

Exploration of Stall Design Methods Based on the Development of Street Stall Economy - Taking the Non-Food Stalls in Dongfang Zhoupu Star Market as an Example

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Abstract:

Street stall economy, as a form of marginal economy in cities, has always been closely related to the urban landscape. In order to practice the concept of a “People’s City” and create a clean, orderly, and vibrant urban environment, this article conducts a detailed investigation by studying existing policies with precision. By focusing on the three aspects of “People”, “Goods”, and “Behavior” of street stalls, the article extracts the core needs of typical users, explores the potential feasibility and plasticity in stall design, analyzes and designs universally innovative and sustainable street stalls from multiple perspectives, and puts forward follow-up optimization suggestions, playing a positive role in guiding the development of street stall design.

Keywords:

Street Stall Economy, Urban Environment, Stall Design, Street Stalls, Customized Design

1. Introduction

1.1. Research Background

1.1.1. Development of Street Vendor Economy

The street vendor economy refers to a complete economic form that is formed by earning income through setting up stalls. It has always been an edge economy in urban areas and has been closely related to and influenced the city’s environment. However, the street vendor economy also has unique advantages[1]. During the post-epidemic economic recovery period, it can alleviate employment pressure to a large extent.

1.1.2. Analysis of the Pros and Cons of Street Vendor Economy

Advantages of the Street Vendor Economy:

The ongoing negative impact of the economic losses caused by the pandemic has led to a significant increase of unemployed individuals in society. Eghosa O Igudia (2020) believes that street stalls have become a common feature of urban centers, and in developing countries, the proportion of people relying on it to work, income or survive is relatively high [2]. Street vending, due to its low threshold and low cost, can quickly help the unemployed find a means of short-term survival, As an important economic means to promote employment and improve people's livelihood after COVID-19, it has positive social significance [3].

Furthermore, the development of the street vendor economy also helps enhance urban vitality. By setting up street vendors in a grounded manner, it can effectively increase the vibrancy of the city, bring people closer to the city, and unleash social energy.

Stall the history of economic development					
time	period	Stall scale	management style	Street type	Development state
Pre-feudal period	Small vendors took initial shape	street pedlar	Unmanned management	Set up a stall at will	Free development
feudal society	Forming of vendor stall structure	Large, medium and small vendors	No payment required.	court in front Market behind	Free development
Modern society	Maintain the operation of small traders	street pedlar	Management confusion	Distribution of early capitalist society	drag out one's feeble existence
In the early days of New China.	Incorporate into the economic plan	Small and medium-sized vendors	Overall planning and allocation	Wide road street	lag phase
Early stage of reform and development	planned economy	Small and medium-sized vendors	People's Commune	Low urbanization level layout	lag phase
Middle and late stage of reform and development	Unplanned development period	Small and medium-sized vendors	Imperfect management system	Urbanization layout, but there are many unreasonable streets	Rapid development but contradictions arise Rapid development but contradictions arise.
During the two sessions of the National People's Congress in 2020	Advocacy stage	Small and medium-sized vendors	Completion of management system	Epidemic normalization environment	Alleviating and resolving contradictions Restore high-speed development
Post-epidemic period	Vigorously developing stage	Large, medium and small vendors	Completion of management system	Closed road section or commercial street pedestrian street	high develop

Figure 1. Development History of the Street Vendor.

However, the street vendor economy also has some disadvantages. Firstly, there are many short-term and informal vendors in the street vendor economy, leading to high turnover rates among practitioners and affecting the overall quality of the stalls. Secondly, due to the lack of strict inspection of product quality, some goods have low quality or even inherent quality issues, making it difficult to provide high-quality after-sales service and causing unnecessary losses to consumers.

1.2. Study purpose and significance

1.2.1. Study Purpose

In the post-epidemic era, the street economy has become the focus of China's support and development, and the improvement of the system documents related to the street economy is also continuing. As the most important part of the materialization of street stall economy, the booth is closely related to the operating benefits and social benefits of the operators. From the perspective of the current social environment, in order to meet the real needs of operators, managers, consumers and

other target groups, a forward-looking booth form is designed to meet the benign development of the social environment from multiple dimensions, so that the new stalls will have a new competitive advantage in the new era.

1.2.2. Study Significance

People in the marginal economy can be more efficient, more comfortable and more suitable for the current environment, which can effectively improve the living conditions of these low-income groups and maintain social stability. The personalized design and transformation of traditional stalls can make it better adapt to the use needs of street stall operation and promote the benign development of street stall economy.

