

# Continuity of relations between local living environments and the elderly moved to a group living

著者	Nishino Tatsuya
著者別表示	西野 達也
journal or publication title	Spatial Planning and Sustainable Development: Approaches for Achieving Sustainable Urban Form in Asian Cities
page range	69-89
year	2013-01-01
URL	<a href="http://doi.org/10.24517/00049600">http://doi.org/10.24517/00049600</a>

doi: 10.1007/978-94-007-5922-0\_5



# *Continuity Of Relationships With the Daily Living Environments Of Elderly People Moved To a Group Care Facility*

Tatsuya Nishino <sup>1</sup>

*School of Environmental Design, Kanazawa University, Japan*

**Key words:** Group Care Facility, daily living environments, continuity

**Abstract:** ‘Ageing in Place’ is becoming a key issue in the ageing society. As such, the location of nursing homes is an important factor in designing suitable facilities for the elderly. It is important for the elderly to maintain their own daily living environments, even if they have to move to group care facilities or nursing homes. However, many facilities for the care-requiring elderly were traditionally built in serene countryside locations. Therefore, to claim that there was significant continuity in the relationships of those facilities’ residents to their environments would have been difficult. In this article, we examine the continuity of relationships experienced by residents in a group care facility with the physical and human aspects of their daily living environments. As a case study, we selected a group care facility for the elderly with dementia located in a city in which a majority of residents moved in from surrounding communities in Japan. Then, we conducted on-site observations of the behaviors and remarks of residents when they went out. Observations indicated that some form of continuity of relationships with daily living environments was experienced by some residents. We suggest that there is a correlation between one’s living-hub history and the status of the continuity of one’s relationship with the daily living environment after moving into a group care facility. We then discuss the conditions and significance of this continuity. Our study shows the significance of moving into a facility close to one’s former daily living environment in order to maintain a relationship with it.

## 1. INTRODUCTION

Urbanization and population ageing are concurrent global trends. Population ageing transcends the divide between developed and developing countries, because every country hopes to foster independent living and quality of life regardless of life expectancy (Brink 1997).

One of the main issues in the ageing society has been the provision of housing for the elderly (Kose 1997; Katan 1997; Werczberger 1997). For example, in Denmark, known for its highly developed social care system for the aged, formal care was introduced as an alternative to informal care by families (Gottshalk 1999). They have developed new attitudes towards old age and new ways of housing and providing services to the elderly since 1980. Moreover, the policy encouraged the elderly to stay in their own homes as long as possible (Lindstroem 1997). On the other hand, in the Netherlands, a de-linking system of housing and care has been developed, in order to make elderly people more autonomous and force care providers to be more customers oriented (Egdom 1997).

In Asia, most countries will be 'aged societies' by 2050, a phenomenon known as 'Ageing Asia' (Nikkei Newspaper Nov.28<sup>th</sup> 2011). However, in Asian countries, the elderly have been, and remain, primarily cared for by their own families (Ara 1997; Chi 1997). Previous studies have pointed out the need to change from traditional family support to public care systems (Kim 1997; Hwang 1997; Harrison 1997). Japan, as the most rapidly ageing country in Asia, has been developing its social welfare system since 1989 (Tsuno 2009). In 2000, the Japanese social care vision turned towards keeping the care-needing elderly in their own homes with proper formal care services, by introducing 'Kaigo Hoken' (The Long-Term Care Insurance Act). It seems to be following the ageing policies of advanced countries such as Denmark.

The notion of 'ageing in place' became a key component policy of elderly care and housing in the United Kingdom in the 2000s (Sixsmith 2008). Older people normally prefer to live in their familiar residence, their home in particular, where memories and special meanings are attached (Tinker 1997; Gitlin 2003; Chui 2008). The principle of 'ageing in place' highlights the need to allow older people to continue to live in the locality with which they are familiar for as long as they wish (Chui 2008). This principle has the objective of avoiding the risk of older people losing their sense of security when they are faced with removal from a familiar physical and social environment. In Taiwan, for example, with the notion of 'ageing in place', the community care model has become a new trend (Chen 2008). The author has also conducted research to show the actual conditions of the

community care provided to elderly people continuing to live in their own homes in a historical port town in Japan (Nishino 2010).

Theoretically the notion of 'ageing in place' is based on Lawton's 'transplant shock' theory. That is, involuntary relocation causes the elderly negative effects (Lawton 1986). However, there are still some elderly people who would be better served if moved to adequate facilities, such as frail elderly people and those with dementia, even if most can continue to live in their homes.

Therefore, the location of nursing homes for the frail elderly or the elderly with dementia has been an important topic of consideration in facility design. However, many facilities for care-requiring elderly were traditionally built in serene countryside locations, because of the theory that a retreat from the noise, demands, and clutter of the city would be therapeutic (Lawton 1975). This may explain why even now most residents live a self-contained life in a facility far removed from the living environment they once had. In Japan, each local government establishes a sphere of daily existence within which to develop group care facilities and community-based facilities according to the revised 'Kaigo Hoken' (Long-Term Care Insurance Act) in 2006. However, the spheres of daily existence set up by each local government are different. In addition, residents of such facilities expect continuity in their relationship with their daily living environment before and after moving into a facility. It is this continuity that has not yet been adequately examined.

Previous Japanese research has examined residents' going out and the structures of their local lives. Kinukawa (2003) focused on the going-out behavior of residents and attempted to clarify the structure of their local living. Furthermore, these researchers target residents who use reverse day service, to examine the emotional impact of going-out behavior (Kinukawa 2005). This study by Kinukawa is based on an awareness of the problem of living a totally self-contained life inside a facility. These researchers conclude that when residents go out in their localities, their quality of life can be expected to improve. On the other hand, based on the principle of 'ageing in place', Inoue (2007) shows the actual conditions of residents in group care facilities located in the city. This study shares the same principle. Continuing life in one's locality after moving into a facility, however, and continuity in the same sphere of daily existence before and after moving into a facility, are not the same thing. The latter is a main focus of this paper. This study is thus distinct from the above-mentioned research.

