

Space production: The interaction between social network and community garden

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Abstract

Nowadays, much attention has been paid to health status and quality of life over the world, health problem is increasingly serious. As activity space, community garden represents the role "directly link individuals, social capital and built environment". It has been used to examine people's habitual interactions with their environment. A growing body of literature conceptualizes urban agriculture and community gardens as spaces of democratic citizenship and radical political practice. Urban community gardens are lauded as open space which residents can alleviate food insecurity and claim rights to the city. It also seems to provide an opportunity for reconciliation between the urban and nonurban realm in a densely built, urban environment and the possibility of introducing new approaches to public policies, urban planning included.

This paper investigated the association between the neighborhood socioeconomic environment and physical inactivity and explored the contribution of neighborhood characteristics to this association. We paid close attention on the community gardens in typical old-fashioned worker village community. To determine the role community gardens play in community development, open space, and civic agriculture, we conducted interviews with community gardens from Shanghai, Yangpu District. This paper investigates urban community gardens as spaces of citizenship through a case study of Anshan Forth village, which is an agelong built community. The residents there are long lived and of a high aging level. The Paraquat garden in the third residential area of Anshan Forth village is a typical positive space to promote residents' intercourse through urban agriculture. Through questionnaires and Grounded Theory interviews, the paper is an attempt to answer three questions: (1) The relationship between demographic attribute classification and public space usage. (2) How to develop positive social relations and citizenship among urban residents. (3) How suitable shaping of public space affects the activation and integration of local residents. We try to find out the interaction that urban agriculture brings to citizens' participation and the residents' life style as public space. The gardens can also be viewed as unique "participatory landscapes" that combine aspects of diversity movements, as well as provide a connection between immigrants and their cultural heritage.

Keywords: community garden; public space; health; identity.

1. Introduction

Nowadays, the process of urbanization continues to advance in various countries. According to data provided by the United Nations Department of Economic and Social Affairs, 3.9 billion people are now living in cities, which is equivalent to half of the world's population. It is predicted that by 2050, the total global population will reach 9.3 billion, of which the total population living in cities will reach 6.25 billion. China's urban population has also increased from 457.06 million in 2000 to 77.16 million in 2015^[1]. Such rapid urban population growth will

inevitably bring about many urban problems and urban diseases. The role of natural ecology in regulating people's health is particularly important in today's society. In addition, people's lifestyles and form of residence are also changing. High-density residential areas have risen. The mobility of urban population is increasing greatly. The social network structure has been strongly impacted, and the neighborhood relationship is gradually becoming weak. Aging trend is increasingly serious. Therefore, all countries have noticed the importance of developing community gardens in cities to improve the health of residents and build an active neighborhood relationship.

The term "community gardens" first appeared during the First World War. Some European and American warring countries triggered a food crisis, forcing the government to encourage the public to cultivate the earth to grow food, and build community gardens to solve the problem of food and clothing ^[2]. Later, in Europe and the United States, it developed into the public green space that was divided or leased to residents for planting activities. It could help improve the urban environment, create opportunities for communication and education, and promote the residents' positive neighborhood relations. Compared with other forms of agriculture, the characteristics of community gardens are significant. It relies on the background of high-speed development of urbanization. It has good adaptability in high-density compound neighborhoods. It is usually distributed or rented to the community residents by the government or related departments. The management system is bottom-up and community-based. The participants always various in level of income and age, most of them are old people who have a large amount of leisure time.

The urban community garden that has risen in China in recent years is a revival of farming culture. It also originated from the form of green space in European and American countries. It means that idle land is divided into small pieces for cheap rent or distributed to individuals and families for gardening or agronomy ^[3]. As the representative of China's high-density cities, Shanghai has an average density of 24,325 people/km² in the old city (end of 2015, data). With the rapid expansion of cities and the declining open space, how to use community gardens to improve the quality of life of residents and realize cities sustainable development has become a topic of increasing concern. Since 2014, with the gradual advancement of urban renewal in Shanghai, relevant organizations have begun to appear dedicated to the construction of community farms. At present, there are nearly 21 community gardens built or under construction in Shanghai, which are located in residential areas, neighborhoods, parks, and campuses in Yangpu and Pudong District. With public participation as the main driving force, they provide natural space in a dense urban environment and promote the healthy and sustainable development of the city.

