Chapter 25

User Friendly Living Environmental Research and Design for Older People

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25.1 Introduction

It is obvious that we are entering into an ageing society. Taking Hong Kong as an example, in the year 2030, it is projected that 22% of the total population will have reached 60 years old or above. In Hong Kong, there is still a lack of inclusive and comprehensive planning for society to meet this change in demography. Nowadays, the percentage of educated older people is becoming significant. It is also projected that 20 years on 63.6% of the elderly population will have received secondary education level or above. Obviously, people who are better educated will have different expectations in life as compared with the present cohort of older people. They may keep lifestyles with variety even when they become older.

Recent gerontological geography researches focus on discussions of living environment design and planning in a multidisciplinary context. In *Placing Ageing, Positioning in the Study of Older people*, Kearns and Andrew (2005) state clearly that discussions on city planning today should enter into the era of "post-medical geography of health" *i.e.* it is not sufficient to plan an environment where only responsive type of medical services are provided. The sustainability of the physical and psychological health of the citizens is a broad concern which involves serious consideration in a multidisciplinary context.

The definition of health offered by World Health Organisation was "a state of complete physical, mental and social wellbeing" (Bond and Corner, 2004). According to Bond and Corner, for the older people, the important components of a good life quality are care from the family (children), social contacts, health, mobility/ability, material circumstances, activities, happiness, youthfulness and living environment.

Following these criteria, we understand living environment planning for older people does not only mean 'housing' planning; a proper living environment should allow people to develop and sustain their personal identity, to initiate human interactions, and to form a community.

Phenomenologist Norberg-Schulz (1985) explains that our actions in the world configure and create spatial orders. In a concrete space people continue to negotiate with ethical, social, economic and aesthetic orders to organize their life. They also search for intimate relationships, to acquire and defend individual/communal culture and values. The life experience 'gathers' into memories and it will emanate in the place where people live. As one gets old, one's life experience sediments into spatial expressions. De Certeau (1984) is indeed poetic and clairvoyant to say, 'haunted places are the only ones people can live in'. The environment should therefore be able to embody the past, and give people freedom of action in order that the self identity can be sustained.

When the older people are in good health, they will naturally lead an active life and travel widely. Moreover, since the birth rate continues to drop, in the near future, people aged 60 or above may have to continue to work (and to be tax payers). How will our city be prepared for these new social phenomena of active ageing and elderly working population? When a significant number of citizens are older people, the city should re-adjust and re-design its facilities so that this group of senior but active citizens can continue to participate in different aspects of city life.

When one gets old, one will also become more attached to the familiar home environment physically and psychologically. According to Norberg-Schulz (1985), one will withdraw from the 'public world' to the home to recover one's identity. The home is a place where people gather memories of the world. The related institutions and professionals should be able to design a warm and cozy 'interior' in which people can 'gather' their life.

Baltes and Carstensen (1996) propose that the concept 'successful ageing' should be applied to define the term 'ageing'. The two scholars introduce a new model to describe the process of ageing: 1) selection; 2) compensation; 3) optimization. They think that, when people get old, they will reconsider their prioritization of the goals to be achieved in life. In this case, 'selection' means 'the readjustment of individual goals'. When we discuss the 'selection' issue in respect to environment, we may consider that the older people will stay more at home, and/or incline to move about in the immediate neighbourhood. In this respect, the major task of housing providers and city planners should be the designing of a comfortable home which allows the older people to sustain close and frequent contact with relatives and friends, as well as a supportive neighbourhood in which they can lead an active life.

Following the view of Bartes and Carstensen, we see that 'compensations' would be means to compensate for functional deficiency. With 'compensation' people can thus maintain or optimize the capacity to lead a normal and active life. If the health of older people is deteriorating, sufficient auxiliary facilities and services must be provided to enable them to move around.

Baltes and Carstensen state that 'optimisation' refers 'to the enrichment and augmentation of reserves or resources and, thus, enhancement of functioning and adaptive fitness in selected domains'. It is therefore obvious that an 'optimal' living environment is one endowed 'with a stimulating and enhancing quality'. Bartes and Carstensen (1996) further define 'optimising environments' as places where older people are encouraged to conduct physical exercise and motivated to 'increase memory'.

25.2 Research on Older People Oriented Living Environment 2002 - 05

Our research team collated theoretical standpoints from comparative studies on human geography, phenomenological architectural theory, sociology and gerontology as mentioned above. With such perspectives, our research questions are as follows: (1) How do the older people organize their life? What are their expectations and goals? (2) In a city where the problem of ageing is becoming more and more serious, how are we going to prepare and plan the environment to cope with such social change?