1.3. Research and innovation points

Using environmental analysis to the needs of various types of street acquisition and research interview, from the perspective of the environment function street booth space layout appearance, and other aspects, at the same time using a variety of methods to obtain user real needs, the environment of people, content, behavior three elements, design with humanistic value of pedestrian street booth design.

2. Elements and Demand Analysis of Zhoupu Star Market

2.1. Analysis of human elements in the booth situation

Considering that the current government strongly supports the legal and regular stall economy, the government, together with the relevant municipal departments, can divide the types of legal and compliant stall economy into roughly three categories: characteristic points, distribution points and control points. According to the location characteristics of the three categories of economic stalls can be roughly divided into business districts and street categories.

Street stalls can be divided into street sidewalk stalls, pedestrian street and commercial street stalls according to the environment of different streets. Shanghai Oriental Zhoupuxing City (Figure 2) is a long-term market located on the small Shanghai Pedestrian Street.



Figure 2. Real Photo of Oriental Zhoupu Star Market.



Figure 3. Location Analysis Map of Small Shanghai Pedestrian Street.

As a street market in the diversion point, Little Shanghai pedestrian Street has a strong cultural elements and a variety of commodity types. However, at present, the booth design can not be well combined with the surrounding environment, and the

large flow of people in this area, the streets are generally orderly, the sanitary environment is relatively dirty, and the garbage is produced every day, which brings great pressure for the sanitation workers to clean. The location analysis map of small Shanghai pedestrian street is shown in Figure 3.

2.2. Analysis of the material elements in the booth situation

2.2.1. Analysis of the components of the street stalls

Chinese street stalls developed earlier, but there were fewer categories of street stalls designed by official organizations. Mobile foldable booth outdoor booth booth (as shown in Figure 4) emerged in such an environment, and is also the most common wooden booth. Its simple design elements and cheap materials greatly reduce the cost of this booth. The booth is mainly divided into the support part and the commodity display part.

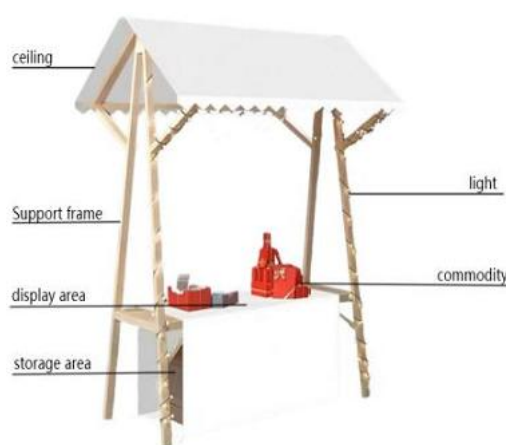


Figure 4. Schematic diagram of outdoor booth.

The support part of the booth is mainly covered with a support frame. The commodity display part mainly consists of the display area, storage area and lighting parts. The lighting of the booth often becomes one of the elements that affect the eyeball in the monotonous design. The space between the support frames is often divided according to the category of goods for display. The display part may vary according to the type of booth. For example, there is a big difference between the display areas of interactive and cultural and creative booths.

2.2.2. Analysis of the development trend of street stalls

The artistic design of the street booth is still not high. Major domestic manufacturers and local governments have begun to pay attention to the redesign of street stalls, and explore the new model and new layout of street stalls in the future environment. The summary of the above survey of the development trend of the street stalls is shown as follows:

(1) Universal nature. Street stalls contain a variety of commodity types, and the design of booths needs to be universal. After the personalized transformation of each type of stalls, different commodity types can be used normally.

(2) Personalized nature. The trend of future design must be dominated by personalized design. Street stalls should have specific and personalized transformation of different commodity types and commodity attributes.

(3) Versatility. Street stalls should have more functions to face today's constantly refined street market, improve the work efficiency of stalls, improve the operating efficiency of stalls.

(4) Intensive layout. The street booth space is limited, so the layout of the booth should be used as effectively as possible, and the parts should be closely coordinated.

(5) Liquidity. Due to their location, street stalls should have certain mobility, which can meet different needs in the face of special circumstances.

(6) Low-cost development. One of the main reasons why the market economy can solve the employment problem of the people at the bottom is the low cost of entrepreneurial investment. Low cost includes the product of low use cost, low maintenance cost, sustainable use and other aspects [4].

(7) Social value. Booth design should not only consider the management theory, but also bring a positive role to the society and assume more social responsibilities. Consumers and operators hope that the products used have a beautiful visual effect, as a scenery in the city street scene environment, beautify the city appearance.