2. Community Garden and Health

In 1948, the World Health Organization defined health as "complete physical, mental and social well-being, not merely negatively as the absence of disease or infirmity." ^[4] As the largest non-governmental organization in the United States and Canada dedicated to promoting the development of community farms - The American Community Gardening Association, once summarized the benefits of community farms as: Improving the quality of life of participants, promoting the harmonious development of the community, and creating Good community atmosphere, encouraging self-sufficiency, beautifying the neighborhood, producing nutritious food, reducing family food expenses, saving resources, providing leisure, exercise, rest and recreation sites, and educational platforms to reduce crime, protect green space, and create jobs Opportunity and promotion of economic development, reducing car

exhaust from streets and parking lots^[5]. This reflects the role of community gardens in promoting personal health, community belonging, and even social development.

2.1 Improve Physical Health Level

Today, in many cities in Latin America, people are struggling to survive on the subsistence level. Developing community agriculture can improve people's diet and improve their physical fitness. For example, in Colombia's poorest district of Bogotá in 2004, Colombia encouraged the cultivation of home-grown kitchen gardens, which was also an important practice in the municipal project of "Bogota sin hambre" ^[6]. Even in some European countries and countries that do not currently have an economic crisis, it is equally important to develop community farms. Studies have shown that poor diet and living habits have a large number of negative effects on the health of urban residents. Data show that 60% of European urban People's disease and premature is not only a bacterial infection or genetic problems, but because people lack of a "low victimization mode of life" ^[7]. In short, community gardens can provide people with healthy food and lifestyle. Healthy living habits such as changing the habit of sedentary and maintaining moderate eating can reduce the probability of suffering from cardiovascular diseases and cancers ^[8].

2.2 Promote Identity and Integration

The North American Community of Farmers Association proposed in 2001 that "a community garden is a place where individuals and neighbors' children, businessmen, homeless folks, and artists work together side by side. They share stories and shovels. laughter and water. They slowly build relationships, transcend gardens, and integrate into larger communities."^[9] Yuan Pingping reviewed a research on the relationship between the community gardens and the interpersonal interactions from three aspects: communication between family members, different families, and inside and outside the gardens. As an important communicative space, community garden become an important link between family members, community residents and community administrators. ^{[10][11]}. These studies and practical cases have proved that community farms can pool a group of residents together with common interests and strengthen their social network to increase the sense of belonging and identity. This kind of emotional consolidation can promote community identity and community spirit, even extend the impact to other communities and improve the harmony of the entire society.

3. Introduction of Baicao Garden

3.1 Construction Background

Baicao Garden is located in the third residential area of Anshan forth village. The third residential area of Anshan forth village was built in the 1950s. It is a typical old-fashioned worker village. In the 1990s, it became a model of the old housing comprehensive reform. The concept of low carbon and environmental protection has been accompanied by the construction of the community. During the "12th Five-Year Plan" period, the community was included in the energy-saving emission reduction model community. In order to demonstrate the new features of energy-saving and environmental protection in Shanghai through the Shanghai World Expo, a number of achievements have been formed in the community, such as spray cooling system, rainwater collecting greening and watering system, solar energy utilization system, insulation renovation of residential outer walls, and construction of environmental monitoring platform. These achievements have enabled the community to achieve initial successes in building energy-saving renovation, new energy use, and energy-saving management, and have taken the lead over other workers' new villages. In 2016, the third residential area of Anshan Fourth Village was included in the "13th Five-Year Plan" low-carbon pilot community in Shanghai. The Department of Landscape Studies in Colleges and Siping Street Management jointly collaborated in building landscape improvement in this

community. The surrounding college landscape design team led the community residents, volunteers, and the “Fang Lin Flower Club” designed and built this Baicao garden.

