Teaching Practice of Product Design Guided by Social Problems

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Abstract. In order to export product design talents with design responsibility to the society, it is necessary for colleges and universities to explore how to alleviate the current hot social problems by means of design in the teaching process. By introducing social problems into product design course and discussing products in the environment of people and society, we can strengthen our understanding of people's diverse needs and inspire students to consider the design scheme of products from the perspective of society.

1. Introduction

With the rapid development of China's economy in the past 30 years of reform and opening-up, the first-tier cities such as Beijing, Shanghai, Guangzhou and Shenzhen have already possessed some characteristics of "consumer society". There are a wide range of online and offline commodities; the rapid change of fashion and product style; all kinds of media permeate people's life everywhere. People have higher and higher requirements for clothing, food, housing and transportation, and the life cycle of consumer products is getting shorter and shorter. In such an environment, products tend to be over designed. According to this situation, in recent years, academic circles have studied and discussed the relationship between design and people and society, design and ecological environment, designer and consumer society and other issues. As the training base of product designers, colleges and universities must attach importance to guiding students to understand the relationship between people and things from the perspective of humanities, and to alleviate social problems by designing.

2. The Necessity of Introducing Social Problems into Product Design Teaching

Professor Liu Guanzhong of Tsinghua University pointed out that "design is no longer only a tool for commercial profit-making; design is no longer just a marketing technique of technology; design will bear the heavy responsibility of human ideal and morality." [1] In November 2007, Zhuangshi journal and Art Design College of Zhejiang Gongshang University jointly held a forum in Hangzhou with the theme of "design ethics education for art and design majors in colleges and universities", and issued a declaration calling for design ethics: "Hangzhou declaration—proposal for reflection on design ethics", which called for the reflection on design ethics, and advocated that Chinese designers should adhere to the correct design professional ethics, resist the profit seeking industry values and call on everyone to work hard for the bright future of Chinese design. [2] More and more attention has been paid to the social and ethical issues of design. Tang Lintao of Tsinghua University expounded the teaching purpose and method of Sociology of design in his "Meaning Production beyond Function—The Theoretical Framework of the Course “Design Sociology”. [3]
However, as an independent "sociology of design", the class hours are limited, and it is difficult to discuss in depth in a short time. Therefore, it is necessary to introduce the current hot social issues into the product design course, and use design thinking to seek solutions. The necessity is as follows.

2.1. It is Helpful for Students to Understand the Relationship Between People and Things

“We regard society and design as a systematic whole, and regard the relationship between them as the relationship between parent system and subsystem. In fact, under the influence of social culture in a larger system as a whole design activity is not only an organic operation of a self-contained and relatively independent whole, but also a process of interaction with other social components (science and technology, politics, economy, ethics, etc.). It is not scientific and comprehensive to look at design in isolation and stillness (whether it is specific designers and their products, or as a whole design culture).” [4] The products in life are not only simple supplies, but also reflect the current living style and social relations.

“Society is a collection of people with mutual identity, solidarity and collective goals.” [5] The object of product design is not an individual, but a group in a certain social environment. The understanding of the current social problems helps to understand the design object more deeply. The objects used by a person can reflect the social group he belongs to, which implies people's hope and dream in the pursuit of things.

2.2. It is Helpful to Cultivate Students' Ability of Analyzing Problems

The introduction of social problems requires students to collect material and human information, refine key issues, and think about the relationship between them. The relationship between people and society is constantly changing. Students take products as the foothold, explore the social functions, historical culture of products in different social scenes, analyze the causes, and effectively exercise students' ability to find and analyze problems.

2.3. Students Lack of Background Knowledge of Sociology

Due to the lack of professional credit in the field of industrial design, it is limited by the domestic social science program. In the design process, limited by the knowledge background, it is difficult for students to jump out of the designer's perspective and comprehensively use sociological methods to analyze problems. Teachers need to change their ideas and pay attention to the society and supplement relevant knowledge, so as to do a good job in guiding students.

2.4. Difficulty in Design Evaluation

The product design evaluation of general consumer goods can be comprehensively evaluated by the project leader of the enterprise according to their experience on the design orientation, function innovation, structural design, material technology and market prospect. But for the design related to social problems, it is difficult to evaluate based on the market, and the use effect of product design is difficult to judge through the demonstration of prototype.

