

VEST PRODUCT DESIGN USING REMAINING FABRIC MATERIAL AS A MOTIF WITH WEAVING TECHNIQUE

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ABSTRACT

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This design aims to process leftover fabric from home-made garment factories into a material for making vests using weaving techniques as a motif creation technique. The increase in textile waste is one of the problems that arise due to mass production. Leftover fabrics that are considered to have no value are reused to produce fashion products with aesthetic and functional value. This research focuses on designing a vest using weaving techniques as a motif creation technique that utilizes leftover fabric as a creative solution to reduce textile waste, especially in the home-made garment industry. The design method applied is based on the craft design approach, namely the three-stage, six-step design method by S.P. Gustami. The design method includes the stages of exploration, design, and realization or embodiment of the work. The design of the work produces a vest that combines denim and leftover fabric. This combination creates an attractive design that suits the trends and character of the young generation who are active, creative, and have concern for the environment.

Keywords: Vests, Production Leftover Fabric, Textile Waste, Weaving Techniques

1. INTRODUCTION

Fashion has evolved into a crucial element in self-expression, lifestyle, and individual identity in the modern era. Public enthusiasm for ever-changing trends has spurred the fashion industry to continuously innovate in design, materials, production techniques, and textile motifs. One clothing category that has experienced significant development is *outerwear*. *Outerwear* is *fashion* worn to cover the body and layer clothing underneath (Rachmadani, 2020). Nabilah and Zahra (2022) state that, according to *the World Global Style Network*, *outerwear* has significant market potential. Vogue noted that vests *are* the most sought-after fashion item. The popularity of vests *has created an urgency for fashion* industry players to innovate and present products that have appeal in the modern fashion world.

On the other hand, the rapid development of the *fashion* and textile industry also presents serious challenges related to the environmental impact caused by the production process. One type of waste that is quite large is leftover fabric, which generally comes from the cutting process of materials in home-based garment factories. According to data from the National Waste Management Information System (SIPSN), in 2024, fabric waste

contributed 2.55% of all types of accumulated waste. Observations of the home-based garment industry revealed a large amount of unused leftover fabric, which, if managed properly, could become creative raw materials. Based on the results of observations, it was found that home-based garment industries located in the Purbayan and Laweyan areas produce a lot of leftover fabric that is not optimally utilized. These garment factories produce various types of clothing such as tops, bottoms, and Muslim clothing. Their production activities generate a large amount of leftover fabric in various types. These fabrics are generally just stored or discarded, even though the quality and appearance are still suitable for reprocessing.

This phenomenon demonstrates the potential for processing leftover fabric from home-based garment industries into new, more valuable products. The use of leftover fabric is still rarely used in *fashion*, but *fashion* trends are already moving towards sustainability (Caroline et al., 2021). The author proposes the idea of utilizing leftover fabric into new products in the form of *outerwear*. One innovative approach that can be implemented is to use weaving techniques in the design process. Weaving techniques involve overlapping woven materials to create a work (Rohandi et al., 2022). In textile design, motifs and colors are important elements that can enhance the aesthetic value and attractiveness of a product. Motifs created through weaving techniques fall into the category of structural design. Structural design involves developing the arrangement of threads or woven construction elements with the aim of producing the desired shape, characteristics, patterns, and colors (Rizali, 2006: 36-38). According to Perangin Angin (2021), textile materials are one of the materials that can be used in the creation of woven products, thus opening up opportunities for exploring new designs.

Fashion product creations utilizing scraps or leftover fabric have been widely made before, but this design offers a novelty. The urgency of this *vest design project* with a variety of weaving techniques was driven by the need to refine *upcycling practices* in the textile and *fashion industry*, both in terms of design and technique. The variety of weaving techniques in this *upcycle* has the potential to create innovation and novelty in ready-to-wear *outerwear*.

2. METHOD

Designing a craft requires a structured process. The design method is carried out through the creation method according to SP. Gustami, which consists of three stages: exploration, design, and realization (Gustami, 2007).

Exploration Stage

The exploration phase involved gathering data sources and conducting field studies to identify problems and determine themes. This process involved observing and exploring ideas from the author's immediate environment while also following emerging trends. Observations revealed that home-based garment industries in the Purbayan and Laweyan areas produce a significant amount of leftover fabric that remains underutilized. This led to the idea of designing a *vest* using a woven fabric-based technique, an innovative solution to address textile waste and address market needs that continually follow fashion trends. The

second step involves exploring theoretical foundations related to the use of leftover fabric, structural design, weaving techniques , sources and references to study trendy vest designs and motifs , as well as conducting trials and artistic research aimed at helping determine concepts to solve problems. Generally, this process involves literature studies, data collection and work experiments as a basis for design development.



Figure 1. Three-Step Scheme of the Six-Step Process of Creating Craft Artworks
(Source: Gustami Sp, 2007: 329)

No	Trials	Information
1.		A fabric burn test is used to identify whether a textile is natural or synthetic. Synthetic materials produce a clumpy residue similar to burning plastic, while natural materials leave an ash similar to burning paper.
2.		The trial of processing leftover rayon fabric was carried out by sewing it into strips of cloth ribbon measuring 0.5 cm.

