Public Space Planning in Shanghai in the Post Pandemic Era Based on User Research

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Abstract. In the post epidemic era in China, the government is accelerating the modernization of urban governance. In this context, this article aims to use a quantitative research form of questionnaire surveys to collect the evaluation and expectations of Shanghai residents towards public spaces in Shanghai, and further analyze the data to provide directions for the development of Shanghai public space planning. After gathering the data, the research has found that the quantitative evaluation of public spaces in Shanghai by participants fluctuates very little, with user experience above average. Ordinary needs are basically met, but higher-level needs such as spiritual needs and self actualization are not met. Therefore, the renovation of public space is a must. After comprehensive analysis, the author suggests strengthening the renovation of old residential areas according to local conditions, adding health monitoring facilities, optimizing digital governance, increasing residents' participation, and increasing public welfare projects in Shanghai's future urban planning.

Keywords: User research, Public space, City planning.

1. Introduction

With the arrival of the post epidemic era, on one hand, after the opening of Shanghai's epidemic prevention policies, there is a lack of facilities for future disease prevention and control, and the digital governance platform has not been upgraded. On the other hand, although China is accelerating the modernization of urban governance, China's research and practice in related fields are in the early stages, mainly focusing on introducing advanced foreign experience and lacking its own methodology for urban governance [1]. Therefore, the author hopes to start from the author's hometown of Shanghai and explore the new era of Shanghai public space planning ideas that are tailored to local conditions.

In addition, there are some institutional planning ideas that need to be modified. Nowadays, the sinking of governance resources and the democratization, intelligence, and refinement of management have become important orientations in urban management in the new era [2]. Scholars pointed out that for China, it is important to pay attention to the "humanities" of space and empower users in the process of practical creation. This requires designers to unleash human initiative and find more flexible implementation mechanisms [3].

Residents, as users and subjects of public spaces, are fundamental to public space planning. This article adopts a combination of literature search and questionnaire survey, with user research as the core form to study public spaces in Shanghai, in order to rigorously, truthfully, and authoritatively obtain the current situation and development suggestions of public spaces in Shanghai. The author conducted a survey on the basic capacity, residents' participation, needs and expectations of public spaces in Shanghai through a questionnaire, and then combined data and literature to provide suggestions and prospects.

2. Methods

2.1. The Thread of Questionnaire Design

Because this study aims to collect data quickly, efficiently, and truthfully to study users' evaluations and expectations of public spaces in Shanghai, online anonymous questionnaires were used for user research. The questionnaire consists of 14 questions, including multiple-choice questions, fill in the blank questions, and quantitative scoring questions, all of which are objective questions.

The study does not limit the identity of the survey subjects. As long as the subjects have visited or resided in Shanghai and have a corresponding experience of public spaces in Shanghai.

The beginning of the questionnaire introduces the meaning of public space to help subjects clarify the concept. The questions are divided into three parts: the first part asks the basic information of the subjects, including age, occupation, income and location. The second part investigates the subjects' evaluation of Shanghai public space. The author set up five indicators: dependence; acceptance; accessibility; citizen participation; habitability. The third part is user evaluation and suggestions, including users' demand, their expectations to participate in community governance and expectations of the services public space can provide. It can be seen in the appendix for details of the questionnaire.

2.2. Data Collection and Screening

Based on the above design ideas, the author made questionnaires on the website of Wen Juanxing(https://www.wjx.cn/), and then published and promoted through Internet social media. A total of 390 questionnaires were obtained during the two-week period, of which 332 were valid.

The target group of this questionnaire is people who have visited or lived in Shanghai. In order to ensure the consistency between the expectations of the subjects and the target group, the author designed question 4 as a scope screening question. After the screening of question 4, there were a total of 57 unqualified answers, including 30 unthinking answers and 27 answers that were not places in Shanghai, filled in "nothing" or "inconvenient to inform". The author further excluded 1 answer with obvious contradiction between occupation and age.

According to the basic information of users, in terms of user age, teenagers (15-25 years old) accounted for 45.18%, nearly half. Young adults (19 ~ 59 years old) accounted for 65.96%, which was the main group of questionnaires, see Table 1.

Table 1. Statistical Table of age distribution of subjects

Choice	Subtotal	Proportion
0～14	24	7.23%
15～18	72	21.69%
19～25	78	23.49%
26～40	89	26.81%
41～60	52	15.66%
60～80	12	3.61%
Above 80	5	1.51%

According to Table 2, students account for nearly half of the user occupations, and the rest of the industries (including unemployment and retirement) are evenly distributed.

