Research on Service System Design of Community Domestic Waste Sorting and Disposal Station

[1]Xie Yueyue, [2]Wang Ming and [3]Liu Peng,
[1,2,3]Central South University of Forestry and Technology, China

Abstract: Garbage classification is a policy that China vigorously carries out at present. Garbage classification can improve the resource value and economic value of garbage, reduce the amount and equipment of garbage treatment, reduce the cost of treatment, reduce the consumption of land resources, and have social, economic and ecological benefits. However, it seems difficult for the masses to cope with the unexpected "forced era" of garbage classification. The lack of garbage classification knowledge and the complexity of the process of garbage classification have brought huge pressure to the residents. Therefore, it is necessary to build a garbage sorting station with the community as the unit. Based on the concept of service design, it is necessary to enhance the enthusiasm and convenience of garbage sorting by strengthening the popularization of garbage sorting knowledge and establishing incentive system.

Keywords: *Domestic Garbage; Garbage Classification; Garbage Treatment Station*

I. INTRODUCTION

China has been committed to the source classification of domestic waste. Although the source classification of domestic waste has been tried out in Beijing, Shanghai, Guangzhou, Shenzhen, Hangzhou, Nanjing, Xiamen and other cities, the results have not been satisfactory. With the implementation of the mandatory punishment system, although some results have been achieved, the punishment measures are a burden to the residents. In general, the residents' enthusiasm for autonomous garbage classification is still not high. With economic development, urbanization, and the improvement of living standards, the amount and complexity of waste production are increasing, and the work of residents' waste classification is becoming more and more complicated. Thinking about how to promote residents' enthusiasm for independent waste classification, and how communities can classify residents' waste Work creates convenience. Based on the concept of service design, these problems are solved by establishing waste sorting stations to promote the source classification of domestic waste.

II. OVERVIEW OF WASTE SORTING

A. Waste sorting concept

Garbage classification generally refers to a series of activities in which garbage is classified, stored, put, and transported according to certain regulations or standards, and thereby transformed into public resources. The purpose of classification is to improve the resource value and economic value of garbage, and strive to make the best use of the material. Various countries have different classification methods for the types of garbage. The general classification types are mainly as follows:

Recyclables: waste paper, plastic, glass, metal, cloth, etc.;

Food waste: food waste such as leftovers, bones, vegetable roots and leaves, peels;

Hazardous garbage: batteries, fluorescent tubes, light bulbs, mercury thermometers, paint buckets, some home appliances, expired medicines and their containers, expired cosmetics, etc.;

Other garbage: In addition to the above-mentioned types of garbage, bricks and tiles, muck, waste toilet paper, paper towels and other wastes that are difficult to recycle, dust, food bags (boxes), etc.;

B. The meaning of garbage classification

Garbage classification is a reform of the traditional way of garbage collection and disposal, and a scientific management method for effective garbage disposal. Faced with the ever-increasing waste production and the deteriorating environmental conditions, how to maximize the utilization of waste resources, reduce the amount of waste disposal, and improve the living environment through waste classification management is an urgent issue of common concern for all countries in the world.

The advantages of garbage classification are: reducing land erosion, reducing pollution, turning waste into treasure, etc.

The living standards of residents continue to improve, the economy develops rapidly, and the society produces more and more garbage, of which the domestic garbage generated by residents accounts for a large part. Strengthening the implementation of the source classification of residents' domestic garbage is very beneficial to subsequent garbage disposal and utilization. , Can reduce environmental pollution, save resource consumption in garbage disposal, reduce costs, and have social, economic and ecological benefits.

III. CURRENT STATUS OF DOMESTIC AND FOREIGN COMMUNITY DOMESTIC WASTE CLASSIFICATION

A. Japan

Japanese garbage classification has always been strict and meticulous. The garbage classification system in each city is different. To such a degree, Japan has been in use for more than 40 years. Since the 1970s, Japan has gradually refined the method of garbage classification, and issued a lot of policies and laws and regulations, such as the "Waste Disposal Law", "Law on the Classification and Recycling of Packaging Containers and Promotion of Re-commercialization", "Home Appliance Recycling Law ", "Food Recycling Law", etc. For an enterprise or corporate legal person, a heavy fine of 300 million yen (approximately RMB 25 million) will be imposed. There are several fixed garbage stations in each residential area in Japan. Whether it is domestic garbage or books and newspapers, they are placed in their respective houses. If you throw out large garbage, you must buy garbage tickets in advance.

