User experience capturing through Make Do innovation sessions

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1. Introduction
The goal for this paper is to analyse the application of make do methods for capturing tangible user experience during intensive innovation sessions. The use of make do methods in design practice supports applying them to the participatory innovation sessions. The research and methods in visual psychology and sociology can inform stimulus and tasks for the make do methods. As practical applications two company cases from lock and building industries are described.

2. Participatory make do sessions in innovation
The D'ART Design Resource Centre in the North-Karelia University of Applied Sciences in Finland has a product development service called INNOstudio for innovative processes offering various innovation session methods. The main aim is at promoting interdisciplinary innovation with iterative and tangible design processes. Since year 2000 D'ART's tailored innovation camps have produced intensive idea generation for the requirements of the companies. Although their popularity and selection 2005 as the best EU project practice in the Eastern Finland the methods used require development especially from the interdisciplinary sharing perspective. D'ART services help to explore even ill defined problems and make the solution exploration tangible for the client as products, service touch points, action and service models, virtual visualization, environments, spaces, and integrated experience scaffolds.
In the saturated markets businesses strives for a deep emotional connection between the user and her experience with products and services. The values the consumer perceives as important must be understood in authentic way in order to connect emotionally. Seeking user insight demands approaches with few representative people. IDEO international design consultancy uses first hand learning about people and use context to open up opportunities from latent needs and underlying psychology of motivation and emotion. The efficient research means that all the people involved

in the development process get first hand understanding. (Kelley 25-51) Empathy requirements for the whole development group are essential because they discover the new opportunities and interpret user data into future products.

Involving users as co-designers in the development process offers both user insight and means to test the emerging designs. In participatory design the assumption is that users should play an active stakeholder role in the creative process: envision the future from their perspectives. Users highlight the differing touch points and the desired feelings associated with them, which serve as a foundation for emotional connections, relevance, personalisation, and delightfulness. The requirement of participatory design is also due to the interactive solutions and customization in many products.

The use of make do methods in obtaining deep user experience has been introduced especially by the company Sonic Rim from US. They see many ways of learning about the users' current and past experiences: by interviewing what people think, feel and know and by watching what people do and use. For the future solutions it is important to know what the users dream. Sonic Rim has developed participatory design tools that especially elicit latent needs. The make tools with ambiguous visual stimuli focus letting people creatively express memories, thoughts, feelings, dreams and new ideas. Being ambiguous, these stimuli can affect different memories, feelings and projections in different people. The visual nature liberates people to make meanings beyond words and help to fill in what is unsaid or unseen. (Sauders 2001).

3. The building tools for the make do methods

The make do methods as a tool are supported by psychological and sociological research methods for product perception, understanding and pleasure. The pleasure judgments we make reflect our mental, multi sensory imagery map that is used unconsciously to organize sensory experiences. Through associations we can even experience one sensory stimulus via another sense such as texture by visual stimulus without the hand touching. Visuals summon us to draw from our other sensory modes in order to grasp its feel and thus meaning. (Belk 1998, 290-291; Zaltman 1997, 296; Lupien 1995, 223-225).Most human meaning is shared nonverbally through emotional understanding that involves interdependencies among cognitive, physiological, expressive, and phenomenological components. Verbal information scales cannot grasp all these components of emotional experience. (Belk 1998, 294-295; Zaltman 1997, 427-428). The same words can be understood in different visual ways and carry various value based meanings for different people. So it is possible to talk with same words about certain product with quite different understanding and appreciation. (Kälviäinen 2002) Pleasurable experience is about the overall sensual experience and holistic atmosphere difficult to put in words. Visual and other sensual information both help the users to express their experience and the development people to be empathetic.

There are two approaches to product-related judgments: holistic visual perceptions or linear processing of separate elements. It is possible to assume that both occur. The product may first be perceived as a whole and in further processing individual elements may become salient. (Bloch 1995, 19). According to the holistic Gestalt position the whole has an organization of dynamic properties that cannot be reduced to the parts. (Crozier 1994, 41-49; Roth - Bruce 1995, 96-102). The perception of the whole serves in revealing the whole 'feel' of the product with the emotional experiences it evokes. Attribute distinction can study profoundly the attributes for the product without capturing the 'feel'. A product with other attributes than the ideal

ones can correspond better to the compositional 'feel' than a product with the right ones.

One important Gestalt perception is style discrimination that differentiates products through overall composition of colour, shape, line, pattern in visual style, sound and scent. As a multi sensory device it causes intellectual and emotional associations and triggers our emotional understanding. (Kälviäinen 2002). Style deals in surface impressions, yet people read deep meanings into the visual aspects of objects, and connect them with the values that they hold important (Ewen 1990, 43). Style can be the distinguishable factor even when other Gestalt factors such as the category and typicality are the same. Style conveys mood and thus stretches even over product category limits. It enables comparisons and stylistic role expression with collections of different sorts of products.