3.2 Design Process

Baicao Garden covers an area of about 200 square meters, and the designers mainly considers the following aspects: First, the per capita public green area of the district is only 2.23 square meters, the central square has poor maintenance and lacks open space for activities. The second is that the community has a high level of aging, with a total population of about 6,800, of which old people over the age of 60 account for 23.5%. Although there are a large number of tenants, the tenants generally live longer, the sense of belonging to the community is high, and the relationship between neighbors is harmonious. Third, the management effect of the community residents' committee is relatively good. Many horticultural enthusiasts in the community are united to form a horticultural autonomy organization – the “Fang Lin Flower Club”^[12]. The association was established in 2015 and consists of a group of hobbyist residents. Currently, there are about 40 members, including management personnel, of whom about 17 are active. The Baicao Garden is intended to create a space where residents can propose ideas, participate in design, and provide residents with a horticultural communication platform. Before designing the garden, the team of designers launched a “little landscape designer” event to allow children to create an ideal garden and let them have a sense of expectation and a sense of belonging to the soon-to-be-faced small garden. The design team positioned the garden function to satisfy residents' leisure activities, parent-child interaction and nature education. Residents' suggestions have been continuously sought such as the use of wood boards can cause noise and disturb residents' rest. Under the guidance of professional, nearly 1,000 community residents participated to build the garden by their own hands, from drawing on the fences to collecting rainwater, from composting kitchen waste to “drifting” plants. In that summer, under the collective wisdom of everyone, the bare green belt finally became the creative Baicao Garden. Although these jobs can be completed in a week or so if it was done by professional construction teams, residents all say that personal involvement is far more valuable than anything else. In short, the joint construction of residents and professional teams has provided new ideas for the construction of other community gardens.



Figure 1: An aerial view of Baicao Garden

Source: Liu Yuelai, Yin Kejun, Wei Yi, et al(2017). *Community Garden Practice in High-density Central Cities —A Case Study of KIC Garden and Herb Garden in Shangha* [J]. *Landscape Architecture*, 16-22 .

3.3 Activation and Operation

The Flower Club played a key role in the construction of Baicao Garden. The president sorted out the name list of the club members, counted the idle time of each person, combined their respective characteristics and the major abilities to make a construction schedule. The table includes a watering group, a fertilizing group and a garbage picking up group, etc. ^[12]. At the same time, the community has also formed a "little volunteer" team so that children can participate in the construction of the garden and cultivate their sense of responsibility. In 2017, activities about "The 24 Solar Terms" were carried out, participants took natural observations and notes every two weeks. Baicao Garden is also used as the school natural education base of Dahushan Road Primary School. Besides, it realized the sharing of activity resources with Nongfang Garden in Fushun Road, which brought closer interaction between neighbors^[12]. These activities have all strengthened the building of community cohesion. As an organic public space, Baicao

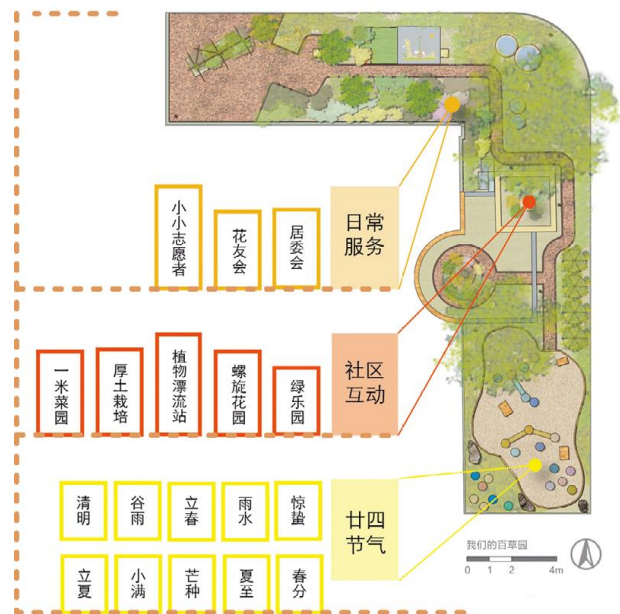


Figure 2: Spatial distribution of community activities in Baicao Garden

Source: Liu Yuelai, Yin Kejun, Wei Yi, et al(2017). *Community Garden Practice in High-density Central Cities —A Case Study of KIC Garden and Herb Garden in Shangha [J]. Landscape Architecture*, 16-22

Garden is a good place to bring people with common interests together and let them influence other residents so that the community's self-governance ability will become stronger and stronger. It is a good way to change residents from consumers to producers and strengthen their sense of belonging and identity.

