Discussion on the Influence of Humanistic Design Activities on the Development of Science and Technology from the Relationship between Art Design and Science and Technology

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Abstract
Art design and science and technology are two important elements to build a modern human lifestyle. The relationship between them and their interaction is the contents that artists, designers and scientists are constantly exploring and enriching. At the same time, with the progress of human society, the spiritual needs of human beings which beyond the material needs is rising, and the humanistic thinking in design activities have become the focus of designers. The author believes that the art design activities of humanism can play a certain role in the development of science and technology. From the perspective of an art designer, this paper intends to explore and verify the specific relationship between art design and science and technology from the definition and the actual cases of their interaction. And this paper also explores the impact of humanistic design activities on the development of science and technology through the study of their relationship.

Keywords
Art Design, Design, Science and Technology, Humanism

1. The Relationship between Art Design and Science and Technology

1.1 Definition Analysis of Art Design and Science and Technology

1.1.1 Definition of Art Design
"Art design", also known as design art, is a multidisciplinary practical art discipline. Its connotation is to create material products and spiritual products of human life according to the law of the combination of culture, art and science and technology. Therefore, art design is closely related to art, science, production and life. This discipline mainly studies the laws of design, and considers how to apply modern scientific and technological achievements and value judgments to design to meet the needs of humanity and aesthetics. It covers a wide range and rich content, and is the unity of functional utility and aesthetic consciousness (Yanzu Li, 2009). With the development of society, art design has become an indispensable part of the material and spiritual life of modern society. It is directly related to people's clothing, food, housing, transportation, use and other aspects, affecting and changing lifestyle and quality of human life.

1.1.2 Definition of Science and Technology
“Science and technology” refers to “keji” for short in Chinese. It includes two concepts of "science" and "technology", which is closely related and different.
"Science" is a theory that correctly reflects the essence and laws of the world, including correct concepts, propositions, principles and theoretical systems. It is about the knowledge of exploring the laws of nature, and is the general name of the knowledge system of human exploration, research and perception of the laws of changes in the universe. Today we usually refer to science as natural science, not including sociology and thinking. Science in "science and technology" also refers to natural science.

"Technology" is the method and principle to solve problems. It is the sum of knowledge, experience, skills and means that human beings have accumulated to meet their own needs and desires following the laws of nature and in the process of long-term use and transformation of nature. In the 1977 edition of the Manual of Licensing Trade for Developing Countries, the World Intellectual Property Organization defined technology as "technology is the systematic knowledge of manufacturing a product, a process used or a service provided".

In "science and technology", science is responsible for solving theoretical problems and technology is responsible for solving practical problems. The essence of science and technology can be seen as: to discover or create the connection between things through science, and to make various substances use this connection to form a specific system to achieve specific functions through technology.

1.2 Analysis of the Specific Relationship between Art Design and Science and Technology

In essence, design is the product of the combination of art and science and technology. Based on science and technology, it creates practical and aesthetic products in the way of art design to serve human life, and meet the material and spiritual needs of human. Through the above analysis of the definition of art design and science and technology, and according to the history of art design and the actual examples in our lives today, we can demonstrate that there are (but not limited to) the following relationships between art design and science and technology: art design is a means of materializing science and technology; The development of science and technology provides a new platform for art design; Art design can provide a conceptual breakthrough for science and technology.

1.2.1 Art Design Is a Means to Turn Science and Technology into Products

No matter how high and new science and technology is, they can only be directly used by people after being transformed into products. In this process, art design can transform complex science and technology into scientific and technological products, so that people can use them conveniently and comfortably.

The earliest touch screen technology in the world is widely believed have been created by E.A. Johnson of the Royal Radar Research Institute in Marvin Town, United States. He published a short paper "Touch Panel: A New Computer Input Device" in Electronics Letters in 1965, and described his vision of capacitive touch screen in it, which he turned into reality in 1967 and produced the first capacitive touch screen in human history. In 1970, the American inventor Dr. G. Samuel Hurst got inspiration in an experiment by accident and created a resistive touch screen. Since then, capacitive touch screen technology and resistive touch screen technology has been putting into more extensive use by various means. The capacitive touch screen technology was only used by the British Aviation Authority in its command system until the end of the 1990s; The technical development team of resistive touch screen cooperated to establish the company "Elographnics". However, because of its high cost and lack of practical significance in civilian products, it has only traded with a few companies for a long time, and touch screen technology has never been able to enter the public life.

