

Investigation on the Classification of Household Waste by Different Groups

-- The Achievement of the Curriculum Assessment Reform of 《Introduction to Environmental Science》

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Abstract

The unreasonable disposal of domestic garbage is a major source of current environmental pollution. The hazards of garbage classification to air, groundwater, land and the harm to human health are becoming more and more prominent. The task of garbage classification is urgent. This article mainly introduces the investigation and data analysis of how to effectively promote the garbage classification for different groups of people, and further discusses the problems found in the field investigation process and the analysis of the collected data analysis.

Keywords

Urban and rural, north and south, age, education, occupation, garbage sorting.

1. Background

In recent years, with the improvement of residents' living standards, people's requirements for the quality of life have become higher and higher. The ever-increasing domestic garbage and unbearable stench have become a thorny issue of "being brought to the table". More than one-third of China's cities are trapped in a trash siege [1]. Landfill and incineration are currently the most common ways to dispose of garbage. Unsorted garbage is treated by landfill and incineration, which will not only make us dependent. The environment in which we live is being destroyed day by day, causing air pollution, land pollution, and groundwater pollution, as well as the waste of many recyclable resources, causing economic losses, and even directly threatening our health. Garbage classification is an effective means to solve garbage siege and prevent garbage pollution, which has been proven by various countries. Therefore, the promotion of garbage classification is of great significance to environmental protection. It can be seen that it is imperative and imminent to improve the efficiency of domestic waste classification and treatment and avoid panic caused by "garbage siege", whether from the perspectives of environment, economy, people's livelihood, and social benefits. Based on this background, we conducted relevant research on the awareness and ability of different groups of waste classification and how to effectively promote waste classification for different groups.

2. Survey Content and Method

After the online questionnaire was launched, we collected 87 valid questionnaires, and conducted investigations on the impact of different groups such as age, occupation, urban and rural, southern and northern, and educational backgrounds on residents' awareness and ability of waste classification and how different groups of people effectively promote waste classification and data analysis.

The survey area is mainly in Hebei Province and Hubei Province, and the sample distribution is 5:1. Hebei Province is located in the northern plain area, with most second- and third-tier cities and a large population. Choosing this place as a northern research site will facilitate research and obtain the most practical research results. Hubei Province is close to Shanghai, the first city to carry out waste sorting, adjacent to the Yangtze River, with a beautiful environment and a developed economy, and it is located in the middle of southern cities and towns. Taking this as a survey site will give a representative understanding of the southern residents on waste sorting. And insights.

The survey method mainly adopts two methods: questionnaire survey and field survey.

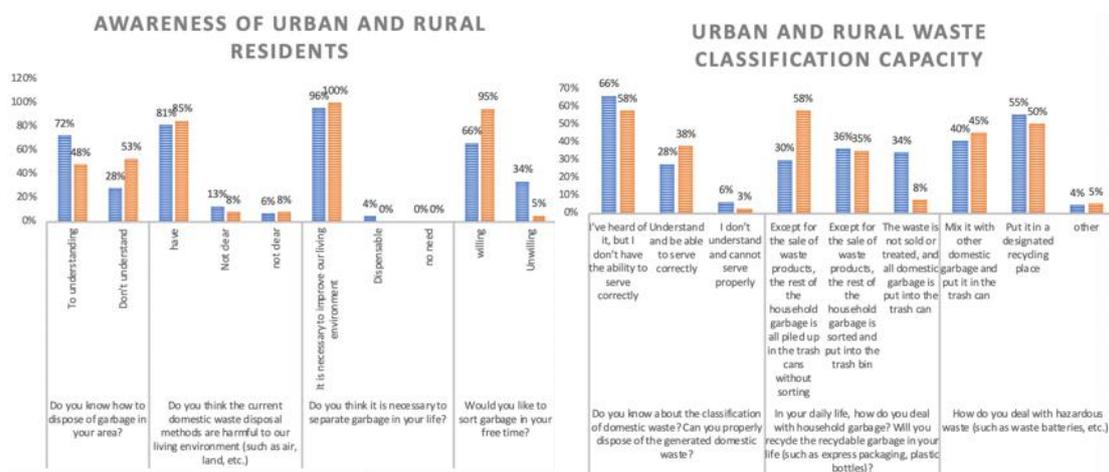
The questionnaire contains the classification of the population and the main question settings. The questionnaire is mainly set up for residents' awareness of garbage classification, garbage classification ability, and reasons that affect residents' garbage classification. The purpose is to select relevant measures and improve work efficiency.

The field investigation mainly investigated the distribution of classified garbage bins in each member's area, and investigated a small number of garbage transport personnel in Shijiazhuang, Hebei.

