Plastic Reduction

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Design Mentor Statement: This design was a project outcome from a workshop done by Mentor A at Mentor B's university. The seven-weeks virtual workshop linked textile design and modularity to promote fashion sustainability. Mentor A introduced the student research on sustainability and modularity over virtual lectures, while Mentor B worked with the student in person in designing and creating the design through the application of research and advanced fashion techniques. Through the use of sustainable methods and a visually striking textile design made from plastic bags, this design successfully achieved the goals of the workshop through the implementation of recycling and modularity. The design research objective, market requirements, and strong visual impact were effectively conveyed through innovative textile design and styling techniques.

Statement of Purpose: While plastic brings convenience to human beings, it also floods, which also brings endless trouble and disaster to our environment. Plastic pollution has become a global issue, with its presence observed at the highest peak of the world, in Mongolia's plateau lakes, the deepest parts of the Pacific Ocean, and even in the remote Antarctic and Arctic waters (Zhang et al., 2016). One of the primary contributors to this "white pollution" is the extensive use of plastic bags. Nowadays, plastic bags have become an integral part of modern life. As Chinese citizens living in China, we are particularly concerned about the substantial amount of plastic waste generated by the growing mail delivery industry. For instance, during China's largest shopping carnival on November 11th, as reported by China's State Post Bureau, mail delivery companies handled 4.776 billion express items, an increase of over 20 percent compared to the previous year. While designers can repurpose clothing and textiles to create new designs (Carrico, 2018), the concern about the volume of plastic bags persists. Irick and Ahmed (2022) explored various techniques to reuse plastic bags as textile materials, such as ironing and using heat guns. Incorporating a modular concept, which allows pieces to interlock without the need for a sewing machine (Chen & Lapolla, 2020), this design aims to explore a sustainable modular dress using plastic packaging and bags from mail delivery as materials.

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Aesthetic Properties and Visual Impact: This design is created using recycled plastic packaging and bags sourced from mail delivery services. The main materials for the garment are selected from these recycled plastic bags, with black and green colors chosen as the primary hues, while a small amount of other colored plastic is added as accents. By using a modular approach, the design breaks away from the traditional way of clothing and allows for various combination possibilities. The color scheme of black and green, as well as the modular unit shapes created from our handmade textiles, draw inspiration from the digital logo found on plastic products.

Process, Technique, and Execution: The process started with the creation of the textile using used plastic bags and packages that we collected. First, we cut all the bags into small scraps. These scraps were then sandwiched between two layers of muslin fabric and pressed together using an iron until the plastic materials fused, resulting in the desired texture (Figure 1). Next, we utilized Adobe Illustrator to create modules based on a triangular system learned from a workshop on fashion sustainability and modularity. By combining two triangles, we mimicked the recycling logo found on plastic products. Functional cutouts were added to each side of the triangle to enable interlocking (Figure 2). Once the modular design was finalized, a laser cutter was employed to cut out all the modules. Finally, the cut modules were assembled by interlocking them through the slots according to our initial sketch. Even though a sleeveless dress was used, the modules could be transformed into a variety of looks, allowing for personalization and promote sustainability.

Figure 1. Textile created from plastic bags.

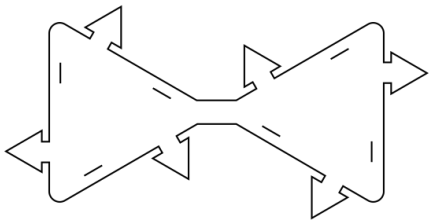

Figure 2. Module design.

Cohesion: Our design concept aims to mitigate plastic waste pollution worldwide and safeguard the sustainable development of the environment. Our purpose is not solely to recycle plastic waste for product creation but also to consider the customization through fashion modularity. By carefully selecting the colors and textures of the raw materials and employing modular technique, our design offers a distinctive aesthetic and sustainable approach.

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Originality and Innovation: For this design, we developed a custom textile specifically designed for the theme of plastic recycling, utilizing recycled delivery bags. We collected different colored delivery bags from recycling stations, showcasing plastic fragments of various sizes that drew inspiration from microplastic particles measuring less than 5 mm in diameter. In addition to the textile created the concept of modularity places equal emphasis on how individuals engage with clothing. The concept of modular clothing enables and encourages wearers to experiment through the removable and reconfigurable clothing modules. These modules can be assembled and layered in endless ways, akin to Lego pieces, enabling wearers to create new and varied combinations based on their personal aesthetics and preferences. The modular approach not only enhances the interaction between wearers and their clothing but also extends the lifespan of the garments, adding an element of enjoyment through the diverse and unpredictable shapes they can assume.

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