Research on Visual Guides System Design under the Influence of Universal Design Theory

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ABSTRACT

Universal design is a kind of development trend in the future, and it takes product, environment and information as the carrier, and combines many different kinds of people into a new social group through a variety of designs, to promote the progress and development of human society. Under the concept of universal design, the present situation of guides design in China is ignoring the real need of the disabled; therefore, in this paper, according to the characteristics of information perception of the people with hearing impairments, it analyzes the demand of information transmission in many aspects. This paper puts forward the specific concepts of design and universal design, analyzes the basic principle and corresponding strategies, with the concrete opinions on the development of visual guides system design under the influence of universal idea.

Keywords: universal design, visual guides system, guides design.

According to the present situation of guide design in China, the attention to the demand for people with disabilities is not enough in China. Under the influence of universal concept, visual guides system design and research should depend on the social most real demand as the foundation, concretely meeting the needs of all kinds of people. With barrier-free design as the foundation, the realization of universal design not only target the disabled people, but also takes the public in the society as an object and most people as the starting point of the product design to design environment, equipment, and product, etc. for everyone to use. Universal design can increase the number of

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people using products to expand the scope of product, and make social members linked as a closer social group through a variety of designs, so as to promote the healthy development of human society’s fairness and equality. At present, domestic guide design lacks the universal standard, making deaf people have trouble in complex environment. This paper is dedicated to studying the visual guides system design under the influence of universal design, with progressive significance for the development of human society.

**Guide design and universal design**

*Status quo of domestic guide design*

Guide design is a method of spreading information. According to the space environment, the provided information is passed to the interface, which can provide warning, guidance, etc. to people in different environments and can also make people keep clearer in the unfamiliar environment. In many developed cities in China, the development of guide system has been mature, with the corresponding navigation signs indoor and outdoor, and the combination of graphics and text is also convenient for people who have the language barrier, making people of different countries or different nationalities able to get help. Although the status of guide design is very good, the unity and coordination is needed for adjustment, and some design concepts also need to take the needs of the disabled into account. Guide design in this paper is based on universal design, and it explores and researches the principles and strategies of navigation design.

*Development of universal design*

Universal design aims eliminate the difference in age and ability on the design of product to serve the masses as much as possible, and is a kind of environmental design that is suitable for a broader population. Universal design is a new method based on barrier-free design which was put forward under the situation of the great rise in the number of disabled persons after the two world wars. At that time, the disabled population reached the highest level. In the 1970s, the United Nations held the international conference in which the latest barrier-free design concept was presented. Barrier-free design concept mainly emphasizes the facilities involved in the public environment of human’s basic necessities of life, for example, the specific needs of the disabled should be considered on information, equipment and so on, the people with different degrees of physical defects and restricted activity ability need special care, like laying blind way on sidewalks, setting convenient stairs for wheelchair users in the toilet, special seats on buses, etc.

Barrier-free design concept is put forward in order to study and remove action obstacles of special crowd in a public environment. This concept is to provide the most convenience for people with special needs, with significant achievements, eliminating the obstacles of the special groups in public
activities. Although barrier-free concept makes society have big progress, marking the evident use signs of special group in the public places is often counterproductive, causing the disabled people are clearly distinguished from the mainstream social groups, and making special group rejected, which make people with disabilities not willing to use those barrier-free facilities specially provided, and make a lot of manpower and material resources for the construction of the facilities become a waste.

Universal design was put forward based on barrier-free design, and it not only targets the disabled, but also takes all the public into account. The products of universal design take the social public as starting point, and make the content of design meet the needs of all the public, such as design environment, space, equipment, etc. The concept of universal design expands the scope of users, and makes the range of audiences become broader. Through diverse design, different people are connected into a common social group, to promote social equality and harmony. Universal design concept is based on the humanistic care of fairness, justice, self-esteem, and also provides a good basis for future design.

*Modernization significance proposed by universal guide design*

Disability has existed for long time since ancient times in the human society, because of the environment problems such as disease, war, genetics and pollution, etc. Although the environment evolution has been in progress of history, the existence of disability is still inevitable. A sampling survey was adopted for the people with disabilities in China in 2006. According to the survey results, the population of the disabled people in China was 82.96 million, in which the number of the disabled due to hearing damage accounted for 24.16% of the total disabled population, ranking the second in the people with disabilities. The disability of hearing has great differences from other disabilities such as the disability of sight. They seem to have no much difference from ordinary people, therefore, in many environmental designs of public facilities, the needs of people with hearing loss are ignored, and the obstacles caused by hearing loss are neglected. This kind of people cannot perceive sound information due to hearing loss, and this make them easily isolated in mainstream society, whose danger in the social environment in bigger than ordinary people.

At present, the existing guide system design in China lacks the standard with universal concept. If visual guides system will not be able to play the role in the social environment or give full play to its unique function, it will cause the people with hearing loss have a big obstacle in the new social environment. According to the results of relevant survey, it researches the opinions of the disabled on the public guide environment and the difficulties that current system design brings to them. The insufficiency of existing guides system design and the confusion for them are mainly reflected in three aspects: first,
the information instruction of this guides system is not coherent, which makes information instruction have the blind area, and local area does not appear in the instruction; second, the information instruction of this guides system frequently shows unclear and even wrong information, or due to objective problems such as improper position, language ambiguity, it makes the information instruction easily have problems; finally, guides system design lacks order, and in some more complex social and public environments, sometimes there will be more information instructions, which would bring them a sense of clutter, and give too much visual impact; the emergence of this kind of situation will make the guided people have irritability and anxiety. Meanwhile, the signs about security also lack function of special reminder. These also need to be perfected unceasingly.

