Users as Designers

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Abstract

This paper explores various approaches of user involvement into designing, trying to describe briefly their respective methodologies and outcomes. Emphasis will be given on elderly users' active involvement into the design process for the reason that, as pointed out by Allan et al. (1996), ageing affects everybody every day. Quoting Coleman: "to do that successfully, a new collaboration between old and young" is needed (Allan et al., 1996: 11). Another point is that designing according to the needs of elderly people does not necessarily mean that the results will match their real requirements. It all depends on 'how' elderly users are to be represented in the design process. In addition to that, according to Hasdogan (1996), due to a lack of connection between design practice and design research, a substantial number of designers in UK were making (and are still making?) use of their colleagues and themselves to 'represent' real users instead of using more representative samples of users.

The premise is that involving users, and especially elderly users, early into the design process assists in reaching universal design solutions to existing or hidden design problems. The extent of such a contribution and the related positive/negative points will be discussed in this paper, where three studies involving such approaches, dealing with designing together with elderly users, will be given as examples.

Techniques of user involvement into designing

The following traditional techniques are involving users directly or indirectly into the design process. Most of the time, depending on the study, a combination of these techniques is applied (Userfit Tools, 1996).

- Brainstorming (oldest and best known): technique used to facilitate group creativity by letting people come together and inspire each other, generating new ideas by freeing the mind. It is usually applied in the very early stages of design, in the creative, idea generation phase of the problem solving process.
- Focus groups: based on facilitating an organized discussion with a group of representative user. Discussion is used to bring out insights and understandings that simple questionnaire items may not achieve. As participants ask questions to each other, new avenues of exploration are opened. A form of collaborative mental work, as discussants build on each other to come to a consensus that no one individual would have articulated on their own.
- Group discussions: they are used to summarize the ideas and information coming from a group of participants. Each participant can act to stimulate ideas in the group, and with the help of the discussion the overall view becomes greater than the sum of the individual parts. This technique can be used for problem identification, for clarifying relevant issues, and for evaluating products. Group discussions are a part of Brainstorming and Focus groups techniques.
- Interviews: involving talking directly or on the telephone to a participant in order to collect individual opinions and subjective preferences about products. An interview can be performed in a structured manner using a questionnaire to be filled in by the interviewer or it can be open-ended using a guide describing the areas to cover. The one–to–one interaction allows the creation of an atmosphere facilitating good responses. This can be carried out at any stage of the design process as a means to gather information (detailed user requirements and user's experience). For user requirements, unstructured or semi–structured interviews should be used to allow the process to be user led. More structured interviews can be used in the later phases of design.

- Questionnaires: they are a structured way of gathering information that enables statistical analysis of the data to be used, allowing summarize a large amount of information. User experience with a product, their need of a new product, the identification of how well they do with the technology they use etc, can be investigated. They are typically consisted of a limited number of focused questions but can also be consisted of more open questions. They are used to obtain information from large samples of the population.
- Direct observation: observing users doing normal daily life activities. As an advantage, users can be observed in real environments and this has high face validity. However, people tend to perform better under observation (Hawthorne Effect). This technique can be used for a fully operating product for evaluation. It can also be applied earlier, in requirements definition.
- Empathic modeling: informal technique where the designer tries to put himself or herself in the position of the user. It is a low cost technique. However, there might be differences between the situation an investigator puts himself in, and the real life situation of a user. It can increase the awareness of designers if used in early problem definition stages of design.
- Expert Opinion: used to assist in problem identification, and in the evaluation of products. Users are experts in their daily life. They can be consulted individually or, by groups. It is used before products are released, but can also be used at any state of design.
- User trials: testing and trial of a product by “real users” in a relatively controlled or experimental setting, where a set of tasks to perform is given to them. Lists of problems can be generated as a result. These trials are generally applied on low-tech mock-ups and prototypes, working prototypes or on finished products, for evaluation. They are best used before finalization of a product, and on pre production prototypes.
- Field trials: testing of a product by users in a ‘real life’ setting (as opposed to artificial laboratory conditions) as close as possible to actual usage. They are normally applied when a final prototype is available, or a complete product is to be evaluated. It is time consuming and expensive, for these reasons, it is not commonly used in the early stages of product development, but rather for evaluation purposes.

Contextual inquiry is used more recently and it provides techniques to get data from users *in context*: while they work at real tasks in their workplace or their domestic environment. In a contextual interview the interviewer observes the user at work and can interrupt at any time and ask questions as an outsider. Research techniques include ethnography, discovery sessions, contextual interviews, usability testing, traditional lab-based usability testing, and facilitated requirements gathering. Sometimes hybrids of techniques are used. Each

technique can be tailored depending on the specific needs of the research. Each method has advantages and disadvantages and combining them gives richer feedback to designers. “The current interest in participatory design, ethnographic techniques, and field research techniques grows out of the recognition that traditional interviewing and surveying techniques are not adequate to design today's applications. These new approaches seek to improve requirements definition by creating new relationships between designers and customers” (Beyer and Holtzblatt, 1995).

