

# Research on Art Design and Application of Waste Fabrics

Yun Deng, Yufan Yuan, Zhaonan Liu, Cheng Jiang\*

College of Humanities and Arts, Hunan International Economics University, Changsha, Hunan, China

\*Corresponding Author

**Abstract:** According to the estimate of China National Textile and Apparel Council, China produces more than 20 million tons of waste textiles in production and consumption every year, but less than 10% is reused in production. A large number of textile waste, especially waste clothing, remains in the wardrobes of every household and in the warehouses of factories and enterprises, resulting in an objective waste of resources. If these waste fabrics are recycled for design and production again, the use time of textiles will be longer, the accumulation of waste textiles will be reduced, and the abandonment and disposal costs of waste textiles will also be greatly reduced. In this paper, deconstruction, creative combination, splicing and filling of waste clothing has made new changes in its texture and appearance, which can generate new value of recycling.

**Keywords:** waste textiles; re-design; recyclable

## 1. Introduction

China is a country with a large population, the rapid development process at this stage leads to many problems, such as excessive use of ecological resources, environmental pollution, and energy shortages. A large number of waste fabrics are not properly recycled, resulting in accumulation. According to the relevant reports of China Waste Disposal Committee, the Chinese government is very concerned about the reuse of waste materials[1]. However, the public's awareness of the reuse and recycling of waste textiles is weak, and most of the public's awareness of the reuse of discarded clothing is just to put it in the recycling cabinet. Compared with the development status of foreign countries, today's social economy and environmental protection have become the mainstream of the times. European and American countries are very advanced in the waste textile recycling industry and research, and many environmental protection laws have clear regulations on the reuse of textiles, and various bills and issues are also actively formulating a more benign waste recycling mechanisms[2]. Especially in some Nordic countries, such as Sweden, Denmark, etc., the transformation of waste textile has been deeply rooted in the hearts of the people. Visiting the waste textile market in their

countries is a very interesting thing for young people in these countries. This kind of waste market is not only rich in goods, but also can communicate with people, so it feels the pleasure of the market, and is liked by many locals. Amoy back those old things that are very historical and even unique, and then go home and remodel them by yourself. The old things immediately become the most personalized and creative accessories. For example, making keychains out of old dials and cute hooks out of forks are as creative as they are functional. The processing methods and lifestyles of "DIY old things transformation" in these developed countries are worth learning from.

Therefore, the comprehensive recycling and reuse of waste fabrics is not only an inevitable trend in the development of circular economy, but also the only way to achieve sustainable development.

## 2. Materials and methods

### 2.1 Deconstruction of Waste Fabrics in Clothing

For waste fabrics, after long-term use and wear, their colors have shown certain characteristics, such as low brightness, low purity and poor hue saturation. Therefore, it is necessary to study the applicability of these materials when deconstructing them[3]. Usually, it is separated or integrated, and a series of operations are used to make the design more aesthetic needs. For example, for some yarn-woven fabrics or some woolen fabrics, a large number of superimposed methods can be used to strengthen the aesthetic feeling of the fabrics. Through cauterization, embroidery and other techniques, the characteristics of the fabrics can be used to create a relief-type beauty, so that the clothing can produce a more lively effect, which can also make good use of the advantages of these fabrics to make up for the deficiencies of the original styles, and also highlight the sense of space and texture of the fabrics. For example, knitted fabrics are extensible, elastic, soft and breathable. The structural suspension effect of this kind of fabric is better, and in the re-design, it is necessary to implement destructive design in combination with its structure, such as hollowing, flower burning, wire drawing and tearing. At the same time, it is also possible to make additional designs in the fabric to enhance the sense of beauty, such as

decals, metal pendants, etc., to produce distinctive styling effects.