Enlightenment brought by the characteristics of people with hearing loss on visual perception
What the study of universal guide design cannot ignore is the characteristics of people with hearing loss on visual perception, which will also bring us some enlightenment. Hearing has always been one of the indispensable human senses, and people can not lack hearing in the process of survival and adaptation to the society; missing hearing will have a significant impact on life. The hearing of the people with hearing loss is damaged, of which the main symptom is that they can’t hear others, with talking difficulty, and can’t receive the sound information in the public environment, with difficulties to integrate into the society. These are only part of it. The perception of people with hearing loss to the outside world would also be affected, and according to psychologist researches at home and abroad, the development of visual perception of the people with hearing loss has differences from normal healthy people, which are reflected in three aspects.

First, visual perception of the people with hearing loss is more likely to notice the details that the ordinary people won’t perceive; as a result, it also can produce the disadvantage that generalization ability is poor, because the presentation effect of visual central line is stronger than ordinary people. So what will be noticed in the universal guides system is it must be simple to convey information, which can let the instruction displayed in the most intuitive manner, and make the displayed information more systemic. Second, the attention of the people with hearing loss is more dispersed, and it is difficult for them to keep attention for a long period of time, but they target distinctiveness better than normal people, confirm the target faster, with a keen visual edge. The people with hearing loss are characterized by slow remembering and fast forgetting in memory of language, so the slogans of universal guide design should have the function of repeated hint; it can repeatedly show the hint content in the proper space, or adopt a certain color with strong visual impact on the people with hearing loss, so as to deepen the
memory of the guided. Color can have certain implications. Third, the research results show that the people with hearing loss are the most sensitive to color, direction, etc., therefore, it requires paying attention to the most sensitive elements of the people with hearing loss when designing the guide system.

**Basic principle of universal guides design**

The basic principle of universal guide design is put forward according to the common concept of guide system and universal design; based on the common characteristics of them, it analyzes the characteristics of visual perception of the people with hearing loss, what needs to be noticed is divided into the following four parts.

*Diversity of audiences*

Universal guides design takes the public as an object, thus, it contains not only the disabled, but also the public ordinary group. In universal guides design, the coexistence of two groups needs attention, making the provided information shown to the greatest extent, to meet various needs of all kinds of people. Disability is divided into many kinds of different types according to the damage of organs, and the hearing disability is often ignored easily. This paper explores the universal guides design from the aspect of the people with hearing loss, and the diversity of audiences must be considered.

*Accessibility and perception of information*

Accessibility of information means that the information prompt function setting must be in the scope that audiences are easy to see, people get information through guide board to seek help; guidance direction and distance, as well as the psychology of the disabled and the implementation status are key factors. Perception of information means universal guides design must pay attention to the differences between healthy people and disabled people. The guide design is established from differences, to make the public more conveniently get information, and make the people with hearing loss not meet trouble.

*Timeliness and systematicness of information*

The function of guide design is based on human’s cognition of the space environment to help people get relevant information in a timely manner in the space environment. Universal guide design, first of all, needs to distinguish the demand of the people with hearing loss from that of other audiences, and effectively help all the members of society through the study of composition and conveying manner of information, and according to the viewpoint of user’s selection and use of information. Systematicness means the exchange of information should be orderly, with reasonable use of the unified method to organize and design information.

*Security of environment*

Guide design will be divided into indicative sign, sign providing route, signs, prescriptive sign and introductory sign because of the different content.
Prescriptive sign refers to the prompt of consolidating the rules and regulations, including security factors in the environment and object information, etc., to regulate the behavior of people in the public environment in order to prevent the accident. In social environment, the people with hearing loss more easily have accident than ordinary people, therefore, the signs of danger should be shown in universal guides design as far as possible to reduce the harm caused by hearing problems.

**Strategies for universal guides design**

*Systematic structure*

According to the characteristics that the people with hearing loss pay more attention to details and have poorer ability of generalization than ordinary people, universal guides design needs to strengthen the visual communication of information, so as to provide greater convenience for people with disabilities. Many social environments are more complex, and the public places with a large amount of information all need to use color to strengthen the attention of the people with hearing loss. The related materials such as color, material, position, and so on are very important visual elements, playing a key role.

*Establishment of continuity information*

In layout and positioning of guide information, many factors should be considered, including direction for people to come and go, movement speed of people, display of facilities, environment space, etc. According to the characteristics of the people with hearing loss to identify information, the location and positioning of guide information is planned. Repeatability and continuity of information is very important. Since their attention is scattered, slowly remember words and soon forget them, etc., universal guide information needs to strengthen information continuity in the fixed-point and layout design.

*Application of visual code*

Reasonable use of visual code is of great help to guide design. The code recognition function of guide design needs takes materials including color, text, image, etc. as a way to communicate, in which some elements can form identification system in the code. From the perspective of visual, observation is made; color has the strongest discrimination, followed by graphics and text. To effectively convey information, do information accurately with readability, it also requires reasonable use of words.

**Conclusion**

In universal guides design, the most important plan is based on the most sensitive color of the people with hearing loss to design. Because color has a strong emotional guide way, it can play a biggest role in people’s visual feeling in the universal guides system, and graphics is more intuitive, text accuracy is
greater; the combination and use of these three aspects can make the people with language limitation better distinguish. Psychologists confirm that graphics has no obvious difference between the people with hearing loss and the people with good hearing, thus, accurate and effective use of graphics can more vividly and intuitively convey information in the complex space; in addition, gesture language is also an effective way of passing information. With the influence of universal design concept, visual guides system requires being researched from multiple angles.

References