The purpose of this study is to examine the continuity of daily living environments of residents who live in a group care facility, and to discuss these conditions and their significance.

In this paper, we conducted a case study, based mainly on an observational survey, on the going-out behavior of the elderly with dementia living in a group care facility. Firstly we selected a group care facility for the elderly with dementia located in a city in which a majority of residents moved in from surrounding communities. The second part of this paper, 'Residents', concerns the elderly with dementia living in the group care facility. Although most residents receive medical treatment, such as regular doses of medicine, the results of observation would nevertheless appear useful, because most elderly with dementia generally receive medical treatment. Secondly, we conducted research as mentioned in Section 2 and 3. Section 4 covers the attributes and living-hub histories of each resident (Permanent-residency, U-turn, I-turn, and I-turn). Section 5 covers the daily-living characteristics of residents, concerning the main living areas in the group care facility and the tendencies of residents to go out and to receive visitors. In Section 6, through the behavior and remarks of each resident, we examine continuity of daily living environments. Finally in Sections 7 and 8, we discuss the conditions and significance of the relationship with one's living environment after moving into a facility, and the connection with living-hub histories.

## 2. METHODOLOGY

We conducted a case study because it was deemed appropriate to demonstrate the level of continuity of daily living environments of residents in a group care facility. Firstly, we selected a group care facility for the elderly with dementia located in a city in which a majority of residents moved in from surrounding communities. Details of the surveyed region and facility are described in Section 3. Secondly, to examine the continuity of daily living environments experienced by residents, it was deemed appropriate to apply the Environment-Behavior Model. We examined it from the point of view of human environments and physical aspects, according to the dimension of Evaluations in Takahashi's model as mentioned below.

### Environment-Behavior Model

To obtain a comprehensive understanding of the relationship between humans and the environment, various models are available from the field of Environment-Behavior Studies. Firstly, Altman (1973) tried to find connections between behavioral research and architecture, by considering Environment-Behavior Studies in three dimensions: Behavioral Processes (privacy, personal space, territory, other processes), Places (systemic entities, geographical regions, cities, communities, neighborhoods, hospitals,

schools, prisons, homes, rooms), and Design Process (programming design, construction, use, evaluation). Secondly, Moore (1979) constructed three axes for an alternative framework: Settings/Places (nations, regions, city and towns, urban areas, residential areas, complexes of buildings, buildings of various types, parts of buildings, rooms, furniture, equipment and object), User Groups (different socioeconomic groups, groups with different way of life, infirm, handicapped, elderly, children) and Behavioral Phenomena/Concepts (anthropometrics, proxemics, personal space, territoriality, privacy, perception, cognition, meaning). Later he developed the model to add a Time axis. In the new model there are four axes; Places (large scale, intermediate scale, small scale), User Groups (culture, life cycles, life-styles) and Socio-behavioral Phenomena (internal responses, physiology perception, cognition, social groups, culture, external responses), and Time. Following Altman's model, there have been numerous studies of behavioral processes, behavioral phenomena, and socio-behavioral phenomena.

Takahashi (1997) developed these models for the environmental design theory. He proposed three primary dimensions for a model: Place/Objective of Design, Method/process of Design, and Evaluation. The elements of the "Place/Objective of Design" dimension are Unknown Objective, New Objective, Renewal of Existing Objective, Simulation, Place of Learning, and Ordinary Place. And the elements of the "Method/process of Design" dimension are General Knowledge, Planning Language, Stimulation of Objective Setting, Design Method, and Decision Method. Finally, the elements of the "Evaluation" dimension are Physical Dimension, Behavioral Settings/Human Environments, Social Environment, Environmental Transition, and Design Process.

#### Survey Method

To examine levels of the continuity of daily living environments experienced by residents from the point of human environments and physical aspects, three kinds of data were collected; *attributes and living-hub histories of residents*; *daily-living characteristics of residents* such as the tendency of residents to go out and receive visits and their main living areas in the group care facility, and *behaviors and remarks when they went out*. Firstly, attributes and living-hub histories of residents are needed to categorize the targeted residents. It is also necessary to examine connections between continuity of living environment and the living-hub history of residents. Secondly, to examine present daily-living characteristics of residents, data pertaining to the tendencies of residents' to go out and receive visits are needed to investigate quantitative relationships with residents' daily living environments. Residents' main living areas in the group care

facility are also surveyed. Thirdly, knowledge of the actual conditions of residents' behaviors and remarks when they went out are needed to investigate present qualitative relationships with their daily living environments.

We then adopted three survey methods to investigate them and research was conducted in the surveyed region as follows. First: An archival records survey to investigate tendencies to go outside and receive visits was conducted. This survey enabled us to investigate resident attributes and records of going out and receiving visits (37 days from August 26 to October 11, 2006). Second: Interviews to investigate living-hub histories of residents were undertaken. Interviews were conducted with the families or relatives of eight residents (excluding resident E). We obtained information mainly about the living history of each resident. We also interviewed clerks from the shops often used by the residents. Third: On-site observations to investigate the continuity status of residents' daily living environments was conducted. On-site observation was deemed appropriate, because it is the most important survey method to grasp the relationship between space and the lives of people (Suzuki 1975). The survey observed the going-out behavior of residents. The survey was conducted from June to December 2006 and covered a total of 20 visits. In the behavior observation survey we also accompanied the residents and facility workers when they went out. On a local map, we recorded the routes, the remarks and behavior of residents, and the related locations. We obtained a total of 21 survey sheets from recording each separate outing. To make the behavior observation survey participatory, we also asked residents to show us around town. Four separate residents did so. Based on the living history of each resident obtained through the interviews, we asked the residents questions appropriate to each stroll. As we strolled, we recorded the remarks of each resident and the related location. Five residents were excluded from the participatory observation survey. One had difficulty with orientation (resident G), two did not go out often (residents B and I), and there were two others ((residents A and D) (Note 3). We obtained a total of four record sheets from the participatory survey. In the figures, the remarks recorded from the participatory survey are marked with an asterisk.