Gestalt position can cover wider ground than compositional perception Gestalt of visual elements. Complex Gestalt constellations such as product taste are typical in product pleasure. Kälviäinen (2002) distinguishes the objective framework, the making of meanings, and the network of influences as aspects of complex taste pleasure combining the boundaries and possibilities of the consumers' use situation with their subjective, meaningful aspirations and social interaction. Crilley, Moultrie, and Clarkson (2004) distinguish three aspects of consumer response to visual form. Aesthetic response, concerned with the attractiveness of the product; semantic, concerned with evaluating qualities like mode-of-use; and symbolic: what the product says about the user. Also Jordan (2002) with his framework of physio-, socio-, psych-, and ideo-pleasures, and Norman (2004) with visceral, behavioural, and reflective responses, point out the complexity of pleasurable responses to products.

The birth of these complex pleasure constructions is clarified by the multidisciplinary product communication process (Storkerson 2003). The developers interpret the company brief through their cultural socialisation and personal experiences. They concretise this interpretation to elements transporting meaning. The receiver perceives these elements through visceral, behavioural and reflective process (Norman 2004). This mixes with the receivers' acculturation and personal experience leading to the perceived meaning. This complicated communication process raises practical demands for the make do methods and their organization for acquiring complex experiences. They need to consider both issues of object perception and meanings and emphasize visual and other sensual research. Deep insight should tackle the questions of feeling, behaviour and mental images and building signification out of sign elements. (Kälviäinen-Miller 2005) The tools for holistic approaches point out that the deep meanings are affected by the socialisation process and personal experiences. Visual methods are used in sharing values, feelings, experiences, ideas, multi sensory mental images and maps. For this a wide range of stimulus materials, scaffolds or probes, can be used. (Kälviäinen 2002; Kälviäinen-Miller 2005). General/generic stimulus can be colours, abstract forms, styles. Stimulus images can come from different walks of life or describe specific product forms, textures, details or be concrete existing or proposed products. General and ambiguous visual stimuli might be useful for feel research and exploring the making of meanings, as in Zaltman's (1997) approach with participants supplying mental images and metaphors connected to the issues in question. For SonicRim the important thing with the stimulus material is to create a set that is evocative, not only relevant. (Sauders 2001) 'Existing' examples make sense to users providing links between them and their current life. The more specific the stimuli, the easier it is to connect results and development decisions, but the more prejudged the possibilities. Far fetched images may be of importance and

support the creativity of mental imagery processes. (Kälviäinen 2002) Possibilities of associations, association chains, metaphors and different senses have to be considered.

Research can use pre-organised examples or people can make their own arrangements from undifferentiated examples. Researchers are setting the dimensions and limiting the possible answers or supporting their own assumptions of categories by pre-organizing. People categorize the whole products through their prototypicality or family resemblance perceptions, pleasure choices, function or social perceptions determining for what purposes or for whom or they seem suitable. Ambiguous stimuli organizations, analysis lies in understanding the users' organization and combinations. The difference is rather like that between a questionnaire, with easy, quantitative answers to clear questions, and in-depth interviews, with qualitative richness and some guarantee of relevance. Retaining freedom for respondents to modify or elaborate might combine the best of both approaches. (Kälviäinen-Miller 2005) It is not even necessary to start from the product or example: the focus could be on the respondents' life, and *then* how the product might fit into it.

Differences in product interpretations are is also result of the same object being put to varied settings of users' desirable atmospheres. This atmospheric impression can be, for example conservative, impersonal, chaotic, casual, deprived, bohemian, minimal, nostalgic or extravagant. It is a translation from lifestyle preferences and orientation to products as a composition in the use situation, a form of 'staging'. (Kälviäinen 2002)The construction of the whole structure of the user's stage, surroundings, boundaries, space, highlighting, relations and product choices describe the aspirations and identity of the user. The complete setting offers certain social interaction, communication and distance possibilities. The stage consists also of meaningful things that the user wants to keep hidden at the back stage.

Make do methods have used various visual building possibilities: images, collages of images and words, product materials and 3 D building blocks. Drawing on pictures or free hand drawing comes close to all sorts of prototyping. Building different levels of tangible outcomes as drawings, collages or prototypes is a way to come to synthesis from the discussion about the complex and abstract user conceptions that can in practice be applied to different solutions. There also seems to be holes in the solutions when they are only discussed and not put to concrete form. When visualizing the target the holes are filled and the interaction and relations of different features are decided. Tangible solutions are also a stating point for developing refined solutions that correspond even better the different notions about enjoyable whole.

