

Study on the Visual Color Texture Representation and Application of Knitted Garments

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Abstract. This template analyzes the expression of the color texture in knitted garment, including 2d (plane/two-dimensional) texture, 3d (three-dimensional) texture, and the matching form of the texture and fabric. Enumerated the creative representation of the texture, including the interlacing and balance of lightness and purity, the word games, the concave-convex space, the independent harmony and the collocation of the color texture. It can enrich the content of knitted garment design and endow the knitted garment with the unique aesthetic perception. What's more, according to this can broaden design thinking and this paper provides reference for the development and design of knitted garments.

Keywords: color; skin texture; Knitted garment; originality.

1. Introduction

California has a famous building called "the modernist white sandwich bread with ham and Swiss cheese full of Los Angeles rhythm" [1]. Its charm not only comes from the staggered and crisscross window design, but also the eye-catching red, white and yellow painted wall. The three color facades form a huge sandwich bread feeling under the irregular window decoration, Therefore, the texture of the building is produced. Clothing is like a building, and its outer space is similar to the facade of the building. Studying the appearance and texture design of knitted clothing from the perspective of color, and summarizing innovative design methods of knitted clothing can give knitted clothing designers color inspiration and shape thinking.

The design elements of knitted clothing are extremely rich. Most of them express the texture through the pattern of knitted fabric [2] or the stitch method. There is little research on the color texture of knitted clothing. This paper studies the characterization and application of color texture of knitted clothing, and provides some design ideas and practical guidance for knitted clothing design, in order to interpret the unique image characteristics of knitted clothing design under the new method.

2. Color and texture of knitted clothing

As for the definition of texture, the Modern Chinese Dictionary explains that texture is the texture of skin. Skin generally refers to the skin of material, namely "skin", while texture represents the texture of skin, namely "texture". If the texture is obvious, the combination of skin and texture is particularly important. The color itself has no texture, but color gives the most intuitive image characteristics of the clothing surface, and its intuitiveness is far higher than the style and silhouette. The color texture of knitted clothing refers to the combination of color and knitted fabric. Knitted clothing provides a morphological place for the performance of color texture, and color texture gives knitted clothing more eye-catching visual interest. The two are interrelated, and their coordinated change rules and rules better display the role characteristics between the virtual and dense of knitted clothing.

Any material is composed of its own shape, texture and texture, and the intuitive expression of color first reflects the beauty of material with higher intensity and speed than material form and texture. Color can stimulate people's emotional response, and texture gives people a fresh feeling when being touched. [3] The combination of the two morphological features is used in the design of

knitted clothing, aiming to express the sense of order, rhythm and harmony of the texture through the artistic element of color, increase the visual interest, arouse the resonance of the audience in a specific form, and achieve the conceptual design of knitted clothing.

3. Visual color texture representation of knitted clothing

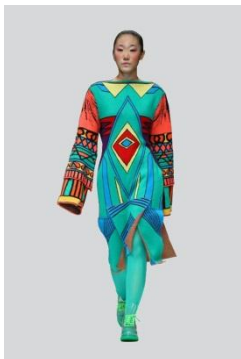
In the study of literary criticism, "representation" is a paradigm, a simple expression of "representation", that is, to describe things through language, and the process of representation is also the process in which language works. [4] In the sense of fashion modeling, this language is not equivalent to oral expression or literal interpretation of "pen point literature". It expresses the image characteristics based on various visual symbols such as shape, color and texture. Especially in the design of knitted clothing, the key factor of its representation is the texture formed by color and the combination with the texture of knitted fabrics. The color itself does not have texture, but with the help of the designer, the unique creative thinking mode is reprocessed to give the space composition form of the color existence, or the single and combined design of the block surface, or the concrete image, or the image. Its texture relies on its attached material to express its own language. The meeting of color and texture is like icing on the cake, producing a vivid appeal, and displaying a distinctive color texture effect.

3.1 Creative representation of two-dimensional color texture

Two-dimensional color texture is the color texture that is intuitively felt through the eyes. There is no touch of concave-convex and relief. Although the appearance effect is two-dimensional and flat, the collision and collocation of multi-colors strongly impact the human visual sense, giving the knitting knot a sense of richness and vitality.