To examine how residents appear in their group care facility, we conducted a behavior observation survey also on site (September 7 to December 6, 2006). For this survey, we used a floor map to record in 10-minute intervals the movement and location of residents and workers in the group care facility. In total, we obtained 182 record sheets. Because resident A refused to participate in the survey and resident B did not go out often, observations on them can be found in reference 4.

### Time-Space Path Model

To categorize the living-hub histories of residents, the Time-Space Path Model in Time Geography was deemed appropriate. Haagerstrand (1970) introduced the Time-Space Path approach, which shows personal activity with geographical space and a time axis spanning a day in a life. The Time-Space Path does not show a free track but a regular track called a 'time-space prism'. This model is useful to describe the lives of urban citizens. With the Time-Space Path model, the actual conditions of urban lives can be more concretely described and analyzed (Ito 1997). We classified the living-hub histories of residents with the Time-Space Path model, into four types: Permanent-residency, U-turn, I-turn, and I-turn'.

## 3. CASE STUDY

### 3.1 Outline of the surveyed region

T town in F City faces the Seto Inland Sea. It has been known as a "fisherman's village" since the Kamakura Era. In the latter part of the Kamakura Era, it prospered as a center of marine transportation. During the Edo Period, port facilities were put in place. Even today, it has many Shinto shrines, Buddhist temples, many traditional townhouses, and other old remaining buildings (please see *the Fig. 1*). In recent years, the population of seniors has increased. In January 2008, the ratio of seniors to the total population of 5,073 was 39.9%, which is considerably higher than the national average (*Note 1*). The overall population is decreasing, even as the ratio of seniors continues to grow. On the other hand, various festivals are held in this region – about 12 each year – so neighborhood associations are maintained, and even on a day-to-day basis, interactions among neighbors can be seen throughout the town. As a result, in this region, community ties remain comparatively strong.



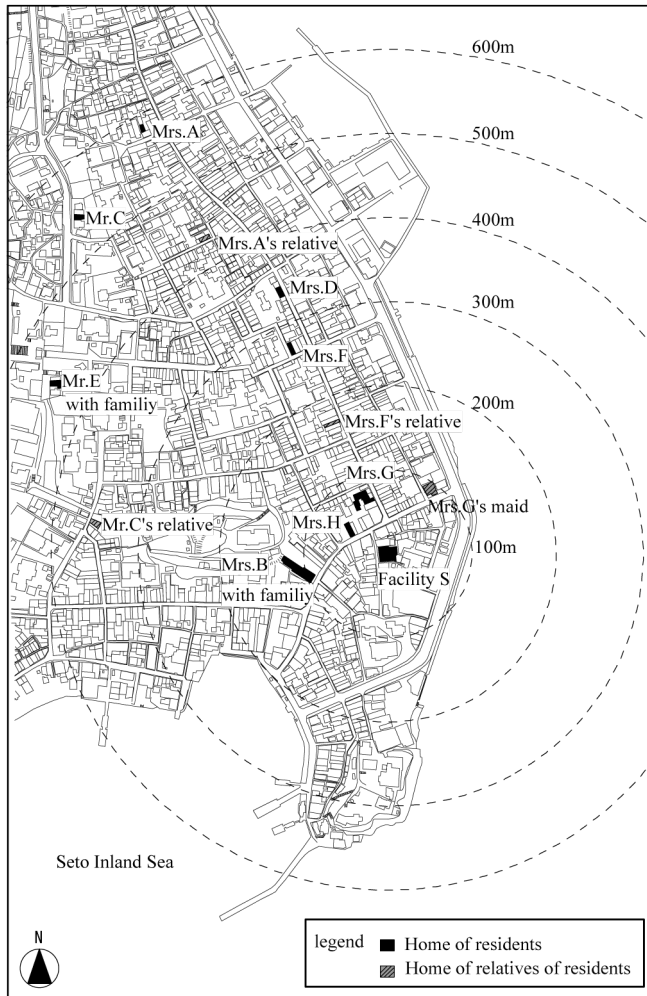
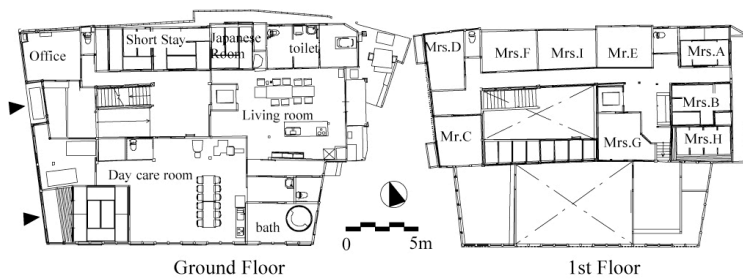


Fig. 1. The surveyed region (1:9,000)

### 3.2 Outline of the surveyed Facility

Facility S, which is located in an urban area of T town, provides group care for the elderly with dementia (regular staff: 9); day services (regular staff: 18); short stays, and “Shokibo takinou-gata kyotaku kaigo”(community based multi-care facilities, day staff: 15; live-in staff: 5; hereinafter “Multi-Care”) (Note 2). It operates according to the “Kaigo Hoken” system (Fig. 2).



*Fig. 2. Plan of the surveyed facility S*

## 4. ATTRIBUTES AND LIVING-HUB HISTORIES OF RESIDENTS

### 4.1 Resident Attributes

Figure 3 shows an overview of resident attributes (e.g. gender, age, occupancy date, dementia level, care-requirement level) and living environment history. Looking at the physical and mental attributes, the care-requirement level is from I to III and the dementia level is from I to IIIa. Regarding the place of residence before moving, eight people came from T town and one person (resident I) came from another town. The prior places of residence of the eight residents from T town are all within 600 meters of the group care facility S (*Figure 1*). That is, eight residents maintained continuity with their sphere of daily existence after moving.