4. The application of the make do methods

Case examples describe make do innovation sessions for a lock and building companies. The make do methods application was conducted inside innovation sessions with real user participants and participants form the development groups. In both company cases the development task was about the home environments that require complex solutions and often have multiple users.

In the case with the lock company one day innovation session was organized looking at the future door environment and technology by the conditions of the senior citizens. The participants were senior users, design students and engineers and marketing people form the company. Through the discussion of the everyday experiences from the door environments the important issues seemed to be safety, flexible walk thorough, the closing and opening of the door, using, loosing and forgetting the key, the functionality of locks and handles, the visual image, beauty and personality of the

door environment. These issues represent intermingled abstract, symbolic and functional qualities.

The probe for the group tasks of problems in door environments was a simple picture of a typical outdoor on a big paper. The purpose was not to point out the separate features but to show the problematic areas that could be a source for new opportunities. The discussions circled around different people going through, the transportation of luggage, and related products such as the post box. The use of the new technology seemed to be intermingled in the whole experience including emotional side. The discussion around key is a good example: do we need the symbolic key for safety and ownership even if we would not need it as a functional object.

The other task for the groups was about describing as a collage with pictures, words and drawings the desirable future door solutions. Visual material was provided for this task from the housing magazines and internet. Collages depicted both the whole door environments and beneficial separate solutions.

Figure 1. Collage from the future home environment task.

Ideation circled around solutions to make staying at home possible despite of age, sliding doors and thresholds, automatic, personalized safety locks with timing, reminder activities, replacing the key, lightweight solutions, warming up the touch points and stairs, physical support features, door cameras, automatic lighting systems, and mass customized aesthetics.

The other case was carried out to elicit housing solutions information for new wooden housing development. Four innovation camp days were held one for children, two for adults with children still living at home, and one for seniors. During the days the participants were asked to work on picture choices and discussions in general themes about enjoyable housing environment, and in addition on focused themes about safety, closeness of nature, individuality and need for space. The stimulus material was a set of 15 pictures from various wooden one-family and terraced houses. The traditional 1 1/2 storey houses were preferred and the feel of homeliness and nostalgia were emphasized together with the importance of nature elements. There were many suggestions that individuality and varied choices should be considered: the blocks

should be of different size, form and color, houses should be placed in different directions, the trees and ground should be lively. The participants also listed their private activities in their own house area. Activities were mainly to do with gardening or otherwise shaping the immediate surroundings, with storing and maintaining equipment, with socializing, eating and relaxation like after sauna sitting. Participants also drew pictures of desirable home backyards with these activities consisting of own grills, swings, sun bathing chairs, trampolines and lots of plants and water elements. The innovation days ended with a task to discuss and list activities desirable inside the whole housing area. The groups drew desirable area solutions on a plan for the area to show how the situating of houses and other activities should be placed.
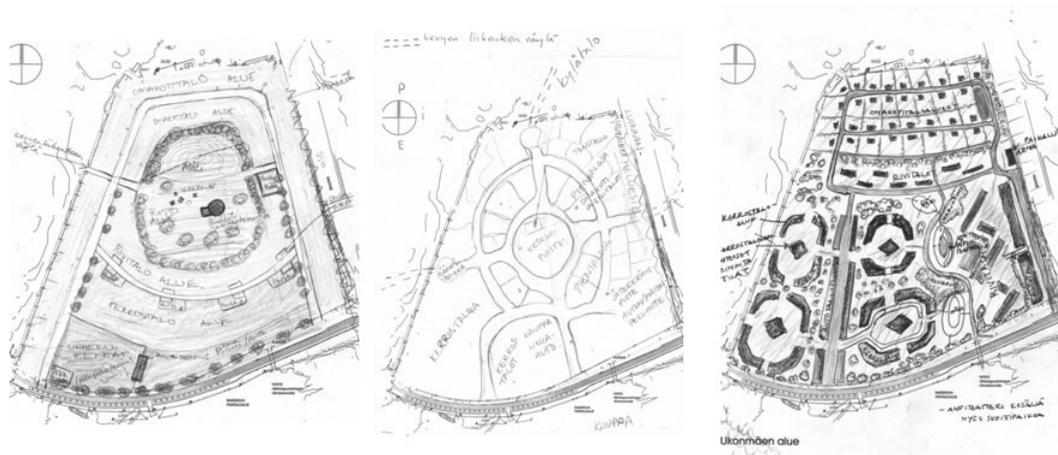
Figure 2: alternative plans for the whole area