With the popularization and development of art design activities, more and more designers participate in the product design and even production activities, and various advanced technologies are transformed into products that can be used by the public through the hands of designers. In 1993, IBM Company produced the first telephone in the world “IBM Simon” equipped with a touch screen. In 1997, the appearance of Motorola mobile phone Palm-Pilot handheld computer used resistive touch screen and input with the touch pen. Although the accuracy is not good, its birth made the resistive touch screen mobile phone into a symbol of high-tech in the following 10 years. In March 2007, LG launched the Parada multi-point capacitive touch screen, which does not require a stylus and has improved its accuracy by leaps and bounds. In June of the same year, Apple launched the iPhone multi-point capacitive touch screen mobile phone, making the capacitive screen develop rapidly and become the most popular touch screen technology.

Human science and technology have been developing at a high speed. In fact, it is not necessarily science and technology itself that makes people feel this way, but rather high-tech products produced after artistic design. The

1 Quote: Yanzu Li, Introduction to Art Design, page 61.
emergence of art design makes many scientific and technological products become reality, and with its development, the speed of art design transforms high and new science and technology into products faster and faster.

1.2.2 The Development of Science and Technology Provides a New Platform for Art Design

As a product of the combination of art and science, art design has also been affected by the development of science and technology for a long time. It can be said that the development of the two has always maintained a positive proportion. Among them, the development of science and technology has created a new platform for art design and constantly broadened its field is the most obvious (Yueqin Wu & Hu Sun, 2008).

With the development of computer 3D technology and human breakthrough in material science, 3D printing technology was proposed and implemented in the mid-1990s. 3D printing has created an additive manufacturing method different from traditional industrial material reduction manufacturing, which not only greatly facilitates the cooperation of various manufacturing departments, simplifies the manufacturing process, but also saves materials and reduces waste. Its appearance has also had a great impact on art design. In recent years, with the maturity of 3D printing technology, the product design has risen to a new platform. Designers can quickly make samples and templates by using computer software to model, and then using 3D printers, which greatly facilitates creation. It also breaks the previous pattern that industrial design can only refer to drawings and data marked in drawings to calculate and produce environmental art design and other fields have opened up huge possibilities.

With the progress of science and technology, more new fields of art design are emerging. For example, with the popularization of computers and the expansion of the network in the 1990s, the immaterial design has established a service-oriented, information oriented design concept, which is the product of the immaterialization of social resources. Intangible design advocates resource sharing. It consumes services rather than individual products, so that the service volume of individual products can be shared. It links producers and users with services. It has the characteristics of virtualization and digitalization. Web page design and UI design now belong to this category. It is new fields of art and design that constantly meets the needs of human beings in the new era at all levels, and in a real sense, make human life move towards an intelligent era.

The development of science and technology can be seen as a booster of art design activities, providing the strongest technical support for artistic design, constantly enriching the content of artistic design and broadening its path.

1.2.3 Art Design Can Provide a Conceptual Breakthrough for Science and Technology

Although art design and science and technology are progressing at the same time, they are not consistent for a long time. With the abundance of the human spiritual world and the rich imagination based on the current high-tech level, designers can sometimes break through the limitations of current science and technology, and put forward some advanced concepts before the development of science and technology, which can guide the development direction of science and technology and make rapid progress and finally realize the vision of these concepts.

The above is a new field in art design - conceptual design. It refers to a product that does not consider the existing life, materials, technical level, etc., but only considers people's future and future products within the scope of the designer's foresight ability. It is a kind of development design that starts from the fundamental concept of the future. It includes a series of orderly, organizable and targeted design activities such as analyzing users' needs and generating conceptual products, which is a continuous evolution process from abstract to concrete. It often affects the development trend of design style, guides the development of science and technology, and has creative significance to market demand.

