Asian Social Science
www.ccsenet.org/journal.html
Vol. 5, No. 3
March 2009

Leading of Public Facilities from Non-Barrier Design to Universal Design

Wenting Dai
College of Art and Appareluages
Tianjin Polytechnic University
Tianjin 300160, China
E-mail: dwthappy@yahoo.com.cn

Abstract

The universal design is the best way for today's design of public facilities. It develops from the non-barrier design and turns to be perfect. Starting from concluding the differences of non-barrier design and universal design in practice, this paper analyzes and describes the process of from non-barrier design to universal design, aiming at form a complete, systematic, and correct recognition toward the universal design.

Keywords: Universal design, Non-barrier design, Public facilities

Along with the constant progresses of economy and culture in China, the construction of barrier-free facilities has been greatly improved. Meanwhile, the non-barrier design thought has won a wider research among the field of facility design in China, which serves as sound material and theoretical bases for the communication and development of universal design thought. However, this design thought displays its essential and original defects gradually. The universal design thought reflects the social progresses and human harmonization process to a great degree.

1. The present conditions of barrier-free facilities construction in China

Thanks for the host of Special Olympic Games and Olympic Games in 2008 and World Expo Shanghai 2010, the construction of barrier-free facilities has been greatly improved in China. What it embodies is not only the municipal construction level in one country, but also the country's concerns about "people".

However, in China, at present the barrier-free facilities do not realize efficient utilization, high inclusiveness or successiveness.

The main reasons for the low utilization rate of barrier-free facilities in China are:

1.1 The lower popularization rate of barrier-free facilities knowledge

Because of the lower popularization rate of barrier-free facilities knowledge, plus present barrier-free facilities have not been accepted by more people, the mass do not know the barrier-free facilities clearly.

1.2 Disabled people do not go out frequently

Barrier-free facilities are a closely associated integration. However, in China the lower popularization of urban barrier-free facilities can not guarantee the successiveness of barrier-free facilities, what causes a decreasing effect of using these facilities. Due to the barriers in environment, disabled people seldom go out. Secondly, barrier-free facilities need relevant environment for utilization. For example, the crowded bus makes the barrier-free facilities useless.

2. The universal design is the trend of future public facilities in future development

2.1 The universal design concept and its characteristics

The universal design was advanced by Professor Ron Mace in 1985. He defined universal design as: The "universal design" is, by certain design, to make facilities or environment to be used by all users without special designs or improvements (Lianxin Liu, 2004).

For same facilities, universal design can make them more competitive compared with similar facilities. They can satisfy people's needs, not only common people's but also the disabled and seniors'. That is the ultimate spirit of "universal

design". In a sense, universal design is more active. It is the improvement of non-barrier design.

The high adaptability is the most important characteristic of universal design (Wolfgang F. E. Preiser, 2001). It is also a main signal that distinguishes universal design from non-barrier design. The "unchangeable nature responses to all changes" spirit makes facilities based on universal design more suitable for special groups. These facilities have higher inclusiveness than facilities based on barrier- free design. Besides, they are more special in appearance.

2.2 The significance of universal design

(1) The economic significance

First of all, the universal design is an important way to explore facilities' more added values in the serving-the-disabled industry. In practice, the universal design initially appears in fields where there are greater economic and social effects, what is also the main development trend. Japan has already entered an aging society. The rise of senior population causes the expansion of senior market. As a result, Panasonic and Toyota have already introduced universal design into their facilities, and have achieved better economic effects.

Secondly, as the economic growth slows today, consumers begin to pay attentions to endurable facilities instead of throwaway products. The facilities based on universal design can provide with more convenience for people since they can satisfy people's needs better. Therefore, the facilities based on universal design have greater potentials in the field. Undoubtedly, these facilities will also generate significant economic effects.

(2) The social significance

Firstly, one region or country's concerns about the vulnerable group indicate whether the country thinks much of human right or not. The vulnerable group endures more discommodities and unhappiness than the "strong group". In perspective the use right of public facilities, the vulnerable group should share equal right of using public facilities with other groups. The vulnerable group can take a part in social activities equally. To go out as will is the primary issue deserved to be solved.