### 4.2 Tables

We classified changes in the living hub of residents (Figure 3), dividing living hubs into four types. The permanent-residency type indicates a person who has continuously lived in T town since they were born (residents A and B). The U-turn type indicates a person who moved away from T town in their youth or in their prime and later returned (residents C, D, and E). The I-turn type indicates a person who was born and raised somewhere else and moved to T town after she married (residents F, G, H). And the I-turn' type indicates a person who moved to T town as an opportunity to live in the group care facility S (resident I). These categories are considered appropriate because the living hubs of residents from elsewhere are at least 10km away from T town, which is outside of the sphere of daily living by some distance.

(Comment: This table is not available to be published.)

Legend. The black line shows periods of living in T town. Dementia level and care-requiring level are those of July 6, 2006, except Mrs. F's data, which is that of on Sep. 16, 2006. Regarding dementia levels, we used the 'criterion for showing how independently the elderly with dementia can live'. For living environment history, we categorized residents' lives into five periods; childhood, youth, the prime, old age, and after moving into group care facility S.

Resident	A	B	C	D	E	F	G	H	I
Gender, age	Female, 77	Female, 90	Male, 77	Female, 86	Male, 73	Female, 84	Female, 93	Female, 93	Female, 97
Occupancy date	1.Apr.04	1.Apr.04	1.Apr.04	12.May.06	1.Apr.04	16.Sep.06	26.Jul.04	1.Apr.04	1.Apr.04
Dementia level and	II a, I	II b, II	II a, III	II b, II	III a, III	II a, III	III a, II	III a, I	I, II
Type of living in the type of living hub	My-room type Permanent-residency	Living-room type Permanent-residency	In-between type U turn	Living-room type U turn	Living-room type U turn	My-room type I turn	Living-room type I turn	Living-room type I turn	My-room type I turn'
Childhood	born in T town went to T primary school engaged in ironworks	born in T town went to T primary school went to women's school	born in T town went to T primary school went to T junior high school	born in T town went to T primary school went to T junior high school	born in T town	born in Osaka (200km away) came to T town	born in F city (12km away)	born in Aichi (320km away)	born in M town (10km away)
Youth		trained for marriage got married worked at electric shop	worked at a cloth store in F city	went to Osaka by marriage (200km away) husband died	went to Osaka (200km away) came to T town	worked as a nurse at F city helped a factory run by family	came to T town by marriage go to Tokyo	came to T town by marriage taught at primary school	
Their prime			got married and live in O city (28km away) divorced worked at a book shop	back to T town worked at a Japanese hotel	engaged in ironworks at F city engaged in ironworks at T town	closed the factory after father died	worked at primary school		
Old age	attacked entered the hospital moved to another facility	attacked moved to a short term stay	engaged in delivery service attacked back to T town	worked at grocery shop attacked and enter the hospital moved to another facility		attacked and entering the hospital came to day care in facility S	came to T town employed a housekeeper	retired and enjoyed hobby activities attacked took care at home	
Moving	moved to another facility		back to T town	back to T town		came to day care in facility S	employed a housekeeper	took care at home	came to T town

Fig. 3. Overview of resident attributes and living environment history

## 5. DAILY-LIVING CHARACTERISTICS OF RESIDENTS

### 5.1 Types of Main Living Areas in the Group care facility

Figure 4 shows the main living areas of residents according to the behavior observation survey inside group care facility S. Figure 4 shows the average value of two surveys (Note 4). We classified the main living areas into three types. The living-room type indicates a person who spends a long time in the living room while at home (residents B, D, E, G, and H). The my-room type indicates a person who spends a long time in his own room while at home (residents A, F, and I). Finally, the in-between type indicates a person who spends an equal amount of time in both rooms. We observed that residents with a lower degree of dementia tended to spend more time in their own rooms.

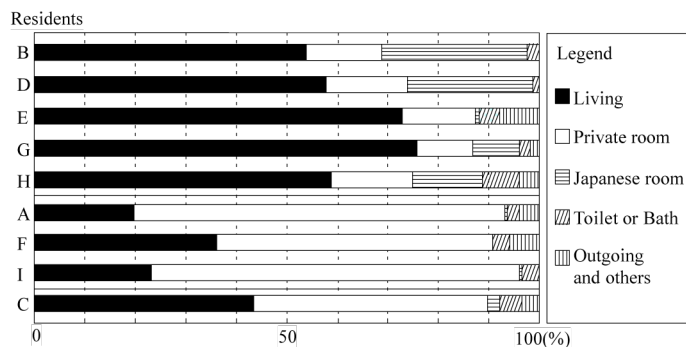


Fig. 4. The ratio of main living areas in the group care facility

### 5.2 Tables

Figure 5 shows a breakdown of the number of times each resident goes out based on our going-out record survey (Note 5). We observed individual differences in the number of times residents went out and related details. Residents have the following going-out characteristics. Group care facility workers often called out to people with a high degree of dementia (residents E, G, and H) and encouraged them to go out. Because of that, these residents had a comparatively high rate of going out. People with a comparatively low degree of dementia (residents A, C, F, and I) went out exclusively of their own will. Residents B and D went to the hospital regularly and returned to

their homes, so they went out when needed. Thus, we observed that the frequency of going out is influenced by the degree of dementia, the activities of daily living, and the intentions and activities of group care facility workers.

