

Group reflection

1 Background

Our project focused on the issue of elderly-friendliness, which has become a worldwide problem. In recent years, population aging problem has begun to trouble cities in China. By referring to the definition of population aging, we knew that when the proportion of population aged over 65 reaches 14%, the region will enter into DEEP AGING period, and when it reaches 20%, the region will enter into SUPER AGING period. According to this criterion, Beijing had entered into deep aging period since 2014. Actually, now there exists one elderly people over 60 years old in every 4 people in Beijing. And the aging level of Beijing far exceeds the national average. Even compared with other super cities in China, such as Shanghai and Guangzhou, the population aging problem in Beijing is admitted to be more serious. What's worse, this trend is still expanding because the potential life span of citizens in Beijing is longer and longer. It's predicted that Before 2025, Beijing will enter into super aging period. When it comes to the community that we cooperate with, Shuangjing, the population aging problem is also serious. It's reported that 18% of residents in Shuangjing are over 60 years old, which brought Shuangjing with many challenges.

When carrying on out project, we made several field investigations to know more about Shuangjing. Based on our investigations, we considered Shuangjing as a co-government district, a sharing district and a smart district. Community government took much effort to create a community with warmth, care and public participation.

Community leaders in Shuangjing adopted many interesting policies to achieve community co-governance. As we know, Shuangjing Block is a pilot in Beijing because of its high quality residence. Actually, shuangjing block is characterized with its large and vigorous population, complex environment, convenient service, and especially its 13th community (a virtual community), which is built together by government, social organizations and all the residents in shuangjing. Through the investigation, we were inspired by the together participant of merchants, residents and basic-level workers in shuangjing community. The local government has held various of activities to motivate the involvement of all partied with social media. For merchants, there is "Keep You Space Clean --- Men Qian San Bao" policy which aims to let themselves keep the space in front of their shops clean. For residents, there is community card system, which will give you some points if you join in community activities. These points can exchange for gifts every year. There is also "Take Photos Movement --- Sui Shou Pai" app. When you find some rubbish, some noises or some violations, you can take a photo. And the information will be sent to people in charge.

We also walked around Shuangjing Block and visited some community centers located in several communities. There are many creative online and offline ideas in shuangjing. For example, there are various official social medias which focus on the

sparkle of ordinary people. There are online activities about environment protection and commonwealth. There are offline activities, like Performance, parent-child activities and environment protection acts. There are offline centers like Mini Technology Museum, Community Library, Elderly Activity Room, which provide many sharing space for residents.

In recent years, Shuangjing aims to build a smart community. Urban Quadrant was established in May 2016, which aims to apply data in supporting city governance and improving city qualities. During our visit there, they introduce how they are helping shuangjing block with community governance and improving residence quality with the help of big data analysis. They have equipped a sensor on the patrol car, which can collect real time information about noise, temperature, PM2.5, PM10, peculiar smell and so on. With these data, they can monitor the environmental condition and furthermore support community regulators to make instant reactions towards various problems around the block. They have also developed an evaluating system to assess the livability of a community, using various data resource. We are surprised to see that UrabnXYZ is making some meaningful try in building a smart community. Although the real time data collected is limited now and what the community regulators can do with the help of the data is just some easy work like garbage clean-up, air quality monitoring and noise handling, in the future, however, with ever-increasing data types and support from government and community, multiple attempts related to residents' life will be possible.

2 General course

2.1 The topic

Existing environment speaks silently and we should clarify the requirements of the existing environment. In the existing public space, the degree of the friendliness to the elderly is low and thus it shall be changed to be more friendly to the elderly. The available space of the built residential area is limited and thus it shall be transformed slightly. There are 12 communities in different situations and thus the transformation design shall have wide replicability. In summary, we should do some Micro transformation of public space based on the psychological and physiological characteristics of the elderly

2.2 Train of thought of design

The first step is analysing the psychological and physiological characteristics of

the elderly and then understanding the unique needs of the elderly compared with other age groups. The second step is analysing the concrete manifestation of the unfriendliness of the existing public space. The third step is doing some transformation design to solve the existing specific problems combined with the characteristics of Shuangjing street, which are sharing, co-governance and intelligence. The last step is replicability analysis. From the aspects of cost and space requirements, we will analyse the replicability of the design scheme, and then analyze the feasibility of the scheme.

3 Characteristics of the elderly

The physiological and psychological characteristics of elderly people consist of 4 aspects, namely perceptual ability, declined function of muscle and bone, degeneration of central nervous system and sensitivity and full of emotion. When people getting old, their perceptual ability declined, more specifically, their vision blurred, their ability of color discrimination decreased and they become less sensitive to sound. Secondly, the function of muscle and bone declined for elderly people. Their flexibility decreased and their bones become more brittle, which means they are more vulnerable to tripping and falling. Thirdly, elderly people will also suffer from the degeneration of central nervous system, for example, memory loss, slow response. Finally, they are more sensitive and emotional, which means they need sense of security and belonging and need to be recognized and respected in their daily life. As for the activities elderly people prefer, we also made an investigation and found elderly people in Shuangjing like chatting walking resting playing chess and cards and participating in cultural activities and square dancing.

