

The Design of the Endowment Space in the Perspective of Behavioral Psychology

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Abstract. Space, in the common sense of people, is planning and limited three-dimensional place, provide the necessary activities for people with a particular environment. Closely linked to space and human behavior: space, behavior. Individual character space character behavior, special environment make special psychological. Both normal and special behavior and psychology, is on the basis of space design. Old people is the main part of the endowment space activities, their psychological influence on subject behavior and social identity, and specifically in the field of space design, promote the innovation and reform of design activities. Analysis the space basic psychological needs of old people, analysis of the impact of pension space to the behavior of the elderly, the design thought and the behavior of old people, mental, emotional, conform to the old behavior, mental state pension space, is one of the basic quality for designers.

1. Understand The Behavior and Psychology of The Elderly

1.1 The behavior and psychological changes of the elderly.

Old age is an important stage of life, as well as the stage of immense changes in human behavior and psychology. The physical condition changes come first: physical deformation, decrease of motor function, slower response, and decline in memory. Followed by behavioral habit changes: gradually form fixed biological clock, keep early hours, prefer quiet life, enjoy leisure activities like stroll, raising flowers and pet fish, and etc. And sometimes the psychological changes. Many of the psychological changes of the elderly show up in childlike behavior, stubborn, selfish, suspicious, and so on. The psychological process of human being includes cognition, feeling, mood, interest, personality, change of will and so on. Therefore, it is very complicated to fully understand the psychological state of the elderly. The above changes are precisely the reason why health has become one of the most concerned issues about the elderly.

1.2 Understand the physical and mental health of the elderly.

Health is the origin of life, which includes physical health and mental health. Health issue becomes inevitable with the growth of age. Especially when getting older, the decline in audio-visual function and nervous system, metabolism slowdown, aging of the motor system, and the degradation of body function gradually lead to variety of intensified chronic diseases. Meanwhile, physical health is also greatly impacted by mental health. Being eaten up with diseases leads to long term anxiety, and mental aging can lead to increased aging of the body. Moreover, as a marginalized social vulnerable groups, their loneliness, helplessness and other psychological problems are more prominent, and cause huge burden on one's health. So to speak, mental health is an important part of the elderly's health.

According to the survey, the elderly generally have the following understanding of health: "self-care", "do not trouble younger generation" "enjoyable physical and mental states" ... This shows in the awareness of the elderly, "physical" and "psychological" health are both very important. But to maintain physical and mental balance, to achieve physical and mental health is not that easy. It require the effort from the family and society in many ways.

1.3 The physical and mental health needs of the elderly.

The need for physical and mental health of the elderly is special. Their material demand (the basic necessities of life) is not very strong, but their psychological needs are very complicated. On the one

hand, they are lack of the sense of security as vulnerable groups in the family, longing for love and care from family members. At the same time, they do not want to become the burden of the family due to the sense of inferiority. On the other hand, as marginalized social groups, they desire to be respected and be part of the harmonious social relationship. In addition, they also have a strong sense of belonging (Fallen leaves return to the roots – in Chinese proverb). Those elderly who are well-educated, have a strong heart and rich spiritual world often have a healthy body and happy old age. Another group of the elderly cannot meet their psychological needs, because of the limitations of reality. We need to pay special attention and care to this group, to provide them with peer encouragement, social counseling, and correct family care. Just so the elderly could have positive psychological state, be more satisfied, and to enjoy a more pleasant life as a senior.

It is important to solve mental health problem with appropriate approach, method and timing. First, self-regulation is needed from the elderly themselves at any time. Second, the professional psychological guidance is essential. The timely and reasonable guidance can help the elderly to eliminate pessimistic and negative ideas. At last, the elderly need more psychological care from people around to help them build confidence. Everyone will grow old, therefore to ensure the healthy, longevity, and happiness of the elderly, is not only the traditional virtues, but also the shared responsibility for the entire society. Everyone in this social should actively participate in the development of aging programs and care for the elderly's physical and mental health.

1.4 Behavioral Psychology of the Elderly and Endowment Space.

Endowment pace is the living space that the elderly rely on, bears not only the elderly's material function of daily life, but also the function of basic living space for emotion and spirit. The design of the endowment space should aim at the physical and mental characteristics and health needs of the elderly. Therefore, it depends on the research of the elderly's behavior and psychological activity. In Chinese culture, people believe the love of elderly begins with the love of one's own elder family members. At least one third of a person's life time is spent in the "inconvenient" old age. Everyone could suffer mobility problems either temporary or in long term, and everyone has the demand for humanistic space designed for the elderly. Therefore, the research for the elderly's physical, psychological, behavior and other characteristics and demands are in need, in order to create space environment suitable for them.