Secondly, considering the characteristics of the vulnerable group, if without economic guaranty and the social life quality could not be improved, it will affect the social harmony process inevitably. Due to some physical and psychological reasons, certain implicit conflicts may happen among vulnerable groups, what will influence the whole social feelings. The "design saves society" idea of modernism is an extreme. However, design is a physical thought, which is responsible for the idea conveyed by facilities. To integrate human care into designs will exert positive effects on the society. The universal design can realize this aim.

(3) The environmental significance

The universal design is for all people, which gives facilities a wide inclusiveness. To reduce the quantity of special facilities means a decrease of resource waste. Facilities possess higher use values and have longer life cycles. In perspective of users, the wider the facilities' inclusiveness, the smaller the hurt on people is.

Another significance of universal design to the environment is to promote the harmonious coexistence of people. Non-barrier design offers special facilities for vulnerable groups, what will affect common people's normal use. On the other hand, popular design may neglect the needs of the disabled. Contradictions are always there more or less. If certain design can satisfy all people's needs, everyone can use the facilities equally. Furthermore, it will offer a communication chance for all people, what may promote the mutual respect and communication between different groups.

Social development drives the population move and environment changes. It is an unchangeable fact. However, changes bring about more and more uncertainties for residents. People are lack of a sense of acceptance and affiliation toward their residential environment. They have not sufficient confidence in the future. Both communities and cities ask for equipments and facilities that satisfy more people's needs for a long time. Universal design helps to solve this issue, which makes our living environment more constant.

3. From non-barrier design to universal design

3.1 The differences between universal design and non-barrier design in practice

The barrier-free is for the environment, while the universal design concerns facilities, environment, and facilities. The barrier-free emphasizes on environmental and spatial plan, while the universal design must take users' psychological feelings into consideration at the same time, hoping to reduce the differences between groups.

The non-barrier design adopts a repairing design to help the disabled (Fengzheng Tang & Dongyang Liu, 2006), while the universal design is to make out general programs by a preventing design. These programs take all people's needs into consideration but not only for certain special group. For example, the road slopes can be designed by special colors and materials that can help people with poor eyesight. Meanwhile, use special technologies to mark the road for walk or not walk. Then, the crossroads will be safer for everyone.

The universal design, in the first place, is a design that "pursues for the maximum universality among particularities". As the universal design takes the "particularities" of the vulnerable groups into consideration, it pursues for the maximum "universality". Differing from the non-barrier design, the universal design is to make the environment and facilities to be used by all people, including the special groups. In other words, the universal design contains a non-barrier design thought. Meanwhile, it covers a wider scope and indicates a more humanism meaning.

3.2 The different applicable environment for the universal design

To develop the universal design based on present barrier-free facilities can shorten the construction term, accelerate people's acceptance, and save costs.

The meanings of universal design change along with the applicable environment. It is the environment that determines the scope of users. In the public environment, public facilities aim at serving all people, which should consider the needs of different vulnerable groups. The program must take the convenient use of all groups into consideration. Surely, here the program can be an independent facility or a series of facilities.

According to the figure 2, among individual facilities, family facilities, and social public facilities, it is the social facility that satisfies more groups' needs. In perspective of universal design, the barrier-free facilities need to be improved in public places, because they are special facilities only for the disabled. In order to turn these barrier-free facilities into universal facilities in public places, we must extend the use scope of facilities and make them to satisfy more groups' needs.

3.3 Make best use of barrier-free facilities' material base

Many ways can help to realize the universal use of facilities. Latest science and technologies, and general programming can effectively help to achieve the universality of facilities. However, how to generate a universal design effect based on present facilities and realize the aim of universal design is a practical issue.

Universal design means a set of scheme to solve problems. Therefore, it includes non-barrier designs and focuses on all kinds of groups, satisfying the needs of more groups. However, the universal design is not a simple integration of non-barrier designs.

Surely, present facilities based on non-barrier designs are just for vulnerable groups. It is necessary to develop the universal design in order to satisfy other groups' needs, which can effectively make up the shortcomings of present barrier-free facilities.

3.4 Make best use of barrier-free facilities' non-material base

The development of barrier-free facilities offers a relatively complete and mature legal environment and perfect data bases. The universal design can directly make best use of or absorb these non-material bases.

(1) The research on the vulnerable groups

The development of barrier-free facilities directs people to make systematic and scientific researches on vulnerable groups' behavioral features and find out a series of solutions for relevant problems, what supply amounts of references for the universal design in solving problems. The development of barrier-free facilities makes the measurement data of human body perfect, which serves as useful references for the universal design.