Users / real people are more and more involved in design: "You bring a 'user experience' to life by designing with people, not for them. Users create knowledge, but only if we let them" (Balu, 2000: 362). “The best products happen when the product's designers are involved in collecting and interpreting customer data” (Holtzblatt and Beyer, 1993). User-centered techniques are either having the designer participating in the user's world, or the user participating in design activities. Both approaches are useful, as long as the user can be as effective as possible in both roles.

Participatory design meetings are said to sometimes disadvantage participant users. Users are said to best contribute in their real work and life experience. Taken out of their everyday life context, they are not well equipped to transfer and translate their experience (Whiteside, Bennett, and Holtzblatt, 1988). The designer has to play an important role in providing any material that might help and facilitate this transfer of experience.

A Think Tank provides a room to the team design effort that also can act as a living record of the design process. It is possible to catch up with the progress of an ongoing design team by browsing the walls where written and graphical information is regularly hanged.

Traditional market research methods, through focus groups, interviews, and questionnaires on the other hand, have been focused more on what people *say* and *think* while being efficient and cost effective (Sanders, 1999). Information on what people *do* can be collected in real life context places where people live or

work. This kind of information provides a “deeper, more personal understanding” (Sanders, 2000).

Examples

O’Sullivan et al. (1999) and Coleman (1997) pointed out the importance of consulting elderly people during the design process, because they claimed that elderly people are surrounded by things which do not work well for them, or that they simply cannot find the things that they want. The following three examples are related to studies done in order to better understand the elderly, to design better products for a universal design and to involve them in the design process.

The first example is a study that was involving emphatic user modeling. It was carried by Moore in 1979, a designer-gerontologist by profession, who did experiment for three years the life of an 80 years old woman by disguising herself accordingly, simulating losses of mobility, tactility and vision acuity (Katz, 2000). “The objective is to design for the needs of all consumers, throughout their life span, without prejudice toward age or ability” (Katz, 2000: 59). This is an example of design approach oriented at better understanding the user needs and feelings by experimenting their lives.

The second study was involving participatory design sessions (Demirbilek, 1999; Demirbilek, Demirkan and Alyanak, 2000) and was carried in order to have elderly users designing armchairs (see Fig. 1), aiming to involve elderly users directly into the process of design, in the concept creation stage. The only tools provided to the elderly users were white papers and pens, believed to give them a sense that they were in control of the situation and that they were really designing. The designer facilitating the sessions was engaging a dialogue with participants. The totality of each session was recorded on video and used to point out specific body language, and gestures that might help in expressing an uncovered need. A set of open-ended questions was used to help directing the dialogue, and ideas for scenario building (to induce the participants to imagine themselves in actual conditions). The participatory design involved a combination of the followings:

- listening to what elderly users wanted to say, in their own words, on seating;
- trying to have them visualize what they were thinking on seating with sketches;
- observing what they were doing during the activities of sitting and standing up.

Figure 1. An elderly participant showing to his group members the way he relaxes his legs while seated (Demirbilek, 2001).

The third example of study was involving elderly user participation in order to reach their feeling and “dreams“. It has been conducted by Boess et al. (1999) on bathrooms where elderly participants were preparing mood-boards in sessions, using a provided ready-made toolkit, while being encouraged to add their own drawings and comments to their boards. This was done to let people act as 'openly' as possible in the research; i.e. not constraining them with questions that are too tight (closed), and at the same time not leaving them on the other extremity with questions that are too open. These mood-boards were discussed during the sessions to let each participant describe and justify his/her own design decisions.

Positive and negative aspects of active user involvements in design

Advantages of user involvement:

- Users notice things that tool researchers don't (Pancake, 1997).
- Users help "sell" the research. Users do get involved in the sense of making a real commitment to a research project. This is called “the *spontaneous supporter phenomenon”*, developing spontaneously as users

can follow the results of their ideas and criticism involved in later iterations of the design. (Pancake, 1997)

- users are experts related to their daily life and the objects around them;
- users bring in important personal daily life knowledge;
- users are excellent at reacting to suggested designs;
- users are excellent in saying what is wrong with an existing design;
- users can generate more ideas and points of views to be explored;
- the knowledge collected may be otherwise inaccessible to designers and ergonomists;

Disadvantages of user involvement:

- it is often hard to gather a related group of end users;
- it is time consuming;
- it can be expensive;
- too many point of views may be generated;
- users are not expert designers;
- users are not trained to express their ideas with the help of drawing;
- users may not come up with design ideas by themselves;
- users may not always know what they want;
- users may not always be able to tell their unmet needs;
- some users may be reluctant and react negatively.

Sanders (2000; 1999) is giving a more complete explanation on ways to better understand end-users, to learn from their memories, current experiences and ideal experiences, by grouping the methods to understand people into three categories as follows:

- what people say (interpreting what they express and making inferences about what they think);
- what people do in their behaviors (observing them doing and using things);
- what people make by using projective tools (trying to uncover what they know; and to understand what they feel).

