

Housing Adaptation in Public Housing by The Elderly Case Study: Banyumanik Public Housing in Semarang City, Indonesia

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Abstract- ‘Aging at home’ is an interesting topic to be studied when social and spiritual competences of elderly affect housing adaptation. This case happens in Perumnas Banyumanik Semarang as one of the largest public housing in Indonesia inhabited from 1979. This study is a part of a research in housing adaptation conducted in Perumnas Banyumanik and focused on space scale variation and various housing adaptation. Since this study is carried under qualitative, the researchers applied case study method. The data is collected through direct interview with the elderly and field observation. Theories on housing adaptation are regarded as proposition of this study. The result shows there is minor, meso, and major space scale of housing adaptation with the various adaptation which things arrangement, furniture arrangement, furniture direction, room modification, furniture placement, building development, and forming and improving the open space. The change happens individually and in group. The result of this study is expected to be a basis in forming a policy for elder friendly housing.

Index Terms- housing adaptation, housing meaning, social – spiritual competence, public housing

I. INTRODUCTION

The reports by United nation population fund (UNFPA) on 2012 entitled ‘aging in the twenty-first century: a celebration on challenge’ revealed that elder population growth in the twenty-first century is significantly increased in line with the decrease of birth rate and the increase of elder life survival rate. This fact leads to ‘aging at home’ phenomena. Advance countries enforce a policy in supporting housing adaptation from a competent institution on elder care. The adaptation is in the form of grant on housing repair and enhancement fitting people needs. The grants are specifically given to elderly people. For elder who wants to move from their current house, they are free to choose suitable house to fulfill their needs and independency. This house provision program which is focused on adaptation of house and housing environment is similar to ‘lifetime home’ and ‘smart home’ program implemented in England and US (Ruggles, 1987; Peace, 2001; Demiris *et al*,2009) and ‘Silver housing’ dan ‘Care Houses’ program in Japan (Ohara, 2004).

The theory of housing adaptation is firstly proposed by Lowton dan Nahemow (1973) and is improved by Kahana (1982). This theory underlined the needs of balance between elderly competence in physical and mental capacity, their intellectual or ego, and their environment. Furthermore, Carp and Carp (1984) mentioned additional needs on elderly perception toward their environment by providing a suitable housing for their physical and mental state. Goland (2011) by his ‘residential normalcy’ theory explained that elderly people have two options which are move to a new house or stay in their old house with or without improvements. Lien (2013) mentioned that there are efforts by the elder to fulfill their needs in their current environment. Thus, physical housing adaptation is indispensable.

Indonesia, from 2010 until a decade later, is categorized as ‘aging society’. It is then become ‘aged society’ on 2030’s and become ‘super-aged society’ on 2040’s (Lee *et al*, 2011). According to Hamid (2007) Indonesian elderly people, on 2010, reaches 9.77% and on 2020 reaches 11.34%. There is a tendency of Indonesian to stay at home in their old days (Darmojo,1999; Abikusno, 2007). So, the policy of elder care in Indonesia is focused on encouraging elderly people to live with their children and grandchildren (tree generation in one roof) and promoting society based elderly health care and service (Direktur Jendral pelayanan dan Rehabilitasi Sosial – Directorate general of social care and rehabilitation ,2003). This fact shows the importance of housing that is suitable for elder. Empirically, Indonesian citizen who live in public housing (*perumnas*) make some adjustments and improvements on their house to fulfill familial

needs (Sugini ,1999; Hutabarat *et al*,2005; Soetrisno,2010). The preliminary study on *perumnas* Banyumanik Semarang regarding elderly people activities and its supporting facilities (Wijayanti *et al* 2009) and second study regarding the meaning of spaces and places chosen by elderly people to meet and greet with each other (Wijayanti *et al*, 2011) revealed a phenomenon of adaptation of spaces and their attributes by the elders individually and communally on their housing based on social and spiritual aspect.

Refer to the definition of housing adaptation as the effort of adaptation on spaces in fulfilling the elderly people needs (Kahana, 1982), there are unique case of housing adaptation based on social – spiritual needs by the elderly people, individually or in group, in *Perumnas* Banyumanik. This research article delivered the result of study on housing adaptation in *Perumnas* Banyumanik focused on the adaptation space scale and the variety of adaptation.

