On the Relationship Between Dialectics of Nature and Industrial Design

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Abstract

Industrial design, as a practical activity that coordinates the relationship between man and nature, must follow the dialectics of nature and be guided by the dialectics of nature. Natural dialectics is about the general laws of the development of nature and science and technology, as well as the general methods of human understanding and transforming nature. Many of these theories are very helpful in design creation. This is also very obvious in the design, which requires designers to fully understand and transform nature in the process of design creation, and to follow the laws of nature, so that good works can be designed. This article discusses the philosophical thinking of industrial design from three aspects: system view, science and technology view and innovation view, and then deeply explores the inspiration of natural dialectics to industrial design.

Keywords

Industrial design, Dialectics of Nature, Science and Technology, Innovation.

1. Introduction

The manuscript of dialectics of nature left by Engels to posterity opened a new chapter in the history of human knowledge. Dialectics of nature not only maintains the metaphysical character of traditional philosophy's pursuit of wisdom, but also has the metaphysical character of modern science's pursuit of knowledge. It is a model of human wisdom in the age of science and technology. Dialectics of nature, as a powerful ideological weapon to remove the mental obstacles brought about by globalization and modernization, not only contains one's own worldview, outlook on life, and values, but also a scientific methodology. It is related to the ultimate care of mankind, and is related to mankind. Realistic care has important ideological value for the healthy development of human society.

Design is an activity process that conveys plans, plans and ideas in the mind through visual forms. From pottery pots to stainless steel pots, from stone axes to nuclear weapons, human creation activities are becoming increasingly sophisticated. Practice is all behavior of human conscious self, and the subjectivity and consciousness of design determine its important position in human practice. Therefore, design practice is also restricted and guided by natural dialectics. If certain design activities are reasonable, they will It arises at the historic moment and is carried forward; if certain design activities are no longer adapted to human production and life, they will slowly fade out of the historical stage. The objective laws are like invisible hands that guide and influence the development of design under the stage. The material view, movement view, time and space view, information view, system view, law view, and the division, connection, interlacing, and transformation of natural development history and various forms of movement in nature in the dialectics of nature affect the design subtly, and finally make Design develops into a comprehensive discipline. Industrial design under the design discipline is also a process of continuous creation, an activity that harmoniously connects nature and humans. As a practical activity to coordinate the relationship between man and nature, design must follow the dialectics of nature. Through its scientific dialectical theory to guide the design work and promote the coordinated development of man and nature, human activities and nature, can design go further and further on the green road of sustainable development.

System view, science and technology view and innovation view are important parts of dialectics of nature, and they all affect the practical activities of industrial design on different levels. In-depth

study of the system view, science and technology view, and innovation view in natural dialectics, and link them with industrial design, using natural dialectics as theoretical guidance, is bound to have a positive effect on industrial design. On the one hand, the enlightenment of science and technology to industrial design. Science and technology are tools for mankind to understand and transform nature. It is the primary productive force and can help mankind to continuously create brilliant material and spiritual civilizations. The rapid development of science and technology will inevitably bring new design concepts and ideas to industrial design. Modern design must meet the requirements of science and technology. The current era is an era of information explosion, an era in which earth-shaking changes are taking place all the time. Therefore, people nowadays have a very strong psychology of curiosity and obsessive pursuit of unique technological products. This makes modern design have to look at the world from a development perspective, and meet people's needs with its unique design. With the development of science and technology, people's attention to the environment has gradually increased, and the protection of the environment and the use of environmentally friendly green ecological products have been increasingly being watched by the current people. Based on this social demand, designers must be guided by the scientific concept of development in their designs, actively and rationally use science and technology, and combine it with trendy design thinking to create excellent products that are both practical, environmentally friendly and beautiful. On the other hand, the concept of innovation promotes industrial design. Innovation is the eternal theme in the development of society. Innovation is the soul of a nation's progress. Therefore, human beings are always summing up experience, discovering, creating, and improving. China's reform and opening up has brought unprecedented opportunities and challenges to the design industry, with great and residual results. Due to the late start of the Chinese design industry itself, the lagging development, and blindly copying Western designs and other practical reasons, many designs in China today give people a feeling of copying and copying. Whether it is from the sense of the times, science and technology, or even cultural connotation, it has failed to complete its due social mission. Therefore, the design needs innovation. Contemporary Chinese design is no longer a blind follower of Western design, but after absorbing the essence of all parties, combining with the actual situation of the country, taking the road of modern design with Chinese characteristics, creating a modern design that meets the actual requirements of the current people and has a sense of the times. , A Chinese-style design that can inherit five thousand years of Chinese splendid culture. Taking the innovative design path with Chinese characteristics is hard, tortuous, and exciting. British psychologist Wallers once said: "The process of innovation requires a process of preparation, that is, the process of collecting data." To promote innovative design with Chinese characteristics, there is undoubtedly a lot of preparation work, such as studying ancient and modern Chinese and foreign Excellent design ideas and the work experience of all design workers, obtain knowledge and enlightenment from them, and analyze them on this basis, remove the roughness, remove the false and save the truth, learn from each other to serve their own design, and gradually form in this benign learning process Own design style.

