme “listening to music”
- Designing and shaping a device for listening to music in 3D form

Case 2: “Casual bag” performed with middle aged housewives

- Preparation activity – “Inside the bag” collage
- Mood board activity related to the theme “shopping”
- Designing and shaping a casual bag that would be used while going to shopping

Case 3: “Communication device” performed with young male engineers

- Preparation activity – “Who are you talking with?” charts
- Mood board activity related to the theme “communication”
- Preparation activity – “Who? – With whom? – Where?” boards
- Designing and shaping a communication device

Table 1 – Cases, where user workshops were employed



Figure 1 – Photos taken during the mood board activity of case 3, and concept development activity of case 2

2. User Workshops

The method user workshops is basically composed of two stages: preparatory stage and concept development stage. The main activity is designing a concept product, however since this is a difficult task for users to conceptualize, additional sensitization activities are required in order to prepare users for the concept development activity (Sleeswijk Visser *et al.*, 2005). Mood boards and collages are suitable techniques for eliciting emotional needs and conceiving the user’s feelings towards his past experiences (McDonagh *et al.*, 2002; Stappers and Sanders, 2005). In this study, users are asked to compose mood boards considering a theme related to the product usage. They are briefed with directions, which are aimed to guide

them to think about the context of use, emotions and mood related to the experience, and their visual considerations about the product. With this activity, participants are prepared for the concept development stage. Furthermore additional stages can be required for sensitizing participants, for example in Case 2, which is a user workshop related to “Casual bag”, prior to the mood board stage, “Inside the bag” collage activity is organized. In this activity, participants were given boards, which were presented them as their imaginary bags, and they were asked to prepare their bags with given images or pictures drawn by them, like when they are preparing their bags in an ordinary day (See Figure 2). This activity is planned to direct users to imagine the usage context by considering usual experiences with the product.

After the preparatory stages, participants are equipped with considerations and judgments related to the usage context and their experiences. Having expressed their emotions in relation with the context of use in the mood board stage, they may define problems related to emotional concerns for the concept development stage.

In the following section, the guidelines for carrying out the user workshops and an example case are presented.

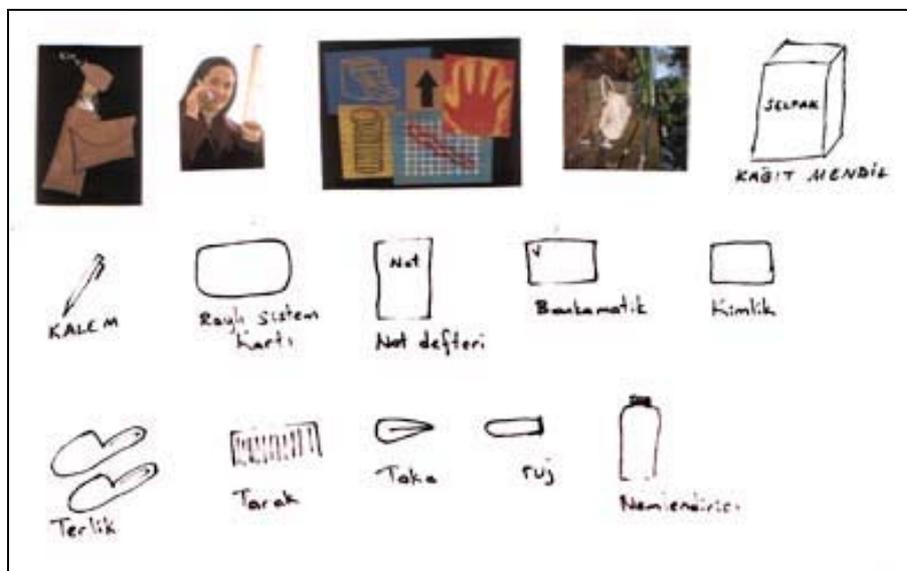


Figure 2 – One of the bags from “Inside the bag” collage activity

3. The Process of user workshops

3.1. *Planning the workshops*

Formulating the research brief

It is important to set a clear brief for the research activity at the beginning of the planning process. The brief should be aimed at getting to know the user group. As the user workshop cases performed for this study are fictional cases, the user groups assigned for this study were selected by the authors, considering their unfamiliarity with designers. They were chosen among the groups, which can be difficult for a designer to empathize with, however there were some practical concerns while choosing the user groups, such as availability of finding participants.

