

Application of Low Carbon Environmental Protection Concept in Clothing Material Design

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Abstract:

With green, low-carbon and other environmental protection concepts gradually popular, the field of fashion design should also actively apply the concept of environmental protection to design. In the ecological era, everything is required to follow the law of sustainable development, so the concept of green design emerges as the times require. Most of the raw materials of traditional clothing are petroleum products, which will bring a lot of textile raw materials, waste and water pollution in the process of clothing production. This paper expounds that the clothing industry must change the previous basic concepts of design concept and production mode, and points out the way of low-carbon sustainable development of the clothing industry. The empirical research shows that: clothing designers should design and manufacture clothing by using a large number of natural environment-friendly fabrics, low dye and "recycled" fiber weaving fabrics. In clothing material design, we should vigorously promote the concept of environmental protection, and actively guide consumers to improve their understanding of environmental protection fiber clothing. Through the design of creative concept clothing, it can stimulate people's desire to love life, hope to live in harmony with nature, and convey the concept of environmental protection to consumers. In order to reduce the waste of resources effectively, we should develop new clothes. We should design "zero waste" and "wear more than one garment" clothing to improve the utilization rate of fabric.

Keywords: *Environmental protection concept, clothing design, fiber clothing, clothing materials.*

I. INTRODUCTION

With the progress of society, people's life style and their views on money are constantly changing. With the excessive exploitation of natural resources and serious energy loss, the depletion of limited resources has been seriously caused [1-2]. Industrial production,

automobile exhaust and building dust also lead to serious air pollution in large areas. PM index is constantly, air visibility is low, and haze has become a high-frequency word. At present, China is advocating the "sustainable development" line, which is based on the needs of contemporary people and is also responsible for the future human environment. Countries around the world pay attention to environmental issues, and promote the awareness of advocating low-carbon environmental protection has become a global trend, and "low-carbon clothing" has become popular [3].

Low carbon clothing, also known as ecological clothing, is a fashion consumption in line with environmental protection. It is important that the whole process of low-carbon clothing from design, processing, sales to waste should strictly meet certain environmental protection requirements, which is harmless to human survival or with minimal risk, high resource utilization rate and low energy consumption [4-5]. At the beginning of design, it focuses on the design idea of considering the impact of products on the environment. Consumption does not mean waste, but also in order to protect the environment, to cater to people's respect for nature, reflects the humanistic quality of clothing has become a new fashion popular consumption. The deepening of low-carbon clothing fashion awareness has brought people a new way of life.

II. EXPERIMENTAL

2.1 THE EMERGENCE OF LOW CARBON CLOTHING AND LOW CARBON CLOTHING DESIGN

In the 1960s, the anti consumption movement rose in the United States [6]. "Low carbon design" rose in advocating people to protect precious natural resources and avoid our living environment from being polluted by manufacturing waste gas. The concept of low-carbon life originated from the deterioration of the world's environment, and its formation was influenced by the postmodernist theory of the relationship between man and nature [7]. Although it is still in its infancy, its development is not balanced in the world. But it has become an important new trend of post-modern design " As an important part of post-modern design, "low carbon design" has become the eternal theme of current fashion design. Clothing as a practical and decorative goods, different from the general industrial products, at the same time, as people's body wearing, on the basis of beauty, it is also required to conform to the concept of health.

"Low carbon" in modern Chinese refers to "an economic model based on low energy consumption, low pollution and low emission". Low carbon design is a kind of rational use of resources, is through the form of art to let people feel the harmonious coexistence of man and nature. At present, people's understanding of nature and resources is constantly improving. With China's sustainable development and the strengthening of people's awareness of environmental protection, environmentally friendly low-carbon design and consumption are bound to lead the

development of the future market [8]. In such a historical environment, nature based low-carbon clothing design is bound to lead the development of the clothing industry. With the continuous development of science and technology, the further deepening of human ecological consciousness and ecological ethics consciousness is bound to promote more low-carbon environmental protection fabrics and related design schemes on the market.

Low carbon fashion design requires that when developing products, low carbon concept should be introduced first, and the traditional design factors should be taken into account to balance the ecological needs and profit space, and grasp the environmental protection factors, capital investment, product performance and other aspects. In addition, on the premise of ensuring the profit margin, it can ensure the safety, health and environmental protection of the product and avoid negative effects. In particular, we need to pay attention to the fact that the low-carbon factors of products are not reflected externally. We should look ahead from many aspects, otherwise it is difficult to occupy a favorable market and bring the low-carbon factors into full play.

