



## Collaborating with elderly end users in the design process

**Author/Contributor:**

Demirbilek, Oya; Demirkan, Halime

**Publication details:**

Collaborative design, Proceedings of CoDesigning 2000  
pp. 205-212  
1852333413 (ISBN)

**Event details:**

CoDesign 2000  
Coventry, England

**Publication Date:**

2000

**DOI:**

<https://doi.org/10.26190/unsworks/405>

**License:**

<https://creativecommons.org/licenses/by-nc-nd/3.0/au/>

Link to license to see what you are allowed to do with this resource.

Downloaded from <http://hdl.handle.net/1959.4/38579> in <https://unsworks.unsw.edu.au> on 2024-03-04

## **Chapter 20**

### **Collaborating With Elderly End Users in the Design Process**

---

O. Demirbilek, and H. Demirkan

#### **20.1 Introduction**

The fact that end-users can participate and contribute to the design process, was pointed out in previous studies made by Cavanagh (1996), Ciccantelli and Magidson (1993), Mitchell (1995), Morini and Pomposini (1996), and Reich et al. (1996) on user participation to the design process. For Howes, et al. (1998), participatory design is a design methodology, European in origin, giving an important contributing role to the end-user in the development of products they would eventually use. This paper presents a study (Demirbilek, 1999) involving elderly end-users into the design process by means of participatory design sessions. In these sessions, the expertise of designers and the comments and ideas of elderly end-users related to how doors and door handles for domestic use should be designed were discussed. Two different design sessions were done for each group of elderly end-users.

#### **20.2 Participatory Design Sessions**

##### **20.2.1 Characteristics of the Sample of Elderly End-users**

The participatory design sessions were held with potential end-users, each consisting of 3-6 elderly people mostly widowed, male and female above 65, from the city of Ankara. Random sampling was used among a group of volunteers. A pilot session was conducted with 4 elderly participants (one male and three females between 68 to 75 years old), at the end of which the participatory design session was revised. A sample of 13 potential elderly end-users forming 3 different groups (see Figure 20.1) took part in the research, each completing both participatory design sessions.



Figure 20.1 Views from the first participatory sessions for each group.

The sample of volunteers consisted of 10 females and 3 males had a mean age of 75. Nine of the elderly participants were living in a senior housing, with two of them having their own homes but preferring to stay in this special house where they have a one room studio with bathroom and a small kitchenette. The other four participants were living in their own homes: two as a couple and the remaining two women lived with their children. None of them had any severe disability limiting their physical activities. Four of the women were using canes and three of them were having problems while sitting down and standing up. Only one of the women had some difficulties while walking due to her age (93) and weight.

## **20.2.2 General Conditions of Participatory Design Sessions**

Small groups consisting of 6 people are said to successfully produce up to 150 ideas in half an hour at their first attempt (Jones, 1992). Therefore, for this study, the participation in design of the elderly users was made through small groups of 3-6 elderly people each. The participants were not prepared before the participatory design session.

### ***20.2.2.1 The First Participatory Design Session***

In the first participatory design sessions, the participants were asked to participate in the 'design' of doors and door handles for the house that they want to age in, considering all their possible requirements, needs, particular wishes and ideas. In other words, the end-users were asked to talk about and to 'design' the doors and door handles with their own means and words. The setting was a room, with chairs around a table. The designer and the participants sat around the table, having papers and pens available for everybody.

This session involved a combination of unstructured interviews, scenario building, and brain storming facilitated by the designer. To start the session, a group of questions prepared in advance was used to stimulate conversation and set the problem areas (door and door equipment design in this case). When the participants started to respond directly to the questions, the designer introduced scenario building in order to help the participants to express themselves more independently, without being limited by the questions. Once the participants started to create various scenarios, the designer encouraged them to start brain storming in order to propose any kind of solutions to the problems they have depicted while building their scenarios.

The first participatory design sessions for each group of participants began with a blank page. An already designed solution was not proposed because the elderly participants were the ones to propose solutions. The outputs of these design sessions did not attempt to deliver finished products or designs, but to be a point of departure for the remainder of the design process.

Different scenarios in which the elderly could imagine themselves were used during these sessions. Examples of scenarios were:

- You are coming back from shopping, hands full. Nobody is at home and you have to open the door. The keys are somewhere deep in your bag (or pocket). What happens?
- You are in the kitchen, the door is closed, and your hands are all greasy and dirty because of preparing a meal. The telephone is ringing in the other room. How do you open the kitchen door? What do you do?
- You are alone at home. Somebody rings at the door. You look from the eyehole but you cannot see the visitor well. What do you do?