2. Dialectics of Nature and Art Design

Engels' scientific revelation of the dialectics of nature liberated man's knowledge of nature from the rigorous theological constraints, and presented the dialectical vision of the development of nature in front of people. On this basis, he further elaborated on the dialectical materialist view of nature. A series of correct viewpoints reveal the basic laws of materialist dialectics and the manifestation of various categories in natural sciences. Engels' thoughts on dialectics of nature reveal the inseparability between subjective dialectics and dialectics developed in nature: the dialectics of subjective knowledge is nothing but The dialectical movement relationship between things prevailing everywhere in nature is a reflection of itself, thus removing the mystery that has long been concealed on subjective dialectics, and making dialectics truly based on materialism. It has not only constructed a scientific world view in the scientific age, but also provided us with scientific methodological guidance for understanding the development laws of nature and human society. As we all know, analyzing design art from the perspective of dialectics of nature is a very meaningful study. Our

design development history has brought us many experiences and lessons. If we can solve these problems from the root cause, then China will also occupy a higher level in the world in the field of design. To achieve this goal, it is necessary for each of us in the design industry to start with ideological understanding and rise to the height of dialectics of nature, to look at the problems of design in China, and to analyze China using the basic principles of dialectics of nature. At the same time, we can get more theoretical enlightenment from the problems of modernist design, so as to fundamentally understand the key to the problem, find a breakthrough, and solve the problems and difficulties encountered in all aspects of the design field. It analyzes the enlightenment of natural dialectics to modern industrial design from three aspects: system view, science and technology view and innovation view.

2.1 Enlightenment of system view to industrial design

The modern system view believes that the universal connection and eternal motion of things are a total process. It is necessary to fully grasp and control the object, and comprehensively explore the elements and elements, elements and systems, system and environment, system and system interaction and change laws in the system. Grasp the relationship between the internal and external environment of the object in order to effectively understand and transform the object.

For example, in the design of packaging form, not only the relationship between the internal elements of the packaging, but also the relationship between the packaging and external elements and the environment must be handled well. The old packaging design needs to solve a series of basic problems such as protecting the packaging, easy to transport, and distinguishing from other items. However, with the changes of the times and the continuous development of society, packaging design has not only been practical, beautiful, and economical. The question also involves many disciplines such as sociology, ecology, psychology, history, economics, and environmental science, that is, packaging design must not only satisfy basic functions such as protecting items, but also reflect the contemporary, regional and Cultural. Under the guidance of today's "people-oriented" design concept, in this era of emphasizing the coordinated development of man and nature, people are no longer satisfied with packaging items with blunt and rough geometry, but pursue a contemporary and cultural value, And coordinated and unified with the natural environment and social environment. This requires designers to design in a comprehensive way of thinking in the process of design, and grasp the main contradictions and main aspects of contradictions among the many complicated factors. The packaging design process of a product is a process of constantly solving problems. Only when designers solve the problems at all stages can they design a healthy, safe, economical, beautiful, convenient, comfortable and sustainable development of ecological environmental protection packaging. Pursuing the design concept of green and environmentally friendly original ecology in the current packaging form design is a scientific analysis under the guidance of the system view. It is a practical activity to create harmony between man and nature.

2.2 Enlightenment of innovation view to industrial design

Innovation is the eternal theme in the development of society. Both nature and human beings are constantly evolving and changing, and nothing will stop at one level forever. Innovation is the soul of a nation’s progress. Therefore, human beings are always summing up experience, discovering, creating, and improving.

Designers should correctly grasp the relationship between ecological value, economic value, aesthetic value and social value when designing, and build a truly valuable design. Innovation in dialectics of nature is also very important to design. Design innovation cannot have clear steps and processes like scientific management. The continuation of design innovation is a system of overlapping spaces, rather than a series of orderly steps. Design thinking is essentially an exploratory process, an open, repetitive and non-linear process with no established conclusions. Academic thinking is concerned with creating new knowledge, verifying a theory, or proving a scientific hypothesis. Innovative thinking starts from a kind of idea, and requires innovative desire and pursuit. The following are two examples of innovative designs:

In the mid-nineteenth century, the industries of European countries were highly developed, and the industrial revolution was gradually completed. All countries must pass a worldwide exhibition to showcase the fruits, industrial products and artworks of the industrial revolution. Thus, in 1850, the world's first world fair was held in Britain. The organizer, Queen Victoria, asked the architects to build a huge exhibition hall that can hold a total of 250,000 industrial exhibits sent from 14 countries. A 32-year-old young man named Burxton designed a building that can be called a turning point in the history of modern design. He used the principle of the glass shed of the greenhouse to make a huge glass shed to hold huge exhibits, the height of which is equivalent to the height of an 11-story building. This building uses two major materials-steel and glass, both of which are the most basic materials used in modern architecture. Burxton used the form of assembly to change the traditional construction method. All the structures are cast in the factory and assembled on site. This building is the famous Crystal Palace. The Crystal Palace is an innovative and great work, this design breaks almost all traditions. When 1 million people around the world visited the exhibition, everyone felt shocked. The Crystal Palace not only solved the problem of non-electric lighting in London at that time because of its transparent glass, but also because it can be flexibly disassembled and assembled, it also solved the problem of ventilation, and it is also temporary. After the exhibition is over, it can be disassembled and moved. . Technological breakthroughs, breakthroughs in construction methods, breakthroughs in form, and geometric construction are the result of innovation, and this is the verification and realization of creative thinking.

