

Application of Digital Technology in the Design of Textile Products

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ABSTRACT

The research of this subject focuses on the application of digital technology in home textiles and its supporting design, focusing on how to upgrade traditional industries and their products, and enhance the market competitiveness of their industries and products. This paper analyzes the superiority of digital technology and the achievements of digital technology in other relevant fields, and demonstrates the huge impact of digital technology on modern industrial production and people's lives. At the same time, it focuses on the combination of design and art, and uses the characteristics of digital technology to improve the artistic expression form and function, focusing on the artistic effect of space matching. The key to applying digital technology to home textiles and its supporting design is to grasp the core of the application of digital technology, and to use design software ingeniously, from two-dimensional to three-dimensional software, from special-purpose software to general-purpose software, to transform creativity into artistic graphics and Creativity, and realize the digital connection to products and processes. The essence of digital design is to transform from virtual reality to product reality. Through the analysis and anatomy of actual cases, this article focuses on the whole process of how to realize the digitalization of jacquard and printing patterns, and uses digital technology to perform the expression of material texture effect and the expression of artistic style. This article demonstrates the success and effective artistic expression of digital technology in home textile design. There is no doubt that digital technology will play a pivotal role in the home textile industry and design, creating huge economic and social benefits.

Keywords: digital technology, textile design, matching design, design concept

1. INTRODUCTION

The digital sublimation technology skills in home textile design, can achieve the perfect combination of household textile design and digital technology, but also promote the scientific beauty and artistic beauty, and can save resources, realize low carbon production process. This paper demonstrates the successful and effective artistic expression of digital technology in the design of household textiles [1]. Needless to say, digital technology will play an important role in home textile industry and design, and create enormous economic and social benefits.

Society today, human civilization, whether in terms of spiritual civilization or material civilization, its social development laws are accompanied by the development of technological progress. Especially industrial mechanization, information automation, more sublimation of human desire, that is, human quality of life requirements [2-3]. In all aspects related to human existence, life can not be separated from digital technology. Digital technology and design make people's happiness level in work and life rise to a higher level. In the traditional textile industry, digital technology, with its unique charm, on the development of traditional textile industry to modern

industry, it not only realizes the combination of science and technology and art design, but also improve the competitiveness of the industry and labor productivity.

As a matching design of home textiles, it is a wide and systematic project, including technology, materials, industry and design. If from the art, design and aesthetic aspects, its unique design point of view occupies an important position in people's lives. Overall, it is dependent on the particular interior environment of the textile appearance, shape design, the existence of this design form, fully reflects the different textures, rich patterns, and varied colors. Performance of various shapes, shape style, is the remarkable sign.

With the rapid development of modern society, the rapid development of science and technology, people's way of life has been unprecedented changes. Especially since the beginning of twenty-first Century a new era, cultural quality and aesthetic consciousness constantly improve, people in the use of home textiles is no longer just a single to meet their basic living functions, but as one of the important ways to create atmosphere, edify sentiment, the pursuit of individuality. Thus it can reflect the realm of consumers' ideas and aesthetic ideas.

2. CHARACTERISTICS OF HOME TEXTILES AND THEIR MATCHING DESIGN IN DIGITAL TECHNOLOGY

At the beginning of the 21st century, a new term --- household textiles appeared in our country. Before that, the domestic textiles and their supporting design were designed as printing and dyeing cloth or weaving products, and did not form an independent professional design method. As a branch of art design, home textile design mainly applies creative textile design to indoor space environment, so the design idea, design idea, design method and evaluation standard of home textile and its supporting design are different from that of ordinary clothing or industrial textile. Here we analyze the characteristics of household textiles and their supporting designs.

2.1. Design and Technology

Home textiles and their supporting design is a kind of artistic creation works with different functions from other designs. It is a combination of art design and digital technology. The design style, production conditions and practical functions of home textiles and their supporting design are determined by their structure and shape. Through materials, structure, shape, technology, color and texture and other elements in the application of digital technology to achieve a harmonious and unified effect, because consumers' vision and expectations for a better life are inspired, the designed household textile products are endowed with charm and value.