The designer asked the participants to tell their ideas, whether positive, negative, or neutral during this scenario. From the stated negative points by the participants, the designer asked them how it could have been in a better way, and how the related

parts could have been designed. The sessions were conducted with blank papers in front of the participants for them to draw and write when necessary, and they were highly encouraged to do so. This was believed to give them a control of the situation and a feeling that they are really designing (see Figure 20.2).

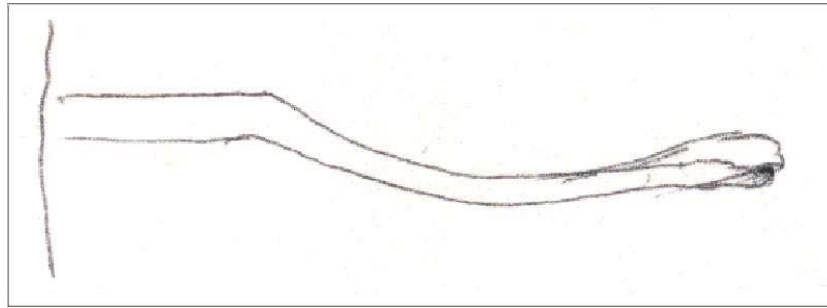


Figure 20.2 Proposition of an elbow operated door handle (drawn by a 74 years old participant).

The session facilitator collected the outputs of the sessions (in written, oral, sketches, and gestures format). This information, which was recorded on video for later evaluation (to recall all the details), provided a basis and a starting point for the author to prepare the preliminary design proposals of the mentioned products. This technique had similar points with the video ethnography technique (Mannoy, 1995). The analysis of those videotapes allowed a full range of behavioral traits to be observed, and the analysis of a sequence of events.

After the completion of the first participatory design sessions, the outputs (responses to the questions, drawings, and additional comments) were grouped under the topic they were related to (such as: physical aspect of a door; door operation; accidents related to doors; etc.) and listed in matrixes to see their existing correlation with technical design considerations.

### ***20.2.2.2 Results of the First Participatory Design Sessions***

As none of the participants have experienced a participatory design session in their lives, almost all were very shy at the beginning. The designer had to make them imagine themselves in some related scenarios to be able to really start the session. The elderly users have participated with their own means and words. At some stages, where words were not enough to explain, they mimed the scenes that they wanted to mention (see Figure 20.3, 20.4, and 20.5), using hand gestures and body language.



Figure 20.3 A participant showing door-handle operation at the door.



Figure 20.4 A participant drawing a sketch for the handle design in his mind.



Figure 20.5 Two participants explaining their ideas with hand gestures.

#### *20.2.2.2.1 Questions and Answers of the First Participatory Design Sessions*

Eight groups of questions (grouped under the following headings: problems faced with main entrance door; problems with keys while opening or closing doors; door

safety while opening and closing doors; reasons of closing doors in interiors; problems and recommendations on door handles and knobs; problems and recommendations related to the glazed parts on doors, to the material choice; and different kinds of doors available) were asked to the elderly related to doors and door handles, according to the subtasks of domestic door use, starting from the entrance door.

After having grouped the answers according to their related topics, the most important points according to the elderly users were carried into matrixes to see whether there was any relationships between the elderly users requirements, the design limitations, and technical design requirements. The matrixes were prepared using the answers and comments to the pre-set questions and the product type specifications from the literature survey. Both the elderly user's requirements and the design specifications were rated according to their importance levels. For the elder user's requirements, the importance was rated according to the number of participant having (or approving) the same opinion. For the design specifications related to the design of a door, the importance was rated according to the professional judgement of the designer.

In order of importance, the visibility range of eyehole; the placement of keyhole on door; the lighting level outside door; the operation mode of key; the lighting direction outside door; and the placement of door handle on door were ranked as the most important points to consider while designing the main entrance door.

In order of importance, shape of grip part of handle / knob; the material(s) of door; the transparency level of glazed parts; the surface finish of handle/knob; the material of handle/knob; the way of opening of door -door type; the placement of door handle on door; the colour of door; the dimensions of door handle/knob; and the outlook of a door handle (appearance); were ranked as the most important points to consider while designing the main entrance door.

#### *20.2.2.2.2 Conceptual Designs*

Three design concepts were generated after having completed the first participatory design sessions. Among them, an elbow operated door handle concept and a conceptual design for a door screen that will allow elderly users to see a visitor without having to go near the door were proposed. Another conceptual design created was a device to hang outside, near the main entrance door, being a shelf for shopping bags and a seating unit while searching for keys in the bag.