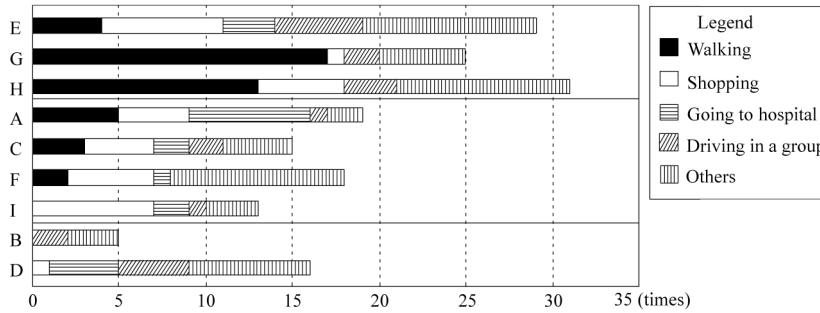


Fig. 5. The breakdown of the number of times each resident goes out

### 5.3 Tendency of Residents to Receive Visitors

Figure 6 shows a breakdown of the number of times each resident received visitors based on our visitor-reception record survey (37 days from August 26 to October 11, 2006). According to this survey, we can see that visits are mostly from family members. Looking at the frequency of visits (Table 1), we can see that five residents received two or more visits per week. Resident G received 6.2 visits per week, or nearly one visit each day. Table 2 shows an overview of the most frequent visitors. Residents B, G, and I received visitors not only on weekends, but on weekdays as well. This is because these visitors lived in T town. These frequent visitors explained their visits in various ways, such as "I was just passing by on the way to somewhere" and "I have something to do." Thus, we can see that for these visitors visiting had become a habit. At the same time, people who came to visit resident H mainly did so on weekends and holidays. That is because these visitors lived far away from group care facility S. Some residents did not receive many visitors. For example, residents A, C, and F were all alone. Resident E did not have a good relationship with his family. And the visitor to resident F was in poor physical condition. Thus, one condition for being a frequent visitor is living close to group care facility S. Looking at the number of visits by the type of living hub, we can observe that the U-turn type (residents C, D, and E) receive somewhat fewer visitors. We did not find any particular reason, however, so we cannot say that living close and type of living hub have a correlation.

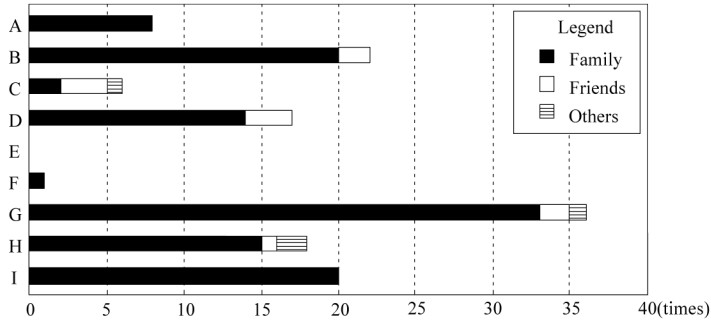


Fig. 6. The breakdown of the number of times each resident received a visitor

Table 1. Average frequency of receiving visits

Resident		A	B	C	D	E	F	G	H	I
Average in a week	Total	1.51	4.16	1.14	3.22	0.19	0	6.81	3.41	3.78
(times/week)	Family	1.51	3.78	0.38	2.65	0.19	0	6.24	2.84	3.78

Table 2. Overview of the most frequent visitors

Resident	Relationship with resident	Living place	Average visiting frequency (times/week)	Characteristics of visits
A	Sister	T town	1.32	She visits when she has something to do.
B	Daughter	T town	2.65	She visits when she has a time.
C	Sister in law	T town	0.38	She visits when she has something to do.
D	Sister	F city	1.89	She talks in the facility when she comes to day care services.
E	Daughter	T town	0.19	Family does not visit so often.
F	Sister	T town	0	Sister and daughter do not visit so often.
G	Housekeeper	T town	4.54	She visits in the morning, cooks fish boiled in broth, and spends an hour there, giving massages and exercising.
H	Daughter	Neighbor town	2.83	The oldest daughter spends one in every two months in T town and the second daughter comes on weekends.
I	Daughter	T town	2.27	She visits after three o'clock and talks for an hour.

## 6. EXAMINATION OF CONTINUITY OF DAILY LIVING ENVIRONMENTS

This section examines the continuity of relationships with the daily living environment.

### 6.1 Continuity of Relationships with Human Daily living environments

First, we examine degree of continuity of daily living environments. We often observed people calling out to resident D (U-turn type) when she was going out. Resident D responded to these calls with a nod or other gesture

because she had a hard time speaking. The background of resident D's behavior is that she grew up in T town, has childhood friends here, and had a grocery store business after returning to her hometown. Thus, she has many friends. Others, such as residents A, C, E, and F also had many chances to engage in conversation with friends (Table 3). Most of the conversations centered on greetings, exchanging recent news (Table 3: circle), reminiscences (Table 3: black circle), and even grumbling and vigorous encouragement (Table 3: triangle). At first glance, these conversations may seem simple. Upon closer observation, however, it is evident that they would not occur without the participants sharing a common background and knowledge, which are needed to understand the context. From this we can conclude that these residents have experienced continuity in terms of their human environments.

Table 3. Samples of relationships with daily human environments

Resident	Who	Place	Remarks
A	Acquaintance	In the facility S	'We cooked at a festival.' A: 'Yes, it was hard work.' ●
C	Acquaintance	Supermarket	'How are you?' ○
	?	Supermarket	'Oh, she is Mrs. A!' ○
	Classmate	Restaurant	*'Haven't you got fat?' C: 'Really?' ○
D	Classmate	Hospital	'You look good.' ○
	Acquaintance	Hospital	'It is hot today.' ○
	Acquaintance	Hospital	'Is your daughter well?' ○
	Classmate	Restaurant	'Oh, you worked at the grocery store!' ●
	Classmate	Restaurant	'This is the best season.' ○
	Neighbor	Restaurant	'My grandchild is ...' ○
E	Classmate	Hospital	'You ran so fast.' ●
	Acquaintance	Hospital	'Take care of yourself!' E: 'You too.' ○
	Acquaintance	On the street	'How woeful. Walk and run by yourself!' E: 'I would run if I had a job!' △
F	Former colleague	On the street	*'Do you remember that we traveled together?' E: 'Yes, I do.' ●
	Acquaintance	On the street	'Hello, how are you?' ○

\* The remarks recorded from the participatory survey are marked with an asterisk.

## 6.2 Continuity of Relationships with the Physical Daily living environment

Next, we examine the continuity of relationships with the physical daily living environment. Resident F (I-turn type) told us that when going out for a walk, she likes to sit on a certain big rock in a shrine behind her home. We also observed resident D (U-turn type) chatting with the owner of an okonomiyaki (Japanese pancake) restaurant she frequented. These examples show how residents continue to use the same places before and after moving

in to the group care facility. That is, these residents have maintained continuity in their relationships with their physical daily living environments.

