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# Shopping and the Elderly: a Universal Design Case Study

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## Abstract

Nowadays more than a billion different products are manufactured everyday. We do not need most of these and there are only a few products for people that really need them. Elderly people are still often forgotten as far as product design is concerned. A lot of normal products impose physical and mental barriers for these users, which make them feel different or even disabled. The Universal Design philosophy as an inclusive approach to design is now receiving proper attention from the industry. This might be due to the fact that the ageing of the population is now a widely acknowledged and accepted fact in most countries.

Even though we have come a long way in relation with including the elderly, they are still facing ageist attitudes. An example of study where the designer empathised with the elderly in order to design a shopping bag will be given in this paper. The present study was done in order to gain user understanding related to shopping activities for the elderly (mainly carrying groceries) and interpret it for a wider range of needs and aspirations. This was accomplished in an attempt to find a Universal Design solution related to grocery carrying activities that will allow the elderly to participate normally and independently in the society, contributing to their everyday life in a positive way.

The study involves a literature search, observations in shopping malls in Sydney, a survey applied to 14 elderly participants, and the trial of a prototype in shopping malls. Shopping habit examples and survey results from Sydney will be given to illustrate the present inclusive design study.

## Elderly in Shopping

Elderly people are having a lifestyle of their own. The future of shopping only seems to get better as far as it concerns the elderly. The criteria for **boomers** would be less strict. These are the criteria for the elderly of nowadays and in most of the cases they are applicable on “the boomers” as well, since they are universal. As people get old their abilities decrease. Shopping is no longer as it once was. Carrying the groceries becomes harder, but elderly people still want to be independent and do it on their own.

Over time all activities in life become habits. Difficulties performing these activities are overcome and forgotten. In fact, we do not see them anymore. On the other hand, the elderly begin once again to encounter these problems. This becomes a clear demonstration of their own advancing age only in their eyes, and most elderly people will not want to admit or succumb to these difficulties.

Nowadays, the elderly have higher standards of living, are healthier and livelonger. At the age of 65, they do not feel that old and certainly do not want to act that way. Now 50 is what 40

used to be and the second half of life starts at 60. Popcorn (2002) defined this phenomenon as “down-ageing”.

## The survey

A survey was carried out in 5 big shopping centres in Sydney (Randwick, Maroubra, Bondi Junction, Eastgardens and Eastlakes). The survey, in the form of a questionnaire, also included interviews with 14 women and 2 men with an average age of 73. The results have been giving a good picture of the various problems associated with shopping bags and trolleys, the sort of bags and trolleys and the way these are used. The questions have ranged from the general shopping habits, the shopping process, travelling, the bags or trolleys, to the associated problems.

The elderly cannot be considered as one big homogeneous group. In order to design a shopping bag, one specific group of elderly has to be identified, on which one set of the same design criteria can then be applied. Amongst the group of elderly aged 65 and over, there is a more consistent group who goes out regularly for shopping. These are mostly women, who are able to shop independently, and can live on their own. Elderly people who do not have a car, who do have a mild mobility impairment and encounter problems while travelling back home with their groceries, are the ones that need a suitable shopping bag the most. The design of such a bag has to be a universal design solution, which will not exclude any other group of users.

## Shopping habits

Shopping is a good way for elderly to get out of their houses. In most of the cases shopping does not only mean to get the groceries and go home. Elderly people have more time and take their time for shopping. They get fresh air, meet friends, reduce their loneliness and maintain their health. According to a survey done in Germany, the elderly spend by far most of their time doing shopping (Brog, Erl, & Glorius, 1998). The study of Yung (2002) shows that 77 % of the elderly are thinking that it is actually quite enjoyable to do shopping. Except for the time spent in the store, all the elderly questioned for this study said that they do spend some extra time in the shopping centre (see Figure 1).

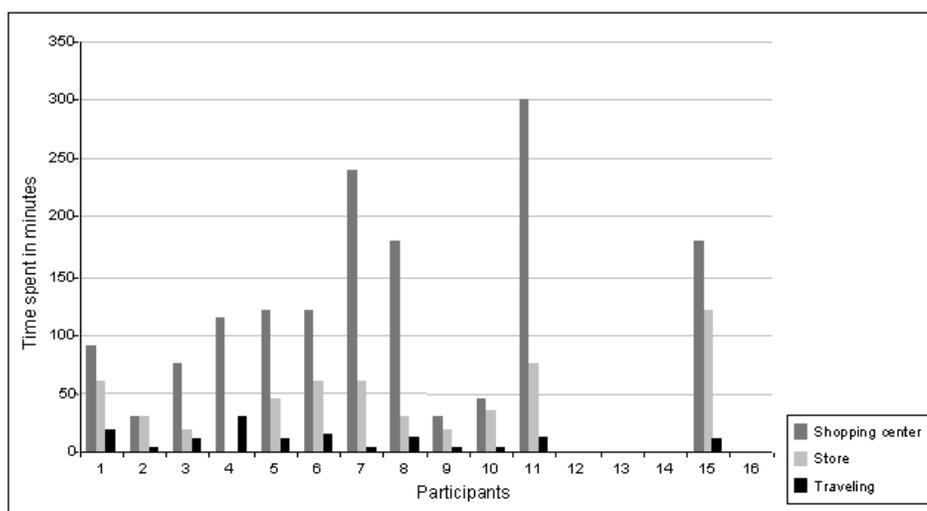


Figure 1. Time spent for shopping.