II. Method

The method of this study is explained through Nogeste’s (2007) research strategy outline diagram. First, the researcher chose a standpoint as the basis of the study. Next, according to the characteristics of the study itself, the researcher chose the approach, strategy and method of the study, data collection technique, data analysis method, and report technique.

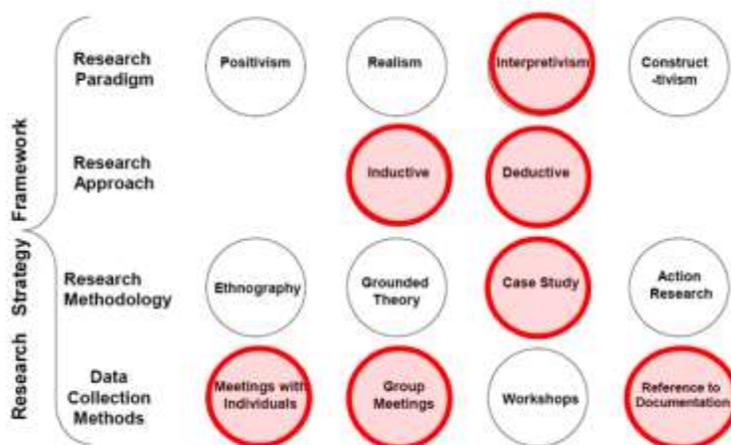


Figure1. Nogeste’s research strategy outline
 Source: adapted from Nogeste (2007)

This study will enrich current housing adaptation. Since this study is focused on elderly and their social-spiritual competence, a literature review on housing adaptation and field reports are needed. Thus, this study is carried under post positivism point of view (Denzin and Guba in Salim, 2001), conducted with qualitative approach (Creswell,1998) and approached by deductive and inductive strategy.

Deductive strategy is implemented when the knowledge of housing adaptation is regarded as the preposition of the study. It becomes temporary standpoint and direction on empirical data collection. As for inductive strategy, it is applied to collect empirical data through field observation in analytical unit (the house and its surrounding) and direct interview with the elderly people. The proposition includes the form of adaptation, its manner of forming, and its reasons.

This study is aimed to explain contemporary phenomenon ‘aging at home’ on *Perumnas* Banyumanik, describe the form of adaptation, and become a basis of further study on similar topic in different location. This study is called ‘lesson learned’ (Creswell, 1998).

This study is also single case study since it is a preliminary research for further research. The method used is embedded multiple unit of analysis (figure 2). The analytical unit is regarded as frame to focus in the objective.

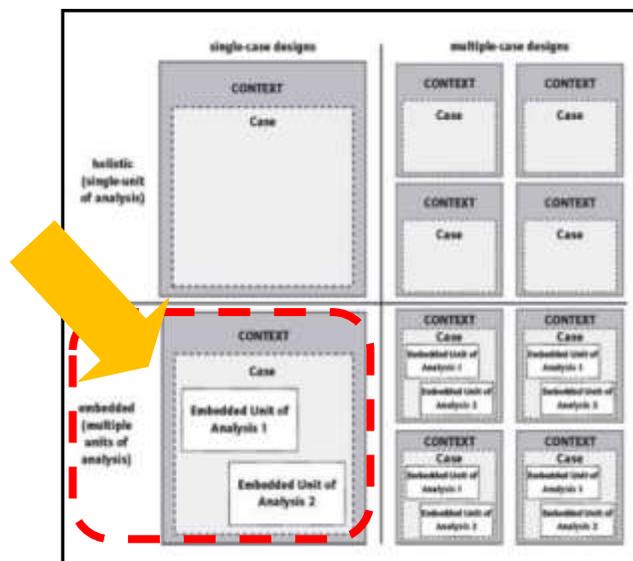


Figure 2. Case study research design
 (Source: Yin, 2009)

This study has 18 analytical unit used in describing the adaptation phenomenon regarding the adaptation of space scale and its variations. The methods used including:

1. Deductive-qualitative thematic analysis as guidelines on categorization, application, and analysis of data collected through interview, observation, and literary review (Guest, MacQueen dan Namey; 2012).
2. Matching pattern analysis method (Yin, 2009) which comparing the empirical data and proposition resulted in the internal validation. The empirical data consist of pattern of variety obtained through Deductive-qualitative thematic analysis.