2.2. Pay Attention to the Artistic Effect of Space Matching

The soft decorative materials which can fully embody the art of space environment belong to the category of household textiles. The main starting point of home textile design is space matching art design, which is the difference between home textiles and clothing, industrial textile design and hard decorative products. The design of home textiles attaches importance to the emotional blending of consumers, the artistic infection of perfect design and the affinity between consumers and space objects.

2.3. Focus on Presentation and Function

Designers engaged in household textile design are satisfied with the design level of household textiles and consumers' satisfaction with domestic textiles from the form of household textiles, and the function of the use of products can not be ignored. It is a full embodiment of the excellent quality of the product.

Throughout the twentieth Century, one of the greatest inventions in the field of science and technology has been

the invention and spread of computer technology. Because computers are based on numbers, there is the term "digital technology". Today, people have entered a "digital" way of life. Digital technology for the traditional textile industry also had a profound impact, the emergence of many new digital technology related terminology, production process, design methods and business philosophy, has opened up a new way for the development of the textile industry in twenty-first Century. The use of digital technology to upgrade traditional industries, the textile industry will make China change from labor-intensive to technology, capital intensive, realize the transition from the textile industry country to production power, but also to achieve the design innovation, the creative design of a world-class goal.

At the end of 1970s, computer-aided design (CAD) on textiles began to be studied, and the system of weaving process automation, which was first developed by American IBM Company, was successfully used to change the pattern design in fabric production from manual design and drawing to interactive screen drawing, which made the application of digital technology design in textile industry become a reality [4]. After decades of development of digital technology, textile CAD system has gradually matured. Textiles as modern high-tech design tools CAD, because of their simple, easy to understand operational performance and the rapid reaction ability to the textile product market is generally put into production by textile, clothing, printing and dyeing and other related enterprises. Now manufacturers have begun to realize the value of digital CAD, and gradually use digital CAD technology to replace the original traditional design means, this practice has not only terms of production efficiency has been improved, and the complexity of the design process is relatively less. General application of digital CAD system has created favorable conditions for the wide variety of textile products and their supporting products, mass production and timely adjustment of product types to meet market demand.

3. COMBINATION OF DESIGN AND TECHNOLOGY

The application of digital technology in household textiles and its supporting design, in the market economy as the dominant position, the quality of life of consumers has undergone tremendous changes, thus changing the way of thinking and aesthetic awareness of consumers, so that people in the space environment, use effect, appearance and other aspects of a strong impact, at the same time, this awareness has also brought a strong impact on design, so that design from the past single, plane, static design gradually to the present multi-dimensional, static and dynamic interaction mode, so that all kinds of artistic performance has been unprecedented development. Household textiles and their associated products designed using digital technology Goods style is more novel, color is more beautiful, this kind of digital expression form can

cater to the modern people's material request very well, has the strong safeguard to expand the market and stimulate the consumption.

As mentioned above, the development of household textiles and their supporting design is not single, isolated, one-sided, it is constantly self-innovation and absorb the latest research results in other related disciplines to enrich themselves and develop themselves. The development of household textiles and their supporting design can not be separated from the development of digital technology. Nowadays, digital technology is developing rapidly. The results of its development provide a technical guarantee for the change of design means of household textiles and their supporting stimulating the designer to change the design thought and design idea, and the designer takes the new design thinking idea as the under the premise of conscious and reasonable use of modern digital technology, give the means of art new, design a new digital technology under the household textile products to meet the public.

The design of digital technology is a kind of art of modern advanced science and technology, it has changed the traditional design mode, provides the design means and method of fast, accurate, new, and the thought of design and analysis methods have profound influence. As with other design technology, digital technology has become the basic means, tools and methods of modern design industry, it makes the appearance design of all aspects of the situation, a comprehensive change, too, and for supporting the art design of home textiles therefore, digital technology has become one of the design techniques of home textile products designers must grasp the. China joined WTO, truly integrated into the international market, to Chinese household textile industry into the international market, expand the share of the international market and international market share has brought development opportunities, but also brings the challenge and competition of international product. Today, textiles can be divided into three categories: clothing, textiles, decorative textiles and industrial textiles. They are used as decorative textiles, both in China and abroad, and they have a long history.