3.1.1 Fresh and strong texture

The fresh and strong interwoven texture refers to the harmonious collocation of three or more high-purity and high-brightness colors, which are interwoven and interlaced with each other to present a rich pattern texture. In the design of knitted clothing, especially knitted women's clothing, a variety of high-purity colors are extracted, and different geometric shapes are coded and combined to make the colors interweave and merge, forming a visual effect that the plane is not "empty" and the rich is not "disordered". Figure 1 is a representative of fresh and strong texture. The designer uses rhombus geometry and straight lines to intersect large areas of knitted fabrics and fill them with bright colors. When filling in colors, he pays special attention to the area relationship of colors. Tiffany blue and lavender are the background colors, with the largest area, which is used



(a) Instance 1



(b) Instance 2

Fig.1 Fresh and strong texture



(a) Instance



(b) Instance 2

Fig.2 Fresh and strong balanced

to balance the overall color relationship. Orange area takes the second place as the auxiliary color, while yellow, blue and black are the decorative colors. Although the area is small, it is like the finishing touch, and the overall color is dense, Form a strong visual impact and sense of hierarchy. The representation of fresh and strong interwoven texture is suitable for large knitted structure. The

color itself is used to create the texture effect of color. The needlework of knitted fabrics does not need too much design.

3.1.2 Fresh and strong balanced texture

Balance is a form in the law of formal beauty. Although asymmetrical, it gives people a sense of comfort. It is a balance in visual psychology [4]. Different from the interwoven texture, the fresh and strong balanced texture focuses on the uniform division of the area. It is also a strong color matching. The colors and colors "go their own way" and do not blend with each other. The representation of fresh and strong balanced texture makes the clothing structure line hidden in the segmentation line by dividing the area of the color itself, and blends the line, block and surface, and uses the color of the large surface to stabilize the overall coordination of the clothing. Figure 2 adopts arc segmentation. The size of each color area is relatively balanced and there is no interlacing. This representation method emphasizes the unity and harmony of clothing colors, which is mixed and organized. Arc segmentation shapes the fluidity of the block surface and seeks changes in the balance.

3.1.3 Texture of word game

In the design of knitted clothing, text is also one of the commonly used creative methods. Text can not only intuitively express the design concept, but also change the size of the interior and exterior space of the clothing according to the style requirements to form a dense texture effect. This creative method seems simple, but the layout of the timing text should be carefully considered and should not be placed randomly. The artistic effect after design is flexible and rhythmic. The processing of word games generally comes from the inspiration of designers, and can be played freely in Chinese or English, which also provides designers with relatively broad space for free creation. The color should not be too much, and the arrangement of words is exquisite, so as to highlight the unique texture of words (Figure 3).

3.2 Creative representation of three-dimensional color texture.

Three-dimensional color texture is the texture that can be observed through vision and felt through touch. It has spatial dimensions, and displays the external attributes of color directly from multiple angles. It is integrated with knitted fabrics, giving the knitting knot a sense of hierarchy



(a) English text (b) Chinese characters

and visual weight.

3.2.1 Concave space color texture

Clothing is like architecture, and three-dimensional space broadens the interaction between clothing and human body. The concave-convex space texture is a three-dimensional creative design based on the plane texture of knitted clothing, and highlights the texture effect through the brightness and density of color. It is a combination of color plane texture and concrete form of

three-dimensional space texture, achieving a well-arranged structural form, forming the color texture change of the overall clothing.

There are two methods to characterize the color texture of concave-convex space.

The first is filling. Figure 4 shows the infill hanger. The designer designed the knitted women's



Fig.4 Filling hanging



Fig.5 Filling



Fig.6 Scattered Tile



Fig.7 Centralized launch

clothing into chocolate bread and sausage, which is ingenious and exaggerates a certain shape of the part of the clothing. The specific items are loaded with light fillers. The size and length of the sausage are different, with a sense of weight; Figure 5 is filled pointing. English letter fillers are evenly sewn on all parts of the clothes. The letters are different in size and have a jumping feeling. The two kinds of creativity fully reflect the interest of clothing and emphasize divergent thinking. Because the former has a clear subject and uses adjacent colors or similar colors to represent the texture, the latter has a single letter form. The use of color diversity makes the texture sense and visual impact stronger.

The second is to highlight. Highlight the two types of scattered point tiling and centralized launching. These two kinds of color texture are closely combined with clothing, and there is no gap between them, which is different from the arrangement form. Figure 6 is a scattered tiled type, with uniform color texture, both visual texture and touch concavity and convexity. Its design forms are diverse, and all things in nature can be used as creative elements. The arrangement can refer to two-way continuous or four-sided continuous; Figure 7 is a centralized launching type. At a certain part of the clothing, or the shoulder, chest or knee, from concentrated to scattered, from dense to loose, it presents the effect of dynamic design, creates a space of dynamic and static combination, increases the visual sense of local dynamic texture, and makes the clothing look motionless, but actually moving.

