

Beauty Is More Diverse Than Ever

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Slim, young, stylish women have been the face of many companies through advertising campaigns and fashion shows. This phenomenon has instilled in people the perception that beauty means being slim and young. Women of all ages emphasize slimness, and the overall presentation of the female body is attractive rather than functional (Heiman and Olenik-Shemesh, 2019). This desire for beauty continues to this day. As a result of these influences, many women sometimes choose unhealthy eating and lifestyle choices to look thinner, younger, and younger, which can have serious health consequences, including anxiety, eating disorders, and self-harm. Entwistle et al. (2019) found that certain brands on Instagram favor white women as models. While these women may be middle-aged and older, they still fit the dominant aesthetic of white, blonde, tall, and thin. Although the mainstream aesthetic in the fashion industry is slim, tall, young, and white, more and more people are realizing that feminine beauty standards are not so fixed. Rubin et al (2003) found that women defined their aesthetics and refused to emulate the dominant cultural trend of body idealization and refused to define thinness and whiteness as beautiful. In other words, diversity is gradually becoming mainstream in fashion. People are becoming more tolerant of diversity in aesthetics.

Therefore, the designer expressed the diversity of beauty with the equality of race and body type through this wearable garment using technologies such as 3D printing, digital pattern making, and fabric manipulation. This study was developed to create wearable garments that can express the diverse meaning of beauty while considering both racial and body shape equality. The designer applied a three-stage design process framework by Labat and Sokolowski (1999), which consists of *Problem Definition and Research*, *Creative Exploration*, and *Implementation*. As a silhouette of this garment, the spoon body shape, which is the most popular body shape in the United, was chosen among the five main body shapes: rectangle, triangle, spoon, hourglass, and circle. To create the spoon's body shape, this design consisted of a knee-length skirt draped as a spoon shape and a 3D printing skeleton from the neck to a pelvis. All patterns and 3D printing skeletons were created on a size 8 dress form for digital pattern making and 3D printing digital sculpting software.

Before making the actual garment, the designer used a quarter-scale dress form for draping 3 paper trims as skin tone trims to identify the silhouette. After mirroring the draping section to confirm the pattern pieces, pattern pieces were scaled up to real size. Apart from that, the knee-length skirt draping was made in Clo (patternmaking software). After transferring the pattern pieces as a real size in Adobe Illustrator, all pattern pieces were cut by using the Universal LS 12.75 (A free-standing platform with a single laser). Six skin tones of satin fabrics (deep beige, light beige, medium beige, dark cocoa, deep cocoa, and medium cocoa), which can express racial equality visually, were made of top and bottom trims. The top and bottom trims measured 1.5" x 14" (including 1/2 seam allowance), and the rest of the fabric in between was cut with 2" x 14".

Stitching six skin tones trims as a gradient skin tones trim with placing the white mesh fabric between two layers of fabric for reinforcement. The skeleton was printed using a transparent resin material and colored by *Zhenrui* online store.

For the 3D section, the designer used *Zbrush*, *Rhino*, and *Blender*, digital sculpting software, to create the 3D modeling and rendering. For the pelvis, since it is easier to use *Rhino* to convert flat patterns to 3D modeling than to work in *Zbrush*, the 3D pelvis was made in *Rhino*. After tracing the 2D sternum and creating it as 3D modeling in *Zbrush*, the designer imported the 3D pelvis into *Zbrush* and combined it with the 3D sternum part. Using the 'Extrude planar curve: straight tool', 'Quad Remesh', and 'Bend Arc' to exaggerated the 3D pelvis structure. After confirming the silhouette of the 3D skeleton in *Zbrush*, the designer used an art brush to make the skeleton more realistic. To make the 3D printing wearable, 'Ring 3D' was added on each side and the neck part. Before printing the 3D printing skeleton, the designer used *Blender* to render the 3D printing and see what kind of material the best would be to express the skeleton texture and have a high-quality image for four views of the skeletons (Figure 3).

After receiving the actual 3D printing from *Zhenrui* online store, using rose gold medium cable chains and lobster clasps to connect the front and back sternum, and using a black plastic nylon cable tie to connect the front sternum with the pelvis, the skeleton piece of '*Beauty is More Diverse Than Ever*' was completed. The basic skirt was also constructed using the dart brown stain fabric. The invisible zipper was placed on the center back of the skirt and three trims with six different skin tones colors were handstitched according to the top of the basic skirt to create the spoon silhouette of the body shape.

'*Beauty is More Diverse Than Ever*' encapsulates the notion that beauty transcends narrow definitions, advocating for the recognition and respect of individuals from diverse racial backgrounds and body types. Fashion designers champion racial and body inclusivity, thereby nurturing diversity within the fashion industry. As the pursuit of multiple beauty standards gains momentum, fashion designers have the opportunity to integrate concepts of body shape and racial equality into their future themes. The incorporation of technologies such as 3D printing and laser cutting in this design serves as an inspiration for expressing equality in body shapes and racial representation, empowering other designers to explore innovative technological avenues. Furthermore, this piece showcases the application of various techniques, including 3D printing, digital pattern making, and fabric manipulation, in the creation of wearable art.

References

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Figure 1. Mirrored one side-draped trims in a 1/4 dress form.



Figure 2. Sample of six skin tones trims.



Figure 3. Rendering in Blender: Front