2.2 THE EMBODIMENT AND EVOLUTION OF LOW CARBON ART DESIGN IN THE FIELD OF MODERN CLOTHING

China has a large population, and the annual consumption of clothing is also considerable. However, not all the products produced can be sold out, so the rest of the eliminated products will be disposed of. On the other hand, consumers' clothing may become obsolete after being used once or twice [9]. They also need to find a way to deal with it. So how to make use of this huge resource, how to save energy and reduce pollution, all these require us to carry out low-carbon design.

Although the concept of low-carbon design started late in China, the development speed of low-carbon clothing can not be underestimated. Many designers have abandoned the previous extravagant ideas, re examined the needs of consumers, and began to guide the simple and environmentally friendly design style [10]. Grasp the overall shape of clothing and functional characteristics of the coordination of reasonable deployment. Low carbon design can combine different parts of clothing, that is, split each structure of clothing to do, users can use free splicing, such a design is beneficial to users to choose clothing matching according to their own personality, and have more space to carry out creative and fashionable wearing. Enjoy the life of "addition and subtraction" in clothing, such as choosing the color and style of your favorite collar and sleeve to match your favorite clothes. In this way, users can experience the satisfaction of creative people, and also more convenient to choose their own personal clothing, carry forward the individual style.

In the environmental protection clothing design, many designers' design inspiration comes from the life of waste environmental protection materials, waste newspapers, cans, plastic bags,

disposable cups as creative materials (Fig. 1, Fig. 2), the theme of environmental protection and green low carbon. Japanese designer Kawabata Kawabata launched rags, the original natural form of clothing is very popular: cotton, silk, hemp and other natural fibers and new renewable environmental protection fibers have been used by the clothing industry.

In the 21st century, environmental protection will become the topic of permanent discussion in fashion circles. In contemporary design, designers adopt the latest and most environmentally friendly fabrics and design concepts to lead fashion trends. Interpret the designer's concept of environmental protection of clothing through the exhibition of clothing works. Combine your own fashion design concept with the theme of environmental protection, and adopt different ways and expression techniques. Often, the appearance of a new environmental protection material will create a new fashion trend.



Fig. 1: Clothes made of everyday Trivia



Fig. 2: The future clothing that is popular all over the world

GUESS's organic cotton jeans only use very few chemicals and simple washing mode when they enter the washing process of ready-made clothes, and the application of label is extremely environmentally friendly: the materials are 100% recycled, and the printing is made of environmentally friendly ink made of soybeans.

ZARA, a famous Spanish costume, and the European Institute of Design in Madrid jointly developed the recycling of used clothes and fabrics for fashion production, and encouraged its designers to design sustainable fashion through environmental protection or natural materials. At the same time, ZARA uses organic cotton in some clothing, especially for children's clothing, and pays great attention to its safety.

In 2011, Japan developed the polyurethane glass fiber railway sleeper, which has the advantages of insulation, high strength, corrosion resistance, durability, ultra-light weight and so on. The crushed waste products can be recycled to make new recycled products.

III. RESULTS AND DISCUSSION

3.1 THE LOW-CARBON DESIGN I STUDIED

(1) If we use the "Minimalism" design technique, we should use modern new clothing materials to express the concise, reasonable and functional clothing style. Natural materials with

rough and loose characteristics, such as natural cotton, cotton and hemp, raw silk and so on, are used. The use of mesh, sectional yarn and a variety of natural fabrics with good handle, such as Indian yarn, wicker crepe, Indian crepe, etc., cotton and silk show the "naturalism" design method.

(2) The use of natural green fiber is the natural original or artificially cultivated animal and plant fibers, such as natural colored cotton, pineapple hemp, day silk and so on. It is not only light and thin in texture, but also does not need to be bleached and dyed by chemicals, which reduces the emission of toxic substances in the dyeing process.

(3) A large number of traditional printing patterns can also be used, such as totem patterns of primitive tribes in Africa.

(4) Choose natural non-toxic excipients. Clothing accessories have an important influence on clothing modeling, practicality and grade. Therefore, the design of green clothing products can not ignore the environmental protection of accessories.

On the one hand, through simple and bright color combination and strong primary color combination, including a large number of black and white combination, gray system with spatial sense and color tone of future sense. On the other hand, the use of natural color tone matching methods, such as forest color system, soil color system, pastoral style and this white, can design the original ecological color, so that people can have a return to the nature of the feeling and mood (Fig. 3).

MODELING DESIGN OF LOW CARBON CLOTHING

(1) Research on multi-level clothing collocation, in order to create a visual sense of hierarchy, through the short change of collocation, realize the change of simplicity. In addition, in the local design, we can use simple collar, sleeve line and modern opening and closing design and accessories to enhance the sense of clothing design.