In twenty-first Century, the biggest development between art and science was undoubtedly the influence of digital image technology on graphic art and style design language. The research and application of digital science and technology, has become a must face serious problems and test of home textiles and supporting design. Before the advent of hardware and software of digital technology, designers have been using traditional process methods and design tools to carry out all design activities. The art of textiles designed by traditional techniques, there are various benefits, but in the rapid development of digital science and technology, its deficiencies are gradually revealed.

The use of digital technology and art design of home textiles, designers can achieve manual which can reach the effect of creativity and design efficiency, and easy to modify, easy to update any designer in the design, rapid, accurate and can be especially suitable for small batch

production, now consumers seeking personalized, fashion era.

Design of household textile pattern in digital technology is provided by design of software in computer drawing directly or using hand-painted patterns, by scanning into the computer and software combination to complete the design. Because of the application of digital technology in the design of modern home textiles, a new design style which is different from the traditional style is opened.

As everyone knows, home textiles and supporting the design process can be divided into: Design proposition establishment, product market investigation, data collecting and finishing, drawing sketches, targeted modifications, decorative design renderings, feedback, final. In the traditional design process of home textiles, it is only relying on hand to do so many procedures, basically impossible.

After the advent of the digital technology, designers only need to have a set of basic design tools such as computer, mouse, hand-painted plate and digital technology to have enough understanding in addition to the design software skilled operation ability can easily design creation, the design division of the work becomes relatively simple, not in buy the traditional design tool in the design of spending too much time and more conducive to the designer into the heart of the design to creation.

In the past the traditional means of design form, in the design of data accumulation on the full designers need to spend a lot of time, if you want to be a designer of the material, you need to buy the related books to the bookstore, or go to the library and reference rooms and other places read a lot of information, and through out painting etc., and by this way to the accumulated data is quite limited, designers often can not find their satisfaction with the data. The traditional process means designers in the accumulated data is completely rely on books or pictures, is your hand drawn, so that not only the query design data to waste a lot of valuable time, but also can take up unnecessary space, adds great difficulty for designers.

Compared with traditional home textiles and their supporting design, the art design software in digital CAD shows extremely powerful application function. In the design software, it not only has a variety of painting tools, such as brush, spray pen, ruler and so on, but also has a variety of mixing, merging and mask synthesis tools, as well as a variety of material effects, as well as special filter effect tools [5]. Using these software tools, they can not only design different shapes and colorful color effects for textile pattern products, but also let designers see all kinds of illusory artistic conception which is difficult to express in reality in advance through software, which Hyper-realistic techniques, with the help of PC machines and design software, become easier.

The domestic textile pattern design software is rich in variety at present, For example Adobe companies launched of Photoshop, Illustrator, Corel company launched by the company and the Honghua dyeing and weaving drawing software launched by some domestic companies, Jinchang dyeing and weaving drawing software, chameleon dyeing

and weaving drawing software and so on. There are also small plug-ins designed for mainstream image software, such as Symmetry shop that can handle continuous patterns, and some software dedicated to generating patterns, such as typing software Ultra Fractal, these powerful professional design software can be well applied to household textiles and their supporting design pattern design.

Photoshop software is currently considered to be one of the most powerful image processing software, it has powerful processing functions and compatibility.

3.1. Color Support Model

The color modes supported by the Photoshop include bitmap mode, grayscale mode, RGB mode, CMYK mode, LAB mode, index mode, two-tone mode and multi-channel mode, and can realize the conversion between multiple modes. Besides, the size, resolution and canvas size can be adjusted arbitrarily by Photoshop, which can not only change the image size without affecting the resolution, but also increase or decrease the resolution without affecting the image size.

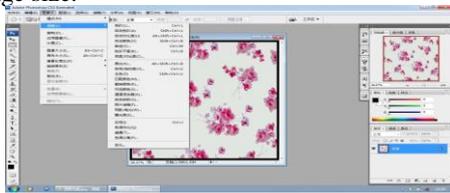


Figure 1 Photoshop processing interface

3.2. Selection function

Photoshop provides a powerful selection function. Using rectangular, elliptical mask and lasso tools, one or more selection ranges of different sizes can be selected, and the magnetic lasso tool can also make the selection range close to the image to be selected according to the pixel contrast of the selected edge: the magic wand tool or the "color range" command can select the desired part according to the color. With the use of a variety of shortcut keys, the selection range can be added, subtracted, cross and anti-selection effects.