### **20.2.3 The Second Design Participatory Design Session**

In the second participatory sessions the designer presented the concepts reached as the outputs of the first session to the same groups of elderly participants (see Figure 20.6). The presentations were in the form of free hand and computer drawings, not too perfectly drawn, to avoid that the participants felt that every thing was already decided, and that nothing was left for them. Each participant received A4 copies of the drawings on which he/she could draw as well. This time,

the participants were asked to criticize the presented drawings. Every comment, and the copies of the design concepts which were 'corrected' by the participants, were collected at the end of the session.



Figure 20.6 Views from the second participatory design sessions.

### **20.2.3.1 Results of Second Participatory Design Sessions**

During the second participatory design sessions, the elderly participants seemed more comfortable, probably because they were familiar with the process. They have listened to the presentations of the design concepts carefully and made their comments. Some of them did draw corrections on the copies of the drawings.

Among the three conceptual designs presented to the elderly, the lever handle has received most of the corrections. The second conceptual design, the foldable shelf/stool to be hung on the wall of the main entrance door received also some rectification. The third conceptual design, the door screen was accepted as it was, and the idea was very much appreciated by all of the participants. No corrections were made on the drawings.

## **20.3 Conclusion**

All three concepts were generated entirely with the help of the responses given and proposals made by the elderly participants during the first participatory design sessions previously held. This result reinforces the statements of Howes, et al. (1998) who are claiming that design knowledge is present in all the people potentially affected by a design and that these people can contribute to improve that design. Druin (1997) adds that in this way, researchers can directly identify new product possibilities that they might not have been able to think of on their own. This latter issue is strengthened by the following statement of Haigh "Design for the young and you exclude the old; design for the old and you include the



young” (1993: 14) which is more and more valid as the number of elderly people is increasing. Furthermore, Coleman (1997) says that older people are more and more commending substantial wealth and are prepared to spend it on things that will really improve their lives, which means that they are an important potential consumer market which needs to be explored more deeply. This study has tried to illustrate a concrete example of the involvement of elderly end-users early into the design process. Prototypes of the three different design concepts that have been developed will be produced in order to be tested in real life use, again by elderly users.

## 20.4 References

- Cavanagh S (1996) The Space we Need: Principles of Housing Design for Older Women, Women with Children, and Parents with Disabilities. In E. Komut (Ed.) Housing Questions of the Others. Ankara: Chamber of Architects of Turkey, 67-76
- Ciccantelli S, and Magidson J (1993) Consumer Idealized Design: Involving Consumers in the Product Development Process. *Journal of Product Innovation Management*. 10: 341-347
- Coleman R. (1997) Breaking the Age Barrier. Speech at the Royal Society of Arts, June '97 as part of the Design Council - Design in Education Week, London: DesignAge, Royal College of Art, March. <http://valley.interact.nl/DAN/NEWSLETTER/NEWS97/home.html>, 6, 6, 1998
- Demirbilek O (1999) Involving the Elderly in the Design Process: a Participatory Design Model for Usability, Safety and Attractiveness. Unpublished PhD Thesis. Ankara: Bilkent University
- Druin A (1997) Participatory Design: Children Participation in Computer Design”. [http://mtsnmc.unm.edu/intel97/html/participatory\\_design.htm](http://mtsnmc.unm.edu/intel97/html/participatory_design.htm), 10, 3, 1998
- Haigh R (1993) The Ageing Process: A Challenge for Design. *Applied Ergonomics*. 24. 1: 9-14
- Howes G, Gordon P, and Masellis B (1998) Perspectives on the Role of Participatory Design in Computer Mediated Communication. CMNS 353. <http://oscar.cprost.sfu.ca/~cmns353/Projects/GroupJ/index.htm>, 10. 3. 1998
- Jones CJ (1992) Design Methods: Seeds of Human Future. Second Ed. New York: Van Nostrand Reinhold
- Mannoy R (1995) The Scholarly Practitioner. Co-Design, January 2 - February 2, Milton Keynes
- Mitchell CT (1995) Action, Perception, and the Realization of Design. *Design Studies*. 16: 4-28
- Morini A, and Pomposini R (1996) New Designs for Aged People Housing. In O. Ural, D. Altinbilek, and T. Birgönül (Eds.). XXIVth IAHS World Housing Congress, May 27-31, Ankara: Middle East Technical University, pp. 791-800
- Reich Y, Konda SL, Monarch IA, Levy SN, and Subrahmanian E (1996) Varieties and Issues of Participation