No	Trials	Information
3.		The trial of processing leftover cotton fabric was carried out by sewing it back into strips of cloth ribbon measuring 1 cm.
4.		The trial of processing leftover cotton fabric was carried out by sewing it back into strips of cloth ribbon measuring 2 cm.
5.		The trial of processing leftover cotton fabric was carried out by sewing loops into strips of cloth in the shape of a solid pipe measuring 0.5 cm.
6.		The trial of processing the remaining woven fabric was carried out by cutting it into 2 cm cloth strips, then attaching Viselin to the back of the fabric and unraveling some of the warp threads to produce an <i>unfinished visual effect</i> before weaving.

No	Trials	Information
7.		Trial of making a weaving pattern with 1 cm woven material
8.		Exploration trial of variations in the width of the woven strips, namely 0.5 cm, 1 cm, and 2 cm to form a pattern
9.		Experiment with adding <i>ring elements</i> as visual accents to the weaving pattern.

Table 1. Trial

Design Stage

The results of the data collection and references were then realized in the form of two-dimensional visual sketches. The second step, which involved visualizing the selected design alternatives more concretely through prototype creation, was the creation of a vest product. In the design stage, the *vest product* was developed using leftover fabric processed using a weaving technique. The author created several alternative *vest design sketches* using the weaving technique, taking into account aspects of technique, materials, aesthetics, function, and target market. Next, the selected design is visualized in the form of a life-size prototype to test the suitability of the composition, proportions and overall visual before the final product is realized.

Manifestation Stage

The first step is to implement the selected alternative design by creating a visualization of the work based on the prototype deemed most ideal, from the initial implementation process to the final completion. This process applies a concept that includes the selection of materials, techniques, motifs, and shapes. Once the work is completed, the final stage is to evaluate the work to assess its visual appearance, usability, and the alignment between the initial design ideas and the final product.

3. RESULTS AND DISCUSSION

The design concept for this work was developed based on the results of previous data collection. The design utilizes leftover fabric from home-based garment factories, including cotton, woven fabrics, and rayon. The target market is teenage and adult women who enjoy artistic and unique styles, although it does not rule out the possibility of attracting interest from other segments. The design of this work refers to *Fashion. Trend Forecasting* (FTF) Indonesia 2025-2026: Strive as a guide to responding to the latest fashion trends. Trend themes are taken from *Fashion Trend Forecasting* (FTF) is *Neo Nostalgia*. Several design aspects became the author's attention in this design process.

Aspect Aesthetic

One of the aesthetic aspects embodied in the work as an element of novelty is the use of motifs. The motifs in this design are created using a weaving technique that has unique characteristics. Color selection is based on field studies, trials, research and interviews. Color selection is adjusted to the availability of leftover production fabrics that have gone through a selection process. Based on the results of field studies in the convection, many bright colors were found, but when the colors are combined properly, these colors can produce interesting combinations. In line with developing trends and considering the availability of leftover production fabrics obtained, a combination of bright colors such as *pink*, yellow, orange, green, and light blue was chosen.

Technical Aspects

The technique used in this design is weaving. Weaving was chosen because it can provide a distinctive and unique visual and textural effect. Furthermore, weaving techniques have not been widely used in creating *fashion motifs*, so the use of this technique can bring innovation both in terms of motifs and techniques in the fashion industry. In the process, leftover fabric is first processed into ribbon strips, which is a crucial step before weaving. Processing the leftover fabric into ribbon strips is the main basis because the arrangement will determine the unique motif pattern produced through this weaving technique.

Material Aspects

The material selection was based on material availability and as a step to reduce textile waste that has a positive impact on the environment and social aspects. Based on

observations and interviews with the garment factory, the collected production waste consisted of cotton, drill, and *crinkle materials* dominated by bright colors. In the design process, the fabric was sorted to form harmonious color groups to produce harmonious woven motifs, and selection was made based on size, quality, and quantity of material. Cotton was chosen because of its strong fibers that provide durability to the material. Another material used was denim, which acts as a base layer to support the woven motif made from production waste fabric. The choice of denim was based on considerations of its strength and strong visual character, making it easy to combine with woven motifs. Denim has a sturdy texture and is resistant to deformation, making it very suitable for use as a structure in *vest products*. In addition, the use of denim also gives the garment a casual feel.

Functional Aspects

The final result of this design will be casual outerwear, namely *a vest*. *The vest* is designed to meet the needs of modern *fashion that functions as protection and a medium for self-expression*. *The selection of the vest* as the final product is focused on consideration of global trend data that predicts *the vest* will be one of the most sought-after *fashion items* in 2025. *The vest design* is made with a cut that follows the shape of the body, not too tight or loose, thus providing comfort and freedom of movement for the wearer.

Target Market

The target market for this design is teenage and adult women between the ages of 18 and 25. This is due to the product's functionality and design aligning with the preferences of this age group. Women in this age group are generally more concerned with fashion style and are drawn to unique designs. Furthermore, young women tend to prefer clothing with attractive designs and comfort.