### 6.3 Continuity in Physical Daily living environments from Memory

We also observed residents reminiscing about their physical daily living environment. For example, we often heard resident C (U-turn) remark about how the town had changed since the distant past. Other residents made similar remarks. While strolling through an old downtown district, resident E commented how he long ago used to come and play and tussle with other young people. While gazing at an island across the shore, resident H commented how she used to climb to a certain peak. These remarks are all based on remembering places habitually visited long ago (Table 4). Thus, even in their memory, residents have maintained continuity in their relationships with their physical daily living environments. However, we did not observe any such continuity of relationships with the physical environment through residents' reminiscing in their daily behavior. Rather, it is significant that reminiscing was awakened when residents went out to familiar places, such as when out walking or on a visit to the hospital. In particular, because T town is a traditional city that has not undergone major changes in its streets and buildings, we were able to observe many residents reminiscing on topics similar to the examples above.

We can thus conclude that some form of continuity of relationships with the daily living environment has been maintained with resident A (permanent-residency type) from T town, with residents C, D, and E (U-turn type), and with residents F and H (I-turn type).

Table 4. Samples of remarks about physical daily living environments

Resident	Place	Remarks
A	In front of a cloth shop	Staff: 'Don't you go shopping these days?' A: 'No. Because it costs too much.'
C	Restaurant	**The okonomiyaki at this restaurant tastes good. '
	In front of a Bar	**I came here so often. '
	On the street	**There was a public bath here. '
	On the street	**This is the last bookshop in this town. '
E	Old downtown	**I was called for so often to join in with things and enjoy myself. '
	On the street	**I often enjoyed myself around here but now there's nowhere to enjoy.'
H	Gazing at an island across the shore	'I used to climb to that peak.'



\* Remarks recorded from the participatory survey are marked with an asterisk.

## **7. DISCUSSION OF THE CONTINUITY OF RELATIONSHIPS WITH DAILY LIVING ENVIRONMENTS**

### **7.1 Correlation between Living-Hub Histories and the Continuity of Daily living environments after Moving**

First, we examine the correlation between living-hub types and the continuity status of relationships with the daily living environment.

For the permanent-residency type, in the going-out survey, we observed that residents A and B went out comparatively often. In the behavior observation survey, however, they often stayed in their own rooms. The continuity of their relationships involving other humans was low, with only a few visits from friends. Resident A stayed in her own room out of personal preference. On the other hand, resident B, with a rather high degree of dementia, rarely went out. She mainly stayed in her Japanese-style room, lying down. Even though family often visited her, she did not maintain any continuity in her relationship with her daily living environment.

From the U-turn type, we did not observe any outside human involvement with residents C, D, and E. Resident C, however, was concerned with his childhood and old age. The reason for this is that resident C left T town in his prime and thus has a 'blank' period. On the other hand, resident D returned to T town in her prime and helped run the family grocery store. Thus, we observed relationship continuity with the human daily living environment from that point on. In other words, even though two residents may be the same U-turn type, we can observe differences in the continuity of their relationships with the daily living environment based on the period when a person left T town and their local living status after returning to T town. Resident E also reminisced about his childhood and prime. Thus, we can say that U-turn residents, other than for their blank period, do maintain continuity in their relationships with their daily living environments.

From the I-turn type, we observed that resident F maintained both continuity of her daily living environment (human and physical) and continuity of customary practices in returning home on memorial days to recite sutras. The other I-turn types (residents G and H) suffered from progressive dementia. They are discussed in Section 7-2. We can thus see

that one I-turn type (resident F) maintained continuity in her relationship with the daily living environment after she moved in to the group care facility.

From the above, we conclude that there is a correlation between living-hub histories and the continuity of relationships with the daily living environment after moving in to the group care facility. In the I-turn type, for example, we observed continuity of daily living environments (both human and physical) between living in T town independently to moving in to the group care facility. In the U-turn type, we observed continuity of daily living environments for periods other than when a resident was living outside T town. Residents of the same U-turn type, however, maintained different levels of continuity in their daily living environments depending on whether the blank period was in childhood or in the prime of life. In the I-turn' type, on the other hand, we observed a breakdown in continuity of daily living environments. That is, the continuity of relationships with the daily living environment after moving in to the group care facility is influenced by the period living in T town. For example, when did a resident start living in T town? And during what stage of life did a resident leave T town? Figure 7 summarizes the information in this section.

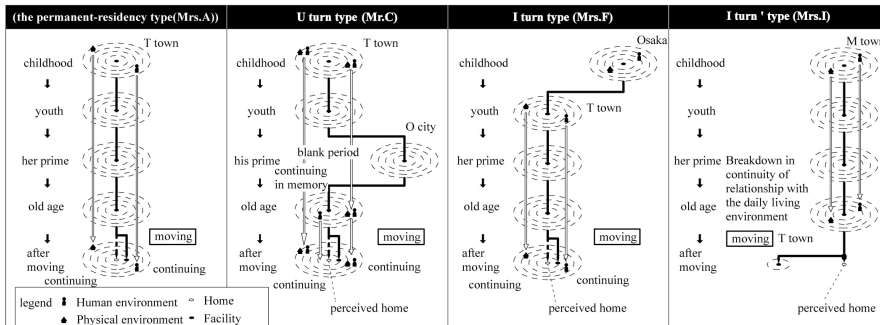


Fig. 7. Correlation between Living-Hub Histories and the Continuity Status of Daily living environments after Moving

## **7.2 Relation between Progressive Dementia and Daily living environment**

Next, we examine residents with progressive dementia and their relationships with their daily living environments. We observed fragmentary reminiscing about places from resident H. But we did not observe remarks and behavior to show that she recognized the relative position of those places. In the remarks of resident F, who had a low degree of dementia, we did observe the ability to recognize the relative position of the hospital in terms of landmarks. We also observed similar remarks from resident C. Thus, we conclude that losing the ability to recognize the relative position of places and failing memory depend on the progression of dementia. In addition, on one occasion when resident G went out for a walk and bumped into a former neighbor, she commented that that face looked familiar. This remark shows that resident G remembered the person as a former neighbor, but no further details such as the name. In both cases, though the memory is not perfect, fragments of names and places remain. These memory fragments may provide a type of mental stability to residents with dementia.