25.2.1 Research Process and Findings

The research process was organised in four stages: (1) Questionnaire survey – evaluation of the older people's (aged 60 or above) capacity for activities in different environments; (2) visual simulation modelling workshop for designing ideal interior space; (3) visual simulation modelling workshop for designing ideal neighbourhood space.

Questionnaire Survey

Based on the Lawton (Lawton and Brody, 1969) instrumental activities of daily living scale, we designed a questionnaire survey (2003-04) to gather information about the following aspects: (1) the social background of the informants; (2) the health condition of the informants; (3) the difficulties the informants encountered when they undertook different daily life activities in their interior space as well as in the exterior public space.

Reply samples were collected from 204 respondents who were all 60 years old or above. 79 samples were from male informants while 125 were from female informants. Most of them were retired and lived alone. From the collected data, we understood that most informants were able to read. Many of them claimed that home cleaning was a difficult job. 15% of the respondents reported that their home allowed no space to do simple physical exercise. Concerning the exterior space, 90% of the older people found that they had difficulty in finding their way and moving about: *e.g.* in train stations and when using escalators. Moreover, most of them agreed that recreational space should be built in the immediate neighbourhood, and should be clean and provided with toilet facilities.

Visual Simulation Modelling Workshop

According to Wates (2000), 'models are one of the most effective tools for getting people involved in planning and design. They are particularly useful for generating interest, presenting ideas and helping people think in three dimensions.' Our workshops, using visual simulation models as the principal tool, enabled the users to express in concrete visual and figurative details their suggestions for an appropriate living environment.

Visual Simulation Modelling Workshop for Ideal Interior Space

To start the workshop, the research facilitators introduced to the participants the purposes of the project and explained to them the idea of participatory research and design.

The modelling kit we designed included partition walls, floor board (representing an area of 800 sq.ft.), basic furniture, basic electrical appliances and plants modelled at the scale of 1:10. Each participant (or couple living together) would design (made a model of) his/her/their ideal home interior. The processes included: (1) participants discussing the furniture arrangements; (2) initializing design process with the base board; (3) setting up partition walls with different types of window size; (4) installing furniture;(5) decorating the home with paint, green plants and other gadgets; (6) finalizing the interior design model.

After designing the ideal home, each participant made a presentation. The participants presented the directions and aesthetic preferences of the design, and the aspirations it revealed. The participants thus expressed the ideas of a meaningful life at home.

Facilitator briefing the participants about the purposes and key issues of the workshop

Facilitator discussion with a participant on his everyday living pattern

Participants constructing the Ideal home space in individual or in couple

A participant with his design

A finished model

Figure 25.1. Ideal interior space workshop in progress

Summary of the workshop results included:

- Ideal living unit size: Most participants considered that a unit with size from 400 sq. ft.^{2} to 600 sq.ft.^{2} would be sufficient for a couple to live in.
- Living space enabling individual cultural activities: Participants expressed their wishes for comfortable reading environment with good lighting. Some participants wanted a big table surface for practicing Chinese calligraphy.
- Living with spouse: A participant stated he preferred a twin bed room because sleeping on a single bed he could avoid disturbing his wife when getting out of bed and going to the toilet.
- A place for their Deity: Participants expressed the need to install a miniature altar/shrine to worship the gods and ancestors.
- Accommodating the children and relatives who come home to visit
- Many participants preferred a spare room in the living unit. This room was for accommodating their children, grand children and relatives who visited them. Such aspirations expressed in fact a deeply-rooted Chinese traditional conception of family: *i.e.* "different generations living under one roof".
- Space to enable living with nature: All participants wanted a living unit with large windows and good lighting. They believed a balcony was a space for leisure such as gardening and relaxation such as watching the moon.
- Hygienic facilities: All participants preferred shower to bath. They suggested that the bathroom should be spacious because people could have easy access to it in case they had an accident.

Visual Simulation Modelling Workshop for Ideal Neighbourhood Space

The Research Group has designed a 3-dimensional site planning kit to the scale of 1:500. The site planning kit consisted of components representing basic social institutions, infrastructure and recreational facilities. On a plastic mat a circle of 20 minutes of walking distance (divided into 5, 10, 15 20 minutes concentric circles) was graphically represented. Altogether, we conducted 7 workshops and each lasted for three hours.

The neighbourhood space was by definition a space for the collective community. The facilitators therefore recommended the participants to form groups to take part in this design workshop.

The workshop is divided into two sections: in the first section, the participants, in groups, were asked to use the facilities-amenities checklist to prioritize the facilities and public amenities with respect to proximity to the home block.