3. Investigation, Analysis, Discussion and Targeted Suggestions on the Classification of Domestic Waste for Urban and Rural Residents

3.1. Analysis of Survey Data on Domestic Waste Classification of Urban and Rural Residents

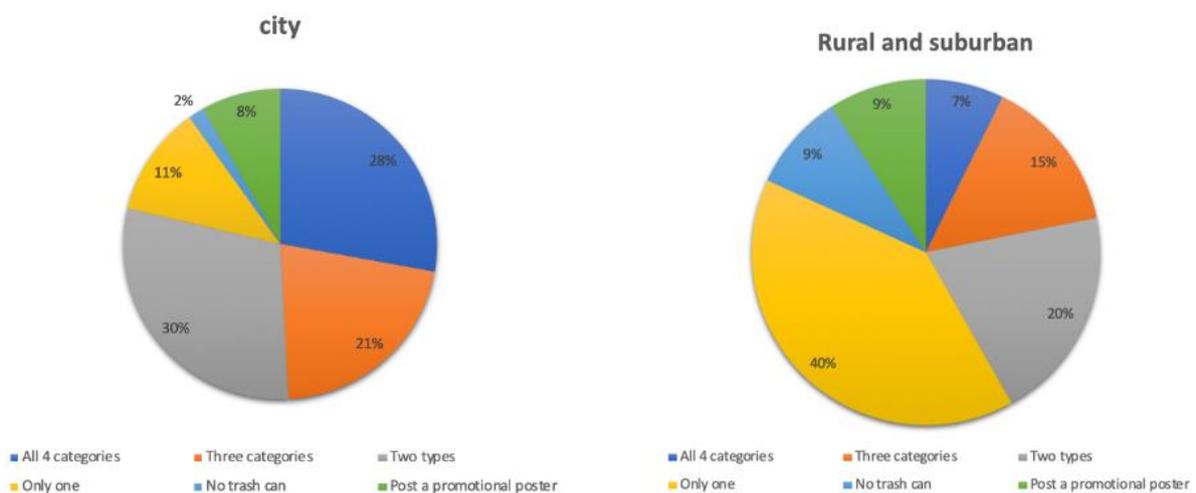
In the analysis of the questionnaire survey of 47 urban residents and 40 rural residents (rural and suburban, hereinafter referred to as rural) residents, it can be seen from Figure 1 that the ratio of urban residents' understanding and ignorance of local waste disposal methods. The ratio is 2.6:1 for rural residents and 0.9:1 for rural residents; rural or suburban residents think that the current waste disposal methods are harmful to the environment, and 95% of rural residents are willing to sort waste while more than 30% of urban residents say Unwilling to sort garbage in free time. Analysis shows that urban residents have a better understanding of domestic waste treatment methods, but rural residents are more aware of the harm that current waste treatment methods have to our environmental life and whether they are willing to sort waste.



(Figure 1)

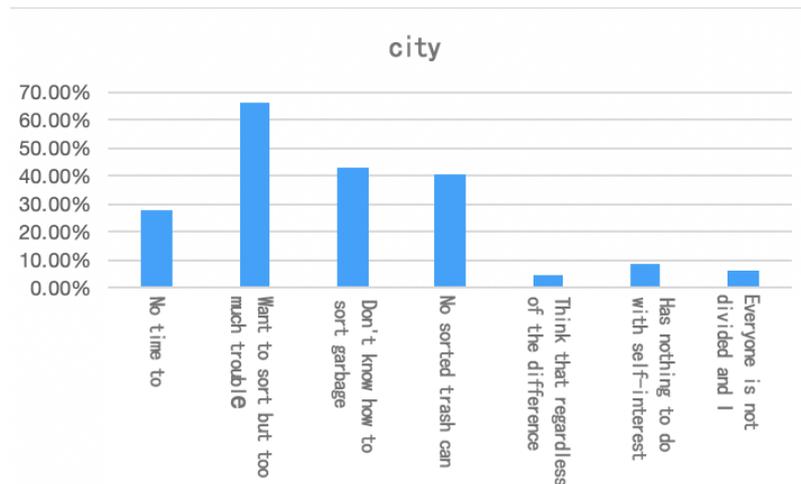
(Figure II)

It can be seen from Figure II that more than 90% of urban and rural residents said that they understand garbage classification, and 38% of rural residents said that they can put it out correctly, 28% of urban residents said they can put it in correctly, and about half of them put hazardous waste in designated places when they put it in. In actual life, 35% of rural residents said that they would sort their household waste when they dispose of it. 36% of urban residents. In terms of infrastructure equipment (sorted trash bins), urban and rural areas show great differences. 40% of the rural residents reported that there is only one traditional trash can in their location, and only 7% of the residents said that the sorted trash cans are complete, that is, they contain food waste, hazardous waste, recyclable trash, and non-recyclable trash cans. More than a quarter of residents in the south said that there are three types of garbage bins. Almost all residents stated that they have trash cans, but there are still a small number of residents where there are no trash cans at the location where the screenings are being performed, and garbage is piled up randomly.