(2) Build up the public's recognitions to barrier-free facilities

First of all, the development of barrier-free facilities makes the public recognize barrier-free facilities directly, such as the use of barrier-free facilities, and the identification of barrier-free marks. Secondly, the development of non-barrier design causes more investments in vulnerable groups. The society pays more attentions on the livings of vulnerable groups. All these facts serve as preconditions for the prevalence of universal design.

4. Conclusion

The universality of public facilities is a large-scale and lasting process. There are no widely-accepted standards for estimating and evaluating the universal design, and no specific solution schemes either. Therefore, along with the social progress, the solutions for problems will be various. And the universal design solutions will develop further.

The practices of universal design can promote the disabled to join in the society better, what will make the social participation more effective. The universal design aims at offering wider supports, satisfying more needs, benefiting everyone, and making our life more harmonious and happier.

References

Liu, Lianxin. (2004). *An Introduction to Non-barrier design*. Beijing: China Building Material Industry Publishing House.

Tang, Fengzheng & Liu, Dongyang. (2006). A study on education strategies of barrier-free environment from the view

of universal design.

Wolfgang F. E. Preiser. (2001). *Universal Design Handbook*. McGraw-Hill Professional.

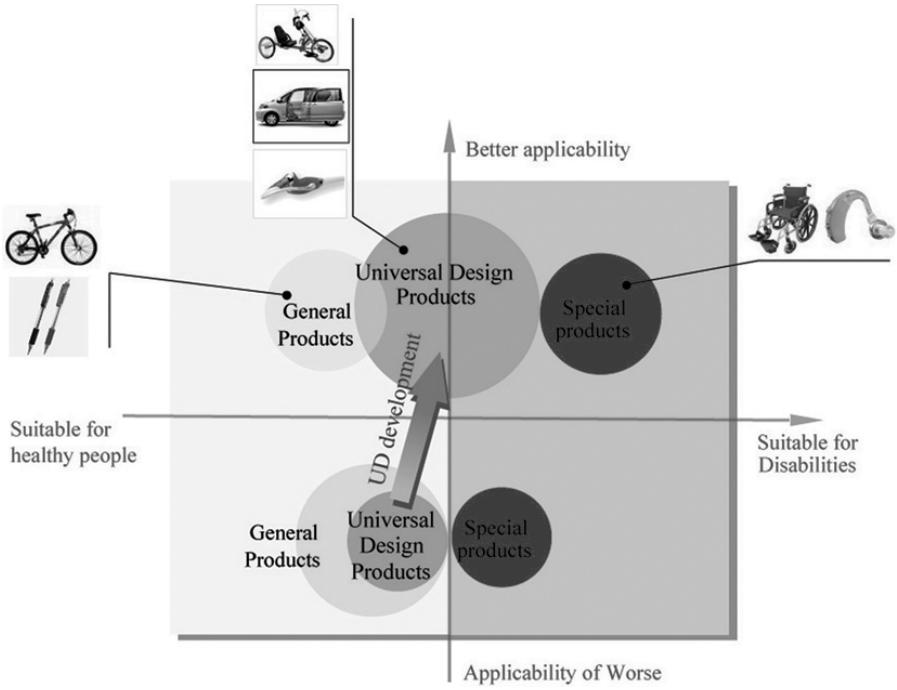

Figure 1. The Relationship of Universal Facility, Common Facility, and Special Facility.

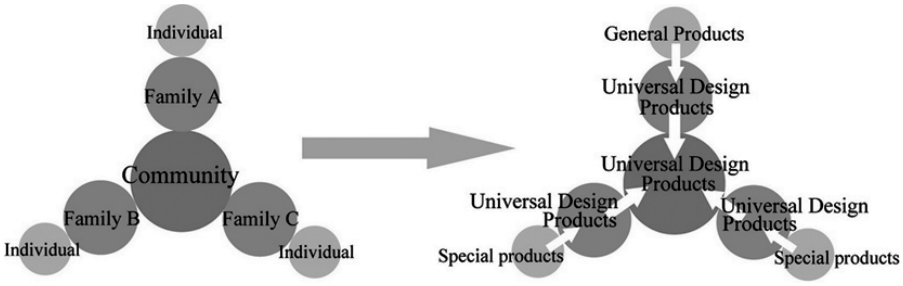

Figure 2. The Relationship of Universal Public Facility, Individual Facility, and Family Facility.