## **7.3 Requirements for Continuity of Relationships with Daily living environment (i.e., Continuity in the Sphere of Daily Existence)**

In the previous section, we stated how we observed continuity of relationships with the daily living environment in some form among residents of the permanent-residency type, U-turn type, and I-turn type. In the I-turn' type, on the other hand, we observed a breakdown in such continuity. For all types where we observed relationship continuity with the daily living environment, the distance between the resident's original home in T town and group care facility S was less than 600 meters. Thus, though difficult to draw a conclusion from this study alone, we think that a person has a good chance of maintaining continuity of daily living environments if the group care facility he moves in to is within 600 meters of his sphere of daily existence. Incidentally, the sphere of daily existence in architectural planning is about 500 meters from a person's home [5]. So our estimate appears appropriate.

## 8. SIGNIFICANCE OF RELATIONSHIP CONTINUITY WITH DAILY LIVING ENVIRONMENT

In this section, we examine related theories to support the significance of the continuity of relationships with the daily living environment.

First, we examine whether the resident is aware of his own private residence. Table 5 shows the main remarks by residents about their homes and group care facility S. With respect to homes, resident I (I-turn' type) frequently remarked that she wanted to go home. And resident F (I-turn type) returned home whenever she had something to do there. With respect to group care facility S, on the other hand, resident C and others did not know how to respond. They did not clearly recognize the group care facility as their own home. These remarks reflect an awareness of their own private residences and group care facility S. That is, this may suggest that, to residents, the group care facility is only a temporary dwelling and that their perceived home is their own private residence.

We now introduce the concept of 'home'. According to 'Ko-jien', a Japanese dictionary, 'Home' means one's household, one's private residence, and one's birthplace (Shinmura 2008). According to Tachibana (2005), 'home' is a multi-layered and relative concept. That is, 'home' is a perceptual area. If the perceived home is one's private residence, then 'home' is a multi-layered area that is centered on one's private residence. In particular, if we define one's hometown as one's perceived living area, then even when a resident who comes from T town moves to group care facility S from his own private residence, he maintains the continuity of his perceived hometown through continuity of the sphere of daily existence and with his relationship to the daily living environment. We think this leads to a sense of security.

Table 5. Samples of remarks about home and group care facility S

Resident		Remarks
C	Home	* 'This is my home. It has fallen into ruin because nobody lives here.'
	Group care facility S	*Researcher: 'Isn't group care facility S your home?' C: 'No, this is ...'
D	Home	(Seeing inside of home) 'Nobody lives here...'
F	Home	* 'I am ashamed to open my doors, because everything is so scattered.'
G	Group care facility S	(In front of Group care facility S) 'Oh, here? Nobody is inside. May I go in?'
H	Home	(Stopped in front of the house and checked the post) 'There are no letters!'
	Group care facility S	(In front of Group care facility S) H: 'What's this [building] for?' Staff: 'This is Group care facility S.' H: 'Group care facility S....'
I	Home	'I would like to return to M town.'
		'I rent my house to someone else. So I feel very lonely.'
	Group care facility S	'I cannot relax here.'

## 9. CONCLUSION

In this paper, we conducted a case study to examine the continuity of relationships experienced by residents in a group care facility with the physical and human aspects of their daily living environments. We then discussed the conditions and significance of this continuity. Although further study is needed to draw conclusions, we could propose some useful implications of our examination of the continuity of relationships with the daily living environments of residents. Figure 8 summarizes these implications. Firstly, we divided the living-hub histories of residents in the group care facility into four types: permanent-residency, U-turn, I-turn, and I-turn'. Six residents belonging to the permanent-resident, U-turn, and I-turn types showed some form of continuity in their relationships with their daily living environments. We suggest that there is a correlation between the living-hub history and the continuity status of relationships with the daily living environment after moving in to a group care facility. We also suggest that it is highly likely that there is a reference condition to maintain continuity of one's relationship with the daily living environment; that is, moving in to a group care facility that is within 600 meters of a resident's sphere of daily existence. The significance of continuity in daily living environments is that the resident gains a sense of security by perceiving that he can continue to live in his hometown.

We showed the significance of moving in to a group care facility close to one's former daily living environment in order to maintain continuity in one's relationship with it, even if an elderly person is forced to move in to such a facility.

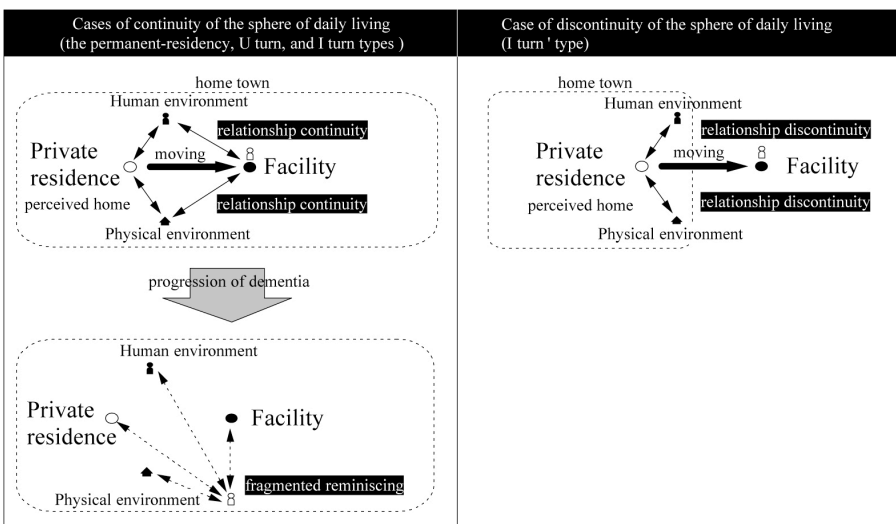


Fig. 8. Model of Continuity of Relationships with Daily living environment

## Notes

1) Survey by T branch office of F city

2) In November 2006, Facility S started a “Shokibo takinou-gata kyotaku kaigo” (community based multi-care) service. At the time of our survey, it was not eligible to be classified as that type of business.

