



## Athleisure Hanbok

Saemee Lyu, California State Polytechnic University, Pomona, California, USA

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The textile and apparel market for activewear has expanded due to the lifestyle trend for human health and well-being (Uttam, 2013). According to the lifestyle change, athleisure which is a fashion trend showing apparel designed for workout purposes worn in other settings for the workplace, school, or social occasions has been popular. This trend leads to active textile development to meet the demand of various textile functionalities such as breathability, temperature and moisture control, stretch, lightness, and wind and water resistance, etc. (ÖZDİL and ANAND, 2014). It enables activewear to be more versatile, functionable, and fashionable. However, textile recycling remains a current necessity since those types of textiles are not landfill friendly by using synthetic materials. According to the US Environmental Protection Agency (2009), the amount of the landfill textile wastes are about 12.37 million tons each year. However, it was also reported that the post-consumer wastes defined as worn out, damaged, or no longer needed garment or household article discarded end up in the municipal landfills are most likely recyclable (Wang, 2006). Thus, redesigning a product using recycled textiles or garments can be an effective and invaluable solution in decreasing the post-consumer textile wastes. Especially, non-landfill friendly materials must be considered for redesigning purpose to protect environment from the textile wastes. In attempt to respond to these expectations, an example of sustainable garment design was developed in this study. The objective of this study was to create a contemporary (Gaeryang) hanbok design satisfying both aesthetic and utilitarian design attributes for athleisure purposes by using recycled materials to encourage redesign used apparel products in attempts to reduce post-consumer textile wastes world-wide.

The hanbok design representing the Korean national identity and beauty has evolved along with the passing generations (Veridiano, 2017) and it has been gaining widespread attention with the evidence of use of hanbok design elements in high fashion in the past few years; Dior and Carolina Herrera showed apparel designs inspired by hanbok in their collections in the spring 2011 (Cha and Eun, 2015). Based on this increasing awareness, hanbok was selected as an example of the Eastern outfits to be studied for further development. In academic, there are several examples showing contemporary hanbok designs but there is lack of studies that create hanbok design using recycled materials. Lyu (2015) developed a contemporary hanbok design using recycled denims. The garment was created using denim fabrics made of mostly cotton. Based on the past attempts, it is indicated that using textiles made of synthetic fibers in creating sustainable hanbok designs is needed to gain more attention to recycling of the non-landfill friendly textiles in various ways for world-wide applications.

This design was made using the materials from recycled activewear to meet the utilitarian purpose for the contemporary athleisure Eastern look. The design consists of a jacket and a tube dress, in Korean called Jeogori and Chima respectively. Three used garments purchased at a Goodwill® store were: 1) athletic men's pant made of shell with 72% nylon and 28% polyester and lining with 100% polyester, 2) men's short sleeve mesh t shirt made of 100% polyester, and 3) women's sweater dress made of 65% of wool and 35% acrylic. For aesthetic purpose, a complementary color scheme which is the distinguishing feature of Hanbok is used. Orange color was used for the jacket for eye-catching purpose and the light gray color was chosen for the dress as the adjusted contrast shade of blue to provide versatility. Three different shades of gray colors from women's sweater were used for the jacket decoration to add the subdued elegance.

To provide breathability, a mesh t shirt was purchased and deconstructed to be used for the body of the jacket and the top of the tube dress. The waistband of the pant was cut and attached to the neckline to form Git which is the neckband of the jacket and attached to Kkeutdong which is the cuff to provide unique textures and a shaping effect to the edges. Two straps, in Korean called a Goreum, were constructed by cutting the outseam of the pant to secure the jacket. The sweater dress was unraveled to obtain three-color yarns including black, dark gray, and light gray to be hand-stitched into the mesh of the jacket. It provides decorative effects as well as temperature control effects. Two-color blocks using the yarns were added to the sleeve edge to create a three-color block combination effect including the cuff color that is the traditional Korean sleeve decoration method. All hand-stitched decorations were created with the straight patterns to incorporate the symbol of straight lines from the hanbok design elements.

For wind and waterproof effects, a windbreaker pant was purchased and used to form the dress. The dress consists of Chima Malgi (Dress top) and Chima (Dress bottom which is the skirt). A 12-inch long zipper detached from the outseam of the pant was sewn to the center back of the skirt bottom for an easy pull on closure and easy movement. The skirt is fully lined to control sweat and prevent static electricity. The top of the dress was created using the mesh t shirt to provide breathability and color matching with the jacket. Multiple plies of three-color yarns were braided to form the drawstring to be inserted into the casing of the dress top to fasten the dress and hold two types of Korean traditional ornaments: 1) Apricot flower knot and 2) coin pocket. The black-color waist drawstring which was initially inserted into the waistband of pant was used in attempts to create the two knots with the flower shape. The coin pocket was created using parts of the mesh t shirt for front panel and the pant for the back panel. The bottom of the pocket was hand-stitched using the yarns from the sweater to provide decorative effects in a coordinating color. The coin pocket front panel has the hand stitched symbol of the fortune in Chinese character which is a Korean traditional decoration on the coin pocket. All pieces of the design were made using parts of the recycled garments except for the metal buttons attached under Sup (Placket of the jacket) to secure the jacket closure. Each garment piece can be worn separately with other garments for any occasions.

This versatile design application combining aesthetic and utilitarian design attributes may lead to positive consumer perception towards the upcycled garment purchase in Eastern looks. Furthermore, this design may contribute to encourage redesign the used garments in attempts to reduce the post-consumer textile wastes by providing an example of the widespread upcycled apparel design applications.

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