3.2. Discussion on Urban and Rural Issues

In the above analysis, urban residents have a better understanding of garbage disposal methods, but rural residents are more aware of the harm that the current garbage disposal methods have to our environmental life and whether they are willing to carry out garbage classification. We have further analyzed the reasons why urban residents are unwilling to sort garbage. According to research findings, the main reason why urban residents think they have not done garbage classification is that they are troublesome, have low awareness of garbage classification, lack of ability, and no time. Xinrui Lu and Ruoxuan Zhang [3] also mentioned in their discussion on the current status and future development of urban garbage classification that most residents think that mixing garbage saves time and energy, and garbage classification requires residents to allocate more attention. It is necessary to distinguish the specific types of garbage, which takes up the daily life of residents and causes a certain burden. The urban area is relatively prosperous, residents are rich in entertainment and life, and the pace of life is fast. Garbage sorting is time-consuming and labor-intensive, which may be related to people's tendency to do things that make themselves happier and more comfortable. For residents, garbage sorting is relatively new. Things are more complicated and harder to get started, so people are unwilling to sort garbage.



From the perspective of the main sources of garbage, urban garbage mainly comes from industrial wastes and wastes produced in industry, and garbage produced by urban residents. However, the discharge of industrial garbage is relatively concentrated, and domestic garbage is more complex and has a low concentration, which makes residents The domestic garbage produced by itself causes greater pollution to the environment [4]; rural garbage is mainly agricultural production garbage (including plastic film, tarpaulin, pesticides, etc.) and domestic garbage, of which domestic garbage accounts for more than 60% [5]. It can be seen that urban residents may pay more attention to the large and concentrated waste generated by industrial waste in their daily lives, and pay relatively little attention to the relatively small domestic waste generated by their own lives, and ignore their own waste classification. The huge impact that the harmless treatment can have has resulted in a relatively large understanding of garbage classification, but they are unwilling to start garbage classification by themselves. In rural areas, the domestic waste generated by farmers and agricultural production waste generated during farming are the mainstays, which can make rural residents aware of the hazards of their own waste to their environment and main economic sources of land and farmland. They are more willing to restrict their behavior and reduce the harm caused by garbage through garbage classification.

3.3. Effectively Carry Out Targeted Measures for Garbage Classification for Different Groups of Urban And Rural Residents

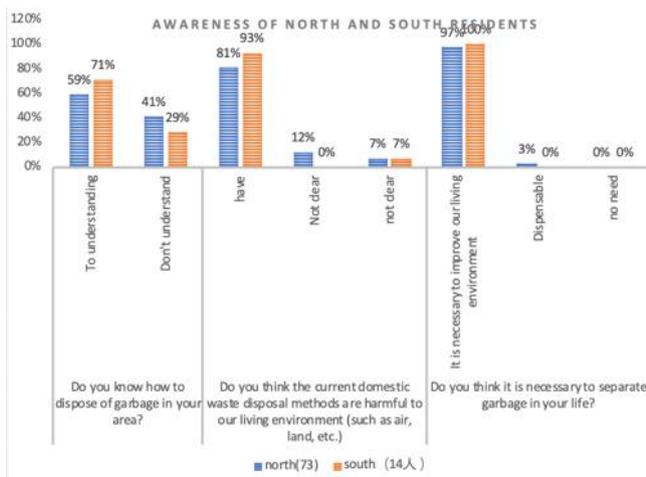
In view of the research on garbage classification of urban and rural residents, we can speculate that in order to better implement garbage classification in accordance with local conditions, rural areas should increase efforts to put in garbage bins, gradually change the traditional way of recycling garbage, and urban areas should increase and improve garbage bins. We will gradually realize that the trash cans are fully equipped and increase publicity and education. Gradually realize that the trash cans are fully equipped, increase publicity and education, and especially strengthen the awareness of the huge harm to the environment caused by their own domestic garbage and the huge benefits that garbage classification can bring to our environment. In particular, suburban residents have strengthened the cultivation of how to classify garbage and how to use garbage classification for themselves and bring economic benefits to the cultivated land. Gradually cultivate the awareness of garbage classification among residents of various groups, so that residents can get a sense of garbage classification and develop the habit of garbage classification. Solve the problem of difficulty in advancing garbage classification caused by unsorted trash bins and incomplete sorted trash bins.

4. Investigation, Analysis, Discussion and Targeted Suggestions on Domestic Waste Classification of Residents in the North and South

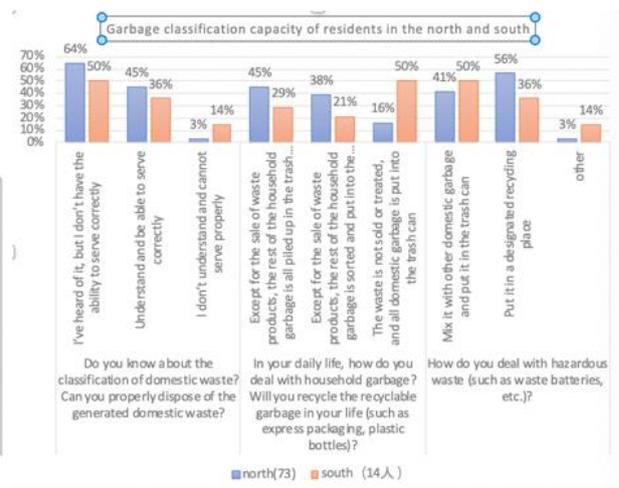
4.1. Data Analysis of Domestic Waste Classification for Residents in the North and South

It can be seen from Figure 1 that the ratio of southern residents' knowledge to local waste disposal methods is 2.4:1, and northern residents' ratio is 1.4:1; 93% of southern residents realize that the current waste disposal methods are harming our For the environment, all southern residents who participated in the survey believed that garbage classification was necessary, and the proportion of them was slightly higher than that of northern residents.