While aiming at getting to know the user group, the brief of research activity should be focused on finding ways to:

- elicit emotional and tangible needs of the user group in relation with the theme of the research,
- direct the participants of the selected user group to consider and express the usage context and experiences,
- and define problems in relation with this context and their experiences.

Selecting a theme for the mood board activity and choosing a subject for the concept development activity are parts of formulating the research brief stage, since the theme and the theme related considerations are expressed in the research brief.

Selecting the theme for mood board activity

Specifying a general theme for the research activity is important for directing the users to consider the context of use and their experiences related to the theme. Thus the theme should be expressed with a broad name, which can evoke thoughts about all aspects of the context. For example, in user workshop case 2, “shopping” is selected for the theme of the user workshop, since it does not directly refer to the product and it is specific enough to direct the focus of the participant on the context of use.

Selecting the subject for concept development and 2D or 3D concept expression activity

The product that is chosen, as the subject should be defined as a personal product, which the user can frequently use, so that the user can better reflect his/her visual preferences, as well as concerns related to the usage of the product.

Formulating the briefs of activities

Formulating the brief of mood board activity

When briefing about the mood board activity, first the theme should be expressed as the subject of the collage activity, and with the brief users should be directed to think

- the product usage,
- the problems they encounter,
- the mood they are in,
- and their visual considerations while using the product.

This let them to define and consider problems related to the context of use. In order to support the conceptualization process further, in Case 2, the user workshop related to “Casual bag”, a scenario which describes the user’s one of the ordinary days was added to the mood board brief. For keeping the focus of the participants on this activity, there should be no implications for the concept development and 2D and 3D concept expression activity in the mood board brief.

At the end of each brief participants should be informed that they are going to present the outcomes verbally. Although this may restrict the quantity of images, while preparing the mood boards, it directs them to consider the context carefully and to conceptualize the verbal expression, which is a useful resource for analyzing the outcomes.

Formulating the brief of concept development and 2D or 3D concept expression activity

The description of the product, which is decided on while formulating the activity brief should be given by directing the participants to consider the outputs of the previous activities.

A sheet, which is composed of written activity briefs, should be prepared for arranging the activities, and for the researchers’ use. However briefs should be verbally expressed to the participants, instead of giving written handouts, because written handouts can be taken too seriously and the participants may feel obliged to refer the written brief, thus it can restrict their imagination.

Planning and organizing activities

Selecting image sets for mood-boards

Images selected for the mood board activity should be diverse. Some of them should directly related to the context since users should be directed to focus on the context, while others should not directly refer to the context or they should be unrelated, since users may associate them with the context through metaphorical expressions. Therefore images unrelated to the context should also be included to the image set as well as related images. The set should be varied from tangible to abstract, and people in images should be diverse (Sleeswijk Visser *et al.*, 2005).

Images are searched in Internet by using keywords related to the theme of the research; also they can be searched in magazines. By this way, wide variety of images can be found. While choosing keywords for searching, the researchers should consider the usage context; anything related to the context can be used as a keyword for searching, since diversity is important for directing the participants to think about the usage context. Furthermore, the directions given with the mood board activity brief should be considered, while choosing the keywords.

Deciding on appropriate tools and materials for activities

The tools selected for the activities should suit to the product's character and the selected user group's expression abilities. In some of the cases several tools may be offered to the participants, such as play dough, colored cardboards, colored papers with different textures, and different accessories which are related to the product. Since conceptualizing a product may be a difficult task for the participants, they should be let free to choose their ways of expression. Play dough is an appropriate tool for expressing 3D organic or amorphous shapes. It gives participants freedom of representing their ideas and it does not restrict their imagination. Tools like 3D Velcro modeling toolkits (Stappers and Sanders, 2005) can be suitable for quickening the process, however as user workshops method focuses on the problems, which can be elicited by observing solutions that participants propose, they should make feel free to create forms without being restricted by certain kinds of shapes.

Formulating additional preparatory stages if needed

Additional preparatory stages may be required in order to prepare participants for the following activities and to lead them to consider the context of use. These activities are planned specific to the cases. "Inside the bag" collage activity, which is previously

mentioned, is an example of such an additional stage. By experiencing simple exercises with these activities, the participants are directed to think the usage environment, their usual experiences with the products and the usage context.