After the waste fabrics in the clothing are deconstructed, on the one hand, the waste of resources is reduced, and on the other hand, it also shows the attention of the clothing company to the overall interests of the society. Through the treatment of waste fabrics, combined with traditional craftsmanship innovation, more economical manufacturing methods are used to design and produce clothing, so that the use and production of fabrics can be more rich, and a variety of clothing styles can be displayed, which not only attracts consumers but also protects the environment.

## 2.2 Creative Combinations of Discarded Fabrics in Accessories

Nowadays, environmental protection has become the consensus of the world, and various industries have gradually increased the importance of environmental protection. Artists use their imagination and creativity to apply a variety of creative combinations of fabrics with different properties to their designs. These fabrics not only minimize the environmental damage caused by the artist's artistic creation activities, but also provide more exhibition space for these types of clothing works. While showing the artistic clothing works with environmental protection themes, it also spreads the public's attention to environmental protection[4]. As shown in Fig. 1, a blue distressed T-shirt is used as the raw material, add clothes labels and famous brands as embellishments, and white acrylic paint is used to create a retro and distressed feeling. In order to fit the theme, the Mickey pattern of the sweater is used as the element for creative pattern design. Through the combination of collage and hand-painting, the work is cut into a suitable size and fixed on the frame, so that the old clothes can be reborn. For example, discarded denim are repurposed and designed into a series of other accessories. The denim material is very suitable for recycling because of its wear-resistant and stain-resistant properties, and the decoration handmade accessories is exquisite and generous. Therefore, exploring the creative combination of various waste fabrics is to strengthen the innovation of the material, texture, visual experience, touch and other aspects of handicrafts[5].



**Fig 1.** Creative combination design of discarded denim

(Photo credit: <http://www.baidu.com>)

## 2.3 Splice Filling of Waste Fabrics in Furniture

Most of the raw materials used in furniture products are metal, plastic and wood products. These commonly used decorative products will inevitably produce a lot of pollution during production and use. For this purpose, when decorating, priority should be given to the reuse of waste materials, so as to achieve material recycling design.

After a period of use of waste materials, compared with brand-new materials, they have been used to a certain extent, and have higher ease of use and satisfaction, especially the waste fabrics[6]. Use the elements of the clothing itself, such as pockets, trousers, zippers, buttons and other elements to modify. Use the color, wrinkle and other attributes of waste clothes to modify. It is decorated with random shapes generated by the different properties of waste materials during the production process, thereby producing different visual effects. Fig. 2 is a furniture design that splices and changes waste fabrics. The color contrast and splicing of discarded denim decorate the entire bed sheet headrest, and the sofa also uses direct decoration techniques such as trouser pockets and buttons to make the original discarded jeans give full play to their use value, conveying a metaphor and returning to the reality of life. Harry Nuriev, the designer, cooperated with Balenciaga to launch a transparent vinyl sofa in 2019, filled with waste clothing, and the entire sofa is a conversion of waste materials into an environmentally-friendly design. The garments are pressed into a clear covering made Bopp film that biodegrades over time, and the transparent design makes the stitching easily visible to the garment's colour, pattern and label. Therefore, furniture products made of waste materials integrate the low-carbon concept in the life of the whole product. With easily recyclable waste fabrics as the main material, manual

operations are minimized in the processing technology, and the entire object can be reused or degraded, so as to achieve the purpose of easy disassembly, convenient replacement, mass production, and less pollution after disposal.



**Fig 2.** Waste denim used in furniture product design

(Photo credit: <http://www.baidu.com>)

### 3. Conclusion

Recycling and reusing waste fabrics is the most desirable method in terms of resource regeneration, environmental pollution reduction and ecological balance. The waste fabric can achieve the purpose of waste recycling through the effective transformation of deconstruction modeling, creative combination and splicing filling. Clothing, accessories and furniture designed by this method also have unique visual effects. Therefore, the artistic design and application of waste materials can show new uses and values, and it is a

work that has both public welfare value and economic benefits. Whether it is from environmental protection or economic development strategy, the recycling of waste fabrics is very urgent and necessary.

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