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CHILDREN'S TOY SHARING SYSTEM FROM THE PERSPECTIVE OF SUSTAINABLE COMMUNITY CONCEPT

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ABSTRACT

This paper mainly adopts the shared sustainable design method and theory to carry out research and design on children's toys in the community, in order to promote the sustainable development of the community, analyse the current situation and existing problems of children's toys in the sustainable community, and then make corresponding design solutions and design evaluation. At last, this paper summarizes and forecasts the expected sustainable lifestyle of the toy sharing system for children based on sustainable community. Through the research and design of sharing children's toys, this paper points out that sharing design of sustainable community, especially the sustainable lifestyle described in children's toy-sharing design, has a promising future.

Key Words: idle toy; shared design; sustainable design.

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1. INTRODUCTION

Community is the basic unit of urban management, and family is the basic unit of community management. Cities, communities and families are inextricably connected. The problems of families are also the problems of communities. The topic of sustainability is the focus in the field of design. This paper hopes to solve the problems of sustainable communities through design.

“Community and network” has become the basic unit and condition connecting people and society[1]. By using the method of system design, the circulation of children's toy products in the community and the community environment in China are comprehensively taken into consideration, so that the community residents can achieve the effect of reduction of the quantity of materials by means of resource replacement relying on the network, replacing the “ownership” of products with the “use” of products. It is hoped that the consumption mode of children's toys will be developed towards a mode of environmentally friendly and sustainable life.

The design of children's toy sharing system based on sustainable community promotes sustainable consumption mode at the level of CCD (community-centred design). Firstly, the invisible public needs of residents in the community are explored from the level of human beings. Secondly, the environmental sustainability of the community is considered comprehensively from the environmental level, which includes the sustainability of children's toy resources in the community and the sustainable consumption of residents. Finally, on the level of interaction, we should examine the relationship between the various elements with a comprehensive attitude, observe the interaction among people, environment and community, and inspire residents to participate in the system practice together. Circulate children's toys in the community, reduce the pressure of excessive consumption of toy products on the living environment, promote the rational allocation of toy resources, and transform the sustainable lifestyle from bottom to top into the lives of community residents.

The author expects to transform the sustainable community at the level of CCD, and recycle the children's idle toys in the community through sharing, so that the idle toys can be recycled in the community, which creates a friendlier community environment and closer relationship between neighbors. so as to provide reference for creating an open and diversified sustainable sharing community.

2. RESEARCH ON THE STATUS OF SUSTAINABLE COMMUNITY AND PROBLEMS OF TOY SHARING AMONG CHILDREN IN COMMUNITY

In China, the planning, governance and construction of sustainable communities are faced with various challenges[2]. These problems are concerned by the state, social organizations and design academics. The state, social organizations and design academics have made corresponding countermeasures and governance measures for the problems of sustainable communities. This paper mainly aims at the problems of children's idle toys in sustainable communities. Therefore, this paper investigates and studies the current situation of children's toys in the community and the needs of users.

2.1 Research Status of Sustainable Communities

Sustainable communities have different explanations from the perspectives of ecology, economics, sociology, high technology and other disciplines, but the commonalities of their discussions mainly include promoting sustainable life, planning and reforming communities from the aspects of environment, economy, infrastructure, social equity, etc. [3]. In 2015, the United Nations set 17 global sustainable development goals (SDGs), including SDG11 (Sustainable Cities and Communities), aimed at building inclusive, safe, responsive and sustainable cities and human housing[4]. Countries have established relevant sustainable development goals and evaluation systems for sustainable development goals, while China's SDG11 (Sustainable Cities and Communities) faces rigorous challenges[5]. China's sustainable community issues mainly include housing quality, housing conditions, public facilities, community management, community services, environmental quality and neighbourhood relations, etc.

In terms of the problems mentioned above, the state has issued the “13th Five-Year Plan” and other community governance plans, committed to building “smart communities” for Chinese communities. In response to the national policy, non-profit social organizations such as the Special Fund of the China Children's and Adolescent Foundation, the Children Friendly Community Working Committee of the China Community Development Association and the Children Friendly Community Research Institute of the China Children's Center have been in cooperation to create the “Promotion Plan of Chinese Children Friendly Community” which upholds the principles of children's priority, inclusive equity, children's participation and maximization of community resources, making a friendly community for every child to live in[6].