Table 2. occupation distribution of subjects

Choice	Subtotal	Proportion
Students	155	46.69%
Business Administration	35	10.54%
Public Services	26	7.83%
Free work	26	7.83%
Culture and education	22	6.63%
Design and planning	22	6.63%
Not yet	20	6.02%
Engineer	18	5.42%
Medical industry	14	4.22%
Entrepreneurs	11	3.31%
Research work	7	2.11%
Others	5	1.51%

Users are distributed evenly in Shanghai. The proportion of urban areas is slightly larger than that of suburban areas.

3. Results

3.1. Assessment and User Experience of Shanghai Public Space

Based on the subjective assessment part of the questionnaire (questions 5 to 11 of the questionnaire), the author made a numerical analysis of five indicators.

Dependence:

In terms of dependence, the average value of "frequency of users going to public space" is 6.35, indicating that users spend much time (reference value is 63.5%) in public space on average every day.

Acceptance:

The main acceptance indicators of this questionnaire are as follows: Publicness: refers to the ability of public space to accept different groups. Openness: refers to the long-term open public space and the provision of corresponding services.

For these two indicators, the average score of users is 6.8, indicating that Shanghai's public space accepts most groups, is open most of the time, and provides most services, of which "most" should refer to about 68%.

Accessibility:

The "15-minute city" is an urban design approach that aims to improve the quality of life by creating a city where residents can reach everything, they need in 15 minutes by walking, cycling or public transport. Based on the above concept, the questionnaire evaluated the accessibility of public Spaces in Shanghai by "how many daily needs can be met within a 15-minute walk of the user's neighborhood".

The results show that about 1/3 of the users think that half of the needs can be met, and about 1/3 of the users think that most of the needs can be met. So, most of the users think that at least half of the needs can be met, but it is still far from the ideal of "fifteen minutes city", see Table 3.

Table 3. Statistical Table of how subjects' community walk within 15 minutes can reach the demand scale

Choice	Subtotal	Proportion
Almost none	16	4.82%
A small part of the demand	70	21.08%
Half of the demand	111	33.43%
Most of the demand	106	31.93%
All of the demand	29	8.73%

Of the users who filled in 'most needs', 78% users were from downtown Shanghai. Of the users who filled in the "meet a small number of needs", 83% came from the urban area of Shanghai, showing that the accessibility of public space is not very different between the urban area and the suburban area of Shanghai.

Citizen participation:

The question is designed based on arstein's ladder theory[4]. The average score is 5.53, much higher than the author's expected score of 3.50.

The score indicates that the average user participation is between 'having a certain seat in public space planning decision-making" and "representatives of different groups participate in decision-making'.

Habitability:

In this question, the average score of users is 6.39, indicating that Shanghai's public space is livable and meets the basic requirements of residents, but there are many areas that can be improved.

3.2. User Expectation of Shanghai Public Space

User demand survey:

Satisfaction degree: Users' average score of "The degree to which public space meets users' needs" is 6.55, indicating that basic needs can generally be met, but there are still better visions that have not been realized.

In the choice of specific needs of users, it can be seen from Table 4 that users have different reasons for going to the public space, and there is no obvious main reason.

Table 4. Statistical Table of reasons for subjects to go to public spaces

Choice	Subtotal	Proportion
Make social contact	185	55.72%
Breathe and exercise	177	53.31%
Commute	173	52.11%
Work/study	158	47.59%
Go shopping	148	44.58%
Play sports	124	37.35%
Education	123	37.05%
Cultural and art activity	115	34.64%
Play games	112	33.73%
Travel	83	25%
Others	3	0.9%

Among them, social interaction, physical activity and commuting are the top three needs. In addition to passive needs: commuting, work, learning, the active needs of users are also very strong, especially the needs of interpersonal interaction and physical fitness.

In the multiple-choice question of 'What services do you expect public space to provide more', users still give different needs fairly evenly. According to Table 5, interactive and physically active demand ranks high.

Table 5. Statistical Table of services that subjects expected more from Shanghai public spaces

Choice	Subtotal	Proportion
Culture and arts	174	52.41%
Health	171	51.51%
Social contact	155	46.69%
Games	144	43.37%
Fitness	141	42.47%
Education	131	39.46%
Shopping	119	35.84%
Work/study support	111	33.43%
Delicacy	107	32.23%
Others	1	0.3%

‘Culture and art’ service ranks first. On the one hand, the ranking reflects the objective shortage of cultural and art places in Shanghai's public space. On the other hand, subjectively, the spiritual and cultural needs of residents have not been satisfied. One subject also expressed a desire for more parking spaces.