The idea of a central park in the middle, a social meeting place with nature elements was a popular one. The central plan did not support driving through the area but spread the traffic evenly in the different parts. A number of communal spaces were suggested: a 'village house', a central grill space, a 'hobby house', and a joint sauna. Despite the social requirements the need for privacy and control of the social interaction came out frequently. People seemed to value social interaction, but combined with flexible shifting between privacy to social contact. Another control issue was safety, with concerns about good lightning, a clear plan, neigh borough surveillance, a clear view of the children's play ground and sitting places around it. In both of the company cases information about the abstract qualities appreciated by their users was available through previous quantitative research. The participatory sessions elicited different tangible solutions of the qualities such as security or cosy. Thoughtfully prepared and facilitated make do methods seem to help non designers express with tangible outcomes their abstract pleasure concepts and desirable future. Some of the users still insisted on producing outcomes that already existed as good options, but this can be also seen as valuable tangible product development information. The weak point of the procedures applied was the pre choosing of the materials which might not have evoked or allowed the participants own ideas. It proved that in some tasks too accurate material prevented user innovation and led the focus on wrong direction. The area plans for the housing restricted the ideation and directed thinking towards restrictions instead of the desirable solutions. Positively it was evident that the abstract feel discussions and tangible choices in the beginning of the process inspired the ideas for the area atmosphere plans. The combination of images of pleasurable housing environment and words such as list of activities was

beneficial for composing to whole backyard or area solutions with the atmosphere and the activities put together.

The development people saw their own participation as important for first hand understanding of the complex user experience. Information was gathered for the absent developers and they also found it inspiring. With many groups working at the same time no recording was organized and the visual and written materials produced by the groups with the joint evaluation outcomes form sessions formed the results. Documenting the discussions with a tape recorder or a video would be beneficial, but it would still demand time for looking at the videos, or someone to analyze the material and make informative clips for short viewing.

In the innovation sessions the time available limits the scope of methods. The choosing of the methods strives for making the participants active in creating articulate and tangible outcomes of their desires. Especially in the case of senior citizens this proved difficult as they felt they required little new for their future. In promising to participate people feel intimidated about what they might be asked to do such as skillful drawing. Especially drawing together is difficult. In the session for the lock company the design students facilitated drawing which was helpful with the senior participants.

At the participant level limitations of the choice of users is evident. The users should represent the target users of the product or a service but it is difficult to get volunteers for a whole day session. One possibility would be to bring the material to the homes of participants. This would, however miss the discussion of the users and developers and creative atmosphere provided by innovation sessions. As mass customization is growing in importance the product is not necessarily finished by the developers. Make do methods offer means to produce play, interaction and solutions between the design team and the user. It can also be important in establishing consensus within the cross-disciplinary development team, with distant mental images. The mere use of visual research material in the team's discussion helps in the formation of a consensus of what the team is about to do and clarify development goals given as a verbal brief without a clear notion of what it means visually. So the developers' participation is as important as the users.

With visual research there doesn't need to be any formal analysis at all: it is possible to use the raw data to get an intuitive mapping with complex information and overlapping composition impressions and style directions. Also qualitative research analysis can be applied to provide a 'deeper', more interpretive results: What do these patterns mean? What are the deep meanings? What novel scenarios are suggested? (Kälviäinen-Miller 2005) Qualitative accounts also preserve weak future sign details important for future development. These kinds of results can encourage new approaches and opportunities for even radical innovation. The more specific and limiting the analysis, the more suited it is to dealing with 'object-focused' research, while more holistic approaches suit 'meaning-orientated' questions and complex situations better. An intuitively grasped outcome can be most useful at the conceptual stage offering insight and commonly experiences goals about style, atmosphere, themes and visual meanings for the interdisciplinary development team.

5. Conclusion

Lot of the work in affective marketing research has concentrated on the abstract and verbal expression of the qualities desired in products. Making the abstract experience tangible is necessary for the product development and it can be achieved in different ways. The make do sessions proved to be one way in the search for deep insight of

complex pleasure solutions and worth of further development and use. They can also be a way of gathering the rich vocabulary and their possible tangible counterparts important for certain product experiences and can be further used in quantitative investigations. As they provide rich information space of the users' multi sensory and holistic concepts of the development issues they also support latent opportunities for innovation.

To use this kind of methods seems most suitable for complex development goals where different visual and structural elements and activities combine existing in multi layered way. They help interdisciplinary sharing of deep user insights in an understandable way so that different professionals in the development process can strive for the same goals of user value. Make do sessions combine the user participation in the product development already in early stages of the process. The new solutions can be prototyped together with the user and not built on information about their relations to the old products. This means that time is spared as the user testing for acceptance and desirability are conducted at the same time as the development process continues.

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