Sustainable community is the focus in the field of design. In order to build a sustainable lifestyle, the design community has done a lot of design practice and research. For example, Yongqi Lou, Dean of the School of Design and Creation, Tongji University, explored sustainable community through the “mode of three innovations in community” [7] and strategic design of sustainable community in Chongming Xianqiao [8]. Professor Ji Tie, School of Design and Art, Hunan University, through the design and social innovation of community and network, proposed the transition from user-centered design (UCD) to community-centered design (CCD) in the development of sustainable design [9]. Therefore, sustainable development, as an international development trend, has also become one

of the basic principles of design innovation, and is the core issue of future design development. Sustainable design can solve the problem of community children's toys.

2.2 Problems of toy sharing among children in community

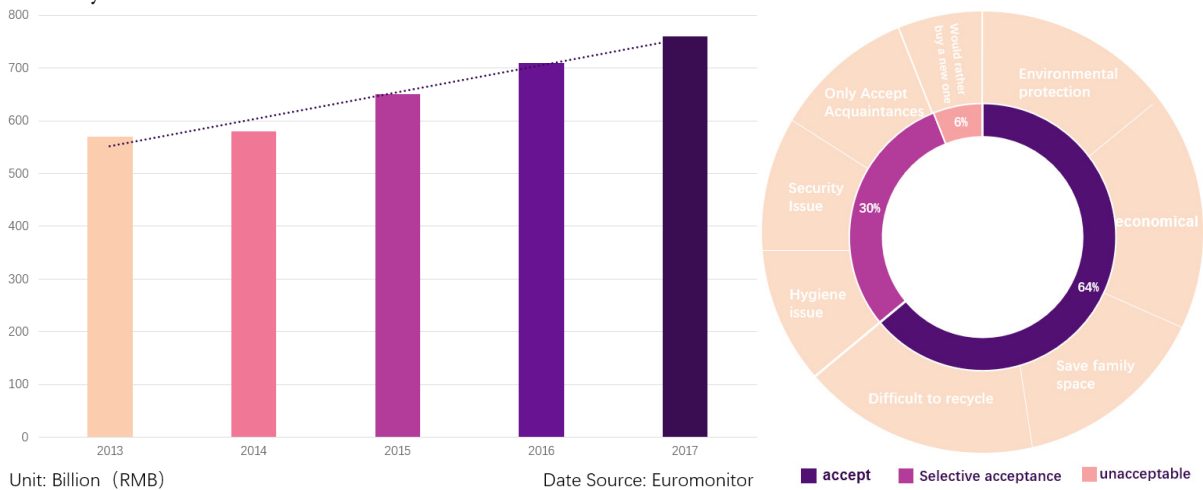
Until 2016, among the 1.4 billion people in China, children under 14 and infants accounted for about 400 million. Toys are indispensable playmates in the process of children's growth. The toy market has a huge development and consumption power in China, such as Figure1 the annual sales of toy industry. At the same time, China's toy manufacturing industry makes China the largest toy producer in the world. China's toy market is well developed. Nowadays, China's material life is more and more abundant. Toy industry also develops and keeps pace with the increasing national living standards and needs, making toy products of various types and functions complex. Children's toys on the market can almost meet all the needs of children's growth and entertainment. But it also causes a series of unsustainable problems of children's toys in the family, and then has a certain impact on the sustainable community.

Problem 1: Children are apt to develop a psychology of setting aside old toys and seeking new ones. Children are in an unstable period of growing up. With the rapid changes of their physical, psychological and emotional needs, they have different hobbies at different ages. According to Euromonitor International, 95.3% of children can only maintain a feeling of freshness with a toy for no more than six days.

Problem 2: Families spend too much on children's toys. Compared with the past, most families have better economic conditions to invest in children. Parents, as participants in the process of children's toy consumption, or even decision makers, often buy too many toys for their children.