III. Case Study

3.1. Location



Figure 3.1 Map of Indonesia,
 source : Google.co.id



Figure 3.2 Map of Semarang city
 Source : Google.co.id

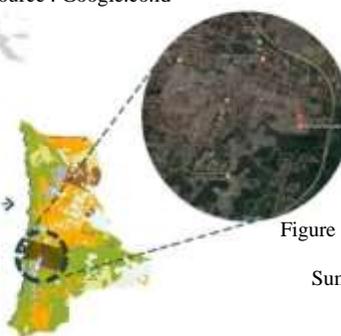


Figure 3.4 Map of Perumnas
 Banyumanik,
 Sumber : Google.co.id

Perumnas Banyumanik Semarang, built on 1978, is one of the pioneer of huge scale public housing in Indonesia. It is built using core house concept to provide housing for middle and low-class citizens especially government employee and army. Until now, 80% residents are the original resident from the time it is built. This housing is located in southern Semarang and included in the center of city development area. It also influences the housing and social - economy development in that area.

3.2. Activities

Most of the residents of Perumnas Banyumanik are elders who do many activities among themselves. These activities are done on open space and social facilities around the housing. (Figure 4.1 to 4.3)



Figure 4.1. Jogging, communal exercise on Sunday



Figure 4.2. posyandu activity for health checkup and exercise for elderly



Figure 4.3. Elderly people gathered every morning, met each other, and enjoyed warm morning breeze

3.3. Infrastructure, facilities and houses

Perumnas Banyumanik has 964.622 m² wide area. 60 % of this area is for housing including facilities and business area. While the rest 40 % is for social facilities such as school, clinic, religion facilities and semi commercial facilities (Figure 5.1). The housing area consist of 5000 core houses in type D21, type D33 and type D36, and shop house (Figure 5.2).



Figure 5.1. Church, Mosque, and clinic in perumnas Banyumanik,
Source : Survey 2014



Figure 5.2. Core houses in perumnas Banyumnaik
Sources : Survey 2014

3.4. Housing adaptation

The space scale and kinds of adaptation is determined based on the result of deductive-qualitative thematic analysis of data collected from analysis units. The space scale on housing adaptation can be categorized into three space scales and eight kinds of adaptation.

3.4.1. Scales of space in housing adaptation

The analysis of scales of space on housing adaptation resulted in three types of space scale, including:

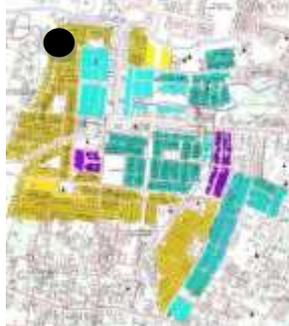
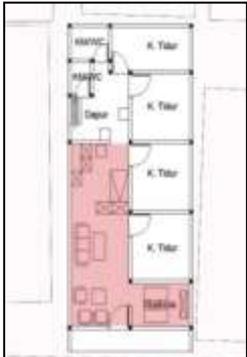
- a. Micro space scale including house area where every activity happened is in private. The activity happens individually or among family member.

- b. Meso space scale including outdoor space until the front road where every activity happened among elderly people and their neighbor, guests, and passerby.
- c. Macro space scale is more open and wider space where elderly people have social interaction. These social interactions including neighborhood group, residents group, and housing group where there are contact possibility among elderly people and among generations.

The pattern variation of space in the adaptation can be derived from the 18 analysis units. Those variations are connected with elderly people’s social and spiritual activities. In this case, the housing adaptation is deeply connected with spaces choices to fulfill elderly needs on their social – spiritual competence. The space pattern variation on housing adaptation including

- a. Housing adaptation micro space pattern that showed the tendency of elderly people to do social activity only with family member inside the house and also doing their activity related to worship.
- b. Housing adaptation micro – meso space pattern which showed the tendency of the elderly people on private and open activities connected with the fulfillment of social and spiritual needs, such as caring the grandchildren, open a kiosk that is intended to support the family in economic aspect as the responsibility of the head of household.
- c. Housing adaptation micro – macro space pattern which showed the tendency of Elderly people on doing things at home with their family and also other activities regarded social interaction on housing area in fulfilling social and spiritual aspect such as having a community of health exercise and a community of worship in a mosque.
- d. Housing adaptation micro – meso – macro space pattern which showed the tendency of elderly people in fulfilling their social and spiritual needs on micro scale to macro scale. In this case the elderly tried to be more useful for the family, community and environment by doing house work and rest afterward, planting crops in front of the house and doing worship at the neighborhood mosque.
- e. Housing adaptation macro space pattern which showed that the elderly people choose to focus on activities around housing area to fulfill their social and spiritual needs. This case showed that the elderly tends to concentrate the actualization of their way of life outside of their house such as to prosper the mosque.