3) For personal reasons, resident A found the survey difficult, and, because we obtained a lot of data on resident D through non-participant observation, he was not a participant himself.

4) Resident D, however, was hospitalized during the second survey. Therefore, data on her is only from the first survey. In addition, during the first survey, resident F was using the group care facility only for a short stay. So her data is only from the second survey.

5) Figure 5 shows the other purposes that each resident had for going out.

A	festival
B	home (sometimes staying a night)
C	friend's shop, drive
D	favorite shop, beauty treatment, home
E	personal drive, home
F	home, attend a grave, temple, bank
G	attend a grave, home
H	attend a grave, going out with a daughter, home
I	drive

6) The housekeeper who visited resident G the most is counted as a family member.

## REFERENCES

Altman, I. (1973). Some perspectives on the Study of Man-Environment Phenomena, *Representative Research in Social Psychology*, Vol.4(1), 111

- Ara,S.(1997). Housing facilities for the elderly in India. *Ageing International*, Vol.23, No.3-4, 107-114.
- Brink,S.(1997). The graying of our communities worldwide. *Ageing International*, Vol.23, No.3-4, 13-31.
- Chen,Y.(2008). Strength Perspective: Analysis of Ageing in Place Care Model in Taiwan Based on Traditional Filial Piety. *Ageing International*, Vol.32, 183-204.
- Chi,I. and Chow, N.(1997). Housing and family care for the elderly in Hong Kong. *Ageing International*, Vol.23, No.3-4, 65-77.
- Chui,E.(2008). Introduction to Special Issue on 'Ageing in Place'. *Ageing International*, Vol.32, 165-166.
- Chui,E.(2008). Ageing in Place in Hong Kong - challenges and Opportunities in a Capitalist Chinese City. *Ageing International*, Vol.32, 167-182.
- Egdom,G.(1997). Housing for the elderly in the Netherlands: A care problem. *Ageing International*, Vol.23, No.3-4, 1365-182.
- Fujimoto,F.(2002). A study on outdoor lifestyles in outdoor spaces in a community. Graduate Thesis, the University of Tokyo.
- Gitlin,L. (2003). Conducting research on home environments: Lessons learned and new directions. *The Gerontologist*, Vol.43(5), 628-637.
- Gottshalk,G.(1999). Introduction to: "Housing and Care for Various groups of Elderly People". Independent European Housing Forum Conference: Living Condition for the European Elderly, Kuopio.
- Haagerstrand,T.(1970). What about people in regional science?, Regional Science Association, Paper and Proceedings, Vol.24,7-21.
- Harrison,J.(1997). Housing for the ageing population of Singapore. *Ageing International*, Vol.23, No.3-4, 32-48.
- Hwang,Y.(1997). Housing for the elderly in Taiwan. *Ageing International*, Vol.23, No.3-4, 133-147.
- Inoue,Y.(2007). A study on community life in a group home for the people with dementia. *Journal of Architecture and Planning*, No.614, 57-63.
- Ito,S.(1997). Activity of Urban Inhabitants, New Urban Geography, Toyo Shorin, Japan. 143-147.
- Katan,Y.and Werczberger,E.(1997). Housing for elderly people in Israel. *Ageing International*, Vol.23, No.3-4, 49-64.
- Kim,M.(1997).Housing policies for the elderly in Korea. *Ageing International*, Vol.23, No.3-4, 78-89.
- Kinukawa,M.et al.(2003). A study on the structure of community life of the group home based elderly with dementia. *Journal of Architecture and Planning*, No.564, 157-164.
- Kinukawa,M. et al.(2005).Effects generated by outgoing behavior on the mental stage of the institution-based elderly with dementia. *Journal of Architecture and Planning*, No.592, 17-24.
- Kose,S.(1997). Housing elderly people in Japan. *Ageing International*, Vol.23, No.3-4, 148-164.
- Lawton,M.P.(1986). Environment and Aging. Center for the Study of Aging, New York.
- Lawton,M.P.(1975). Planning and Managing Housing for the elderly. A Wiley Inter-science Publication, New York.
- Lindstroem,B.(1997). Housing and service for the elderly in Denmark. *Ageing International*, Vol.23, No.3-4, 115-132.
- Moore,G.T.(1979). Environment-Behavior Studies, in Snyder,J. and Catanese,A.(eds.): Introduction to Architecture, Chap.3, Mcgraw-Hill, 46-71.
- Moore,G.T.(1987). Environment and Behavior Research in North America-History, Developments and Unresolved Issues, in, I. Stokols, D. and Altman, I. (eds.) Handbook of

- Environmental Psychology, Chap.39, John Wiley and Sons, 1359-1410.
- Nikkei News paper. (2011). 2011.Nov.28th, Japan.
- Nishino,T.(2010). A case study on the place and system of community care for the elderly in a historical port town in Setouchi, Japan. *Journal of International City Planning*, 357-366.
- Sixsmith,A. and Sixsmith, J.(2008). Ageing in Place in United Kingdom. *Ageing International*, Vol.32, 219-235.
- Shinmura,I. et al.(2008),Ko-jien the Sixth Edition, Iwanami-Shoten, Japan.
- Suzuki,S. et al.(1975), Architectural Planning. Jikkyo-Shuppan, Japan.
- Tachibana,H.(2005).‘Concept of Home’, in Idea of elderly facility from the point of lives. Chuo-Houki, Japan, 124-125.
- Takahashi,T.(1997). ‘Aspects of theories in Environment-Behavior Studies’, in Architectural Institute of Japan (eds): Environment-Behavior Design, Shokoku-sha, Japan. 32.
- Tinker,A. (1997). Housing for elderly people. Reviews in *Clinical Gerontology*, 7, 171–176.
- Tsuno,N. and Honma,A.(2009). Ageing in Asia –The Japan Experience. *Ageing International*, Vol.24, 1-14.