The Research Group then set up the plastic mat representing a circle circumscribing the temporal-spatial measure of 20 minutes walking distance. 2 to 6 participants, in a group, started the 'game' by placing the home block at the centre. The group started to build model of a local neighbourhood. They placed the public facilities and amenities according to the preferred distance to the home block (measured in walking duration). They co-operated with each other in making a

model of their ideal neighbourhood. When the neighbourhood model was constructed, the participants belonging to one group were invited to present their ideas. Through their explanation, we came to understand the problems of current housing planning and its relation to the inhabitants' daily life as well as their needs, concerns and aspirations.

This was an effective game to get people to discuss and exchange ideas. In the workshop, the group members started to talk and express their preferences, and to discuss with others in order to achieve consensus.

Participants discussing on the relationship between their individual life and the community life with the facilitators

Participants selecting preferred components for constructing an ideal neighbourhood

Facilitators encouraging the participants to design their ideal neighbourhood space

A group of participants with their design

A finished model

Figure 25.2. Ideal neighbourhood workshop participants in action

The workshop results are summarized as follows:

- Proximity of the home block: Six out of the seven workshop groups believed that the adjacent environment around the home block should be tranquil. Lawn with seating facilities should be located around the home block. Shops providing every day necessities were also placed nearby. They preferred covered walkways for connecting their homes to the places mentioned.

- Community centre and medical clinics: Most participants said that a community centre should be found within 5 minutes walking distance from home. Concerning the need of medical services, participants considered different levels of urgency: 1. Chinese herbal medicine shops and western drug stores were placed nearest to the home block; 2. a western medical clinic was a little farther away; 3. the farthest away was a hospital. This spatial order indicated that participants were inclined to look firstly for the cheapest way to cure illness if it was minor.
- Shopping and leisure space: Older people liked a traditional street market. Their perception was that a street market (with stores and hawker booths) would offer richer choice of products while the price would be cheaper than supermarkets and shopping mall type shops. A market street with a small park in the proximity was regarded as a convenient gathering place to meet friends and neighbours.
- Transportation facilities: For circulation paths the older people preferred tunnels or covered walkways on ground level to flyovers. Covered walkways on ground level were their favourite.
- Green environment: All respondents loved a green neighbourhood space.
- Cultural and recreational facilities: Park, community centre, community hall and library were the preferences of the participants. The sportive participants suggested that a larger park should be found in the neighbourhood for morning exercises. A park was suggested to be an ideal place for relatively passive older people to be involved in community life: they could just sit there and watch people go by. The participants thought that universal design should be implemented when planning the cultural and recreational space and facilities.
- Community Life: Most participants intentionally planned the elderly home, elderly centre, library, schools, kindergarten, community hall, children's and youth centres in one cluster. This showed that the participants wished to live happily among other people in a community.

25.3 Conclusions

After completing the different stages of research and analysis, we have drafted in our report a schema explaining the guidelines for designing a good living environment for older people. The schema consists of 60 concepts. They formed together a holistic and continuous living environment from the bed room to the immediate neighbourhood space. The 60 concepts with abbreviated explanations are listed in Table 25.1. (a-e).

Table 25.1. (a-b) Guidelines for designing a good living environment

(A) Entrance area	
Concept	**Guidelines**
Main entrance and lobby	• Easily recognizable design features • Resting spaces for residents for hanging around and meeting up
Vertical linkage	• Good ventilation • Intermediate resting place
Corridors	• Resting places at regular intervals • Wider passage with handrail. It should allow passage of wheelchairs
(B) The Interior	
Concept	**Guidelines**
Holistic home environment	Design of living environment adopts 3 levels of optimization: 1. Core level: basic living space and facilities design 2. Selective level: more detailed living space and facilities designed for different lifestyles 3. Optimum level: living space and facilities expressing good quality of life and freedom of choice
Entrance to individual unit	• Residents have the freedom to decorate the door surface and resting space • Residents individualize their doors to create a sense of belonging and identity • Well lit door front with small window in it to view visitors
Recognition of individual's unit	• Legible signage system is essential
Seats	• Different types of seats for different areas arranged in a well planned manner
Common area in interior environment	• Easily accessible common area

