Chapter 23

Designing for an Ageing Population: Residential Preferences of the Turkish Older People to Age in Place

Y. Afacan

23.1 Introduction

In the 21st century, there has been an increase in the ageing population and people with disabilities in the majority of the world. World Health Organization (WHO) estimates suggest that the world total will be more than one billion people aged 60 or over by the year 2025 (Marshall *et al.*, 2004). Thus, ageing population has been a growing concern in Turkey as in other countries. Especially in Turkey, where most Turks live in high-rise apartments, it is important to design housing universally. Turkish culture is based on a close relationship between the older people and their families. Today, rather than preferring specialised institutions, most of the older people want to live in their own houses, where they lived when they were younger. There is a crucial need for alternative daily living environments based on universal design that provides a higher level of accessibility, usability and adaptability for all users regardless of their size, age or ability. This study aims for a cultural understanding of the views of the Turkish older people on designing their homes for ageing in place. It is based on data from empirical research on universal design. The cultural differences between Turkey and places like the US, the UK and Europe, where most of the research in this area has been done, could provide fascinating insights.

Reviewing the literature indicated that there were many debates on ageing taking place amongst assisted living providers, designers, researchers and policy-makers. "When older people become frail, the home environment needs to be more supportive to compensate for their limitations or disabilities" (Pynoos, 1992). The independence of the older people within the boundaries of their homes is prevented by physical, social or attitudinal problems (Kort *et al.*, 1998). Imamoglu and Imamoglu (1992) stated that "in Turkey, examination of current living environments and special housing needs of the older people has been neglected by social scientists, as well as designers, planners and decision makers. In contrast to

developed countries, in Turkey old age is not yet regarded as a problem; however it is already becoming difficult to continue existing patterns…". Exploring the changes in life situations of the Turkish older people and their attitudes toward design features for their later years is essential to a scientific study of ageing.

Demirbilek and Demirkan's study (2004) is important in terms of understanding the older people's requirements by involving them in the design process and collecting data by means of participatory design sessions to explore how objects, environments and equipment should be designed to allow for ageing in place. Wagnild (2001), in his most recent survey with 1,775 people aged between 55 and 93 years, stated that although there are barriers to achieving ageing in place, the older people overwhelmingly prefer to grow old where they are. The critical design issue is what can be done to realise this preferred future. In recent years there have been lots of universal design applications in home environments (Ostroff, 1989, 2001; Mueller, 1997; Imrie and Hall, 2001) that aim to investigate the social and physical aspects of daily living environments of older people and to develop design solutions for them. Furthermore, in many countries there are established centres and associations for ageing in place and various technological attempts applied to ageing-related areas, such as housing, personal mobility and transportation, communication, health, work, and recreation and self-fulfilment (Story, 1998; Fozard *et al.*, 2000; Dewsbury *et al.*, 2003; Iwarsson and Stahl, 2003).

However, the design of universal housing is still in its infancy in Turkey. Accommodating ageing in place here is a highly difficult and challenging design task. Although there are cultural and cross-cultural studies on the social psychological aspects of the Turkish older people (Imamoglu and Kılıc, 1999; Imamoglu and Imamoglu, 1992), they do not deal with a universal design approach. This study considers ageing and accommodating the older people as social design problems that cannot be solved by individuals themselves. Architectural solutions informed by ethical concerns, universal design principles and the use of technology can help to overcome these problems. According to Fozard *et al.* (2000) building technology, architectural knowledge, and smart technology for heating, lighting, and other environmental factors are significant resources for universal solutions in new construction. Designers, providers and users of assisted living should be aware of new technologies to increase the usability of living environments. This study also considers and compares the daily living requirements of the older people living at home with those in an assisted living institution in Turkey, which provides its patients with a universal housing environment combined with emergency help, assistance with hearing and visual impairment, prevention and detection of falls, temperature monitoring, automatic lighting, intruder alarms and reminder systems announcing upcoming appointments and events. Working closely with the older people and being informed of their diverse needs is crucial to the development of enabling design (Coleman and Pullinger, 1993). In this context, this research contributes to the literature by exploring universal design as a critical approach within a cultural perspective and by investigating daily living preferences of the Turkish older people for ageing in place.