Half of the interviewed elderly said they spend more than one hour extra on the following things: hairdresser, gambling, lotto playing, talking, sitting, reading, drinking coffee or watching

a movie. Men in particular are not doing much shopping. Most of them don't even have a shopping bag with them, they let the women take care of that, but they still hang around in the shopping centre. They are there, because they have to drive the car or just want to meet up with friends.

Figure 1 shows that half of the elderly interviewed are spending more than an hour in the store. While in the store, it was noticed that they are slow in choosing articles and they take a long time just scrutinising the items. Around 70% of them are using a shopping trolley while the other 30% carries a basket or just puts the articles directly in their shopping bags. Only very few of them use their own trolleys. The ones who are using a shopping trolley from the shop are the ones that mostly travel by car. They take the trolley to their car and unload the trolley in the boot.

Most of the interviewed elderly go out for shopping before lunch and do this several times a week, buying small amounts of groceries each times. Related to the problems with carrying bags, 50% have problems carrying heavy items (Yung, 2002) and they only take what they can carry. Having to do their shopping several times a week for small amounts just turned into a habit, or in other words: a handicap that they learned to live with. Furthermore, 83% of the population of 65 and over shop for their groceries themselves. This means that they have to transfer all their groceries from the shops back home by themselves without external aid (Australian Bureau of Statics, 1999).

Another big issue to consider is safety. One quarter of the interviewed elderly women mentioned that they have been attacked once. Such a situation in fact influences the way they handle their bags. These women were mostly feeling insecure and really careful, aware, and mindful of where they put their things. Some of them just hold their bag tightly against their body. A few of them were even carrying an extra wallet underneath their clothes for big amounts of money.

Figure 2. shows the rate of answers for trolley, walking aid and shopping bag usage while on the way to shopping, or in the shops. Most of the surveyed elderly had their own bag for shopping. Figure 3 and 4 show examples of such bags.

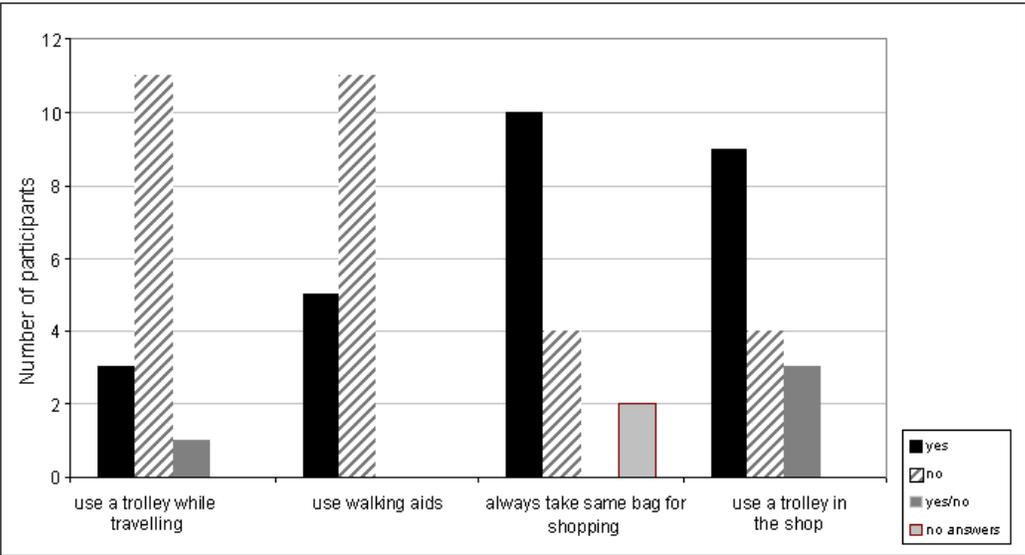


Figure 2. Trolley, walking aid and shopping bag usage.



Figure 3a. Samples of small shopping bags encountered in shopping malls.



Figure 3b. Shopping carriers and trolleys.