The famous "Red House" built by British architect Morris in Kent, a suburb of London, broke the symmetrical structure of house construction at that time, and the overall construction was an asymmetric "L" shape. At the same time, "Red House" gave up painting on the exterior surface and exposed red brick walls, hence the name "Red House". Morris unified the furniture, floor, tableware, chandeliers, and curtains with the house. The creation process of the "Red House" precisely embodies the process of innovative thinking. An obvious motivation for Morris is to build a house with a uniform style, inspiring him to carry out gradual and sudden inspiration, in the development of new ideas and new methods. Under the guidance, an architectural work of historical significance was formed.

Both of these examples illustrate the importance of innovation for design. In the dialectics of nature, creative thinking refers to the use of a variety of specific ways of thinking (including intuition and inspiration) inspired by strong creative motives and external revelation, in a gradual or abrupt form, to oneself. Recombination and re-creation of the knowledge and experience in different directions and different degrees, so as to obtain valuable new ideas, new knowledge, new methods, new products and other creative results of thinking. Design requires association and creation, so we should study design through the process of innovation.

2.3 The Enlightenment of Science and Technology View on Art Design

Science and technology are tools for mankind to understand and transform nature. It is the primary productive force and can help mankind to continuously create brilliant material and spiritual civilizations. The rapid development of science and technology will inevitably bring new design concepts and ideas to art design. Modern design must meet the requirements of science and technology. The guidance of the scientific development concept to art design activities is mainly embodied in two aspects: thought and modern technology application.

The current era is an era of information explosion, an era in which earth-shaking changes are taking place all the time. Therefore, people nowadays have a very strong psychology of curiosity and obsessive pursuit of unique technological products. This makes it necessary for modern design to look at the world from a developmental perspective, and to meet people's needs with unique designs. With the development of science and technology, people's attention to the environment has gradually increased, and the protection of the environment and the use of environmentally friendly green ecological products have been increasingly being watched by the current people. Based on this social demand, designers must be guided by the scientific development concept, actively and rationally use

science and technology, and combine it with trendy design thinking to create excellent products that are both practical, environmentally friendly and beautiful.

Another embodiment of science and technology in design is the application of computer technology. The revolution in science and technology has caused no more changes than the rapid development of computer technology. As an earlier application of computer technology for various design work in artistic creation, the development of 2D and 3D software undoubtedly brought greater imagination and expression space to designers. For example, the current book form design has long surpassed the era that requires drawing a floor plan, but requires intuitive renderings, and even the emergence of virtual reality. Architectural design is a model of the application of virtual reality technology in art design. Architectural renderings drawn by computer technology are the most intuitive and important way for architects to display the design intent, space environment, color effects and texture of their works. Through virtual reality technology, users can obtain more information about buildings and achieve an immersive effect. Computer technology is easy to use, easy to modify, repeatable, accurate and true.

3. Conclusion

The Dialectics of Nature summarized by Engels more than 100 years ago, as an unfinished text, contains the unique wisdom of mankind in the scientific age. It accurately outlines the basic framework that natural philosophy should have in the scientific age, thus making the appearance of philosophy appear Dialectics of nature may become the philosophy of true science in the scientific age. As a philosophy that advocates wisdom, it is constructed on the basis of science. Consciously aligning with science is an important feature of dialectics of nature. Respecting science and respecting facts have always been a basic principle of dialectics of nature. Natural dialectics not only depicts a scientific outlook on the world, but also contains a scientific outlook on life. At the same time, as a scientific philosophy, it also contains a kind of scientific values internally, even bringing human ethics to the realm of science.

Dialectics of nature is a science about the general laws of the development of nature and science and technology, as well as the general methods of human understanding and transforming nature. Its research purpose is to deal with the contradiction between man and nature reasonably. Therefore, the design must follow the dialectics of nature, and designers should also Learn dialectics of nature, improve your philosophical and humanistic qualities, further establish a dialectical materialist world view, master and use scientific thinking tools to explore the inherent natural laws of art design and the environment. In the design, we must grasp the system view, reflect the scientific and technological view, and be full of innovative views. Only in this way can we create excellent design works.

Dialectics of nature not only has the character of pursuing wisdom in traditional philosophy, but also has methods that conform to the pursuit of knowledge in modern science. It is not only an ideological weapon to solve the mental obstacles brought about by the development of globalization and modernization, but also a scientific theory of universal law, which has important guiding significance for the sustainable development of human society.

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