(2) Fully reflect the material beauty of the fabric. It adopts the non construction structure, takes the traditional winding structure as the main body, adopts the simple cutting, and through the bold costume changes, reflects the art taste of clothing, and pursues the natural and unrestrained comfort. Effectively strengthen the matching use of clothing to achieve the purpose of emphasizing simplicity and creating original atmosphere of personality. (Fig. 4)

(3) The rational and accurate cutting line is made up of straight line, cone, circle and other geometric lines.



Fig. 3:Chuanjiubaolin's origami in autumn and winter of 2012



Fig. 4: Dior's Origami

3.2 APPLICATION OF LOW CARBON ART IN CLOTHING DESIGN

As the call of the times, low carbon is also a concept and attitude towards a reasonable life. It is not only popular in fashion industry, but also deeply rooted in wearing and matching accessories. Shoes, hats and bags are all accessories, but I prefer to study jewelry. So my

research is all carried out in jewelry design.

I am particularly impressed by the gelatinized grass color, hot porcelain and enamel jewelry that appear in various jewelry exhibitions, which are all promoting such ideas! The jewelry that likes luxury is the pursuit of beauty for every woman. If it can be used reasonably, it will make its value embody to the extreme. Whether it is large jewelry or small ornaments, it can reflect low-carbon environmental protection. Even the ring woven with grass, pure hand necklace, will "low carbon concept" deep into each jewelry, make it a combination of fashion and low-carbon.

Paula Hayes believes that no matter life is ordinary or exciting, they are different from each other. He will express his love and dedication to life in his own way, such as placing grass seeds in a woven flower basket, which will sprout a green breath when spring comes.

The Icelandic designer hafstein juliussón designed the growing grass ring with his fantastic creativity. Just spray a little water on the grass, and the water will condense, showing a brilliant brilliance. Although it is not a natural product, only cultivated by the outer layer, it is a real grass. It requires careful care, patient watering and careful care. The grass ring grows in a greenhouse like box, which is particularly precious. At the same time, in order to meet the different interests of different genders, the designers have designed different styles of rings to meet the psychological needs of boys and girls. The style suitable for girls is similar to emerald, while the style suitable for men is similar to football scene.

Material is the soul of jewelry. If the material comes from the nature, it can reflect the natural properties of jewelry itself, but also can reflect the distinctive characteristics. For example, gems without any processing reflect the natural properties of sharp edges and corners, which makes people feel different and unique in jewelry; Materials with natural properties that can not only be recycled, but also have vitality, such as shellfish, coral, pearls, etc. Designers can be based on the shape of the material itself, to explore the inspiration, so as to give jewelry soft emotional elements, is the ultimate pursuit of eternity and environmental protection.

The rise of brevity in 2010 is the embodiment of low-carbon values in life. On the one hand, it reflects the pursuit of high-end luxury and fashion, on the other hand, it pays attention to the return of classicality, focusing on the natural sense of outline. On the level of deepening the understanding of traditional culture, we should integrate the colorful nature, and constantly explore the design of rich inspiration from magic, mystery and nature, so as to make "low-carbon jewelry" more popular.

With the continuous development of industrialization and informatization, mechanization is widely used in all walks of life. There is no exception in jewelry production. Manual production accounts for less, and more is mechanized information processing. Mechanical equipment is used to complete most of the jewelry production process. Efficiency has been greatly improved, but with the coming of more and more homogeneous products, contrary to the concept of low carbon. Now the designers who still make jewelry by hand not only make the product pollution to the environment to the minimum, but also make the product unique, avoid duplication,

effectively meet the differential demand of consumption, and achieve the common demand of environmental protection and fashion.

IV. CONCLUSION

The concept of low-carbon environmental protection is becoming a new trend in the future development of China's clothing industry. In the current situation, comprehensive research and exploration are needed to change the low-carbon status of China's clothing industry. It can be summarized as follows:

(1) In terms of raw materials and fabrics: the first choice is to save energy and low carbon emission materials. More consideration of nature to create renewable resources for us to lay the foundation for the production of fine clothing, clothing design to achieve low-carbon and environmental protection.

(2) In modeling: first, pay attention to the balanced relationship between fabric color blocks, the local combination and segmentation to achieve coordination. Second, irregular and asymmetric design techniques can be used. Third, we should pay attention to the use of decorative and technical local creative techniques under the condition of paying attention to the concise and simple line profile of the whole garment.

(3) In the aspect of color, we should adopt natural color, abandon those dazzling colors, and adopt ocean, earth and sky as the main colors to create a pure, free and pure spiritual realm.

(4) In the production process: reduce the emission of harmful chemicals, halogen-free production process. Using purification system to remove harmful substances, biodegradable fiber, supercritical carbon dioxide.

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