4. Health Promotion of Baicao Garden on The Flower club Members

4.1 Basic Information

4.1.1 Activities

Although there are nearly 40 members *in* the 'Fang Lin Flower Club', which includes many management personnel. There are only 17 people actually participate in the activities frequently, and their basic age is above 60 years old. The person in charge will ask the free time of each member to arrange the worksheets. Every day, two people will maintain the Baicao Garden. Different groups will be responsible for different tasks, such as watering, fertilizing, collecting garbage, etc. The club's core members have a regular meeting once a week. During several field studies and interviews, the author found that the meetings were mainly held in two places. The indoor activities were selected in the activity room for the elderly in the community. Everyone sat together to discuss and exchange the flower cultivation techniques and appreciate the newly cultivated Flowers. They also discussed the difficulties met when maintaining the Baicao Garden and try to find the solutions. Sometimes they would introduce new flower friends to each other and so on. In the recent regular meeting, the members discussed the solution to the theft of two promising roses. They proposed measures such as organizing flower delivery activities and installing monitoring. In some regular meeting, they would hold outdoor activities in the Baicao Garden, such as building shelves for vegetables, watering and fertilizing. Special activities such as the lantern riddles of the Mid-Autumn Festival are held during the festival. The design team will always follow this project. They would make an on-the-spot investigation from time to time to understand the difficulties encountered by residents and would try their best to help solve it. It can be seen that the design team and the residents themselves have a very positive attitude towards Baicao Garden so that it can better become a positive space for residents to communicate.





Figure 3-5: Daily activities of the Flower Club members in the Baicao Garden

Figure 6: University team came to visit Baicao Garden



Figure 7-8: The regular meeting in the elderly activity room

Source: photographed by author

4.1.2 Questionnaire Results

We had the privilege of conducting a questionnaire survey of 9 members of the Flower Club and found that the members who lived in the community for the shortest period of time lived here for 10 years. The longest is up to 50 years. All of them are basically local people in Shanghai. The average age is over 70. They have a high sense of belonging to the community and have certain requirements for their own living conditions. For example, most of them live in multi-storey buildings and they all want to Install elevators in their unit buildings. More than half of the elderly do not live with their children and do not need to take care of their grandchildren. Therefore, they have sufficient personal time and are in close contact with other residents and managers in the community. Most of the members of the Flower Club have smart phones and can use the Internet. They love to participate in community activities and are fully capable of living independently. Only three people often need to go out to see a doctor. Most members go out to take the community activities 1-3 times a day, more than half of them go to the outside of the community every day, and

compared to other public space, the green and the elderly activity center become their favorite places for various activities. These elderly people have a high level of enthusiasm for life. Six of them have travel plans every year, and two of them even travel abroad. In terms of their self-perceived health, except for one person who believes that he is particularly healthy and one person who believes that he is unhealthy, most members think that their own health is basically healthy. All members will focus on a healthy diet, and most will pay attention to exercise and regular inspections. In the survey of personal life satisfaction, six members were basically satisfied with their lives, one was satisfied, and two were very satisfied. It can be seen that the overall life happiness is very high.

4.1.3 Health Status Measurement

In order to better study the health status of the members, in addition to the interviews, we also conducted measurements of some health indicators, including height, weight, blood glucose, blood pressure, and heart rate for these 9 members. It can be seen from the table below, the data are similar with the results we get from the questionnaire survey. Most of the elderly people showed a good healthy status in these indicators. Several members mentioned in the interview that they were worried about their own high blood pressure problems. But in fact, there is only one who has high blood pressure and one who has low blood pressure. The good healthy status may be related to their regular inspection and active participation in physical exercise, such as take activities in Baicao Garden. In terms of blood sugar, one of them have a slight impaired glucose tolerance, two of them fasting blood sugar were slightly impaired and no diabetic patients appeared. From the data, most members obtain good health status, which is closely related to their lifestyle.