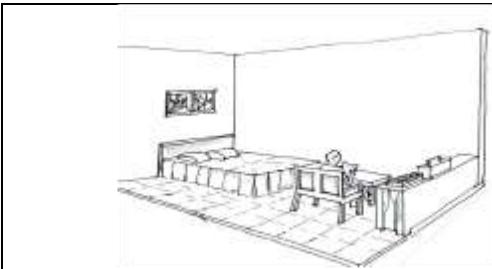
Below are the patterns variations on housing adaptation in Perumnas Banyumanik as described above (figure 6).

Analysis Units (●)	Micro	Meso	Macro
			

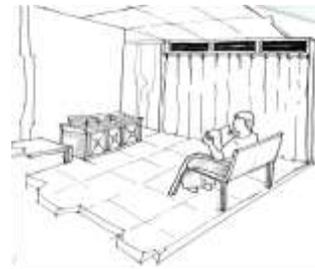
3.4.2. Variety of Housing Adaptation

a. Things Arrangement

This adaptation concerns the arrangement of things by the elders to facilitate their activities, such as worshipping activities, hobbies, and other daily activities inside their house in which the elders can have their own privacy, or it is also known as micro space. Things frequently used by the elders are arranged in such a fashion so that they can easily reach and use any thing they need, such as the holy book and other religious book, and along with some nostalgic tape cassettes. The illustration of the arrangement of this adaptation can be seen in picture 7.1 and 7.2 below:



Picture 7.1 Things required for the worshipping activities and things related to hobbies are placed on a side table located near the chair and the table. It is arranged in such particular position so that the elders can conduct the religious activities or do their hobbies at any time, be it before their resting time during the day or in the evening.
(illustration by the writer)

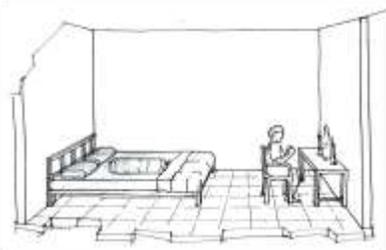


Picture 7.2 Books related to religious study or general information are placed in a box on a side table. The books are placed differently from other things so that the elder can find them easily.
(Illustration by writer)

Based on the illustrations above, it can be seen that particular furniture is needed so that the things needed by the elders can be arranged easily, for example the side table or buffet. The room should be arranged personally by the elders.

b. Furniture Arrangement

The housing adaptation is sought to be within the micro space of the elders, which is inside the house. This adaptation concerns the arrangement of furniture used by the elders which are intended for ease in worshipping activities, comfort, safety, happiness, and being close to the other members of the family. The illustration of the furniture arrangement can be seen in picture 8.1 until 8.4 below:



Picture 8.1 Table and chair used for worshipping activities are placed close to the bed so that the elders can pray before they go to bed or after they wake up.
(Illustration by the writer)



Picture 8.2 Table and chair are arranged carefully to provide enough room for the elder and other members of the family to sit and watch TV together. Many elders enjoy this activity. They also like spending some time in the backyard.
(Illustration by the writer)



Picture 8.3 The furniture is arranged carefully so that the grandchildren can play freely under the supervision of the elders. They can also watch TV while taking a rest.

(Illustration by the writer)

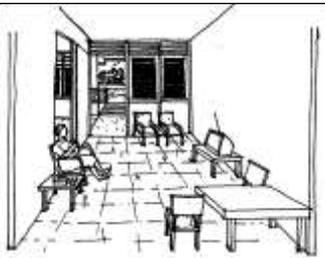


Picture 8.4 The bed is placed near the window facing the street. The elders can get fresh air while they are taking a rest. They would also feel safe as they can easily see anyone passing the house.