3.2.2 Independent harmonic color texture

The characterization method of independent harmonic color texture aims at the unity of colors. There are no more than two colors in a suit of clothing, and no more than three colors in a series of clothing. Moreover, these colors are the same color, and the harmony has the meaning of neutralization and coordination.

The main idea of the work (Figure 8) is to show that the lotus leaves the mud without staining. The clothing is dark green from top to bottom. Because of its simple color, the clothing structure has a strong sense of layering. The overall shape is beautified by the methods of pleating, splicing, and segmentation of knitted fabrics. The close combination of shape, color and quality gives a beautiful feeling. Figure 8b is a series of works in Figure 8a. On the basis of green gradient, blue is added for blending. The two colors are put together to form an independent chapter, and as the same color connecting the whole series, tightly grasp the theme of the work, express the color of lotus with color, and express the quality of lotus with texture, which is a successful example of creative representation of color texture.



(a) Instance 1



(b) Instance 2

Fig.8 Independent harmonic color texture



(a) Contrast color matching



(b) No color matching with color

Fig.9 Matching color texture

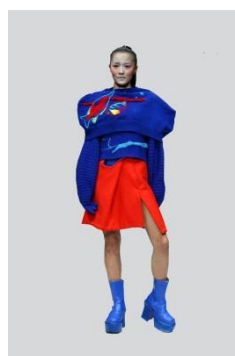
3.2.3 Matching color texture

There are no more than two colors in a suit of clothing. The "shape" is integrated by "color" or the "color" is expressed by "shape".

Blue and beige are the contrast colors in the color ring. In the plane color without texture effect, the two colors put together like two parallel lines, which are not interwoven. When the texture effect is formed by color weaving, the layered winding mode of blue knitted scarf is more thick (Figure 9a), which is in sharp contrast with the beige without texture. Although there are only two colors in the clothing, the visual effect is very rich, and the contrast is obvious. The outline is atmospheric and the focus is clear, which is called "color shaping". The texture effect of Figure 9b is quite different from that of Figure 9a in that on the one hand, it uses the creative method of large and small squares, and on the other hand, it uses the color matching method without color and color. When there is only one yellow color, the clothes are monotonous and have no texture sense. With black and white gray, the arrangement of the size of the squares presents order and sense of movement direction on the clothes, and the rhythm of the color texture is also increasingly enhanced.



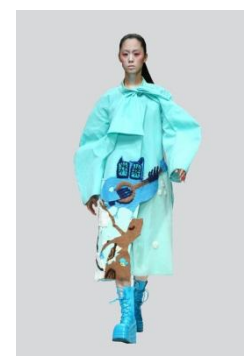
(a) Interwoven with knitted fabric



(b) Floating on knitted fabric



(c) Interwoven with woven fabric



(d) Floating on woven fabric

Fig.10 Combination of color texture and fabric

3.3 Creative representation of the combination of color texture and fabric.

For color, texture is the insertion of the "face" of clothing and the construction of the "shape". For shape, texture is the modification of the "quality" of the fabric and the embellishment of the "material". When making creative representation, both the combination of color texture and knitted fabric and the combination of woven fabric, the processing methods are similar and different. Different creative independent patterns are combined according to the overall shape design characteristics of clothing. Figures 10a and 10b are the combination of color texture and knitted fabrics, and Figures 10c and 10d are the combination of woven fabrics. The designed pattern is displayed by jacquard and other organizations, and then the color texture is interwoven with the

fabric by means of stitching, embroidery, applique, knotting and coiling [5], or the independent pattern formed by the color texture is floating on the fabric, reflecting the beauty of the smart and flexible clothing.

4. Summary

This paper interprets the creative expression method of knitted clothing from the perspective of color texture, and opens up a new creative path for knitted clothing design. The creative research of color texture in knitted clothing design can not only increase the artistic charm of knitted clothing, but also help stimulate the creative inspiration of designers, and provide wide design space and ideas for knitted designers. At the same time, its characterization method can be used for the design of knitted clothing products in mechanized process.

Fund projects

2020 Scientific Research Project of Liaoning Provincial Department of Education (J2020064)

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