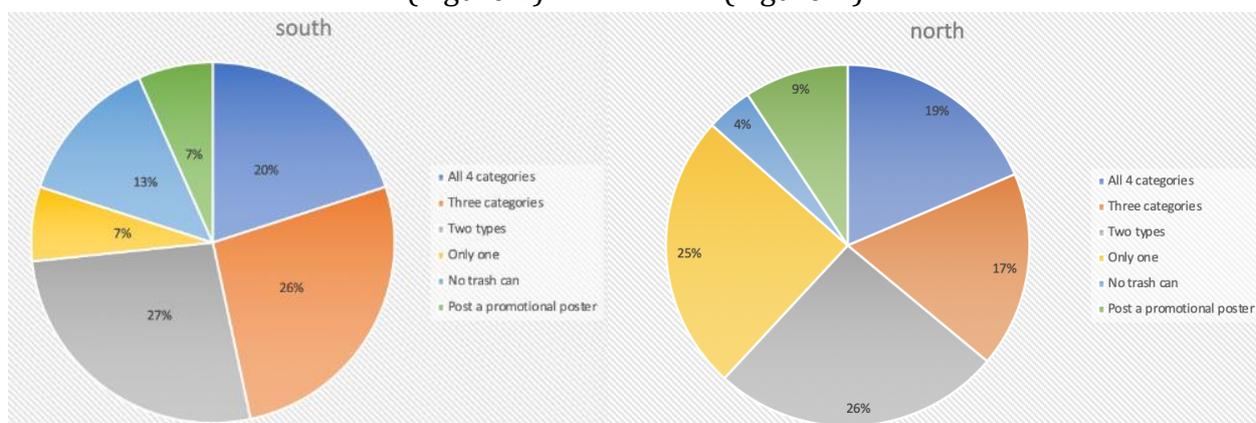
It can be seen from Figure II that the ratio of household garbage to the northern residents is 0.6:1 after classification, and 0.4:1 in the south. In terms of how to classify garbage, 96% of the northern residents have learned about garbage classification. 32% of the residents understand and can put it out correctly, 86% of the residents in the south have learned about garbage classification, and 36% of the residents understand and can put it out correctly. The residents in the north are better able to put out hazardous waste. More than 50% of designated places and only 36% in the south. It can be concluded that the residents in the north are more capable of sorting and putting garbage.



(Figure 1)



(Figure II)



In terms of infrastructure equipment, there is also a big difference. The difference between the two places is mainly in traditional trash cans and three types of trash cans (food waste, recyclable, and others). A quarter of the residents in the north said that there is only one traditional trash can in their area, and only 7% in the south; More than a quarter of residents

in the south said that they have three types of garbage bins, and two-fifths in the north. In addition, the South also shows that there is no trash can for garbage disposal, which is more serious than the North.

4.2. Effectively Carry Out Targeted Measures for Garbage Classification for Different Groups of Residents in the North and South

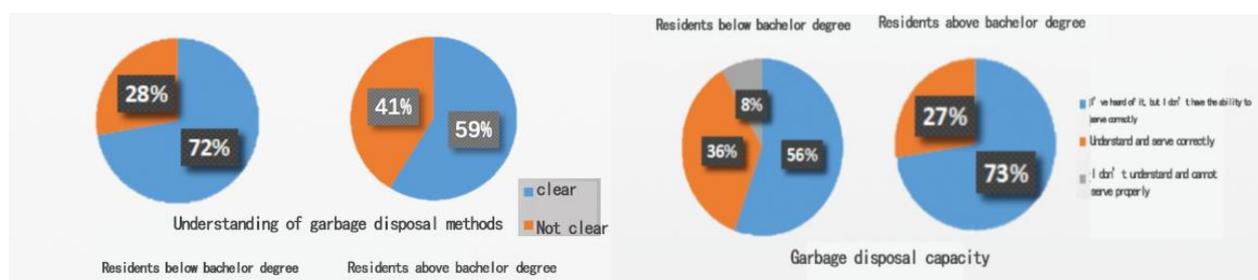
In response to these phenomena, in order to better implement garbage classification, we should take corresponding measures in different regions. We must increase the distribution of garbage bins in the north, gradually increase the classification categories, and realize the complete garbage classification. In the South, with the continuous improvement of garbage bin equipment, it is necessary to focus on solving the problem of nowhere to put garbage and avoid polarization, which leads to a good environment for implementation in some areas, and partly because of incomplete infrastructure and poor environment.