Problem 3: Children's toys are easy to pile up idly, occupying space and difficult to deal with. Children's love for new toys and dislike for old ones and parents' uncontrolled consumption of children's toys have resulted in the over-accumulation of toys in the family. According to the survey, many parents suffer from the dilemma of "keeping the toys but taking up space at home, throwing them away but too wasteful and giving them away but not presentable". The dilemma of disposal of idle toys lies in that no after-sale service from stores, no recycling from recycling station and not being easy to resell. As a result, idle toys can only be dumped as garbage.

As for a series of problems caused by idle toys, the author conducted a poll on the acceptance of idle toys through online interviews and the "hot mom gang" network platform, and obtained the survey data from 148 users, 64% of whom said they could accept the transformation of idle toys. These users believed that the use of second-hand toys could protect the environment, be economical and meet children's iteration needs for toys. Updating the fast demand of iteration and participating in the transformation of second-hand toys can better solve the problem of disposing idle toys, thus saving the indoor space of the family. 30% of users choose to selectively accept second-hand toys mainly because of concerns about the safety and hygiene of second-hand toys. Such users also say they can accept idle toys from acquaintances. 6% of the respondents could not accept second-hand toys. This part of the respondents believed that they had the ability to buy new toys for their children and did not need to buy second-hand toys.



[Figure 1] Annual Sales of Toy Industry [Figure 2] Resident acceptance

3. DESIGN OF CHILDREN'S TOY SHARING SYSTEM BASED ON THE CONCEPT OF SUSTAINABLE COMMUNITY DEVELOPMENT

Sustainable community development should not only meet the needs of contemporary people, but also not endanger the ability of future generations to meet their needs. Therefore, in terms of the unsustainable problems caused by idle toys, the design of children's toy sharing system needs to meet the needs of community residents at the level of human beings to solve the needs of old toys. The design of children's toy sharing system based on sustainable community mainly uses sharing mode as the design strategy of children's toy system in sustainable community, and uses four sharing factors of network platform, idle resources, participants and trust mechanism as the realization path of

children's toy-sharing design of sustainable community. According to the sharing factors of sustainable design, the environmental sustainability of the community, the circulation of children's toy resources in the community and the sustainable consumption of residents are comprehensively taken into consideration, and the relationship among people, environment, community and other factors is studied in depth, on the basis of which the children's toy sharing system of sustainable community is designed.

3.1. Design strategies of toy sharing system for children in community

As a sustainable business model, shared model has been defined and described by many scholars in the industry. The content of its definition has always centered around three core factors: network platform, idle resources and participants. The toy sharing design concept based on sustainable community solves the toy problem in community by sharing.

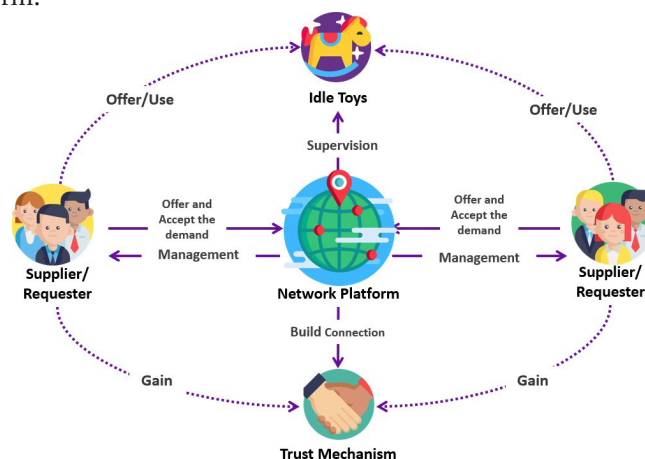
The concept of toy sharing design relies on the main network platform as the basis of sharing design, idle toys as sharing content and community families as sharing participants. In addition, it is expected that toy sharing design can enhance the friendly relationship of residents and help communities return to the friendly neighbourhood relationship like the old days through mutual trust among residents. Therefore, another important factor of sharing is trust mechanism, because besides relying on network platform, the biggest factor driving the behavior of both participants is trust, which is advocated by sharing mode. It is an economic activity that meets daily needs and establishes relationships with others, so establishing a mechanism of mutual trust among participants can ensure the success of toy sharing. Therefore, as shown in Figure 3 idle toy sharing design framework, the basic path of toy sharing design mainly includes the following four basic factors.

