Zero Waste Design Method: Modern Edwardian

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The benefit of zero-waste (ZW) pattern-making is evident in its potential to contribute to sustainability by eliminating waste, using the entire width and length of a piece of fabric (Carrico and Kim 2022). However, to achieve a fitted effect, ZW designs often result in pattern pieces that are complicated to sew (Rissanen and McQuillan 2016). In the ZW design process, fabric pieces left over from contouring areas must be reintegrated into the design (Bernardoni 2022). ZW pattern design is an essential contribution to sustainability efforts within the fashion industry.

The purpose of this design was to build on a previously developed ZW design method inspired by Vionnet principles that avoided the traditional use and placement of darts (Bryant 1991) and used geometric shapes to create a desired fit (Kirke 1998). The ZW method used for this design integrates knitted pieces for shaped areas, and the remaining design uses simple geometric shapes that are easily assembled without the need to reintegrate oddly shaped pieces (Bernardoni 2022). Although this design draws visual inspiration from Edwardian gowns, simplified aesthetic properties create a more modern, minimalistic look.

The process began with the established ZW method. With yardage in mind, the skirt gores were determined based on the waist measurement; the remaining fabric width was used for hem width; gores were integrated to create fullness (Figure 1). Next, the remaining fabric rectangle (minus 2.5” for a belt and bow) was used for the bodice and sleeve panel, which was folded at the shoulder line, then slashed and hemmed for the boat neck opening. The remaining waist and bust areas were created by machine knitting two ribbed 12” wide rectangles. The

center back panel was intentionally cut wider to accommodate donning over the bust with a small elastic band stitched to the seam allowance at the center back to retract to the desired shape after the donning process. Knitted cuffs were created for the gigot-type sleeve. A simple modern bow completed the look. The gown is size-inclusively adjustable (width and length) as it is essentially a tube (Figure 2). The knitted waist piece allows for widthwise adjustment while allowing the bodice piece to lengthen or retract by adjusting the blouson effect over the knitted area.

Knitting was worked in cream Italian mohair lace weight yarn on a Brother KH-970 knitting machine with a KR-850E ribber attachment. The rest of the design used silk crepe de chine in a neutral white color. Seams were sewn on an industrial machine; knitted components were joined by overlocking to accommodate necessary stretch. This design contributes to the ZW body of knowledge by implementing a method of ZW pattern design and proposing solutions to problems typically inherent in ZW fashion design. Additionally, this method could be used in the industry to contribute to much-needed sustainability efforts.

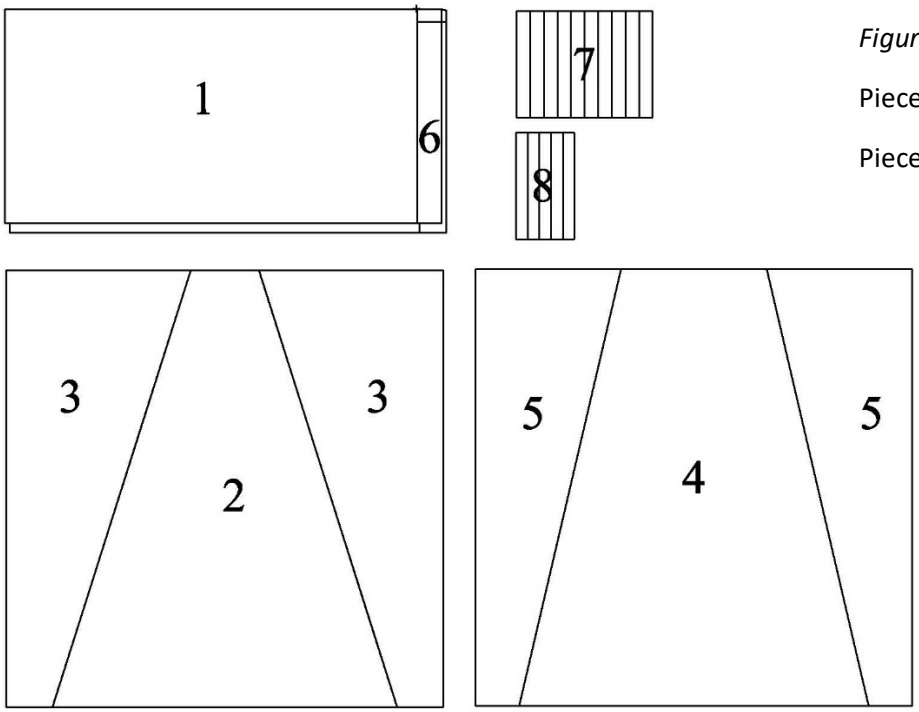


Figure 1: Pattern piece layout and cutting.

Pieces 1-6: 100% silk crepe de chine.

Pieces 7 -8: Mohair yarn

1: Bodice and Sleeves (on Fold)

2: Skirt Front

3: Skirt: Side Fronts

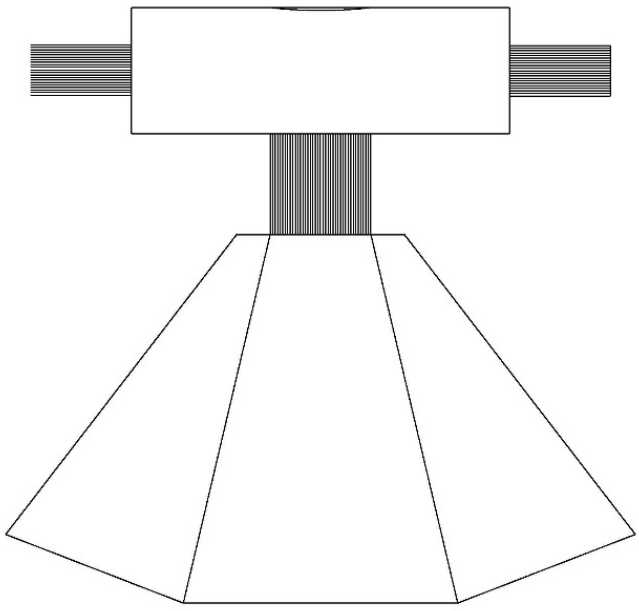
4: Skirt: Back

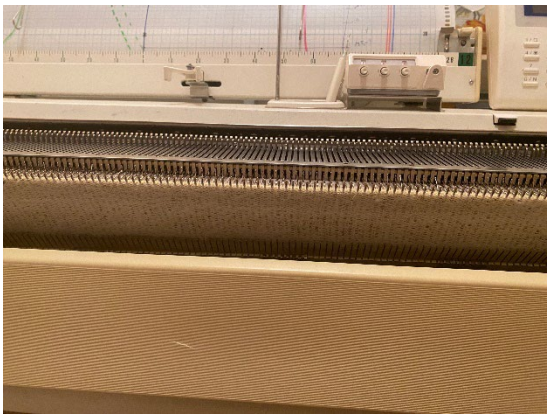
5: Skirt: Side Backs

6: Belt and Bow

7: Knitted Torso/Waist

8: Sleeve Cuffs X 2





Machine knitting in progress.

Figure 2: Dress illustrated flat to show adjustability.

Design Front

Design Back

Design Side

Design Detail of knitted rib Components

Bibliography

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