2.3. Analysis of the behavioral elements in the booth situation

2.3.1. Analysis of the booth use process

The daily operation process of street booth operators is summarized and analyzed through the timeline. The following daily use process of street stalls is divided into four stages: preparation stage before stall, stall layout stage, operation stage and closing stage, and the behavior flow chart of operators is constructed, as shown in Figure 5.

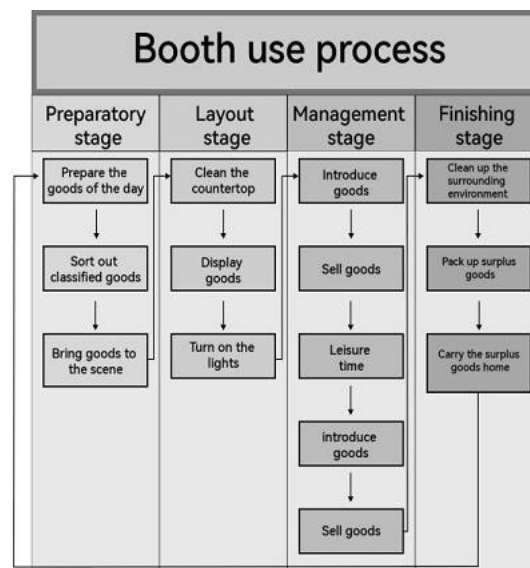


Figure 5. Analysis chart of booth use.

2.3.2. Analysis of booth use behavior

Through the observation and access of the typical users of the street stalls, the behavioral factors of the street stalls are disassembled and analyzed, as shown in Figure 6.

Process	question	stage	Specific characteristics
Preparatory stage	Q1	leisure time	The flow of people is mainly distributed at night, and it needs to be supplemented with sleep during the day, during which there is a long window period.
	Q2	Stocking up at home	The booth space is small, and the anti-theft cost of the booth is high. Most operators choose to pile up their goods at home.
	Q3	Carry goods	When handling goods, there is no efficient transportation equipment, and the number of each handling is limited.
	Q4	Inspection and maintenance	Some repair tools are needed to prevent the booth from being damaged.
Layout stage	Q5	Spread the booth	Need to spread the baffle and other parts of the booth.
	Q6	Clean the booth	Many operators are aware of the importance of a clean environment to their operations, and they should clean their stalls first.
Management stage	Q7	leisure time	There must be a peak period and a low peak period in the booth. At the low peak, the business is deserted and there is a lot of free time. Operators can only spend their free time by selling or waiting.
	Q8	dinner time	Dining in the booth may pollute the booth and even the goods, and the dining comfort is poor.
Finishing stage	Q9	Clean environment	The lighting environment at night is poor, some operators choose to clean the environment perfunctorily, and the pressure on sanitation personnel increases.
	Q10	Dispose of garbage	A large amount of garbage is produced in one day of operation, which often leads to large-scale accumulation or random disposal of garbage.

Figure 6. Analysis chart of booth use behavior.

2.4. Analysis of booth personalized customization requirements

For the non-normative problems of street stalls, questionnaire survey is used to determine the needs and obtain the real needs of users. The questionnaire was collected offline and distributed in Dongfang Zhoupu Star Market, Little Shanghai Pedestrian Street. A total of 42 questionnaires were collected, including 37 valid questionnaires. By sorting out the requirements, as shown in Table 7, 8 necessary requirements are finally obtained, and 7 expected requirements can be referred to in the later design practice.

Demand type	Function type
Essential attribute	F1 Light、F2 Desk、F3 Chair、F4 Ceiling、F5 Plug board、F6 Convenient access、F7ventilation opening
Expected attribute	F8Light with adjustable brightness、F9 Receptable desk and chair、F10An environment convenient for cleaning、F11 Personalized appearance
Individualized attribute	F12 Environmental protection booth、F13 the weather warning、F14 Policy consultation、F15 Equipped with entertainment electronic screen

Figure 7. Booth User Demand Analysis Table.

3. Customized Booth Design Practice in the Street

3.1. Design and sketch and conception

The design of deformable multifunctional street booths can create street booths with two different states, which exist as the street landscape when idle, and exist as the basic framework of the booth when arranging the booth, which is the main source of inspiration for the design. Two sets of design schemes were designed for this purpose. Scheme A is shown in Figure Figure 8. The roof of scheme A is made of double concentric circle structure, which itself provides two essential functions for seats and storage space. When idle, as a rest node in the street, integrated with the surrounding environment, pavilions with Chinese culture characteristics exist. When arranging the booth, the pavilion is spread out as the main part of the linear booth form.

