

Research on Multidisciplinary Intersection of Modern Design

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Abstract: *Since the development of modern design, it has involved more and more disciplines in order to serve people better. Based on the development history of design and combined with relevant cases, it discusses the necessity of the multi-disciplinary development of modern design, and makes an outlook on the future development of modern design. It believes that the integration of multi-disciplinary development will better meet people's lives, demand, improve people's quality of life, and also help to highlight national characteristics.*

Keywords: *design, interdisciplinary, development*

1. Introduction

As the quality of modern life continues to improve, people's needs have become more complex and diverse. As a discipline serving mankind, design discipline is not a part of the whole, but to understand the cross relations of multiple disciplines. It is a synthesis that goes beyond simple engineering or subtle variations of form and color. The success of design is to create cross-relations between things to meet people's multi-faceted requirements. Similarly, the cross-disciplinary development of design provides guidance for the development of high quality design.

2. The History of Design

Design has multiple solutions, and generally refers to "the process of expressing an idea through reasonable planning, careful planning, and various ways". Human beings transform the world through labor, create civilization, create material wealth and spiritual wealth, and the most basic and most important creative activity is creation. Design is the preplanning of the activity of creation, the premise and component of its production. The purpose of design is to meet people's needs and promote people's all-round development. Function is its core. Function is not only practical, but includes practical, cognitive and aesthetic meanings. Therefore, design is bound to be a multi-disciplinary subject. Discipline of subject knowledge.

The design shows different characteristics in different time periods. In the age of crafts, design and production are integrated, and the designer and producer are the same person. When the machine age came, design and production were separated, which changed the original integrated state of handicraft production. However, at this time, the design was characterized by shoddily made. Therefore, in the Bauhaus period, the idea of combining art, handicraft and industry was put forward, and the slogan that design was never a single work but a collective work was put forward. After the war, Ulm applied systematic ideas to design and planned various design activities from a large system, which influenced a whole generation of designers in Western Europe and also influenced modern design in the world.

Design is never a noun, it is not static, the real "design" is changing with The Times. Its spirit is reform and exploration, its goal is to point to the future, design in our constantly developing dynamic relationship, will continue to enrich its meaning, will also involve more and more disciplines.

3. The Necessity of Interdisciplinary Development of Design

According to Maslow's hierarchy of needs, human needs are complex, ranging from satisfying basic physiological needs to satisfying psychological and cultural needs. Requirements such as self-esteem are not simply the satisfaction of simple physiological requirements. In most product needs, people first demand the satisfaction of physical or physiological needs, and then demand the satisfaction of

psychological needs. The designer's work basically follows the level of this demand and mobilizes various factors to meet these demands, which inevitably involves the cross-integration of various disciplines. This chapter will analyze the necessity of multi-disciplinary development of design from three aspects: design is the unity of practicality and aesthetics, the purpose of design, and the direction of design to the future.

3.1. Design is the Unity of Practicality and Aesthetics

Design is the unity of practicality and aesthetics, which not only involves the principle of science and technology, but also needs to pursue the performance of aesthetic function, which naturally needs the cooperation of multiple disciplines, so as to better serve people. For example, frog Design, a famous design company, is one of the most successful German design firms. Their members cover professionals in various disciplines such as human engineering, machinery, electricity, software engineering and industrial design. Among them, the most important is their partnership with Apple. On the basis of ensuring the function of the computer, the appearance of the computer is improved. Their definition is that a computer should not be a cold machine, but a convenient waiter for people. So they will be the host computer, Windows, screens, streamline the mouse more accord with human body engineering, colour also used the soft cream color, original "Snow White" vocabulary (as shown in figure 1), will be a "silicon valley" in the apple into the world famous brand, attract a batch of and a number of apple fans to follow.

It can be seen that the design not only refers to the advanced practical function, but also to meet the aesthetic needs of people on the appearance. This naturally requires the professional personnel of multiple disciplines to communicate with each other to achieve the harmony and unity of practicality and aesthetics.



Figure 1: The "Snow White" series of computers

3.2. The Purpose of Design is People but Not Things

The design discipline takes the relationship between people and products as the center of investigation. If a design cannot meet certain needs of people, it will lose its meaning. People's needs are complex, which also reflects the progress of modern society. Design continuously meets people's growing material and spiritual needs through cross-integration and shared connections between multiple disciplines.