(Illustration by the writer)

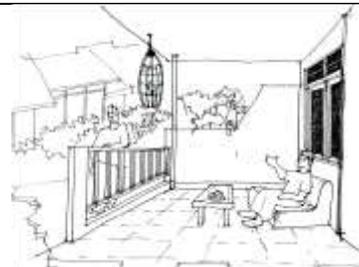
c. Furniture Direction

Direction adaptation in micro space concerns the placement of furniture by facing particular objects which can make the elders feel close to other people. It is also expected that this arrangement will help the elders to feel safe and comfortable. Keeping the elders close to the members of the family and other people would lift their spirit and allow them to still have a role in the family. The illustration of the furniture arrangement can be seen in the Picture 8.5 until 8.7 below:



Picture 6.8 The chair used for knitting is placed facing the TV. The elders will also have the view of outside the house so that they will not feel lonely when they are by themselves at home.

(Illustration by the writer).



Picture 6.9 The sofa is placed facing the street so that the elders can enjoy the situation outside their house. They can also listen to the chirping of bird whose cage is placed near the terrace. The arrangement will also enable the elders to have a chat with their friends who happen to pass their house.

(Illustration by the writer)

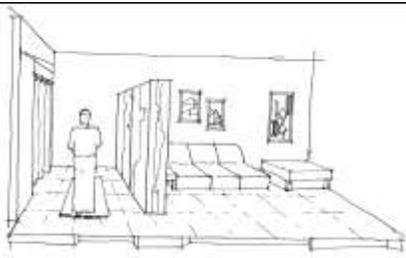


Picture 6.10 Chair in the terrace is placed facing the trees so that the elders would feel at peace. They can also breathe some fresh air which is good for their health.

(Illustration by writer)

d. Room Modification

The adaptation involves some modification in the micro room, which is inside the house. The modifications can be done by changing the function of the room, separating the room by using furniture or non-permanent wall, detaching some parts of the room (windows or doors) and changing the structure of the building in order to create another room or room lay out modification. This adaptation might happen due to some situations. First, it is needed to facilitate the worship activities. Second, the modification is made since the elder holds some social and economic responsibility to the family. Third, the adaptation will provide an open space for the elders so that they will feel more comfortable and they can get fresh air. The illustration of the furniture adaptation, which involve the furniture setting, furniture arrangement, direction of the furniture, and room modification, can be seen in Picture 8.8 until 8.9 below:



Picture 8.8 A cupboard is used to separate family room and praying room. By having praying room, any members of the family or visiting guest can pray in a clean place and without any disturbance.

(Illustration by the writer)



Picture 8.9 Door and windows are detached to create an open space. The elders can feel the breeze of air while taking a rest and listening to the radio. This adaptation will also allow the elders to socialize with the passing neighbors.

(Illustration by the writer)

e. Furniture Placement

Adaptation of placement occurs over the elderly at meso space scale that is outside the home. The adaptation of the placement relates to the occupancy of an outer space, or outside the home for the elderly's activities still related to the needs of himself and his family and the need for social closeness with neighbors. This adaptation is done by placing non-permanent furniture that can be easily dismantled or moved around in the outer space. The illustration of this adaptation can be seen in picture 8.10 until 8.12. below:

 <p>Picture 6.13 Placed the chairs under the mango tree on outside area in front of the house as a place for elderly keep the stalls, socialize with neighbors, and get the air at once.</p> <p>(illustration by the writer)</p>	 <p>Picture 8.11. Placed a bench by the side of the road, in front of the elderly house that can provide an opportunity to make a social contact with neighbors and enjoyed the atmosphere by watching children who are playing in the street.</p> <p>(illustration by the writer)</p>
 <p>Picture 8.12. Placed a chair that can be moved any time, it can be in front of the house or at the corner of T-junction. With this adaptation, the elderly can sunbathe while waiting customer for his stall, and occasionally the elderly can greet with the neighbors or stranger that passed in front of him.</p> <p>(illustration by the writer)</p>	

f. Addition to the building

This adaptation involves the addition of simple non-permanent structure to the current structure of the building. Some permanent chairs also can be placed outside the house, such as on the front yard or on any empty space in front of or beside the house. The adaptation is needed to accommodate some social, economic or worship activities. The illustration of this adaptation can be seen in picture 8.13 until 8.16 below:



Picture 8.13 A food stall is built on the front yard by adding a tent and arranging some chairs. This stall will provide additional income to the family, and at the same time, it helps the elders to socialize with other people.

(illustration by the writer)



Picture 8.14 A semi-permanent guardhouse is built on some open space right in front of the house. Neighbors might come and sit there to have a chat and other passerby might use it in case of rain.

