

## Wine Dyed: Multi-wear Sustainable Wedding Dress

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Keywords: sustainability, natural dye, nontraditional, multi-wear

This design is an investigation in creating a sustainable wedding dress to be worn on more occasions beyond the wedding day. The bridal market is experiencing market shifts in which alternative dresses are gaining market potential. Brides no longer feel the necessity of a white dress as a true mark of getting married (McDonough, 2016). The wedding gown in western culture, while a special garment, is unsustainable in an environmental sense due to its one-time use. The gown will likely never be worn again unless sold for another wedding (Drycleaning Institute, 2013). Few papers have addressed sustainable wedding dresses by upcycling them into different wedding dresses (Karkazian, 2016), and designing wedding dresses with zero-waste techniques (Schaefer & Navarro, 2013). However, with these approaches, the dress would probably still be worn only once. Therefore, the research question in this process addresses, how can designers create a dress that brides aspire to wear over and over while eliminating excess waste?

To fully investigate this research question, the designers had to first find out if there was a market of brides that would like to re-wear their garment and if so, what their aesthetic aspirations for a bridal dress like this would be. Upon receiving IRB approval, the designers recruited women engaged, recently married (less than 5 years) or in a bridal party through Facebook wedding chat groups as well as convenience and snowball sampling. They were asked open response questions about concern for sustainability of a wedding dress, intentions to wear the dress again, openness to wearing it again, and what features of wedding dresses they liked. A total of 39 women completed the initial survey with 15 further interested in the design concept. These 15 interested women then continued to be involved in the design process through a series of surveys asking for feedback of the design ideas. In addition to this feedback, a current designer in the bridal market consulted in other areas to help understand elements of the production process to answer the second part of the research question regarding waste. She was able to speak to the market for sustainable bridal dresses as well as talk about waste issues in the bridal industry. In her experience waste often occurs when needing to match lace or directional fabric resulting in much of this being thrown out. This guided the design ideas for minimal waste surface design. This process confirmed market potential for opportunities in untraditional, sustainable bridal with possibilities to be worn again. The 15 women gave positive support on several sketches produced by the researcher. Figure 1 below contains some of the sketches that were included in the survey. The dress that was chosen to be created is the second dress from the right, in purple, with some modifications.

The final design consists of a main dress and origami flower shoulder strap and a maxi skirt that is worn underneath. The dress was modified to include the removable skirt because some individuals felt more comfortable with a symmetric hem on their wedding dress. The top was changed to a sweetheart

neckline with the origami flowers as a single shoulder strap based on the fit of the muslin. Without this change too much fabric would sit at the waist creating making the model appear larger than they really were. Both the skirt and the dress are intended to be worn together for the wedding while they could be worn separately for other occasions. The design for the dress was developed based on elements that addressed the research question focus on wearability and waste. These four key elements were sustainable textiles, use of natural dye, reducing fabric waste in patterning, and transformability. The textiles were chosen first: Banana fiber fabric and organic cotton. Banana fiber fabric was chosen as the main textile. Banana plants must be cut after they have grown a bunch of bananas and are therefore an agricultural waste product and the fiber is biodegradable (Phukan et. al, 2015). Organic cotton was chosen as the secondary fabric because of its accessibility and sustainable properties such as the forbidden use of “synthetic agrochemicals, chemical fertilizers and transgenic seeds” (Sanches et al., p. 695) Banana fiber fabric is used on the maxi skirt, the asymmetric skirt of the main dress, used as the overlay and facing of the bodice and the origami flowers. Organic cotton is used in the bodice and the lining of the bodice. Next, the natural dye was chosen, wine. The fabric is dyed with cabernet sauvignon. Wine was chosen because it does not need a mordant to dye fabric, such as alum, which decreases the toxicity of the dye process. The banana fabric, cotton, and zipper were all dyed with wine. Third, the dress was also patterned to reduce fabric waste as much as possible. The skirt pieces utilize the entire width of the fabric and the origami flowers are made of hexagons, which can be placed right next to each other, like a honeycomb, and cut. And finally, transformability, while briefly mentioned earlier. The dress can be worn with the under skirt as a floor length gown or without it as a shorter, edgy dress with an asymmetric hem. Most transformable dresses for weddings have a skirt that rests over the dress at the waist. These skirts then tend to be big and poufy princess skirts that would not be worn again even though the short dress could be. Putting a long straight skirt under the dress as done in this design would increase its wearability.

Wedding dresses are being designed with some elements of this process like transformability (hiding a short dress under a huge skirt), designing colored wedding dresses, or using sustainable fibers, but there is a lack of examples combining these multiple techniques to maximize sustainability. This design demonstrates that wedding dresses can be designed in a way that makes them sustainable in many different avenues. This practice can also be initiated in other formal wear apparel and other potential markets for garments normally considered as one-time use.



Figure 1. Some wedding dress designs included on multi-wear bridal survey.

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