This grouping is shown in figure 2, in the form of a reverse triangle where the information gets more and more difficult to collect but is more accurate and representative of real life situations towards the tip end of the triangle.

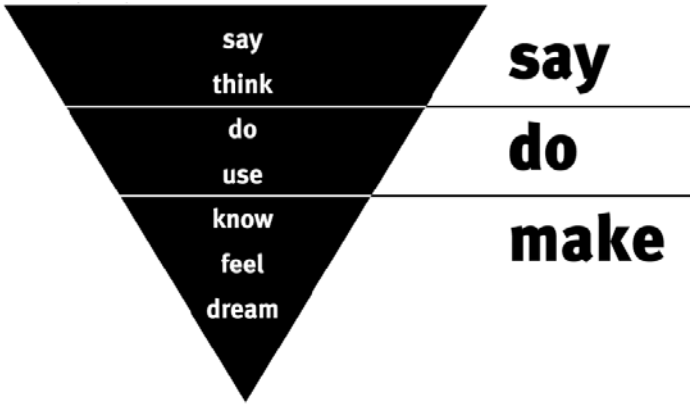

Figure 2. Ways to understand people (Sanders, 2000).

Sanders (1999) has pioneered an approach to understanding consumers that blurs psychology and design, not only for elderly and differently able users, but also for all sorts of users, introducing new tools and toolkits, designed according to the needs of each specific projects, focusing on what end-users *make* or can create. The *emotional toolkits* are two or three-dimensional and are used to make "maps, mappings, 3-D models of functionality, diagrams of relationships, flowcharts of processes and cognitive models" to help learning from end-users (Sanders, 1999). She adds that when all three different approaches (surveys; observations; and participatory design) are investigated consecutively, it is then easier to understand the end-users in order to design products for them.

Users as designers

Jones (1999)' visions a future where end-users are being enabled by suitable software to do design for themselves, on their own, a thing that is actually done by specialists and professionals. The rational behind this change is "to enliven modern living, making it less passive and more creative for everyone, not just the professionals". He adds that this new 'creative democracy' will be an alternative to consumerism (Jones, 1999). Jones foresees a despecialisation of professions which, he says, will be more enjoyable for end-users "than is any conceivable study of what designers are able to do on their own, hedged in as they are by

commercial limitations and with no direct experience of using" the products they are designing.

Enabling end-users to *design* their own products is still in its infancy stage, and will most probably develop very rapidly in the coming years. Examples of such attempts can actually be found in some web pages where end-users can create online, their "own" shoes, for example, using a palette of different basic shoe types, different colors, textures and materials. The development of these web pages is closely related to marketing strategies and as a result of it end-users can purchase their own designs, once they have finished it. Some companies even provide a way to personalize the artifact by giving the option the user to write his/her name, or a personal identification onto it. Here are some addresses of such web pages, collected on the IDFORUM discussion list, where one can *design* his/her own engagement ring, business card, watch, sport shoes, interactive toy, kitchen, house, T-shirt, or even robot:

- http://www.adiamondisforever.com/dyoer/build.pl?step=1
- http://www.designyourowncard.com/
- http://survivor.ewatchfactory.com/ewd/inter/survivor1/en/welcome.htm
- http://www.ewatchfactory.com/
- http://www.idtown.com
- http://www.swissesprit.com/
- http:// www.customatix.com
- http://niketown.nike.com/catalog/
- http://www.sodaplay.com/
- http://www.kitchen-design.com/Application_welcome.asp
- http://www.lindal.com/home.cfm
- http://www.t-shirts.com/custom/default.asp?sid=5731820848
- http://www.tcm.org/html/galleries/robots/design/robot.html

Conclusion

Having the active participation of the end-user, the real people, into the design process involves collaboration between them and designers. Both parties have to get used to each other's and learn about each other's. The design profession has

come a long way and it is facing serious changes. According to Sanders, the role of designers will (if it has not already) change in a way that they will become more involved in creating the *tools* for the end-users to express their real needs and dreams. Psychology will be an important attribute and designers will be translators and interpreters of visual expressions created by end-users. Sanders (1999) adds that designers will use this translated and interpreted information as a source of inspiration in design. As foreseen by Jones (1999), a future tool enabling users to be actively involved in design may well be computer softwares, created with the help of designers, allowing them to design their own products.

My view is that a blending of participatory design tools and toolkits and computer software programs might occur. Specially designed software programs will allow specially designed design tools to reach more people in order to allow them participating from their homes or their works, either to design their own customized objects and order them, or to be involved in bigger design projects, such as public design projects, where they will bring their daily life experience and their own creativity. The most successful companies or organizations will then be the ones that can attract the real users, to their web pages with good interface designs, and have them participate to ongoing design projects with the help of carefully designed virtual toolkits.

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