23.2 Methodology

23.2.1 Sample

The sample consisted of 48 respondents aged between 76 and 96 years, with a mean age of 83.96 in the home sample and 78.81 in the institution sample. It was selected according to age, sex and dwelling-standards considerations. The idea in the sampling is to present the older people aged 75 years and above, who may have more disability problems and spatial difficulties than those between 60 and 75 years. 32 of 48 (66.6%) respondents, 17 female and 15 male, were selected from the Turkish older people living in their own homes. 16 of 48 (33.3%) respondents, nine female and seven male, were selected from a high quality assisted living environment, the 75th Year Rest and Nursing Home, in Ankara, which was established by the Turkish Republic Pension Fund. There are 168 one-bedroom units of $35m^2$, 47 two bedroom units of $45m^2$ and 18 units of $34m^2$ with special features for disabled people. There are two reasons behind the selection of this institution; the home-like character of the units and the universal design principles behind its features. Each of the architectural features is designed inclusively to increase equal accessibility, privacy, security, safety and usability of spaces within the institution regarding age-related disabilities. The offered services and facilities accommodate a wide range of individual preferences in order to be consistent with the expectations of the older people. Different modes of information presentation, such as pictorial, verbal, tactile and audio-visual, are also used to eliminate unnecessary complexity. Appropriate size and space are provided for approach, reach and manipulation so that hazards, errors and high physical effort can be minimised.

23.2.2 Procedure

A structured interview with 15 questions was conducted with 48 respondents to collect the data. It was held in the respondents' own living environments. The interview questions of the home sample were the same as the questions of the institution sample to provide a valid comparison. The questions were structured to assist the respondents as follows: first, participants were asked to state the characteristics of their living environment; then, they identified the physical barriers within their current or previous living environment and their spatial problems room by room; finally, they were asked about their desired universal design features. The interview was guided by the author in order to elicit responses more comprehensively and later, to generate an in-depth discussion. The results were analysed both qualitatively and quantitatively. In addition to the interviews, photographs were taken to support the verbal responses. Each interview was also recorded on a tape-recorder.

23.3 Results

The recorded interviews and discussions ran for 150 hours. The study systematically analysed the data with SPSS software by means of statistical analyses, such as frequency distributions, cross tabulations and a chi-square test. It examined the findings in detail under the following sub-sections.

23.3.1 Home Environment

Factors Pushing the Home-respondents to Age in Place
The interview results revealed that all 32 respondents identified their current home as the place where they preferred to age although they reported spatial problems and physical barriers within these environments. This preference accorded with Mace's (1988) remark: "The overwhelming preference of older persons is to remain in their homes as they grow older". The main reasons behind this preference in the study were the subjects' memories associated with home, their sense of achievement, their deep attachment to their homes, the cost of living and their fear of change. These factors pushing the respondents to stay in their current homes have a statistically significant relationship to the respondents' relationship status of living alone or living with a spouse or children (x^2=38.882, df=8, α=0, 001, two-tailed). The interview results revealed that nine of 32 respondents lived alone; sixteen lived with their spouse; and seven lived with their children. All of the seven respondents living with their children fear changing their current living environment, because they are adapted to the circumstances and lack a sense of achievement in staying independent and managing unaided. However, eight of sixteen respondents living with their spouses have a sense of achievement in being capable of ageing in their own homes although they are lonely. Moreover, length of stay is another important factor in the preference of the older people for ageing in place. There is a statistically significant relationship between the respondents' living time in homes and the factors pushing them to stay (x^2=24.885, df=8, α=0, 01, two-tailed). Thirteen of 32 respondents, who have lived more than 31 years in their current home, are more anxious to age in place than the other 19.