Selecting the participants

It is important to create group synergy and group discussions in the workshops, because their interpretations and opinions, which they expressed during the activities, are beneficial for analyzing the outcomes. Therefore the group should be composed of people who already knew each other, or who can potentially get along with each other. Moreover users, who have a design education, are not chosen as participants, because non-designer participants may feel uncomfortable with the activity and they may be concerned about their crafting and problem solving skills.

3.2. Analyzing the workshops

Since designers are suggested to be involved in the user workshops, they can interpret the outcomes and the process during the activities. Therefore the outcome of the user workshops should be documented for later consultation. Sleeswijk Visser *et al.* (2005) claims that written reports are not suitable for designers' visual thinking processes; and also designers may have difficulty in analyzing the outcomes from raw data, although it contains rich information about users. Thus categorizing verbal expressions under appropriate titles with related images is helpful in interpreting the outcomes later and constituting an inspirational input for the design process. Also the video recordings related to expressions about the related artifacts and images should be accessible, since the participant's way of expression is important when analyzing and interpreting the outcomes.

The outcomes of the user workshops are separately documented for each participant, under certain categories, with images of his/her work, related verbal expressions, and related video recordings (video recording's name if it is saved separately or time of verbal expression in the whole video recording). The categories are decided on considering:

- emotions related to the theme and experience of the product use
- defined problems related to the product and the context of use
- product specifications and solutions
- visual preferences

4. Example case: “Communication device” performed with young male engineers

The aim of this user workshop case is,

- investigating tangible and emotional needs of the user group “young male engineers” in relation with communication issues,
- directing them to define and express the context of communication experience for them,
- and guiding them to define problems related to their experience.

The theme for the workshop was chosen as “Communication”, since communication has close relations with technology, which is closely related to the user group’s occupation; also communication has an integral part in their daily lives.

In order to conceptualize the communication mood boards, a preparatory activity was organized. They were directed to think about the people with whom they communicate in their daily life. They were asked to write the names of people into “Who are you talking with?” charts. This would help them to imagine their experiences of communication. To ease the process of writing the names, the people they communicate with were classified according to their situation of being in work place or outside of it, because it was presumed that the user group spends most of their time in their work places.

In the communication mood board activity part, in order to make them to imagine their experiences of communicating they were given directions. They were directed to think the people they communicate with, problems they encounter, and their visual considerations. These directions were supported by examples, which they might encounter in their daily lives.

After the mood board activity, they were given a task, which was planned to prepare them for the concept development activity. They were asked to select images, which symbolize themselves; the person they wanted to talk with by using their designs; the place they wanted to communicate in, while using their designs; and the subjects they wanted to talk about through their designs; and glue those images to “Who? – With whom? – Where?” boards. This stage was intended to help the subjects to plan their designs.

Some of the outcomes from the activities are presented in the following figures and tables.

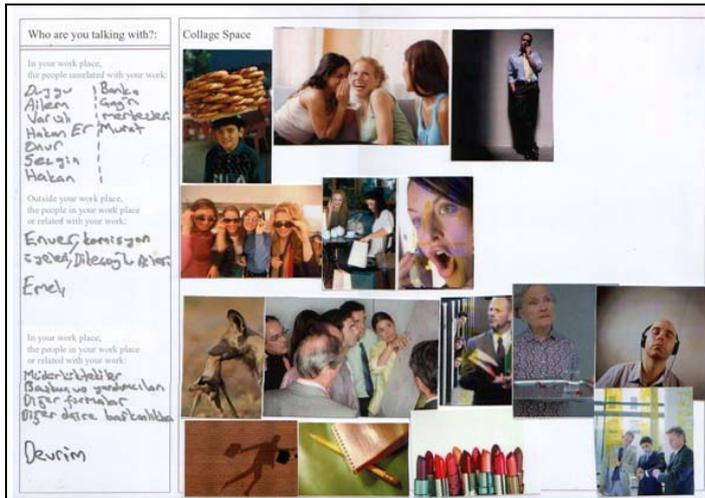


Figure 3 – Participant D’s “Who are you talking with?” chart and his mood board related to the theme “communication”