Table 25.1. (c) Guidelines for designing a good living environment

(C) Home Unit	
Concept	**Guidelines**
Living/dining area	• Flexible space for different kinds of family events and social gatherings
Kitchen	• The cooking culture of the elderly should be carefully considered: *e.g.* Chinese love double-stewed soup • Safety measures should be taken
Toilet and bathroom	• Bathroom door can swing both inwards and outwards • Shower has sufficient space for two adults to move about freely
Wet floor shower system	• Non-slippery floor • Preventive device for water splashing out from shower cubicle
Shower with seat	• Allow elderly to enjoy the shower longer
Lever tap and toilet flushing	• For easy operation
Ventilation and heating in bathroom	• To cope with seasonal temperature change
Sleeping area	• Older people do not prefer studio interior • Partition to separate the sleeping area from other areas • Adequate space for twin beds for couples
Bed	• Should be easy to get down and high enough for sitting on
Bedding	• Changes of bedding material according to season
Bedside lamp and low level lighting	• Table or small light next to the bed • Route from bed to toilet should be lit by low level light
Location of bed	• Bed can be next to window but sunlight should not fall directly onto it
Storage	• Storage space should be provided for out-of-season clothes • Furniture for displaying memorabilia
Wall decoration	• Large pin boards and picture rails for displaying photos
Open shelves and surfaces	• Easily accessible open shelves for storage • Low cabinets and deeper windowsill allowing things to be put on surface top
Cool environment	• Electrical fans can be used for cooling instead of air conditioners which may cause rheumatism

Table 25.1. (c) Guidelines for designing a good living environment

(C) Home Unit	
Concept	**Guidelines**
Window	• Windows, besides providing light and ventilation, give passive access to the outside world
Location of window	• Chinese older people prefer south facing windows
Ventilation	• Exhaust fans should be installed in kitchen and toilet
'Room with a view'	• Viewing is a 'subtle and passive means of social interaction'
Planter	• Beautification for home and the façade of the home block • Plants are indicators of seasonal change
Laundry	• Deeper and larger basin for handwashing clothes
Hooks near window	• To hang bird cages and air dry (preserve)foodstuffs
Access and circulation	• "Feng Shui" arrangement should be considered in Asian cultural environment (Chinese/ Japanese) • Barrier-free access
Railing	• Hand-rails installed in all circulation spaces and staircases
Rooftop and podium	• Rooftop and podium should be semi private and partially sheltered allowing different types of social activity to take place
Balcony	• Movement between interior and balcony should be level
Shape and size of balcony	• Balcony should be considered as an alternative social space for the residents
Balustrade	• Should not block the view
Lighting	• Natural lighting reminds people of natural temporal change • Two systems of artificial lighting to consider: overall lighting and bedside lamp / low level lighting
Emergency alarm	• Located in all main circulation corridors, common areas, places of high risk such as toilet, bathroom and kitchen
Switches and sockets	• Switches and sockets (preferably bigger in size) should be installed at hand reachable height (*e.g.* at waist level)
Entertainment device	• Home entertainment and internet access should be installed

Table 25.1. (c-d) Guidelines for designing a good living environment

(C) Home Unit	
Concept	**Guidelines**
Religious objects	• Estate management policy must observe the cultural and spiritual practices and habits of the residents
Artworks and souvenirs items	• Spaces for memorabilia and decoration display should be reserved
Ease-of-use factor	• Barrier-free principle should be respected
(D) Neighbourhood Space	
Concept	**Guidelines**
Neighbourhood environment	• Well designed neighbourhood environment respecting and supporting the everyday life patterns of older people
Activities nodes	• Integration of different types of places and activities to enrich the urban life
Strolling place	• Lively activities nodes and strolling places should be interlinked
Small parks	• Different kinds of shops surround the small park • Good balance between the “openness” and “closedness” of the space of the park
Large open space/District park	• District park within 20 minutes walk from an elderly residence
Building Edge	• Should be considered as a community gathering place , not just an abstract thin line in the plan demarcating the indoor and outdoor space
The “Façade” and “back” of buildings	• The ‘Façade’ faces an open space forming a pedestrian zone • The ‘Back’ faces vehicle and goods circulation routes
The Roads	• Materials with different texture for pavement construction can indicate changes from pedestrian walkway to vehicle circulation road • Speed control device to control the traffic
Streets/Pedestrian zone	• Should be vehicle-free with various facilities for social activities
Circulation route and seating spots	• Outdoor seating and resting places along circulation paths should be provided
Pedestrian facilities	• Pleasant promenade and seating near elderly residence

Table 25.1. (d-e) Guidelines for designing a good living environment

(D) Neighbourhood Space	
Concept	**Guidelines**
Outdoor lighting	• Creates a safe environment and encourages outdoor activities in the evening
Greenery and micro-climate	• Provides physical and psychological comfort
Linkages from interior to exterior	• The layering and sequence from private zone, community gathering zone and the neighbourhood should be well-balanced
Neighbourhood environment planning	• Social networking should aim at community building
(E) Management	
Concept	**Guidelines**
Management, designers and users	• Design direction and management policy should respect the everyday life culture of the residents • User participation management

25.4 References

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