The survey analysis is based on a questionnaire survey of 73 northern residents and 14 southern residents. There may be deviations due to the inconsistent proportions of the population survey.

5. Investigation, Analysis, Discussion and Targeted Suggestions on Household Waste Classification for Residents with Different Educational Backgrounds

5.1. Analysis of Data on Domestic Waste Classification of Residents in the North and South

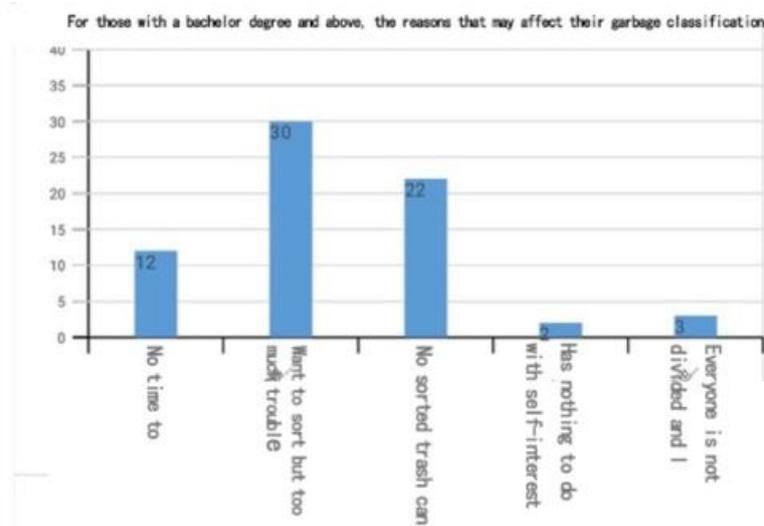
Through research, we found that the questionnaires of 51 residents with undergraduate education or above and 36 residents with undergraduate education or below showed that 41% of the residents with undergraduate education or above did not understand the waste sorting method, and those with undergraduate education or below Nearly 3/4 of the residents are aware of local garbage disposal methods. In terms of percentage, residents with undergraduate education and below are more aware of local garbage disposal methods. Similarly, in the survey on whether you understand garbage classification and whether it can be correctly sorted and put in place, all the residents with undergraduate and higher education who participated in the survey said that they have heard about garbage classification. Residents below undergraduates did not hear about it. As mentioned above, compared with residents with an undergraduate degree or below, residents with an undergraduate degree or above have a weaker ability to correctly sort and put waste.



5.2. Research and Analysis of Different Educational Background Groups Produce Problem Discussion and Targeted Measures Proposed

In the above analysis of the relevant aspects of garbage classification for residents above undergraduates and below, it is shown that students with higher education are not so familiar with issues such as garbage disposal. Residents above undergraduates who know the pros and

cons of garbage classification. The problem of garbage classification is not implemented in practice for further analysis.



In our investigation of the reasons for the residents' garbage classification, we found that the three main factors affecting the undergraduate students are trying to classify but find it troublesome, not classifying trash cans, and no time. The trouble is still a manifestation of low awareness of garbage classification. Residents with a bachelor's degree or above should be the part of people who have a relatively good understanding of household garbage classification and are more able to accept garbage classification and implement it in practice. But in reality, this completely opposite situation occurs. It is still necessary to reflect on the fact that only some theoretical knowledge is instilled in the mind without practical guidance. How much can students absorb? The students are not very familiar with some of the policies advocated and implemented by the state. Why? Most of the students' current sources of news come from the Internet. They tracked their push on a platform widely accessed by a certain youth group, and check the pushes every day at 8 o'clock in the morning, 12:30 noon, and 7 in the evening. The push platform pushes news every minute Update, the push port has one top and 50 real-time hotspots, and 16 real-time rising hotspots. Among these 67 pieces of news, there are an average of 47 pieces of entertainment gossip and social news, while only 20 pieces are related to national policies, diplomacy, patriotic actions, real-time developments of the epidemic, floods and other major disasters. When checking, people often only look at what they are interested in. On the Internet, celebrity gossip entertainment is often more attractive. People tend to overlook the relevant policies and some advocacy issued by some important countries. However, there is also an advantage. The current star live broadcast to solve the problem of poor sales of farmers' agricultural products has produced a good promotion of economic development, helped the residents of mountainous areas and other areas to get rid of poverty, and promoted the benefits of the process of building a well-off society in an all-round way. Can effectively promote the garbage classification. Therefore, the relevant departments should carry out some correct guidance, or increase the promotion of garbage classification through entertainment stars, and take the lead.