Related image	Categorization	Verbal expression
	Emotional need: Need for privacy	“..for example generally with my family, or my wife, or others... in our work place, our room is crowded, in a crowded place I usually go outside in order to talk private things , which I don’t want others to hear, same as this corridor in this picture. To talk easily on my own, without bothering by anyone, anyway I like... ” (in VCD-1; time of quotation: 32:33/1:06:19)
		
		“... aiming gossiping a bit , I mean, someone did something, for example, in the work place a director will be fired or not... related to these issues... for hearing about new gossips...” (in VCD-1; time of quotation: 34:05/1:06:19)

Table 2 – A part of the documentation related to Participant D’s mood board

Name of the product: A device which converts whispering sounds to audible sounds		
Related image	Categorization	Verbal expression
	Defined problems/ Emotional need: Need for privacy	"...in the work place there are conversations, which you don't want everyone to hear. For these conversations, instead of going to outside..." (in VCD-2; time of quotation: 10:33/45:20)
	Product specifications	"...I thought that there is something goes down from your ear to the back, to your throat, and it senses very slight voices like breathing, and it hardens those voices, ...it directs to them to the cellular phone... think about a thing that can convert your whispering sound, in this way, into understandable words to the person on the other side of the phone... "(in VCD-2; time of quotation: 11:02/45:20)

Table 3 – A part of the documentation related to Participant D's concept product



Figure 4 – Participant A's "Who? – With whom? – Where?" board

Name of the product: Virtual Reality Helmet		
Related image	Categorization	Verbal expression
	Defined problems	“...while communicating emotional side is very important too...I think it would be better, if things that can be perceived by five senses would be passed through communication. Because of that I want to design a product that makes possible for two people to have same tastes while communicating with each other, even if they were distant...”(in VCD-2; time of quotation: 05:20/45:20)
	Product specifications	“...maybe this helmet has something inside of it, some places, which are touching the nerve endings. Those are for sensing these things while perceiving with brain. It makes possible for two people, who are far distant from each other, do something together. In the same way, it has places, which can spread odors at that place. For view...”(in VCD-2; time of quotation: 06:00/45:20)

Table 4– Participant A’s concept product

5. Conclusion

In the user workshop cases performed for this study, participants were able to define problems related to the usage context and propose solutions to those problems. In the works of five participants from the user workshop case 1 and case 3, outcomes of the concept development stage were consistent with the outcomes of the previous stages. In these works, the problems and the needs, which were expressed in the preparatory stages, were referred in the concept development stage, and they proposed solutions related to those problems. Therefore the activities, which were experienced prior to the concept development stage, were helpful in conceptualizing a product and defining problems related to the usage context.

In order to direct users to conceptualize a product, preparatory activities have crucial importance. Therefore the activities should be carefully planned before the sessions. While directing them to consider the context of use, the activities should attract the interest of the participants in a way that they can feel themselves being in a creative activity, so that they can be motivated to create solutions, which, they think addressing their problems. Moreover it should always be avoided referring to conventional products, since directing the participants

to create unconventional products lets them inquire their context related problems and needs, carefully. The moderator should not be judgmental while directing participants and commenting about their works. When expressing briefs, giving directions, and responding the participants' questions, s/he should let them feel free to create and conceptualize anything they would like. When it is observed that a participant has trouble with expressing his/her ideas, or conceptualizing a task, the moderator should direct the participant to reconsider the context and the outcomes of the preparatory activities, instead of giving specific examples or ideas.

In user workshop activities, users are not expected to create solutions that can be applied for real products. However solutions they propose can be helpful in understanding their needs and problems they encounter. Moreover observing such creative activities with users can inspire designers and help them to empathize with potential users. Therefore the designer should be involved in the process of user workshops.

Since the method is aiming to constitute an inspiration resource for the design process and the designer is suggested to be involved in the workshops, documentation of the outcomes is an important task for later consultation. No matter how the outcomes are well organized, written documentation may sometimes be problematic, while searching for the outcomes related to a topic, because the written documentation is composed of related images and transcriptions of related verbal expressions, not the related artifacts or video and tape recordings. For the future studies, a software program that makes possible to organize the outcomes can be developed. By this way it can be possible to review the data in an interactive format together with the rich information recorded during the activities.

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