In this regard, IDEO has done a very good job. It is more like a design consulting company. The company's philosophy is that all design should start from the perspective of people, and the ultimate goal of design is people, not objects. This concept is well reflected in the planning of Kaiser Medical Network. Kaiser Medical Network is one of the largest medical institutions in the United States. Because of the outdated equipment and the decrease of customers, IDEO was invited to redesign it. IDEO did not put forward various requirements for equipment replacement, but formed a design team including scientists, architects, engineers, and designers, and invited doctors, nurses, administrators, and some patients from the Kaiser Group to participate and discuss together. improve proposals. During the process, many problems of the Kaiser Medical Corps were discovered, such as the lack of clear signs in the lobby, the family members were not allowed to accompany the patient while waiting, and the waiting room did not pay attention to protecting the privacy of patients. From these aspects, the Kaiser Medical Corps has been transformed, which has achieved remarkable results and saved a large part of the cost. Through cross-sharing among multiple disciplines, not only better design effects can be achieved, but also the waste of resources can be reduced to a certain extent.

From the perspective of multi-disciplinary thinking, it also brings a broader development space for

the design, so that the design continues to move forward in the direction of high quality.

4. Design is for the Future

Design is never following the market, its goal is to point to the future. Modern design gradually shifts its focus from the product itself to satisfying people's needs. Not only to satisfy people's obvious realistic needs, but also to provide objective reality products for people's potential needs. SONY of Japan once put forward the slogan that design creates the market. In 1955, SONY introduced the compact semiconductor recorder, which expanded its use by being small and portable. Subsequently, the company developed the "Walkman" in 1978 (as shown in Figure 2). This kind of radio uses earphones to receive sound, so that users can use it in public places without interfering with others, and can use it at any time during travel, walking or waiting. It satisfies some potential needs of people in a new way. It was an instant hit. The same goes for the design of the electric rice cooker, which relieves people from heavy housework and ensures the quality of the rice.

The satisfaction of these potential needs is not a single technology, nor a simple integration of modeling structure. It involves a series of working knowledge behind the product, which requires designers to mobilize positive factors from all aspects to provide people with perfect services.



Figure 2: The Walkman

5. The Future Development Trend of Design

With the progress of society and the complexity and diversification of people's needs, multidisciplinary design will become inevitable, which can not only improve the quality of life, but also help establish the national brand.

5.1. Multidisciplinary development to improve the quality of life

According to the latest regulations of the Academic Degrees Committee of The State Council and the Ministry of Education, design will be a new interdisciplinary subject integrating science, engineering and literature, and integrating mechanical and electrical engineering, ergonomics, art and computer-aided design. The real purpose of design is to create and guide human healthy work and life, to promote social change and development.

Just as today's people prefer humanized products to high-tech products. The "Soft Science Plan" launched by the Japanese government in 1993 re-examined science and technology from the perspective of humanities and social sciences, made highly developed science and technology more conducive to people's use and improved the harmony between science and technology and human society. It plays a new role in the integration of humanities, social sciences and natural sciences and promotes the development of society. Therefore, multidisciplinary design will be an important means to improve people's quality of life.

5.2. Interdisciplinary development of multiple disciplines to create independent brands

China's design level is developing rapidly, but looking at the world, we still lack of their own brands. One important reason is that the development of various disciplines in China is still relatively independent and has not yet formed a state of mutual cooperation, which is also the reason for the difficulties in the development of industrial design in China. Because industrial design is built on the

basis of engineering design and art design. In this regard, we should strengthen the cross-disciplinary cooperation, the application of China's traditional culture in modern design, so that the products can not only meet the living standards of modern people, but also reflect our national culture.

For example, The basketball shoes launched by Li Ning, a Chinese sports brand, in 2017 (*Figure 3* and *Figure 4*) have applied the colored pottery pattern of Majiayao culture into the design of the shoes, which has won the favor of Chinese and foreign friends and won the IE design award, making more people realize The National culture of China. Therefore, whether in the enterprise or in the school teaching, should strengthen the cross integration between various disciplines, especially in the enterprise, the design department should establish a good interaction with the technology department, the sales department, improve product quality, to create our own independent brand.



Figure 3: The Li Ning basketball shoes



Figure 4: The decorated pottery of Majiayao

6. Conclusions

Whether from the perspective of the development history of design or the development of modern design, the nature of the design discipline itself determines the interdisciplinary nature. Only through the good interaction between multiple disciplines can design be practical and aesthetic, serve people effectively and lead to the future. The interdisciplinary of modern design also meets the needs of the development of modern society, and also puts forward higher requirements for our modern designers. They need not only to understand the relationship between product components and components, but also to master the relationship between products and people and the environment. For the design of multidisciplinary intersection is a subject worthy of our continuous research, exploration and development.

References

- [1] Shouzhi Wang. *History of World Modern Design* [M]. China Youth Publishing House, 2015.
- [2] Hengchun Xu. *Design Aesthetics* [M]. Tsinghua University Press, 2005.
- [3] Zibing Tian. *History of Chinese Arts and Crafts* [M]. Oriental Publishing Center, 2010.
- [4] Zehou Li. *Process of Beauty* [M]. Tianjin Academy of Social Sciences Press, 2001.