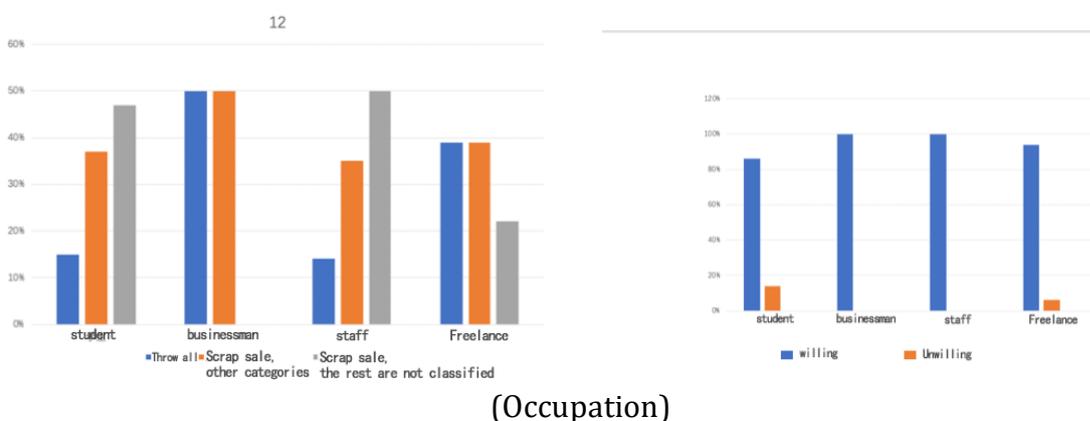
6. Investigation, Analysis, Discussion and Targeted Suggestions on Household Waste Classification for Residents of Different Ages and Positions

6.1. Analysis of Household Waste Classification Data of Residents of Different Age Groups and Positions

Studies have shown that the higher the age, the better the residents' understanding of local garbage disposal methods. Residents between the ages of 18 and 19-30 are more willing to separate garbage. More than half of the residents under 18 and 50 years of age say they can do so. Putting domestic garbage correctly, the relative classification ability of 19-30 years old is relatively high and the proportion of garbage classification in daily life is higher, accounting for about two-fifths of the proportion. The main reasons that affect the sorting of garbage for residents under 30 are troublesome, the influence of people around them, and lack of time. Residents over 30 don't know how to sort garbage and don't have any sorting bins.



Research has shown that among the residents participating in the survey, businessmen are willing to sort waste, and are better able to sort and put waste correctly than other occupations. Almost all participating residents believe that waste sorting is necessary.



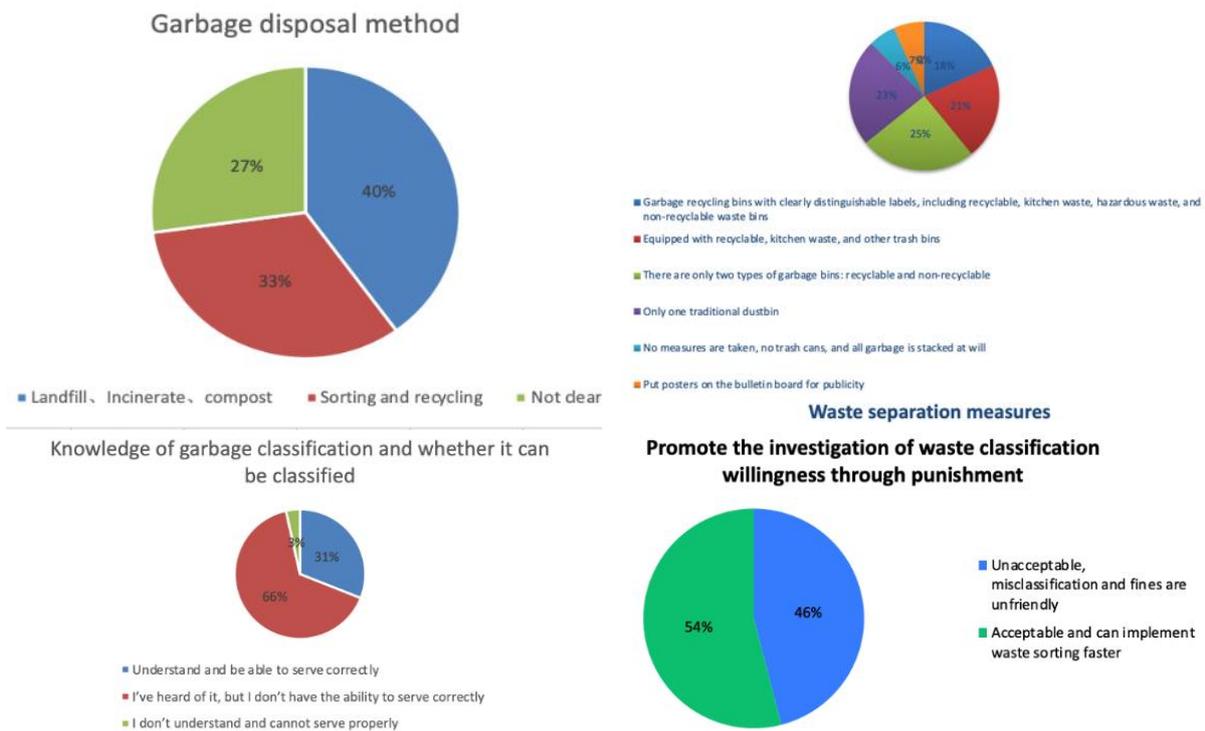
6.2. Proposals for Effective Implementation of Targeted Measures for Waste Classification by Different Age and Occupational Groups