User's expected participation mode:

The average score of user's expected participation in spatial planning is 5.98, which is in the preliminary stage of ‘deep participation’ in arnstein's citizen participation ladder theory[4]. The corresponding description is ‘partnership’, which refers to the consultation between citizens and the government, the joint responsibility and the actual right redistribution.

Among the ranking questions in which users expect to participate, as shown in Table 6, "holding regular public meetings" gets the highest score. Offline participation is more encouraged than online participation, especially in person. It can be inferred that most users believe that face-to-face communication is more efficient, more authentic, and more conducive to decision-making.

Table 6. ranked statistical tables of the ways in which public space planning decisions are expected to be taken

Choice	Comprehensive score	1st	2nd	3rd	4th	5th	6th	7th	8th
Hold regular public meetings	6.62	78.22%	3.3%	3.3%	4.62%	3.96%)	5.28%	0.99%	0.33%
Citizens from different fields form community workshops	6.14	8.97%	76.08%	5.98%	3.65%	3.99%	0.66%	0.66%	0%
receive a questionnaire survey	5.83	11.64%	5.97%	71.38	3.46%)	5.03%	2.52%	0%	0%
Elect representatives to form a committee	4.75	2.98%	8.61%	7.28%	74.5%	2.65%	3.64%	0.33%	0%
Work with community organizations	4.19	4.59%	6.56%	6.56%	7.54%	71.8%	2.95%	0%	0%
Online forums	3.16	1.01%	6.42%	4.73%	2.7%	5.41%	78.04%	1.69%	0%
Others	1.35	0%	0%	1(0.45%)	0.9%	0%	0.9%	95.48%	2.26%
Don’t want to participate	0.89	2.13%	0%	0%	0.43%	0.85%	0.85%	4.68%	91.06%

4. Discussion

4.1. Analysis of Reasons for the Status Quo of Shanghai Public Space

A comprehensive analysis of the four indicators: dependence, acceptance, satisfaction degree(The degree to which public space meets users' needs) and livability in public space shows a high degree of similarity. According to Table 7, given the standard that 0 is the lowest score and 10 is the highest score, the average score of the four indicators is 6.52, and the variance is 0.03.

Table 7 Public Space User Evaluation Statistics

Variable x	Score
Dependence	6.35
Acceptance	6.8
Satisfaction degree	6.55
habitability	6.39
Average (x bar)	6.52
Sample variance(S^2)	0.03
Notes	S^2=1/(n-1)[(x1-x)^2+(x2-x)^2…+(xn-x)^2]

The score indicates that the subjects' evaluation of Shanghai public space fluctuates very little and has a high consistency. At the same time, the user experience is above average level, and common requirements are basically met.

The concept of public space is proposed relative to private space. Considering that residents often sleep in private space for more than 1/3 of the day, the dependency of 6.35 is a high value, indicating that residents go out frequently and are highly active in public space. In the post-COVID-19 era, Shanghai's public space has changed from closed to open. Compared with the "lockdown" in Shanghai in 2022, when residents were forced to only move in private Spaces, the opening of public Spaces in the post-epidemic era has stimulated the demand for people to go outside.

In terms of user participation in governance, the "lockdown" has enabled people to passively enhance community participation, such as unified purchase of food, sharing of supplies, and interactive chat among people in the same community. However, the basic model of community governance has not changed. In modern society, there are more and more atomized individuals and communities, but this is not good for people's physical and mental health. Geographical relations can shape residents' sense of community belonging, establish reciprocal and trust relationship network, and different individuals can play their own value in community governance. Even though the government has introduced policies to encourage grassroots autonomy, the current community governance environment and system are still top-down, and residents lack independent choices [5].

In terms of user expectations of services, ‘culture and arts’ ranked first for two reasons. First, Shanghai's cultural and artistic venues (cinemas, theatres, concert halls, etc.), especially the well-known and high-quality ones, are concentrated in the city center rather than distributed evenly. Second, Shanghai's cultural and art venues have high consumption and few public welfare projects. ‘Health’ and ‘social interaction’ ranked second and third as the epidemic has brought disease and the lockdown has suppressed social activities.