Form 1: Health indicators of partial members

NN	Birth	Blood sugar (fasting)	Blood sugar	Weight	High	High pressure	Low pressure	Heart rate	Hyper-tension	Hypo-tension	Impaired glucose tolerance	Impaired fasting glucose	Diabetes
F01	1953.05	—	7.6	—	—	122	62	78	0	0	0	0	0
M01	1951.08	—	5.5	—	—	132	72	65	0	0	0	0	0
F02	1955.11	6.8	7.4	—	—	137	74	95	0	0	0	0	0
F03	1947.11	—	5.0	53.5	—	127	87	59	0	0	0	0	0
F04	1949.10	5.6	7.4	61.3	—	149	88	79	1	0	0	1	0
F05	1949.10	—	9.8	70.2	—	125	66	80	0	0	1	0	0
F06	1954.09	—	6.3	60.8	—	127	81	66	0	0	0	0	0
F07	1954.07	5.7	6.5	—	—	107	54	73	0	1	0	1	0
M02	1955.09	—	6.4	53	—	118	74	78	0	0	0	0	0

Source: health status measurement of the Flower Club members

4.2 Influencing Factors

4.2.1 Research Method

The Grounded Theory was proposed by Glazer in 1967. It provides researchers with a complete set of methods and steps for summarizing and constructing theories from the original materials^[13]. It uses observation methods, interview methods, etc. to collect data, and explain the behavior of the research objects, construct the concept by coding and summarizing the data, and generalize the concept category to obtain the theory^[14]. Therefore, the use of grounded theory to comprehensively understand the influencing factors of community farming activities is a good complement to the previous top-down empirical research methods.

4.2.2 Sample Selection and Data Collection

The sample selection follows the theory saturation principle, and randomly extracts the eligible Flower Club members for one-on-one interview from the predetermined range of interview objects. When the number of respondents reached 17, the theory began to saturate, no new concept appears, so we final interviewed 17 members whose age is between 65 to 75. The samples included 11 women and 6 men, most of them do not need to undertake grandchildren and have a lot of free time.

This study began on May 4, 2018, following the theoretical saturation principle of grounded theory, using open interview to collect data. Through the continuous collation of one-on-one interview data, the theoretical nodes are perfected until the theoretical saturation. In the interview data collection process, in order to get more reasonable interview data, we designed the following several interview questions, and according to the respondents to further questions, so as to obtain more comprehensive data. ①What is your age and self-perceived health status? ②Do you often come to attend the activities? ③Why did you attend the Flower Club at the beginning? ④What impact do you have on your health and relationships after attending these activities? ⑤Are you satisfied with the status of Baicao Garden? ⑥What do you want to improve?

4.2.3 Data Analysis

4.2.3.1 Open Coding

Open coding requires the construction of a concise and comprehensive initial code system. In this study, the original interview data were coded to generate the initial concept, and finally, 17 categories were extracted from the interview data.

Form 2: Open coding normalization

Category	Initial Concept	original statement
<i>Stability of Organization</i>	<i>Doubt on stability of organization</i>	<i>Many similar organizations do not organize activities often.</i>
<i>Authority of Organization</i>	<i>Doubt on authority of organization</i>	<i>Many similar organizations have no professional leaders.</i>
<i>Reliability of Organization</i>	<i>Doubt on reliability of organization</i>	<i>My body may not be able to take part in these activities.</i>
<i>Value of Organization</i>	<i>Doubt on value of organization</i>	<i>If I feel useful, I will participate occasionally. If it is useless, I will not participate.</i>
<i>Frequency of Activities</i>	<i>Frequency of activities</i>	<i>The frequency of current activities is suitable for our physical condition.</i>
<i>Activity Form</i>	<i>Activity form</i>	<i>We have indoor activities as well as outdoor activities, which is very good.</i>
<i>Actual Effect</i>	<i>Different actual effects on different kinds of people</i>	<i>Some activities are very good, which helps to improve our unhealthy living habits, but it is not suitable for my own physical condition.</i>