B. Germany

Germany gives people the impression of rigor, and so does their classification work. Germany is one of the first countries in the world to implement waste sorting, and the level of waste sorting is among the best in the world. Germany has also formulated a lot of laws and regulations related to environmental protection. According to statistics, there are more than 8,000. It can be said that it is the country with the most complete and detailed environmental protection system in the world. Residential areas in Germany are equipped with sorted trash bins, and all public places are also equipped with sorted trash bins. Unlike us, they also have special "environmental police". Once they find residents dumping garbage, the environmental police will go there. Send a warning letter.

C. Sweden

Sweden has included garbage classification in its national education syllabus. Starting from kindergarten, citizens must learn relevant knowledge and visit the process of garbage collection. In order to supervise people's garbage sorting, Swedish designers also designed different shapes of garbage throwing mouths. For example, the mouth of the trash can for throwing cans is round, and the mouth of the trash can for throwing cardboard is rectangular, to guide people from a design perspective. Sort garbage correctly. Sweden also has a well-known "deposit recovery system". When consumers buy a bottle of mineral water, the fee includes the deposit fee for the bottle. After the empty bottle is collected, the consumer can get the deposit back. This way, the Swedish The empty bottle recovery rate is as high as 93%.

IV. ANALYSIS ON THE PROBLEM OF GARBAGE CLASSIFICATION IN COMMUNITY RESIDENTS

China's garbage classification is gradually advancing, and the community-based management of residents for garbage classification can better control all aspects of the impact. At present, there are still many problems in the classification of domestic waste in the community, which are mainly summarized as the following three points:

1) Low supervision

At present, the domestic waste classification in most cities in China is not supervised and managed by specialized departments and personnel. Except for several cities such as Shanghai, there are no relatively complete policies and laws and regulations on waste classification. The above is very imperfect. Strengthen supervision, start with laws, regulations, policies, morals, and other aspects, and strictly control from the source, in order to do a good job in the classification of community domestic waste and efficient use of waste.

2) Low enthusiasm of residents

Judging from the current situation in China, residents are not very enthusiastic about garbage classification. People are accustomed to the original way of life, and the classification of domestic waste undoubtedly increases the pressure and inconvenience of residents' lives. For residents, the social interest of sorting domestic waste is higher than their personal interests. How to improve residents' enthusiasm for choosing social interests is what we should consider, and strive to reduce the gap between personal interests and social interests to increase residents' enthusiasm for garbage classification.

3) Low awareness of residents

Residents do not understand the benefits of waste sorting, and the reason is due to insufficient publicity. From a long-term perspective, it is necessary to strengthen publicity, which can effectively increase residents' awareness of garbage classification, understand the importance of garbage classification to social development and ecological environmental protection, and enable residents to more actively classify domestic waste .

V. COMMUNITY GARBAGE SORTING AND DISPOSAL STATION DESIGN BASED ON SERVICE DESIGN CONCEPT

In response to the current problems in the classification and treatment of domestic community domestic waste, it is proposed to establish a community domestic waste classification and treatment station to improve the efficiency of residential waste classification, enhance the convenience of residential waste classification, and provide a material incentive system to increase residential waste classification Positivity. Through the method of service design, better design the service system of the community domestic waste sorting and processing station, provide a complete service system for the community residents, and promote the residents to sort the waste.