Network Platform: The main supplier and demander of toy sharing design is individual family. This requires the network platform to act as a manager and integrate and manage the huge number of families in the community. Its purpose is to provide trading opportunities for both suppliers and demanders, or to give idle toys to others for free. In addition, the network platform is the circulation channel of all elements in toy sharing, which is the basis of establishing rules, trust and resource trading in toy sharing design. Therefore, the network platform is the core condition for toy sharing design.

Idle toys: toy sharing needs idle toy resources, or we can say toy sharing design differs from collaborative consumption which simply emphasizes the sharing, exchange and transaction, because it is mainly based on idle capacity as share, exchange and transaction. The goal of toy sharing design is to redistribute the idle toys in the community. Therefore, providing various idle children's toys by different families is the precondition and material basis of toy sharing design. Meanwhile, the existence of idle toys also determines the sustainable operation and development of sharing design.

Resident participation: Toy sharing design requires community residents to play roles as participants in toy sharing design. They are not only the supplier, but also the demander depending on their actual needs. In addition, feedback and innovation should be given to the sharing economy so as to improve customization and individualization of sharing. That is to say, these participants are not only the initiator and the terminator of toy sharing, but also the source of optimizing toy sharing design.

Trust mechanism: Trust is the biggest factor for the smooth transaction of toy sharing design and driving the behavior of both suppliers and consumers. Toy sharing design needs to establish a mechanism of mutual trust among community residents who are relatively unfamiliar with each other in order to ensure the success of sharing. Traditionally, commercial transactions are only for each side to get what they need. In toy sharing design, because the transaction is a single idle toy or second-hand toy, the buyer bears certain risks, so the establishment of reputation mechanism is the guarantee of obtaining trust from strangers. Therefore, the more developed the social capital with trust as the currency, the more easily the shared economy will develop [10], and it can help residents build up their beliefs in community neighborhood life. Toy sharing design is a business model developed on the basis of mutual trust among members of unfamiliar communities. Through supervision, the network platform builds a reputation evaluation system for participants, and the reputation evaluation system will become the guarantee for the operation of the network platform.