4 The first design: shared chairs

4.1 Status quo of public chairs

We investigate the Shuangjing street on the spot and find that the public space is mainly divided into two categories: one is the centralized public space, which is mainly distributed in the newly-built high-grade residential quarters, the other is strip space between buildings, and the low-grade old residential quarters are mainly based on this kind of public space. When we investigate the centralized public space of Apple Community, we find that many wooden chairs' surface have rotted due to poor

management, and some metal chairs and stone chairs are not very suitable for the elderly to sit down and rest because of the temperature discomfort and the non-compliance with the human body mechanics design.

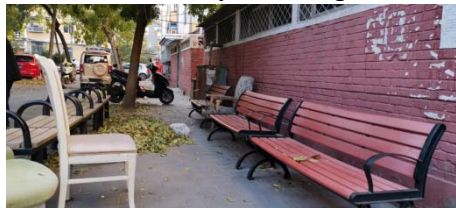


(P4-1: Rotten surface of the chair)



(P4-2: Elderly-unfriendly stone chair)

When we investigate the strip space between buildings in Chuyangliu Community, we find that there is a serious lack of chairs and the residents move an old chair of their own in the public space for outdoor rest. On the one hand, the convenience is low, on the other hand, it affects the beauty of the space.



(P4-3: The residents' chair in the public space)

In addition, we also find a kind of public chairs for two people. Although handrails are set to help the elderly sit and stand, they also limit the number of people who can sit on the chairs. If three or more elderly people want to chat, they must have someone standing, which is very inconvenient.



(P4-4: The public chair for two people)

4.2 “Shared chair” scheme

4.2.1 Introduction of the scheme

The three characteristics of Shuangjing street are "sharing, co-governance and smart", so our design starting point is also hoping to make some corresponding transformation in combination with local characteristics. Therefore, in view of the current situation of insufficient number, unreasonable design and low flexibility of public chairs in Shuangjing street, we design a scheme of shared chair. The design of the seat fully considers the physiological and psychological characteristics of the elderly and meets the needs of the elderly to the greatest extent. At the same time, in order to facilitate the management, a shared chair slot is designed in combination with the community card.

This kind of shared chairs makes the distribution of chairs more flexible. Whether the number of chairs needed for group activities is large or you want to cool in a quiet place, this kind of randomly distributed chairs can meet these needs well.

4.2.2 Design of the slot

When we design the chair stake, the first idea coming to our mind is setting NFC chip into the chair and unlocking it with smartphone. However, the proportion of the elderly using smart phones is not high and even with a smartphone, NFC function is not always available for the elderly. So we give up this design and turn to use RFID module combined with community card. People can swipe the card to unlock and then take the chair, which is easy to operate. When returning the chair, swipe the card to unlock, return the chair which is recognized by the weight sensor, then complete the return operation. When swiping the card, the RFID module will read the user information in the community card and record the borrowing and returning, which is convenient for intelligent management and prevents the privatization of the seat.

4.3 Replicability

In terms of the replicability of the shared chair, this design mainly has two outstanding advantages. On the one hand, compared with the traditional park chairs, the cost is extremely low. The community card is already universal and its marginal cost is zero. Each RFID module costs 15 yuan and the cost of steel-galvanized slots is 120 yuan per row and each weight sensor costs 30 yuan. Each chair suitable for the elderly costs 30 yuan. According to the calculation of 5 slots per row, the average cost

of a single seat is about 63 yuan. We search online for the ordinary park chairs of two seats, which averagely cost about 370 yuan. So the average cost of each seat is 185 yuan. By contrast, the cost of “shared chair” is very low. On the other hand, The chairs are folded when they are idle, which reduces the space occupied by the public chairs, and require less space for the renovation than the traditional public chairs. At the same time, when it is in use, the way of random placement is more suitable for all kinds of space.

5 The second design: calligraphy floor tiles

5.1 Status quo of exercise space and facilities

As we can see, vehicles are parked in chaos and the elderly prefer nearby place to a big square. On the one hand, many old people exercise on the pathway and parking area, which puts themselves in danger. On the other hand, the big square is not fully utilized. And the footpath is simple and crude. And uneven pavement is unfriendly to the elderly without notice or guidance.



(P5-1: Narrow exercise space)



(P5-2: The uneven pavement)

5.2 “Calligraphy floor tiles” scheme

5.2.1 Introduction of the scheme

Traditional Calligraphy uses ink to leave traces on paper and writing on the marble floor with water will leave traces. We carved the outline of the characters on the floor tiles. With the help of the outline, people who can't write can also enjoy the fun of calligraphy.

5.2.2 Design of the floor tiles

Firstly, we lay the floor tiles marked distance indication onto the original footpath. This simple and small design provides the intuitive goal of the elderly, and the long-distance floor tiles will bring a sense of achievement. What's more, we also can add other interesting sign on the floor tiles, such as the sign which remind the pedestrian that this pathway is suitable for walking.

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(P5-3: The floor tiles)

5.3 Replicability

As for the replicability of the calligraphy floor tiles, the cost of this kind of tiles is about 35 yuan, or 5 dollars. And a Chinese brush cost 20 yuan, that is approximately 3 dollars. In addition, this transformation doesn't occupy extra space and we just do some changes on the original tiles. So it has strong enforceability.