Spatial Problems Confronted
Considering the spatial difficulties confronted and the physical barriers within the home environments: 32 respondents reported spatial problems caused by long hallways requiring high physical effort, narrow hallways interfering with the manoeuvring space and stair problems such as open risers, narrow treads and landings and inappropriate dimensions. The usability problems caused by long hallways are shared by all 17 of 32 respondents who live in houses bigger than 130m^2. The long and narrow hallways require much physical effort, maximise repetitive daily actions, obstruct easy access to rooms and cannot meet the changing mobility needs of the Turkish older people (see Figure 23.1a). On the other hand, ten of 32 respondents, who live in smaller houses than 100m^2, have difficulties in managing everyday life and the problems of ageing due to the

inadequate size and space for approach, reach, manipulation and use (see Figure 23.1b). The narrow hallways do not provide enough space for moving furniture or for manoeuvring, which causes hazards and the adverse consequences of accidental actions. This study analysed the relationship between these spatial problems and respondents' house size (Table 23.1). There is a statistically significant relationship between the house size (in terms of square metres) and the spatial problems (x^2=37.378, df=6, α= 0, 01, two-tailed).

Figure 23.1. (a) A long hallway from a 190m^2 house, (b) an inaccessible storage room from a 95m^2 house (by the author)

Table 23.1. Cross tabulation for "house size" and "spatial problems"

SPATIAL PROBLEMS	HOUSE SIZE			
	80–100 m^2	101–130 m^2	131+m^2	Total
Long hallways	0	5	9	14
Narrow hallways	7	0	0	7
Stair problems	0	0	8	8
Not enough clear spaces	3	0	0	3
Total	10	5	17	32

In addition to the spatial problems, the respondents were also asked to identify their accessibility and usability problems in day-to-day activities. Figure 23.2 illustrates the inaccessible and unusable features of the three house sizes. These analyses were significant for designers in terms of exploring the relationship between the older people's requirements and universal design performance, identifying the most important features and setting priorities among them, because Wilder Research Center (2002) stated that reconstructing universal design features within a living environment depends mainly on the current home structure and layout.
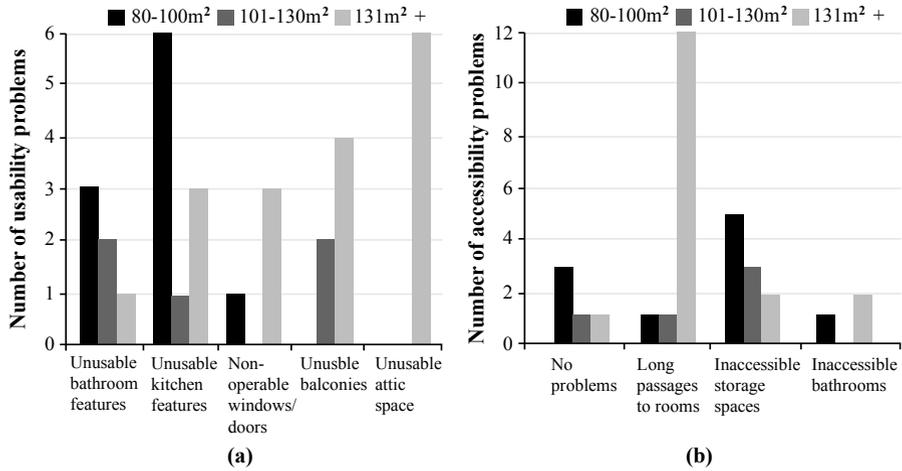
Figure 23.2. Recorded usability (a) and accessibility (b) problems of 32 respondents

The Desired Universal Design Features

Having identified the spatial problems, the respondents were asked to express their desired universal design features. Some examples of the questions are as follows: What do you suggest to improve the unusable kitchen features? What do you suggest to efficiently use the storage spaces? What do you suggest to improve the unusable bathroom features? While answering these questions, respondents gave their ideas about design suggestions. Electrically operated counter tops and pull-out work boards were the most common answers (from ten of 32 respondents) concerning the unusable kitchen features. High and low seated showers, multimode bathing fixtures and grab bars were suggested design solutions from six of 32 respondents for the unusable bathroom features. Ten of 32 respondents had problems with storage spaces and suggested a remote-controlled storage system that could have movable and adjustable heights of shelves. There were also other design suggestions by the respondents such as a main entrance without steps, camera installation at entrance doors, a lighted door bell, a push button power door, wide interior doors, motion activated lighting, audible alarms and programmable thermostats.