In the analysis and research of the predecessors, methods of social intervention for garbage classification and promotion were proposed. Descriptive social intervention refers to the behavior of others in a social group, that is, how people actually behave. For example, in my

community, most people classify garbage, so I do what everyone does [2]. In the process of promoting waste sorting, first focus on cultivating a group of people to be able to sort waste, and then they will lead the people around them to produce a kind of social psychological intervention. After data analysis, starting with teenagers, academic businessmen and students, by improving their awareness of garbage classification and their ability and habits to classify garbage, it affects other groups. See how he classifies and I also learn to do. In this way, the popularization of garbage classification is realized step by step.7. Overall analysis and proposals for promoting waste classification.

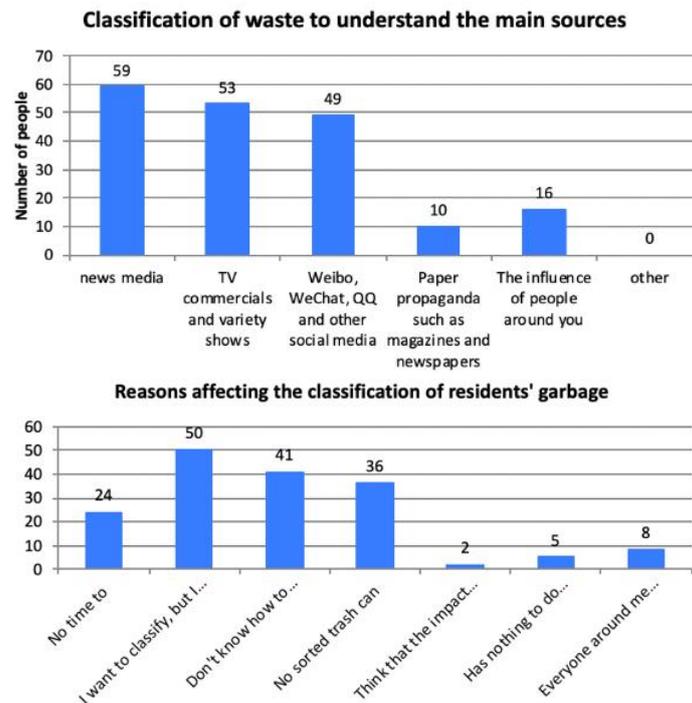
7. Overall Analysis and Proposals for Promoting Waste Classification

Through investigations, it is found that 32.8% of the current garbage disposal methods are garbage classification, and 40% are landfill, incineration, composting, and garbage classification has been promoted, but it is not the main garbage disposal method at present, and traditional garbage disposal methods still occupy the main field. In terms of infrastructure equipment, only 18.33% have clearly recognizable garbage recycling bins (including recyclable, kitchen waste, hazardous garbage, non-recyclable garbage bins), mostly simple sorting bins and traditional bins, and a small number of residents Reflect that there is no trash can for garbage disposal in the residence, indicating that the infrastructure is incomplete and still needs to be improved.



Regarding domestic waste, 31.03% understand and correctly put it in; 65.52% have heard of it, but don't have the right put it; 3.45% don't understand and cannot put it correctly. Most people just understand the classification of waste, but they can't. Properly serve. Residents understand the main sources of garbage classification through the Internet and television. In today's advanced interconnectedness, almost everyone goes online. It is an effective way to increase publicity through the Internet and cultivate residents' awareness of garbage classification. The infrastructure is not perfect, and it is not clear how to classify garbage. It is considered that garbage classification is too troublesome and waste of time is the main reason that affects

residents' garbage classification. 70.11% of residents believe that garbage classification is still mainly due to the residents themselves. Whether they are willing to speed up the implementation of garbage classification through some penalties (such as fines) to standardize the behavior of residents, presents a situation of court resistance. The use of penalties is likely to cause disputes among most people. Promotion throughout the country is not a good way to promote garbage classification.



For how to better promote garbage classification, there are the following suggestions:

1. Infrastructure. Improve public facilities to ensure that residents have land for garbage classification
2. Widely publicize. Strengthen publicity through network platforms, television and other media platforms.
3. Government regulation. Relevant functional departments intensified their management and control efforts to urge residents to separate garbage. Everyone knows about the implementation of policies in communities and villages to households.
4. Optimize the structure. Simplify and upgrade the garbage classification to a certain extent to facilitate the classification of the masses.

8. Field Research

8.1. Survey Content and Findings

In the field investigation, the members of this group conducted an investigation on the local trash cans. There are mainly two types, three types of trash cans and only one type of traditional trash cans.