<i>Use</i>	<i>Help solve the physical problems or not</i>	<i>After this year's activities, my hypertension has improved.</i>
<i>Interest</i>	<i>Points of interest, hobbies, concerns</i>	<i>I really love flowers. I have been paying attention to such organizations before.</i>
<i>Self-health Awareness</i>	<i>Self-health awareness</i>	<i>I am a hypertensive patient and I am more involved in community activities.</i>
<i>Free Time</i>	<i>Having enough free time or not</i>	<i>I don't live with my children. I have a lot of free time and want to make new friends.</i>
<i>Family Support</i>	<i>Whether other family members support or not</i>	<i>My son wants me to join such an organization to enrich my life.</i>
<i>Financial Ability</i>	<i>Financial ability can affect the lifestyle</i>	<i>I don't have any financial pressure. I usually like to live with these plants.</i>
<i>Information Sharing</i>	<i>Information sharing between families and friends</i>	<i>I will share the activities with others and ask if they are interested.</i>
<i>Organization Management</i>	<i>If the organization management is in order</i>	<i>I trust the neighbourhood committee and these partners. We usually help each other.</i>
<i>College Assistance</i>	<i>Whether college support is in place</i>	<i>We are very grateful for the guidance of the university design team.</i>
<i>Problem Solved</i>	<i>Whether the problem is solved in time</i>	<i>Recently, some flowers in the garden have been stolen, which make us annoyed.</i>

4.2.3.2 Axial Coding

The open coding is to explore the category, while the axial coding is to find the main category. The axis coding digs the attribute of category, which can make the category to be more rigorous, and establishes the relation between the category.

Form 3: Main category formed by axial coding

Classification	Main Category	Category
Factors of Organization	<i>Content of Activities</i>	<i>Stability of Organization</i> <i>Authority of Organization</i> <i>Reliability of Organization</i> <i>Value of Organization</i>
	<i>Quality of Activities</i>	<i>Frequency of Activities</i> <i>Activity Form</i> <i>Actual Effect</i>
Factors of Participants	<i>Subjective Factors</i>	<i>Interest</i> <i>Self-health Awareness</i>

		Information Sharing Information Sharing
	Objective Factors	Free Time Family Support Financial Ability
Environmental Factors	Organization Management	Organization Management
	College Assistance	College Assistance

4.2.4 Summary of Influencing Factors

The community garden is one of the most frequent places for members of the Flower Club, they nearly go there every day, it can be said that it has an important impact on their lifestyle. It is mainly reflected in two aspects. First, the daily physical activities produced by maintaining the community garden and fresh vegetables produced by the farm are helpful to their physical health. Second, the community garden provides an active exchange space for members and their interests are promoted. Information is shared to promote the development of interpersonal interaction and community harmony. From the questionnaire survey, we have obtained that most of these members have the will to live independently and are not busy caring for grandchildren, so there is plenty of time for them to realize their self-worth. In addition, the Neighborhood Committee has strong management capabilities. It can bring members together closely and made a detailed schedule. Members are also happy to work in the garden. Occasionally, the community managers organize picking activities when the vegetables are ripe, so that these fresh vegetables can also bring benefits to other residents. In the promotion of human interaction, members always have communication about the selection of seeds and some planting skills. Flower viewing are also a vital activity to the establishment of friendship in the community. In the community garden, the exchange of information, common activities, and home-based participatory learning are all more likely to occur. From the interview of the Flower Club members, we found that they communicated with each other through WeChat group and often discussed the cultivation of their own flowers in the group. Every Thursday, they also took their own beautiful flowers to the elderly activity room to share, and sometimes they would meet new flower friends. They form a very close friendship circle. In addition, because the third residential area of Anshan forth village is the concerned closely by the surrounding universities, sometimes university teams will also come to Baicao Garden to conduct some learning exchange activities. Members are always willing to communicate with the visiting team. Such activities will also deepen their mutual recognition and cohesion. The increasing sense of community identity and pride of residents can improve the effectiveness of the community conduction. Community gardens have changed from the original personal place to a hotbed of community society and participatory democracy^[15]. People's interest in urban horticulture also promotes community-based efforts on other social issues^[16]. In short, the "successfulness" of Baicao Garden mainly benefits from the following aspects: factors of organization, including content of activities and quality of activities; factors of participants, including subjective factors and objective factors; and environmental factors, including organization management and college assistance.

5. Conclusion

Taking the Anshan Forth village as an example, this article describes how the Baicao Garden promote the physical health of active participants and how to improve their social networks. The main research methods are taking questionnaires, Grounded Theory interviews and health data measurement. They help to understand the health status and community

participation of the Flower Club members, as well as the influencing factors of participation. In short, under the background of the lack of green space and the expand of environment pollution, this new agricultural form provides protection for the physical and mental health of residents and opens up new ideas for urban spatial planning.

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