

Title: Suit of the Youth: ‘Intentional Pattern-making’ proof of concept for repurposing apparel

Author: Rachel J. Eike, Iowa State University, USA

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The apparel industry significantly contributes to negative environmental impacts and excess waste generation (Zaffalon, 2010). As a result of fast fashion the rate of apparel consumption and disposal has increased over recent years, resulting in an abundance of still functional, unwanted clothing, much of which ends in landfills (Kozlowski, Searcy, & Bardecki, 2018). In some cases, consumers choose to donate or sell their unwanted clothing to second-hand retailers. It has been suggested that through the repurposing and transformation of second-hand clothing items, renewed value can be given to these products and is one solution to overconsumption and excess in the second-hand market stream (Fletcher, 2008; Young, Jirousek & Ashdown, 2004).

While researchers have suggested the use of second-hand textile-based items as a resource for new product development, no formal process has been developed and tested to repurpose apparel. While some repurposed apparel items are currently available for purchase, these items are primarily individually-produced and result in a single unique product. While this unique end product is a ‘one of a kind’ item, it is sold at a premium price (Fletcher, 2008), making consumption of these repurposed items simply not attainable for the majority of consumers. Therefore, the purpose of this design project was to trial the repurposing design process co-developed by the author (Irick, 2013; Irick & Eike, 2017) in order to suggest recommendations for continued works using repurposed resources. In the long term, these recommendations may impact resale price, making repurposed clothing attainable to the average consumer and assist in textile waste diversion while advancing design scholarship.



Figure 1. Original suit jacket and slacks prior to repurposing.

Irick (2013) outlined the ‘Process for repurposing’ from data collected from designers who practice repurposing apparel in their current business strategy. Based upon evolutions of this research, four levels of repurposing have been identified: 1) re-style to repurpose, 2) subtractive repurposing 3) additive repurposing, and 4) intentional pattern-making to repurpose (Irick & Eike, 2017). In level one, re-style to repurpose, minor alterations in fit or style are made to the original garment. In level two, subtractive repurposing, techniques are employed where a smaller garment is cut from a larger garment/textile. In level three, additive repurposing, smaller pieces of fabric are pieced together to create a new textile that is then made into a full-scale product. In

level four, intentional pattern-making, a discarded clothing item is deconstructed and new product patterns are purposefully designed and cut to utilize available fabric, working within existing shapes. For this experimental design, level four, intentional pattern-making was selected as the design method as it is the most complex repurposing approach. *Suit of the Youth* builds upon other repurposing design work of the author, however, previous works involved techniques associated with level 3: additive repurposing where pre-consumer scraps were pieced together to create a new textile and product (Eike, 2015, 2016, 2017). *Suit of the Youth* was made from a fully lined men's suit jacket, (shell = 100% wool; lining = 100% rayon) size 48L, and a men's pair of slacks (88% wool, 12% silk), size 36 waist and developed into an active wear-style female size 8/10 jacket, pant, and sleeveless tank. These apparel items were selected for repurposing based upon the abundance of formal attire (jackets and slacks) found in second-hand stores (Irick & Eike, 2019). Figure 1 showcases front views of the original garments before beginning the repurposing process and figure 2 provides a sample of how developed pattern pieces were laid out within the existing garment shapes to maximize fabric and components. *Note: figure 2 only showcases single leg in pant example, however all pieces and cuttings were mirrored.*

The author completed steps 1-5 (of 7) of the 'Process for repurposing' while completing *Suit of the Youth*. These steps included, briefly: 1) research, 2) sourcing of repurposed materials, 3) deconstruction, 4) design development, and 5) production. Silhouette inspiration was influenced by active wear – a market that is expected to grow exponentially due to “trends of athleisure as casual wear among the youth” (AMR, 2018, para. 4). Patterns were created and placed to feature original components such as pockets (10 in total) and belt loops (see figure 2). Control of excess material was addressed through pleats, flanges, and darts. Remaining textile waste totaled 123 grams (4.3 ounces). Estimated cost for wholesale production of *Suit of the Youth* = \$290, which is based on the U.S. minimum wage (\$7.25/hour).

In reflection of completion, it is important to assess the end product from a scholarly design perspective. *Suit of the Youth* utilized fabric color values of light (jacket shell) and dark (slacks and jacket lining) along with different woven textures to create a balanced and harmonious ensemble. *Suit of the Youth* met the aims of the research project by contributing to the body of sustainable design, particularly repurposing. While some design research is connected to repurposing, *Suit of the Youth* employed a novel approach of intentional pattern-making in which new product patterns were purposefully designed and cut to utilize available fabric, working within existing shapes (Irick & Eike, 2017).



Figure 2. Intentional pattern-making pattern shape development and placement sample.

It is recommended to simplify the design in order to reduce time spent in the production phase and to perform a thorough quality investigation of second-hand product selection to properly prepare for design challenges such as numerous pockets and fabric blemishes from wear and age. Future directions for 'intentional pattern-making' include the replication of this design to more accurately calculate production costs and revisit the proposed process to possibly restructure placement of sourcing stage. Future phases of repurposing research and design include use of CAD application(s) to digitize available deconstructed garment shapes for fabric/material usage and then digitally develop pattern pieces for efficient lay-plan/marker development. Overall, there is a great abundance of quality second-hand apparel items that may serve as textile resources for the design community that yields creative and unexpected products that promote sustainable apparel practices.

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