Besides, the channel and mask function provided by Photoshop can modify and store the selection conveniently, which greatly improves the efficiency of the designer.

3.3. Adjustment Function

Photoshop adjustment function can adjust the tone and color of the image conveniently and quickly. It can not only adjust the selected color, but also adjust the color of the selected range.

Use the "Color balance" command to adjust the effect of color image color mixing. The color scale and curve can

adjust the shadow, middle and high light of the image. The saturation, brightness and contrast of hue can also be adjusted at will.



Figure 2 Simulation of home textiles and their design patterns in 3D space

3.4. Filter Function

Photoshop filter function has more than 100 forms, each filter can achieve a variety of special effects. Such as wind, water wave, glass, relief, mosaic, various textures, various painting effects, so that the special processing of images is extremely convenient. There are also many additional filters.



Figure 3 Simulation final rendering

4. THE CHANGE OF DIGITAL TECHNOLOGY TO HOME TEXTILES AND ITS MATCHING DESIGN

The application of digital technology, not only can bring creative new ideas for designers, can also provide massive data material for the designers in the process of using, the designer will have the value of the material stored in a computer, some time need to use these materials, in the computer to find them very convenient, ready to use at any time. In the acquisition of material information, the use of digital technology for material acquisition, than the previous traditional design simple, fast and more, this is the past traditional design can not go beyond the.

Reasonable application of digital technology not only in the design, but also can be shown in the aspect of network communication, due to the current domestic textile design domestic and international standards, trends and more information, the domestic use of network communication can quickly contact with foreign design, dynamic can understand and grasp the international home textiles in the first time. It can be better applied in the design, but in the traditional process design before, designers only through some paper to understand the international dynamics, lead designers can not timely design conforms to the trend of the times of home textiles, the impact of the use of consumer, until the digital technology network, domestic

designers can whenever and wherever possible direct contact with the international fashion trend at the present stage, the trend with their own design after processing show in front of consumers, designers can use the network to understand the international advanced technology household textile design, involving technology, technology, production, marketing and other aspects of the content, the emergence of the network can truly Chinese household textile design and international standards, international information communication, Sharing resources with each other to better serve the global consumer and enhance the material enjoyment of consumers.

5. CONCLUSION

In the future, in the support of digital technology, and under the guidance of household textile design will show a more diversified, personalized artistic style, its aesthetic focus more on fashion, popular, and in the cultural connotation, aesthetic form, jump on a higher level. At the same time, the material on the pursuit of more visual and tactile texture, and digital technology to its superior performance, designers with its wisdom, innovation to obtain novel texture and texture of materials in the world to attract consumers, to conquer the consumer's mind, to guide the market and consumers. There is no doubt that digital technology will bring a blooming spring to Chinese household textile design, full of vigor and vitality.

The research of digital application in household textile and its supporting design is a very necessary research field. Through the understanding of household textile products and the practice of digital technology, the following conclusions are drawn:

The emergence of digital technology has promoted the development of the household textile industry, providing a new channel for textile fabrics to highlight the design of personalized design, so that household textile digital technology has been widely used.

The perfect combination of digital technology and household textiles and their supporting products has improved the production mode of textile products, enhanced the market competitiveness of household textile products and enhanced economic and social benefits.

Digital technology has sublimated the graphic design of household textiles on the basis of traditional graphic design in the past, and has more innovative design thinking and ideas and improved design methods and means. It promotes the artistry, style and aesthetics of household textile products.

To design and produce textile products with their own characteristics, characteristics and properties according to different digital technologies, different raw materials for textile products and different needs for use, so that the effective application of digital technology in household textiles and their supporting design is a necessary development trend in the domestic and foreign household textile industry in the future.

Digital technology provides strong technical support for the promotion of low-carbon concept, and creates a favourable environment, conditions and business opportunities for reducing waste of resources and energy conservation and environmental protection.

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