The intersection of behavioral psychology and design is the theory pillars of the "endowment space" design. Specifically related to the field of design, the study of the elderly's psychological needs deeply affect the innovation of space design, as well as the transformation of basic design practice. As designers, we have the responsibility to create a comfortable living space for the elderly. Therefore, to survey the elderly behavior, activities, living space and environment is the premise of in-depth study of their psychological behavior. It help us to improve the basic research theory to the design of endowment space, so as to improve endowment space practice.

1.5 The Practice of Endowment Space Design for Elderly.

With the development of society, and the improvement of material and spiritual civilization, it is relatively easy to meet the demand for practical function space. But further study and explore is still necessary to fulfill the psychological space of the elderly. The living space for elderly needs to be improve both internally and externally. It takes comprehensive consideration about the external and internal environment influence, the joint of indoor and outdoor space, and the combination of the physiological and psychological factors.

1.6 Indoor space.

The entrance design of endowment space should remove the ground elevation and apply antiskid surface, so that the elderly can walk safely even under the physiological function recession. The space of entrance and aisle should be able to accommodate wheelchairs and stretchers to roundabout. The net width of hall aisle should be not less than 1200mm. Handrails should be installed at any long and narrow corridor for the elderly.

As the elderly's vision and physical strength have begun to degenerate, the living room has become their major activity area. Due to operational inconvenience, the layout of the living space should be

based on their physical condition, toward the south and has adequate sunshine. There should not be too much indoor furniture, which might cause inconvenience to the elderly's action. Face the south and graceful environment is the better choice for the bedroom.

The harmony of color, light and heat, helps to eliminate fatigue and bring physical and mental pleasure. The colors of Bed cover, bed sheets, pillowcases, curtains, sofa cloth, wall and other could be either simple and solemn, or fresh and elegant, but need to be consistent with the overall tone of the room. The choice of material should be insulation, dustproof, sound insulation, and ornamental.

The bathroom should eliminate any potential safety hazards in its design and layout. Its minimum area must meet requirements for the wheelchair to access and use. Elderly in wheelchair should be able to access to all types of sanitary ware, and to exit the room smoothly. The toilet, shower area and washroom in the bathroom should be provided with safe "L" and "U" shaped handrails. Special attention should be paid for the anti-slip design of the ground, and it should be covered with anti-skid pads and so on.

1.7 Outdoor space.

The external activity space is an important place for the elderly to communicate with others. The needs of communication is one of their most basic need. After leaving their work, the elderly lose their previously established relationships. The fracture of the long-term stable interpersonal relationships causes impact to their psychological balance. Therefore, they are badly in need of establishing new connections. In the elderly's most closely related living environment, the space and atmosphere of communication need to be created. Some endowment space is surrounded by residential areas, the strong atmosphere of life provides good condition for the elderly to communicate with other age groups. Outdoor public activity space should be lively, full of changes and vitality, and space for multiple people to stay. The better use of outdoor space could create a better entertainment space for the elderly.

The dynamic and static activity area should be separated. In the dynamic activity area, the ground should be flat and anti-skid, so the elderly can play ball games, boxing, jumping and other non-private fitness activities. Tree shade and seats should be provided at the periphery for the elderly to rest after the activities. In the static activity area, we can use the shade, pavilions, corridors, outside platform of the building to form a rest space for the elderly to overlook, bask, chat, sing, and other recreational activities. The two areas should connect to each other while maintaining a proper distance. Of course, it's better for the elderly in the static area to be able to watch the activities in the dynamic area.

2. The Design Strategy of Endowment Space Under the Guidance of Behavioral Psychology

2.1 The combination of endowment space reconstruction and elderly's will.

The reconstruction of endowment space is not limited to the application of theoretical knowledge. The most important principle is to respect the object of the space services, which is the will of the elderly, and combined with practice. The elderly have unique insights and needs for the design of living space, both internal and external environment. For most elderly, the monthly pension they can afford to pay is limited. Endowment space need to be in line with the elderly's requirements while achieving economic efficiency. For example, intelligent and professional medical emergency rescue equipment and health care personnel are essential in endowment space design, and there should be space reserved as specific medical function area.