Scheme B is shown in Figure Figure 9. Different from scheme A, the design of the ceiling is more suitable for the surrounding environment, making the roof structure with pointed corners. In the soft round structure, there is some more sharpness, soft and rigid combination, with the traditional combination of Yin and Yang beauty.



Figure 8. A Scheme design sketch.

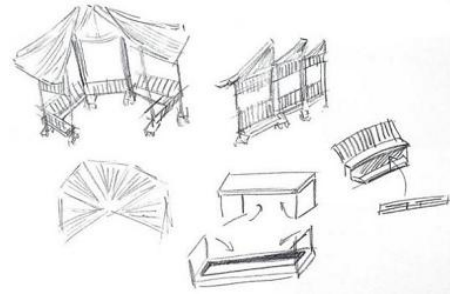


Figure 9. B Scheme Design sketch.

3.2. Design effect display

The 3 D model of the booth is shown in Figure 10, and in Figure 11. After the drawing, analysis and induction of the sketch scheme, the design of Oriental Zhoupu Star Market can be preliminarily presented. In the modeling process, the design is made according to the design principles, and the design details of the sketch scheme are reasonable, so that the new booth design can be more in line with the needs of users. In addition, the scheme was put into the small Shanghai pedestrian street. When the real renderings are shown in Figure 12, and the real renderings when the stall are shown in Figure 13.



Figure 10. Booth model diagram when idle.



Figure 11. Booth model when stalls.



Figure 12. Real scene renderings when idle.



Figure 13. Real scene effect drawing when stalls.

3.3. Design description

To design the street stalls in line with the local society, the surrounding environment and cultural connotation must be considered. The designed booth is not only the booth, but also the cultural elements and cultural products of the street. It fully projects the image of the small Shanghai pedestrian street on the elements of the street booth, so as to achieve the integrated design of the booth and the environment, and reduce the sense of separation between the booth and the environment in the previous design. The design retains the cultural elements to make the design more human interest and life flavor to a certain extent. The design of Chinese culture can make the design more affinity.

Focus on the design of the fluidity, versatility. Create a variable space and form in the limited content, ensure the functional needs of the environment in different situations, and prepare for multiple scenes and multiple periods. At the same time, the simplest and basic connection and rotation are adopted in the design of morphological changes to reduce the cumbersome organs, ensure practical convenience, reduce the training cost of the booth use, and ensure that every booth user can easily and quickly get familiar with the use of the booth.

Low cost must be considered in the booth design. The simple structure guarantees the lower maintenance cost, and the component design also greatly reduces the maintenance cost. The damage of a single original only needs to replace the single original, and the style of the parts is the same, which reduces the production cost.

Consider the design principle of sustainable design. The ceiling of the original booth is designed to be covered with solar panels, which makes the energy self-sufficient and provides the electricity needed for the lighting use of the booth. Fully combined with the characteristics of street stalls less stalls in rainy days, more stalls in sunny days, combined with the principle of solar energy collection, to a large extent to avoid the weakness of solar energy rainy days.

4. Conclusion and Outlook

4.1. Study Summary

As an important hardware support of street economy, street stall is closely related to the operating efficiency, social evaluation and other high factors. In China, the requirements of street stall operators, consumers and all social parties on the street stalls are gradually increasing. The research results of this subject are summarized as follows:

(1). In order to better obtain the complex relationship needs of the street stalls, the street stall economy and the original stall types of the street were studied and analyzed respectively, so as to obtain the design background of the street stalls and guide the design needs of the new stalls.

(2). Use the situation analysis method to analyze the three needs of “people”, “things” and “behavior” elements from the situation, explore the deep-seated and real needs, and summarize the functional design needs of the new booth.

(3). Positioning and integration of functions according to the demand level, established the overall design framework of the new booth hardware, and finally determined a new booth model suitable for the new social consumption environment with engineering structure with mobile multi-function and multi-form as the characteristics.

4.2. Outlook

In the process of designing and studying the street stalls under the street stall economy, due to the limitation of personal ability, the sample collection of the street stall operators is relatively incomplete, and the degree of refinement of the booth design is also defective. Booth operators are more concerned about how to increase more turnover with low booth fees, and now the design will create a cultural street, integrating the stalls with the surrounding environment. After the design can also pay more attention to drainage, create more exposure points, increase the flow, to achieve the needs of booth operators.

It's hoped that this article can serve as a pioneer of new booth design, provide new ideas and directions for the future design, provide their own contribution to the development of booth economy, and promote the benign development of booth design.

Conflicts of Interest

The author declares that there is no conflict of interest regarding the publication of this article.

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