Gradable Zero-Waste Trench Coat

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Contextual Review and Concept- Gradable Zero-Waste Trench Coat was created as part of Phase II of a project started in 2011 to explore and refine the Carrico Zero-Waste Banded Grading (CZWBG) technique. The goal of this project is to develop a method implementing standardized grading production practices for zero-waste garments within the apparel mass market (Carrico et al, 2022). During Phase I of the project, six design researchers/educators were challenged to apply the CZWBG technique to resize zero-waste garments within various categories of the industry, including children's wear, menswear, outerwear, lingerie/loungewear, plus size, evening/cocktail, and athletic wear (Carrico et al, 2022). After Phase I was complete, an expert with over 20 years' experience in mass market production was asked to review the patterning and construction processes and final garments. Phase II of the project included incorporating the feedback given by the industry expert and refining the technique, so it may be utilized in a small batch production test in the future.

Figure 1. Phase I garment in sizes 14, 10, and 6.

Gradable Zero-Waste Trench Coat addresses three of the comments made by the industry expert. 1) Differing proportions between sizes may not be appealing to the customer. 2) Success highly depends on the designs presented – they must be something the customer would wear. 3) Consider the life of the garment – 70% of impact on environment comes from the time it is with the consumer (Muthu, 2015). *Gradable Zero-Waste Trench Coat* offers a solution to the concern of differing proportions, which can be seen in a Phase I garment in Figure 1. In the midsize garment, all taupe bands are equal width, however, the red bands in the garments on either end of the size range differ in width. In the size 6 garment, the vertical red bands are narrower than the horizontal red bands, which distracts the viewer's eye and detracts from the garment's aesthetic appeal. In contrast, the placement and material used for each band in *Gradable Zero-Waste Trench Coat* was strategically chosen so the band proportions will appear consistent. Bands created from contrasting fabric grade at the same rate, allowing them to stay in proportion with each other. Additional bands grade at different rates to keep with standardized grading practices, however these were created from self-fabric, so they blend into the garment and do not detract from the design. Waist and sleeve ties traditional to trench coats were utilized to hide band areas and simplify the overall design (Figure 3).

The designer chose to recreate a classic trench coat as a way to address the second and third concerns raised by the industry expert. A trench coat is a wardrobe staple and practical piece for the consumer to purchase. The trench coat rose to popularity during the First World War Britain in 1914 and

has since stayed in trend; it does not cycle in and out of fashion like many other styles (Tynan, 2011). The consistency of this style means the consumer will wear it for many seasons, extending the use phase of the garment's lifecycle. Wrinkle and water-resistant fabric was chosen for the design, allowing for ease of use and adding to marketability of the garment. This textile will also limit the amount of laundering necessary in the garment's lifecycle, lessening the environmental impact the garment will cause while in the wearer's possession.

Process, Technique, and Execution- I began by designing a zero-waste trench coat pattern in half scale, to allow for experimentation with band placement and determine the appropriate grade scale for each band. I used the slash-and-spread grading lines established by Mullet (2015) in Concepts of Pattern Grading: Third Edition as a guide for seam and band placement. Seamlines were drawn onto the pattern and a ½ inch section was removed to allow room for the band. In the full-scale pattern, this translated to a 1-inch-thick strip with ½ inch wide seam allowances. The pattern pieces were then cut apart at the seam and pieced together on a 56 by 67.75 inch layout in full scale (Figure 2). This layout can be tiled together by changing the orientation. When turned upside down, the rectangular pieces seen at the top of the pattern would link together.

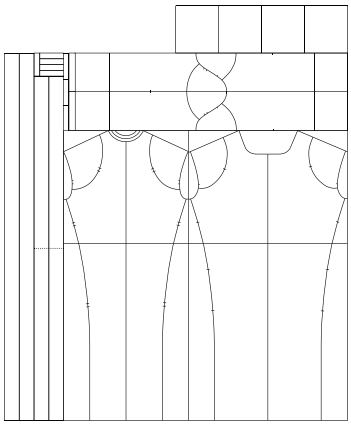

Figure 2. Zero-waste pattern layout.

Plain weave, double weave, double cloth, or double-faced fabric in a medium to heavy weight would need to be selected for this pattern, due to the absence of facing for the lapel. When the lapel of the coat is turned back, the viewer will see the wrong side of the fabric, meaning both side of the textile will be utilized. Therefore, the right and wrong sides of the textile would need to appear the same or of contrasting color/appearance. A plain weave solid fabric was chosen for this design and the edges of the coat were finished using a ½ inch wide bias binding. Bands were cut from separate yardage; straight-of-grain bands were cut from self-fabric, while bias bands were cut from contrasting fabric to allow the band to stretch around the curved seams of the design. The final product was then constructed, piecing together the zero-waste patterns and appropriately sized strips for each area of the garment. The inside of the coat was finished with additional strips that acted as coverings for the inserted areas. I then stitched-in-the-ditch of the strip inserts the secure the inside covering. Ultimately, this created a clean finished inside and raised the quality of the garment.

Aesthetic Properties and Visual Impact and Cohesion- Traditional khaki colored fabric was chosen for this design to relate to the history of the trench coat and show that a wardrobe staple can be produced using the CZWBG method. However, bands from cream colored fabric modernize the classic design and create a strong visual impact and make for a marketable product. Self-fabric was used in the sleeve and waist areas to reduce the business of the design and give the viewer's eye a central location to focus. The

Figure 3. Hidden band below sleeve tie

continuity of the curved princess seam bands and circular shape created on the shoulder provide a cohesive look to the garment.

Design Contribution and Innovation- This gradable trench coat design works to refine the CZWBG technique for future application in mass production. It offers solutions to three significant concerns raised by the industry expert. Bands of self- and contrasting fabric were strategically placed and grade scales were selected to allow for a consistent appearance throughout the production size range. Additionally, the garment type and textile chosen created a classic and functional piece. The trench coat produced is highly marketable and reduces the environmental impact by limiting the need for laundering and extending the use phase of the garment's lifecycle.

References

Mullet, K. (2015). Concepts of pattern making: Techniques for manual and computer grading (3rd edition). New York, NY: Bloomsbury Publishing Inc.

Muthu, S. S., (2015). 5 - Environmental impacts of the use phase of the clothing life cycle. In Handbook of Life Cycle Assessment (LCA) of Textiles and Clothing (pp. 92-102). Woodhead Publishing. https://doi.org/10.1016/B978-0-08-100169-1.00005-8

Tynan, J. (2011, May 1). Military Dress and Men's Outdoor Leisurewear: Burberry's Trench Coat in First World War Britain. Journal of Design History, 24(2), 139-156. https://doi.org/10.1093/jdh/epr014

Carrico, M., Dragoo, S. L., McKinney, E., Stannard, C., Moretz, C., & Rougeaux-Burnes, A. (2022). An Inquiry into Gradable Zero-Waste Apparel Design. Sustainability, 14(1), 452. MDPI AG. Retrieved from http://dx.doi.org/10.3390/su14010452