After their shopping is over, most elderly people put plastic shopping bags in their own shopping bag. If they walk out of the shop the usual image is a purse in their hand and the shopping bag around their wrist. Later on they put it around their shoulder, in their hand and some leave it around their wrist. Some people mentioned they rather brought two bags, so they could balance the weight and carry a bag in each hand. Shopping bags can create many problems for the elderly. These problems can be summarised as follows:

- If it is too heavy it can cut into the hands and cause restriction in blood supply to the fingers.
- If it is not totally full it can be hard to carry because the centre of gravity is close to the ground.
- It is easier to carry a bag when the centre of gravity is close to the hands. If it is not totally full than it is most likely that people will hold the bag somewhere in the middle.
- Bags can keep on bumping into the ankles, knees or hips. This can be irritating on the skin or can cause bruises very easily.
- A light bag is easier to carry. One can put it in a handbag when empty.
- Most of the elderly like bags that can be closed. This feels more safe and the groceries stay in the bag more easily.
- A lot of bags contain commercial texts and most of the elderly do not like this.

# Shopping bag concepts



Figure 4. Concepts developed for the shopping bag.

In Figure 4, starting from 1 are the most radical designs and towards 15 are the simplest solutions. The 5 last solutions can be integrated in the solutions ranked in the middle. The radical designs need a lot of changes to be done in the shopping centres, counters or paying systems or even busses have to be changed, for solution (2), this will be costly and these solutions will most probably remain as concepts.

The best ideas are showed towards the middle. They are especially designed for elderly people, are not expensive and can be produced and introduced easily. Almost all of the ideas are solutions based on the physical limitations of the elderly. The paper bag (10) is based on the feeling of nostalgia and doesn't really make shopping easier, still it is believed as being a good design because it can be used instead of the plastic bags and it gives the elderly a choice if these are sold in stores.

The selected design has been the “bag trolley” (6). This bag is a small lightweight trolley for little amounts. It can be carried easily, so people can get it into public transport or put it on the counter. It looks like a bag, so elderly do not feel “disabled” when using it as a bag. When using it as a trolley it still looks like a bag. The trolley handles can slide easily out of the frame. The difference with the existing trolleys is that this one is fairly small and made for a smaller amount of groceries. If necessary the bag can be taken of the frame.

A simple model (Figure 5) of this concept was built and tested in shopping malls, asking question to elderly. Most elderly were not critical at all, what made this questionnaire useless. The best information was taken through observations. The model has a PVC tube frame with fabric stitched around it. The two wheels are “inline-skate-wheels”. It has a foam reinforced fabric handle to hold it around the shoulder, a handle on top and a handle to use it as a trolley. The trolley-bag has a diameter of 500 mm and is 850 mm high.

The observations made are as follow:

- The trolley is too big; it is too heavy when full.
- Elderly people want it to be closable.
- Elderly people said it was a trolley rather than a bag.
- Some elderly said it had no wheels, so the wheels couldn't be seen.
- The inside of the trolley is white, this looks cheap and they did not like this.
- The round bottom is really good; It can be dragged up the stairs.
- The handle in the middle has to be closer to the weight centre, which is not in the middle, because of the trolley handle.
- It goes easily up and off the pavements.
- The round form is easy to manoeuvre.
- The skate wheels work well.
- The small handles are too far apart.
- The soft round covers around all the handles feels nice.
- It is easy to carry around the shoulder, but none of the elderly tried to carry it like that.
- None of the elderly tried to carry it, they just used it as a trolley.
- The banded handle makes the pulling of the trolley really easy.

The round form turned out to be an easy to handle form and has the big advantage of being able to slide up the stairs or on the pavement easily. The size of the model was too big and has to be smaller, so it can be carried, even if when full. The best way to make it smaller will be to make it thinner. The nicest way to carry the bag was around the shoulder. For the elderly, this will be harder. However, elderly people have been observed to carry their bags around their shoulder, so this looks like a possible solution. All the elderly people who tested the trolley (10 people) were able to handle it. Furthermore, the height was sufficient for all of them, and could even be a little bit shorter.



Figure 5. Model of the “bag trolley”.

## Conclusions

The selected concept design was based on the fact that half of the interviewed elderly were shopping by car, and did not carry much. The other group of elderly carry their groceries all by themselves till their houses, either by walking or public transport. Elderly people generally shop 4 times a week and in little amounts. They like to go out shopping and do not see it as a problem to go several times a week. They still generally carry two plastic bags a time and if you do that 4 times a week, 52 weeks a year, this will be hard on your body.

All the developed concepts are solutions for only some of the limitations elderly people can have. They make shopping easier for some of the elderly, but not for all of them. "The balls" for example protect the hand while shopping, but they do not give a solution for having to bend down all the time, "the open bag" is easy at the counter, but it still has to be carried all the way home. The trolley-bag gives solutions for several limitations, it will make shopping easier, but it does not solve everything. This paper hopes to provide designers with insights on what elderly people need while shopping, so that the needs of as much elderly as possible can be met and by this way, give them a variety of products that will help them during their shopping activities. The design concepts give a broad range of solutions, all illustrating the different aspects and the different ways in which elderly people can be helped. The products designed for the elderly will make shopping more comfortable, in any way what so ever, for everyone as well.

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