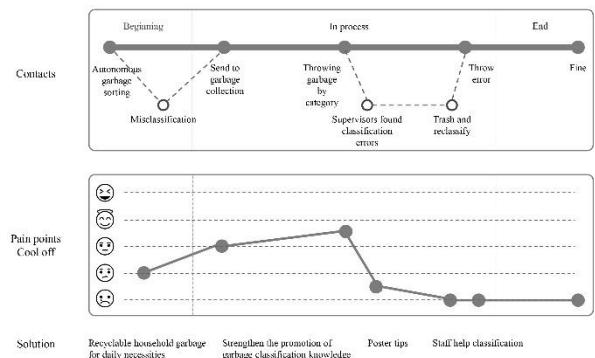### 1) Comparative analysis of user journey maps

Fig. 1. User journey map of current community garbage throwing (take Shanghai as an example).
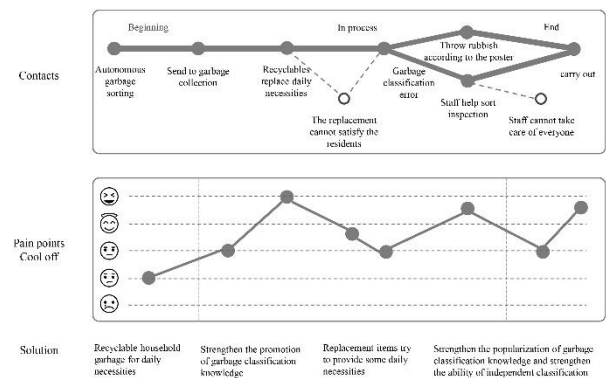

Fig. 2. User journey map of community domestic waste sorting and processing station.

The user journey map is a tool used to visualize the process users have gone through to achieve a certain goal. By creating a journey map, you can better understand the target user's feelings, thoughts and behaviors at a specific time, and recognize the evolution of this process Process, find the pain points of users. The following analysis and comparison of the user journey map of the current community garbage throwing

(Figure 1) and the user journey map after the establishment of the community waste sorting and processing station (Figure 2) are respectively analyzed and compared to better understand the pain points of users and create a more complete community Service system of domestic waste sorting and processing station.

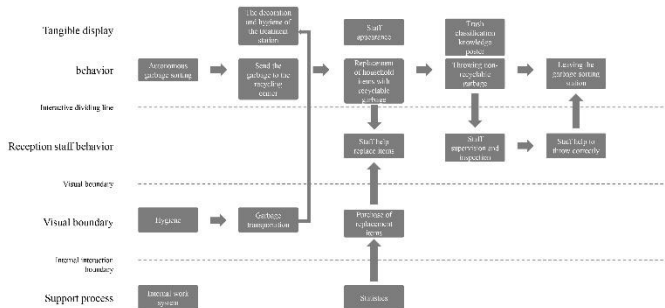*2) Service Blueprint of Community Domestic Waste Sorting and Processing Station*

Fig. 3. Service Blueprint of Community Domestic Waste Sorting and Processing Station.

The service blueprint describes in detail the service process of the community domestic waste sorting and processing station. After the establishment of the community domestic waste sorting and processing station, the residents have their own waste sorting behavior, that is, the residents first sort the waste at home, and then throw the waste at the site. The residents can sort the sorted recyclable waste, such as cardboard, plastic bottles, The staff at delivery sites such as cans exchanged daily necessities to encourage residents' enthusiasm through this method. Residents will have staff to help and guide when throwing other garbage, so that residents can complete the garbage throwing smoothly and happily. The behavior of the front desk staff replaced items for residents and helped residents sort and throw rubbish. The behaviors of back-office employees include transporting the recycled garbage, sanitation and cleaning, and purchasing goods. The support process has an internal working system and a database that counts popular replacement items.

CONCLUSION

Since 2000, China has been committed to waste classification. Although it has achieved certain results, it is still far from expectations. Since last year, China has gradually begun to increase its efforts and began to implement mandatory policies on the classification of domestic waste for residents. The sudden change has brought great pressure and burden to residents. The establishment of residential waste classification and treatment stations in the community can help Residents do a good job of garbage classification, reduce the pressure and burden of residents, and handle garbage classification from the source, so as to reduce the consumption of manpower, capital and energy for subsequent garbage disposal. The implementation of measures to replace daily necessities with recyclables can increase the enthusiasm of residents to a certain extent, and can promote the implementation of the domestic garbage classification policy. Introduce the concept of service design into the design of the entire service system, pay more attention to the contact points with residents, and design a service system with human text to help residents quickly and conveniently complete garbage classification and correct throwing. Eventually, the goal of residents' high enthusiasm and autonomous waste sorting work will be realized.

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