Steve Jobs is more willing to call himself a designer than an entrepreneur or inventor. As a Co-founder of Apple in the United States, he has experienced the ups and downs of Apple for decades, and has successively led and launched Macintosh, iMac, iPod, iPhone, iPad and other popular electronic products around the world to change modern communication, entertainment and lifestyle. 20 years ago, people could not imagine that computers could become a chip in their hands today 20 years later. Steve Jobs used his bold and groundbreaking design ideas to propose the concept of tablet computers, which changed people's perception of computers around the world. Jobs' design has never been limited to the current level of science and technology, but always sees the future design before the development of science and technology.

The conceptual innovation of art design has been stimulating the follow-up of science and technology for a long time. Designers are like eyes to see the future road for science and technology.
2. The Influence of Humanistic Design Activities on the Development of Science and Technology

2.1 Definition of Humanism and Its Embodiment in Art Design

2.1.1 Definition of Humanism

The word humanism comes from the Latin word "humanus", which means "people-centered". It is a world outlook based on the philosophy of reason and kindness. As a philosophy of life, humanism gets inspiration from human nature and guides it through rational reasoning. Personal interest, dignity, freedom of thought, tolerance and non violence among people are all the connotation categories of humanism.

Therefore, the doctrine tends to care for human personality, emphasizes the maintenance of human dignity, advocates tolerant secular culture, opposes violence and discrimination, and advocates freedom, equality and self-worth. With the development of globalization and the spread of the idea of national equality, humanism, as a philosophical trend of thought, has been widely accepted.

2.1.2 Embodiment of Humanism in Art Design

Through a series of art movements, such as “the Arts and Crafts Movement”, “the Art Nouveau Movement”, “the Decorative Art Movement”, “the Modernist Movement”, and “the Postmodernist Movement”, which discussed the design style and design purpose, history has told designers through facts that the development of art design must revolve around the idea of “serving the public”. This is also the central purpose of modern design and one of the important criteria for judging today's design.

As the fundamental purpose of art design, “serving the public” itself is a manifestation of humanism. Today's designers have made different attempts to make the design better and more widely used by people, and a series of design styles or design patterns that reflect humanistic care have emerged, such as barrier free design, emotional design, humanized design, etc. These designs take into account the physiological and psychological needs of various groups in all aspects, so that “design for people” has really entered a new level of development.

2.2 Discussion on the Influence of Humanistic Design Activities on the Development of Science and Technology

Design activities with humanistic concern can positively influence the development of science and technology in many ways. Through the above analysis of the three relationships between art design and science and technology, we can draw the following conclusions:

(1) Art design can transform complex science and technology into products, and these designs themselves are the products of science and technology. If the artistic design has the characteristics of humanism, the technology that has been transformed into products under its transformation will also be used by the public in a form of humanistic care. This enables science and technology to spread to the whole society efficiently and in a way that satisfies consumers, and promotes the further development of science and technology in society.

(2) The development of science and technology provides a new platform for art design and opens up new fields. The activity of design in these new fields can enable the humanistic care in design to be transmitted through more platforms, so that these science and technology can be accepted by the public faster, and further promote the further development of science and technology on this basis. Just like all kinds of design network that came into being rapidly after the emergence of computers, the humanistic factors in them have made the network quickly accepted by people, and they are also the promoters of human entering the network era.

(3) If the new concept sought by art design can reflect the factor of humanistic care, it can establish a possibility for the future of science and technology among the public. Although it is not science and technology itself, the emergence of its design can increase the concern and expectation of the public for the development of science and technology, thus promoting the development of science and technology.

3. Summary

Art design and science and technology are inextricably linked, both of which are necessary factors to promote the further development of human society. The humanistic care that can be reflected in art design provides strong sup-
port for the spread and development of science, and is a necessary guarantee for making human life better and bet-
ter today.

With the continuous progress of science and technology and the further development of human spiritual civiliza-
tion, the integration of various disciplines will continue to occur in the future, and various facts also prove that
scientists and designers are by no means unrelated to each other, and their collaborative work and common innovation
are inevitable requirements for future scientific development. It is an efficient way to achieve scientific and technolog-ical progress to do artistic design with humanistic color and establish further integration of artistic design and science and technology.

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