(Illustration by the writer)



Picture 8.15 A permanent bench is placed under a tree in front of the house. The elder can get some fresh air while watching people passing the street.

(Illustration by the writer)

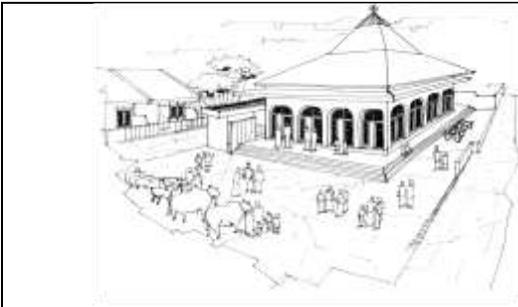


Picture 8.16 A permanent bench is placed under a tree on some empty space next to the house. The elder can enjoy the breeze while socializing with the neighbors and any passerby.

(Illustration by the writer)

g. Building Development

This adaptation takes place outside the residential area, or known as macro space. Residents, including the elder, work together to build some buildings which can be used to accommodate religious and social activities. Mosque, as the example of the adaptation, is used for the residents to pray while residential hall is used for residents' gathering activity. The adaptation is illustrated in the picture 8.17 until 8.18 below:



Picture 6.20 The elder help the residents building the mosque. It is frequently used by the residents to pray five times a day, to pray in Ied Fitr, to pray every Friday, to study Al Qur'an for the adults and children, and to facilitate sacrifice in Eid Al-Adha.

(Illustration by the writer)

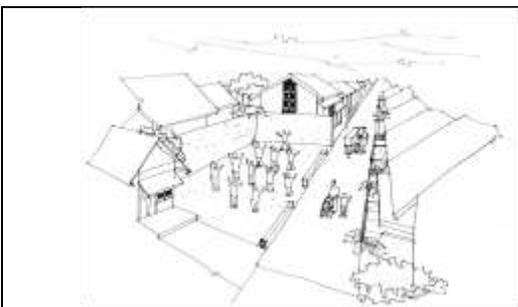


Picture 6.21 The elder help the residents building the mosque. It is frequently used by the residents to pray five times a day, to pray in Ied Fitr, to pray every Friday, to study Al Qur'an for the adults and children, and to facilitate sacrifice in Eid Al-Adha.

(Illustration by the writer).

h. Forming and Improving the Open Space

The adaptation concerns the utilization of open space, or macro space, in the residential area to become more functional space. Permanent and non-permanent buildings are developed to facilitate social activities of the senior residents. The social activities would embrace the senior residents as part of the society and would allow them to play their role in the community as they socialize with the neighbors. The residents, including the senior ones, should work hand in hand to realize this adaptation. People, for example, might build sports field, meeting hall, *posyandu* (center for pre- and postnatal health care and information for women and for children under five), a small plaza to showcase some birds' cage and, a playground, and a guard post. The adaptation is illustrated in the picture 8.19 and 8.20 below:



Picture 6.22 Open space functions as sports field and *posyandu* (center for pre- and postnatal health care and information for women and for women, for children under five, and for elder). The elder can do some exercise, socialize, and share their experience. They can also discuss about religions or plan a trip.

(Illustration by the writer)



Picture 6.23 Some permanent buildings are built on the open space next to residential area, such as meeting hall, guard post, and lavatory. A plaza which serves many functions is also built. Children can use the area as their playing ground, the elder can play with their grandchildren, and residents can showcase their birds.

(Illustration by the writer).

Conclusion

The adaptation in Banyumanik public housing is intended to facilitate the needs of the senior residents and their group. Thus, the elder has the control to arrange the area, micro and macro space, and the elder has active involvement in the development of the area. As human being, it is by their nature that the senior residents play their own role within the community. They share responsibility as much as the other residents do. The adaptation takes place in any level, micro scale which means inside the house, meso scale which refers to the space between their house and the street, and macro scale which refers to the space outside the residential area. There are eight adaptations which serve different purpose and function. They are arrangement of equipment, furniture arrangement, furniture direction, modification of the room, furniture positioning, building enhancement, and forming and improving outside space.

It is expected that the result of this study would provide some insight related to the approach in designing elder-friendly housing. Hopefully, the elder can live in a house and its environment where they can easily access their needs.

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