To sum up, according to Maslow's demand theory, it can be judged that the physiological needs and security needs of citizens are basically satisfied. Shanghai's urban and rural construction has passed the stage of rapid development and entered the stage of high-quality development. Residents' needs of emotion and belonging, respect and self-realization have not yet been met, and need to be realized in the transformation and upgrading of public space.

4.2. Suggestions for Public Space Planning in Shanghai

4.2.1 Suggestions for upgrading public space facilities in Shanghai

In terms of space renovation, the proportion of old residential areas in Shanghai is not low, and their renovation is an important part of the upgrading of public space in Shanghai. "Shanghai Urban Renewal Action Plan (2023-2025)" made it clear to renovate 120,000 square meters of the central urban area scattered old renovation, 280,000 square meters of incomplete old housing renovation and to start 10 urban village renovation projects[6].

According to the writer's survey, as of 2023, some of the old residential areas in Shanghai have undergone a round of facade and public facilities transformation, but there are still several significant problems: insufficient parking space, low utilization rate of some space and messy traffic lines in the residential area. In this regard, the public space of Shanghai community needs to transform the space with low utilization rate, increase the parking space, and properly consider the construction of underground parking lot.

In addition, it is necessary to increase the construction of public transport in densely populated suburbs to reduce the use of private cars and the crowding of parking Spaces. It is pointed out by scholars that the urban system can be decomposed into block units, with their centroids as demand points and public spaces as service points to establish an association between the two [7].

In terms of facility replacement, it is recommended to add fitness and leisure facilities according to people's will in community.

4.2.2 Suggestions on public health planning and social policy

Scholars suggested that countries should try their best to reduce future pandemic risk. Better human and animal sanitation, improved disease surveillance and vaccine popularity are needed [8].

In addition, the government should strengthen digital governance and care for "the digitally vulnerable". The epidemic has accelerated the digital governance of the city such as the application of health code and "One Netcom Office". Scholars point out that the integration of data is crucial. Sensors can be added to detect all kinds of data through remote sensing and Internet of Things to process and analyze the data. The government should also improve and promote the construction of emergency disaster monitoring, early warning and information release mechanisms [9]. "The Digital vulnerable" are mainly elderly people who have difficulty in adopting and using new media. The care for digital vulnerable groups includes the establishment of digital service centers for middle-aged and elderly people in the community, the promotion of easy-to-understand digital service platform operation videos, the optimization of digital service platform UI design, and service system design.

Suggestions on residents' participation in community governance planning:

In terms of specific forms of participation, first of all, the author suggests that each community set up a team from the bottom up. Student associations, student unions and other activity groups in universities are good examples. Residents can recruit talents in various fields to form a community planning and governance studio, cooperate with community organizations or government units, and carry out community activities by residents' decisions.

Secondly, the community needs to improve the demand expression mechanism and smooth the channels for residents to participate suggested holding regular public meetings, opening and publicizing anonymous mailboxes, and issuing questionnaires. Make decisions transparent, efficient and truthful[10].

Finally, the community should promote public welfare projects and promote the transformation of cultural, artistic, sports and entertainment projects from commercial consumption projects to public welfare projects. The voluntary system is a strong support. It is suggested that the community enhance the treatment of volunteers, such as subsidies, volunteer recognition, cooperation with schools and community online social media, increase the recruitment of volunteers, especially students from related majors, and carry out interesting and beneficial public welfare projects to bring care to different groups.

4.3. Limitation Analysis of User Survey

This study adopts online questionnaire survey, which may cause answer bias and questionnaire design bias.

Subjects may be unwilling or afraid to answer the actual situation for some reasons, or provide false information out of some motivation, which leads to the deviation of answers.

5. Conclusion

The research discovered that the quantitative evaluation of public spaces in Shanghai by participants fluctuates very little, with user experience above average. Ordinary needs are basically met, but higher-level needs such as spiritual needs and self actualization are not met. Activities that involve active physical and mental exercises were more favored. The average citizen participation is moderate and users wanted to participate more deeply. Face to face communication was the most popular participation mode.

After comprehensive analysis, the author suggests strengthening the renovation of old residential areas according to local conditions, adding health monitoring facilities, optimizing digital governance, increasing residents' participation, and increasing public welfare projects in Shanghai's future urban planning.

The research can help Shanghai city planners to have a basic concept of what people think and want about public spaces. The suggestions given in this research can be implemented by communities in Shanghai. Though research and public advice can only influence Shanghai government’s decisions little, it is worth looking forward to better and distinctive Shanghai public spaces.

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