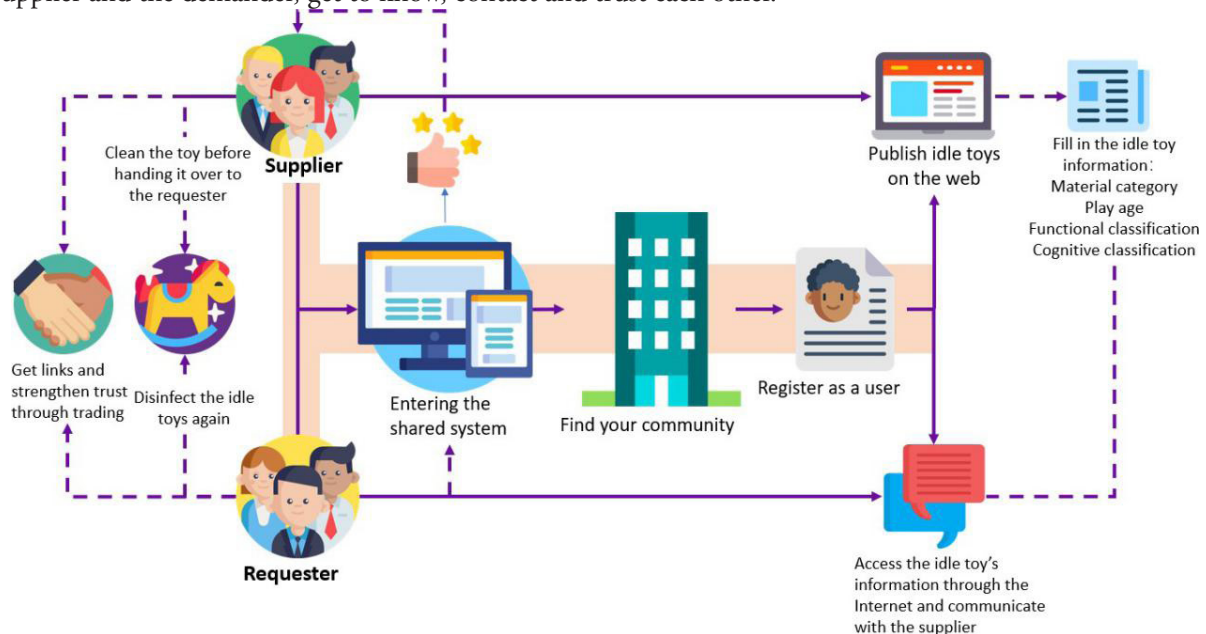


[Figure 3] Idle Toy Sharing Design Strategy

3.2. Design and Implementation of Toy Sharing System for Children in Community

To achieve sustainable community toy sharing for children, we need to consider not only from the level of the design of sharing mode, but also the design of toy sharing system in terms of sustainable community needs, residents' needs, environmental sustainability, sustainable consumption and participant interaction.

Just as shown in Figure 4 System Design Implementation Path for Idle Toys, first of all, from the level of people, residents need to join the toy sharing system as participants, and as the supplier/demander of toy sharing, enter the shared network platform to become the users of toy sharing. The supplier will release the information of idle toys to the network platform as a product for sale, and the demander browses to the desired idle toys through the platform. After contacting the supplier online, the demand side get the detailed information and delivery mode of idle toys through communication (choose door-to-door pick-up or delivery in person). The supplier needs to clean the idle toys before completing the transaction. After the demander gets the idle toys, the toys are cleaned and disinfected twice, so as to solve the residents' concerns about the hygiene of the idle toys. The sharing system needs to limit the excessive damage of idle toys, infant chewing idle toys and plush idle toys cannot participate in the toy sharing system. After the transaction is concluded, the demand side evaluates the supplier according to the status of the idle toys received and the transaction service. The system receives the evaluation from the demand side and gives the supplier the credit value. With the completion of the transaction of idle toys, the residents of the community, the supplier and the demander, get to know, contact and trust each other.



[Figure 4] System Design Implementation Path for Idle Toy

3.3 Design and Evaluation of Community Toy Sharing System

Sustainable communities require us to construct and transform communities from the perspectives of environment, economic and social equity, so the transformation of sustainable communities needs to be considered from these perspectives. This paper constructs sustainable communities through the design of children's toy-sharing system, mainly through the value orientation of egoism, altruism and biosphere [11] to evaluate children's toy sharing design.

This paper hopes that through the design of children's toy-sharing system, community residents can get the value orientation of egoism, solve the problems caused by piling up of children's toys in their families through toy sharing, help the residents possess value benefits through toy sharing; obtain the value orientation of altruism, and reduce the toy consumption expenditure of residents and children's demand of fast renewal of new toys through toy sharing, thus relieving the economic burden of purchasing children's toys continuously for residents; obtain the value orientation of biosphere, which pays attention to the environment and the welfare of biosphere. The design of children's toy sharing system is a sustainable design based on old toys to circulate in the community, which can reduce the generation of toy garbage and release the pressure of urban environment, which protects the ecological environment to a certain extent.

4. CONCLUSION

"Pursuing a sustainable lifestyle means gradually reducing our consumption of the natural resources of the earth and ensuring that everyone can enjoy goods and services fairly" [12], and the change in consumption patterns depends to some extent on our lifestyle. Therefore, the design of children's toy sharing system based on sustainable community expects to integrate the concept of sustainable consumption into people's daily life, using the way of sharing to change the way community residents treat the consumption of children's toys in the long run. The toy sharing system is designed for everyone in the community, in order to convey the concept of sustainable consumption into the daily life of each resident.

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