23.3.2 Institutional Living Environment

Factors Pushing the Institution Respondents to Move

Sixteen institution respondents had been voluntarily relocated and described three factors pushing them to move to alternative accommodation. The first factor, according to 4 of 16 respondents, was the institution's capability of supporting older people's independence, autonomy, and control through the appropriate designs and dimensions of the units to accommodate changing needs. Especially, as researchers stated that the most hazardous room within a living environment is the bathroom (Bakker, 1997), in the institution, the respondents also highlighted

their previous bathroom problems. However, the nursing home currently allows them to remain as independent and safe as possible through the use of grab bars and an emergency device in the shower (Figure 23.3). The lower living cost was stated by seven of 16 respondents as the second factor in moving to the institution. The important aspect of this statement is the gender difference. Rather than the females, all of the male respondents dealt with ageing in place from a financial perspective. Five of 16 respondents identified physical support and environmental safety as the third factor. They reported that the institution is designed for comfort (for example, heating, bathroom and power sockets).
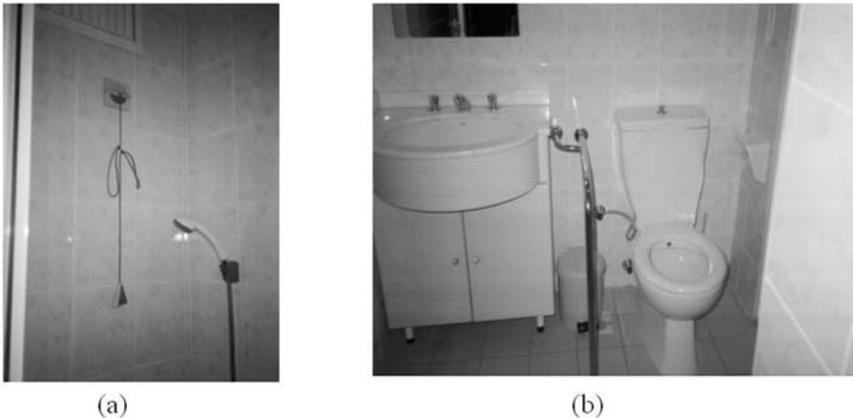

(a)   (b)

Figure 23.3. A bathroom example of (a) an emergency device and (b) a grab bar (by the author)

Beyond the environmental factors, gender characteristics also play a significant role in relocation. While research on relocation has primarily focused on characteristics of moving and individual responses to relocation, minimal attention has been given to the process of and desire for moving (Young, 1998). Thus, this study analysed whether the respondents moved voluntarily or compulsorily to this institution. There is a statistically significant relationship between gender and desire to move (x^2=16.000, df=1, α=0,01, two-tailed). All of the 7 male respondents moved compulsorily after their spouse's death, whereas all females moved voluntarily and preferred same-age companionship. The institution provides them with frequent contact with larger social networks. In Turkey, according to the older people, frequency of interactions is closely related with feelings of satisfaction with oneself and life.

Spatial Problems Confronted in the Previous Living Environment
All 16 respondents reported that the architectural design features, services, physical surroundings and leisure facilities in the institution provide them with a better daily living environment than their previous houses. This implies that with increasing age and urbanisation, the Turkish older people would be more receptive to alternative accommodation, if good services, well-designed spaces and high quality

of facilities were provided. Seven of 16 respondents stated that the housework was problematic in their previous houses because of long/narrow hallways, lack of clear spaces and unusable features. The other seven of 16 respondents identified maintenance problems as a factor pushing them to move. The rest faced problems with stairs, as was reported in the previous section by eight of 32 home respondents. Similarly, the spatial problems that the institution respondents had confronted in their previous living environments were closely related to the inappropriateness of their house size.

Desired Universal Design Features

Finally, the respondents were asked about the desired universal design features. The author guided them with the same questions as in the home environments. As all respondents defined the institution as the most appropriate living environment, where necessary support and proper dimensions for use, approach and access are provided, they listed their current living conditions as having the desired design features. They identified four guiding design concepts that offer them the possibility of being safe and independent as long as possible: less physical effort; usability in the kitchen and bathroom; accessibility in storage space without excessive reaching, twisting, and bending; and accommodation of a wide range of abilities. Regarding the concept of less physical effort, five of 16 respondents pointed out the importance of accessible hallways connecting all spaces comfortably and door handles that were operable without twisting. Two of 16 respondents described the usable kitchen and bathroom design as their preference with adaptable cabinets for kitchens and showers instead of bathtubs in bathrooms. Six of 16 respondents highlighted the necessity for accessible storage spaces within easy reach in daily living environments. For three of 16 respondents, the accommodation of a wide range of abilities and the provision of clearances at doors, toilets and turning spaces were the other significant concepts.

