

Gradable Zero Waste: An Athleisure Ensemble

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Zero waste (ZW) fashion design is defined as “fashion design that wastes no fabric, by integrating pattern cutting into the design process” (Rissanen & McQuillan, 2016, p. 11). This practice has become more popular among designers within the past 10-15 years. However, as ZW markers utilize 100% of the fabric provided for the design, there is no room for grading the pattern (Rissanen & McQuillan, 2016, Carrico et al., 2022). This immovable fact has led most ZW designs to be oversized to accommodate a larger portion of potential wearers. However, the look over oversized clothing is not desirable in some apparel categories.

Designer, Carrico (2016, 2020, 2021) has created a method for creating gradable ZW designs. In this method strips of varying widths are inserted into key seamlines to create growth to grade the pattern into various sizes. This method has been shown to be highly effective in multiple categories of apparel (Carrico et al., 2022), however, additional exploration related to creating a path for mass production using this approach is needed.

The goal of creating market-ready ZW apparel using the Carrico method (2016, 2020, 2021) prompted the designer to think about the preference for athleisure apparel. Athleisure, “a portmanteau of ‘athletic’ and ‘leisure,’ refers to casual clothing designed to be worn for both exercising and general use” (Lipson et al., 2020, p. 5). The women’s athleisure category is worth an estimated 187.6bn USD worldwide (Statista, 2023) and is expected to continue growing. With today’s increasingly casual dress culture, many women now count athleisure as a core component of their wardrobes (Lipson et al., 2020). The volume of athleisure apparel being produced could provide opportunities to introduce gradable ZW design as a sustainable choice. Thus, the purpose of the current design was to create a market-ready gradable ZW athleisure ensemble.

Target Market

The designer began this process by researching trends and typical consumers of athleisure. According to Lipson et al. (2019) traditionally women’s athleisure is comprised of “a form-fitting top and bottoms; the top often exposes a significant amount of skin (e.g., bra-like tops, tank tops, cutouts) or emphasizes a woman’s figure” (p. 5). Women ages 35-45 were chosen as

the target market for the design. These women are affluent, enjoy working out, have children, and are always on the go. The designer then consulted with three women in the target market and found that many of them were interested in having their backsides covered, they often did not want to wear bike shorts or leggings for fear of panty lines or other garment failures. So, the designer was inspired to create an oversized jacket with high-low skirt and added a tennis skort. The high-waisted tennis skort was cut longer than many on the market today because the consumers mentioned skirts being so short, they were uncomfortable trying that trend. A bra top was also included to allow for actual exercising, this top was slightly cropped and could easily be covered with the jacket if wearers felt too exposed.

Aesthetics

A study by Patrick (2018) found that *aesthetics* (including color and fit) was the most important factor when choosing athleisure apparel among 35 younger women interviewed. Thus, the present design employed several aesthetic techniques to optimize the appeal to the target market. A cream 4-way stretch brushed polyester/spandex fabric with grey and taupe marbling was chosen and a black 4-way stretch was utilized as an accent to create cohesion in the color pallet. Most bands in this design were of the main fabric to create a less noticeable break in the garment various panels. The black bands created stark contrast and helped to move the eye along the design (rhythm). The lines of the jacket were curved in at the waist to create the illusion of an hourglass shape. Proportion was considered using the Rule of Thirds (Bubonia, 2014), the skort was 1/3 while the jacket was 2/3 of the garment when worn together.

Method

Based on past ZW explorations, the designer began by creating the patterns for the garments that would feature the most difficult shapes (namely the armholes of a jacket and crotch curves of the shorts) first. The designer created a digital pattern for an oversized jacket using Optitex software. A pair of bike shorts were draped onto a dressform and then digitized into Optitex. Next, the designer looked at potential marker layouts for 58" wide fabrics using the jacket and short pieces.

Once the main patterns were well established in the digital marker, the designer determined where to place the seamlines for inserting the gradable strips. The grading was based on tacit knowledge from past explorations of this method and the grade guides established by Mullet (2015). The grade guide and images are available here: <https://youtu.be/r74bKa1A1MM>

After completing a mockup of the graded skort and jacket, a few areas remained in the marker that were unclaimed. Thus, the designer created a cropped bra top to complete the ensemble. The gradable top was created with thick bra straps to allow for more security while

wearing. The remaining areas of the marker became inseam waist pockets, breast pocket with flaps, and a lower back zippered pocket for the jacket. The waistline of the skirt was also heightened and thick elastic was added to help keep the stomach area “sucked in.”

The designer’s studio did not feature a flatlock machine (the preferred assembly), so the design was sewn using a home sewing machine with zig-zag, twin needles, and triple-stitch zig-zag stitches. Serging was also used to finish the seams. Binding finished the zipper and neckline seams of the jacket.

Cohesion

The goal of the present design was to create a gradable ZW athleisure ensemble suitable for women ages 35-45. The design was created using the method developed by Carrico (2016, 2020, 2021) and was able to fit consumers sizes 2-18 using alpha sizing and bands of varying widths inserted into key seamlines. Aesthetics are critical to consumers of athleisure, so these principles (Rule of Thirds, rhythm, and cohesion) were incorporated into the final look.

Contribution

A major contribution of this piece is creating a fitted, ZW ensemble that fulfills the needs of a target consumer in one of the most popular apparel categories, athleisure. Creating market-ready, ZW that can be graded is a critical step to getting design firms to adopt these sustainable principles (Carrico et al., 2022). The present design is built on tacit knowledge developed as the designer conducted inquiries into this method. Future work should determine if the present design can be mass manufactured. Additionally, consumer wear trials and opinions should be formally collected to provide more evidence to industry professionals for adopting this approach.

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