3. The Exploration of Domestic Curriculum Teaching Reform

The teachers who advocate social design in China mainly include Zhang Liguo of China Academy of fine arts and Tang Lintao of School of fine arts of Tsinghua University. Tang Lintao's Design Thinking and Methods and Research on Design Sociology and Lifestyle are positive explorations to integrate design and society. It is hoped that by analyzing the diversity of human behaviors behind products, students can be inspired to think about the “meaning cluster” of social life beyond the function [3]. Based on the study of public life and behavior, psychology and aesthetic taste, the life design studio of Guangzhou Academy of fine arts examines the relationship between people and things, people and people, things and things, and things and behaviors from the perspective of
designers through the cross integration of design art and surrounding disciplines, so as to show and strengthen in the design with designer's language. The postgraduate syllabus of Nanjing Institute of art offers the research on lifestyle and cultural fashion, which explores the relationship between people and society in design. [6]

4. Teaching Practice of Public Service Design

In the design teaching, we can introduce the topic from the following three aspects, so as to enhance the students' sense of social responsibility.

4.1. Design for Vulnerable Groups

The so-called vulnerable group is a concept in sociology, which can be divided into two categories: physiological vulnerable group and vulnerable group. The physiological vulnerable groups mainly refer to the people who are facing special physiological difficulties, such as patients, the elderly, pregnant women and the disabled. The vulnerable groups mainly refer to the people who lack of economic support, have less social resources and are in a weak social status. [7] By using the principles of universal design and inclusive design, taking into account the physiological and psychological needs of all kinds of people, fully respecting and recognizing the diversity of users, making the design more fair and providing services to more people.

4.2. Design for Sustainability

In Ecological Design, van der Ryn et al. defined ecological design as any form of design that reduces the destructive impact on the environment.[8] The sustainability design takes the protection of ecology as the starting point. The design focuses on reducing the environmental damage caused by products in the whole life cycle. For example, it is committed to reducing the consumption of nonrenewable resources, reducing energy consumption, prolonging product life, using recyclable materials, etc.

4.3. Emergency Disaster Prevention Design

In view of the natural disaster scenes such as earthquake, tsunami and typhoon, the design method is used to explore the new forms of rescue and refuge. The following is a teaching theme about the design of public life-saving facilities when a tsunami comes. The design theme is promoted from the social interests, taking into account the needs of various groups of people, reflecting the equality of design.

4.3.1. Problem Introduction

First of all, we should make clear the design effect and the specific definition of the product. The clear purpose of tsunami life-saving products is to provide effective protection for people when the disaster comes, and has the following two properties: (1) Emergency Nature: Tsunami refuge facilities must first meet the "emergency" nature, the significance of these refuge facilities is to provide people with a temporary shelter to protect their lives in case of danger. The facility should provide shelter for as many people as possible in the shortest possible time to save people's lives. (2) Publicity: refuge facilities are not for private service, and rescue should be carried out as efficiently as possible in case of tsunami. (3) Economy: because it is impossible to predict when the next tsunami will arrive, the refuge facilities should be economical to a certain extent. The design of refuge facilities can consider the combination of existing public facilities and make full use of social resources.

4.3.2. Determine the Content of the Survey

According to the relationship between design and society, it mainly includes three levels: the first is the behavior and psychological characteristics of the crowd; the second is the geographical environment; the third is the local rescue system.
4.3.3. Discussion through Simulation Scenarios

The product related scenes and people are represented with pictures, and the relationship among people, products and environment is expressed through simulating the use scenarios. In the process of scene simulation, team members can put forward various questions to improve the design. Through the scene simulation, some students organically combined "refuge facilities" and "bus stops". The bus station will be washed away by the tsunami when it comes, and it will become a potential killer. However, if the function of refuge is given to the bus station, the warning will be automatically issued after receiving the warning information of tsunami to remind the people around to take refuge, which will meet the principle of emergency, public and economic.

4.3.4. Detailed Design Stage

According to the design orientation, the bus station with the function of avoiding danger is designed in detail. The structure, layout, function, modeling and use mode of the product are designed.

5. Summary

It is of positive significance to pay attention to social problems and meet people's needs in health, education, survival and other fields through design. Contemporary design should be based on the long-term development of human society, and comprehensively consider the factors of nature, society and science and technology. In teaching, through the sociological perspective and methods, to explore the relationship between products and different groups, can guide students to gradually build a sense of social responsibility of the design concept.

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