23.4 Discussion

All 48 respondents wanted to age in place where they were. The comparison between the home respondents' and institution respondents' attitudes toward ageing in place is essential for further investigations and future developments in home modifications, rehabilitations, financial planning and disability prevention services. Moreover, the verbal responses of the older people and the photographs of their living environments constitute valuable information for designers to incorporate older people needs in the housing design process. Rather than generalising the results for the whole population, this cultural study proposes further elaboration of results by searching for a response to how universal design can be employed. The key issue is to promote universal housing, which means to make living environments habitable, accessible and usable regardless of the disabilities that may occur during the ageing process. Findings are summarised in a key features list (Table 23.2).

Table 23.2. Key features list to increase function and usability

House Area	Universal Housing Feature
Entrance	Main entrance without steps.
	Camera installation at the entrance door
	Lighted door bell
	Push button power door
General Interior	A remote-controlled storage system
	Movable and adjustable heights of shelves
	Wide interior doors
	Operable handles for doors
	Accessible storage spaces within easy reach
	Clear floor areas at doors, toilets and turning spaces
Hallway	Short wide hallways
	An accessible hallway connecting all spaces
Kitchen	An electrically operated counter top
	Pull-out work boards
	Adaptable cabinets
Bathroom	High and low seated shower
	Multimode bathing fixture
	Grab bars
Environmental Controls	Motion activated lighting
	Audible alarms
	Programmable thermostats

This list offers initial design options for those who are experiencing spatial difficulties and are willing to rehabilitate their homes. These features allow the older people to accommodate their needs safely, survive without the need to relocate and make their day-to-day activities easier and home tasks possible. They are also low-cost solutions. However, this 21-item features list in its current form is an initial step. It should be investigated further, which forms the future research agenda of the study. Incorporating as many universal features as possible is essential for designers to satisfy the changing needs of the older people. For this purpose, the Center for Universal Design (2007b) defined gold, silver and bronze universal design features that should be included in a house to achieve a higher level of inclusivity. Designing supportive, adaptable, and accessible daily living environments with innovative features is the main goal of universal housing, and

such an environment opens up the possibility of attractive and enjoyable living. Accordingly, a universal house should include the gold key features regarding entrances, interior circulation, bathrooms, kitchens, garage, laundry, storage, hardware, sliding doors and windows (Young and Pace, 2001; Center for Universal Design, 2007a, 2007b).

23.5 Conclusions

Designing for an ageing population and people with diverse abilities has been a prominent part of the universal design movement. As people age, their needs in living environments will also change. "For housing to adequately address these needs all home design must recognise and accept that being human means there is no one-model individual whose characteristics remain static through their lifetime" (Center for Universal Design, 2000). Examining the design literature on universal design showed that there were similar case studies on universal design housing features. Unlike these studies, this study analysed the universal housing issue from the Turkish older people's point of view. It provides directions for future studies on how to identify universal features in daily living environments systematically and how to further evaluate possible universal housing solutions for ageing in place. Moreover, this is ongoing research and the author is currently working on comparing these findings across cultures.

In conclusion, it is important to interpret the findings from two points of view. First is the user-consciousness of ageing in place and second is the designers' awareness of the older people's needs and their attitudes toward alternative living environments. Whether users are young, old or somewhere in-between, they should be concerned with the question of whether or not their houses will respond to their changing needs and disabilities of the ageing process. They should be conscious of any physical limitation that they might experience for their entire life in their own homes. The second important issue is the designers' key role in creating daily living environments. They should be encouraged to engage with the everyday challenges of ageing populations. As in the study, the apartment living pattern observed in Turkey is not capable of responding to the requirements of ageing. The lack of consideration of the requirements of the Turkish older people resulted in the dissatisfaction with their current living environments. In this respect, it would be advisable to take a user-centred approach and provide alternative design solutions suitable for older people's needs both in Turkey and in other countries all over the world.

23.6 Acknowledgments

23.7 References

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