2.2 The humanity design and management of endowment space.

There are many problems in the design of the living space of the existing public nursing home, such as the old buildings, poor facilities and equipment, small bedroom, unreasonable space layout, which greatly limits the development of public pension institutions. The purpose of endowment space design is not only to create functional division and streamline the organization. But to create a comfortable, humanized, and accessible space environment, which meet the physiological and psychological needs based on the behavior and psychological demand of the elderly. It has now become the new

endowment space and environment design concept. The humanized management of pension institutions can be discussed from two aspects:

One is humanized space design. Standing in the perspective of the elderly to carry out humanized design and planning. By using the ergonomics, psychology, behavior, barrier free design and other related theories, we can correctly analyze the Indoor and outdoor human traffic routes for reasonable layout planning, building internal and external space atmosphere and environment, to expand the overall design thinking. In addition, we should pay attention to any factor that might impact the elderly including space detail, scale, color, sound, and even odor.

The second is humanized management. The idea of humanized management, requires management of pension institutions to create humanized service environment for the elderly, to provide efficient working environment for nurses. It also requires a profound understanding of the elderly's spiritual connotation, to create a space cultural and cultural environment of caring, respectful and understanding for the elderly. People oriented, needs to be responsible of caring for the elderly, respect for their physical and psychological particularity, preserve their dignity, to meet their needs in a timely manner, and to protect their interests.

2.3 Indoor and outdoor environment optimization and integration of endowment space.

With the aging degree getting higher and faster, the idea of pension care has changed. "Institutionalization" which gathers scattered elderly together for welfare services in the past many years, have been replaced by the idea of having the elderly live in their original community. Therefore, the elderly's living environment could be planned in community, decentralized, miniaturized, and humanized approach. At present, the middle to low end facilities and service functions is relatively simple, often provide eating, living, washing, medicine and other services that can only meet the basic needs of the elderly. The function of entertainment, spiritual and cultural life and other aspects are very limited. The planning area is small, courtyard space and facilities are inadequate, which limit the normal life of the elderly. Optimization of endowment space, improve elderly's living environment and daily activity space, which allow them to fully participate in social life mentally and physically. Let the elderly enjoy social and cultural achievements, has become the trend of endowment space design.

The key to optimizing the outdoor environment layout and area of the endowment space, is the reasonable arrangements based on meeting the basic needs of the elderly. Divide exercise areas targeting different purposes, to ensure daily entertainment and leisure life. To fulfill the elderly's behavioral and psychological needs through different space design. Connecting inside and outside space through balcony, patio, entrance scaffolding, and so on to meet the requirement of safety and comfort, meanwhile, to encourage elderly to participate in outdoor activities. The outdoor space can make up the interior space of lacking fresh air, confinement, and occlusion. Outdoor space also meet the elderly's needs of comfort, leisure, recreation, and remaining spirit.

The composition of space should be characteristic and focus on the connection of indoor and outdoor space, to plan and design of varied spaces to meet the different needs of elderly people, such as evenly distributed rest, entertainment and leisure space design and so on. The design should be the form of novel to increase recognition. Space facilities should include medical station to ensure medical conditions for the elderly.

2.4 Detail design adjustment and transformation of endowment space.

"People-oriented" is one of the important basis for building a harmonious elderly society. Likewise, people-oriented is also an important principle for endowment space design. Due to the special psychological and physiological characteristics of the elderly, the layout of the interior space needs more humane consideration. However, the interior and exterior function and space design of existing endowment space are relatively single, the detail design is too rough and lack of the barrier free design, in which the principle of "people oriented" is neglected.

2.5 Care for the mental health of the elderly in endowment space design.

Space design has a direct impact on the physical and mental health of the elderly. Designers need to be good at using a variety of elements to design the space, which will directly promote the physical and

mental health of the elderly. The purpose is to make the elderly feel the warmth and care through reasonably designed configuration and function, natural selection of materials and color, so as to help the elderly to eliminate psychological loneliness, enhance the courage of life, and to maintain a healthy personality.

We as designers need to have a caring heart to achieve the true elderly oriented design. We need to observe and find the unreasonable design from elderly people's living environment, keep thinking and continuous improvement, just so to make the best design to serve the elderly's physical and psychological health. Endowment space design not only represent our caring of the elderly, but also our social responsibility and design mission.

2.6 Constructing characteristic endowment space based on local humanities.

The design and improvement of endowment space should be based on the local cultural and historical background, and integrated into the local characteristics. Such endowment space is welcomed by the local elderly, can well conform to local context, and blend in the surrounding environment. Such design not only reflect cultural characteristics, but also create a regional endowment space and even pension service brand.

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