During an interview with a garbage transporter in a certain area, we asked the staff about how much garbage is collected in the community a day? How about the garbage classification of residents? Do you know garbage classification? Do you know the local garbage disposal method? Will the garbage be sorted after it is transported to the collection point? For the five questions,

the transporter said that he did not know, did not know, or did not understand the above questions.

In the process of advancing garbage sorting, not only must the basic equipment such as sorting trash cans be improved, but also the knowledge popularization of transporters, cleaners and other related personnel must be strengthened.



8.2. Garbage Disposal Terminal Problems Found During Field Investigation

During the field investigation, we found that there are relatively complete sorted garbage bins in the community, but when garbage collection is carried out, all garbage is collected uniformly, and the garbage collection truck has only one garbage compartment. There is a problem. Even if the residents' garbage is sorted and put in, it is still collected in a unified manner during the recycling, that is, mixed loading and mixed transportation, making the expected effect difficult to achieve. Garbage sorting is a systematic project, including sorting and putting, sorting and recycling, sorting transportation, sorting treatment, etc., "one link fails, all loses" [6]. Youjun Zhao and Genyou Wang [6] In the report on waste classification: Establishing an effective terminal treatment system is the key to the treatment of household waste in Zhongyang County, Shanxi Province, due to the unified landfill of the terminal treatment method, even in the treatment chain China has spent a lot of money to purchase public services for overall packaging, but in the end, it still fails to achieve a good governance effect, making waste sorting and processing meaningless and worthless, not only causing waste of resources but also polluting the environment. Zhiwu Huang [7] also stated that in Lhasa, garbage classification should be optimized for terminal processing, although some garbage classification policies have been introduced, there are always publicity work in various cities and municipalities, and the common people's garbage classification is done carefully, and the transportation process. However, the phenomenon of "one pot stew" appeared in China. Xinrui Lu and Ruoxuan Zhang [3] also stated that the overallity of urban waste classification is not high, and there is a disconnect in management, which leads to the division of "investment, collection, transportation, and disposal", which increases the cost of waste disposal. It is against the original intention of garbage classification. There are garbage disposal terminal problems in society, such as garbage disposal, mixed loading and transportation, and solving these problems is a big problem in promoting garbage classification.

In the entire garbage disposal chain, it is necessary to strengthen the cultivation of residents' awareness and ability of garbage classification, clarify the classification and transportation links, and ensure that the garbage classification starts from the residents, the transportation equipment is perfect when the garbage is transported, and the staff is concerned when the garbage arrives at the transportation point. The ability and professional quality of garbage classification and the classification and utilization of garbage in the final disposal. It is also necessary to increase personnel training, increase support and capital investment for new treatment, waste treatment methods, equipment, technology, etc., and increase government control of waste classification and treatment.

9. Summary

Investigate and analyze the garbage classification situation of different groups in daily life, investigate and analyze the current situation of garbage classification activities in some areas and the problems contained therein, and launch more targeted measures for different groups to promote garbage classification. Accelerating the implementation of garbage classification to people, to the actual situation, and perfecting a chain of garbage transportation and processing systems is a major issue that needs to be considered, which has great practical value. The North will increase the release of sorted trash bins, gradually increase sorting categories, and realize complete waste sorting equipment. In the South, with the continuous improvement of trash bin equipment, it is necessary to focus on solving the problem of nowhere to put garbage.

For cities and northern regions, we should focus on gradually improving garbage sorting bins, increasing sorting categories, and realizing complete garbage sorting infrastructure, while villages should increase the amount of waste sorting bins, so that villagers have land to put garbage and have basic equipment for sorting garbage. In the case of continuous improvement of sorting trash can equipment in the southern region, it is necessary to focus on solving the problem of nowhere to put garbage and avoid polarization, which leads to a good environment for implementation in some areas, and partly because of incomplete infrastructure and poor environment. In the process of advancing waste sorting, while widely publicizing waste sorting, it is necessary to focus on cultivating young people, academic businessmen and students, and increase publicity and education. Through social psychological intervention, it will play a leading role and accelerate the advancement of waste sorting. It is necessary to make full use of the Internet and celebrity effects, and use its visual impact and fragmented memory to gradually inculcate the necessity of garbage classification and knowledge of garbage classification to online groups, especially those with higher education, to subtly change residents and promote garbage classification. At the same time, the government must strictly control the garbage disposal chain to prevent the failure of one link and lose everything, optimize the garbage disposal structure, and improve the garbage classification awareness and ability of individuals in the garbage disposal industry chain.

There is no garbage in the world, only misplaced treasures. Garbage is a misplaced resource and it has great potential. Implement garbage classification to find the correct location of your own garbage, so that the garbage is in place. Garbage classification is an inevitable choice to realize the harmlessness and resource utilization of garbage. It is an important measure to improve the human living environment, promote the construction of urban and rural civilization, and realize green and sustainable development.

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