In designing *vest products* using leftover fabric material with a weaving technique, it produces alternative designs with each alternative having differences in weaving motifs, motif placement, color combinations, cut shapes and the overall *vest design, creating unique and diverse variations in the final product*.



Figure 2. Motif and Vest Design 1

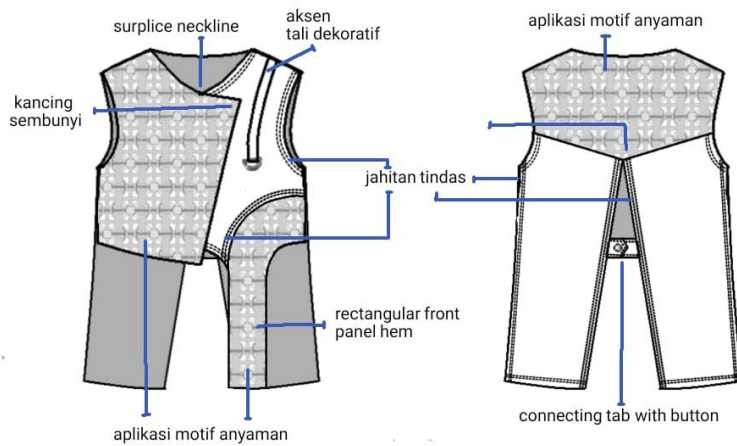


Figure 3. Flat Design Vest 1



Figure 4. Motif and Vest Design 2

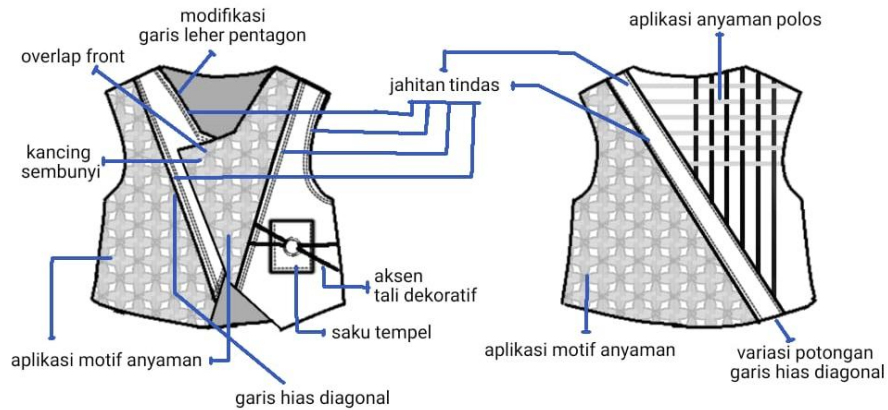


Figure 5. Flat Design Vest 2



Figure 6. Motif and *Vest Design 3*

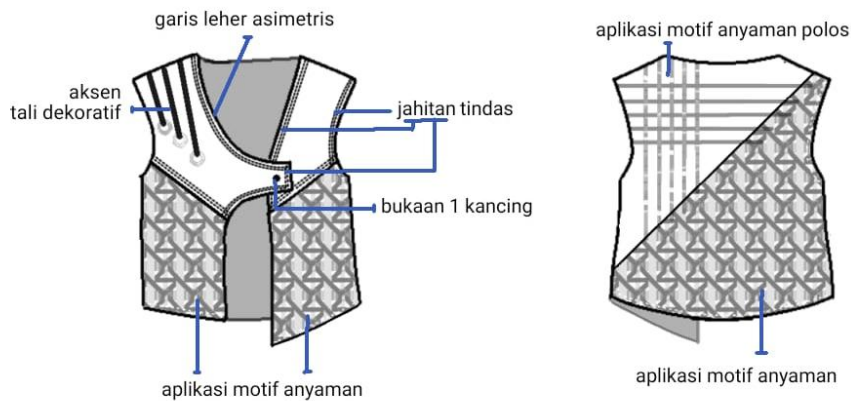


Figure 7. Flat Design *Vest 3*



Figure 8 . Design illustration

After going through the design stage, the next stage is to realize the design in three-dimensional form through a structured production process. The production process begins with the selection and preparation of materials, where the collected production waste fabric is sorted and selected based on color, type of material, size and condition of the fabric. In

addition, the selection process is also applied to the denim material used as the base layer and structure of the *vest product*. The selection of denim material takes into account the type of fabric, thickness and strength to suit the function and appearance of the final product. This stage is important to ensure the quality of the materials used in the *vest production process* based on waste fabric using weaving techniques.



Figure 9. Production Remainder Fabric

Once the materials are prepared, the next step is to create a *vest pattern* according to the design. The created *vest pattern* is then placed and arranged on the denim fabric as a guide for cutting the denim. When cutting the fabric, it is important to pay attention to the grain direction of the fabric to ensure the vest's shape is stable and doesn't change after sewing. Next, create a woven material from the remaining fabric. The sorted fabric is then cut into three widths: 5 cm, 3 cm, and 2 cm. After being cut into various widths, the fabric pieces are joined to the required lengths, then sewn into elongated ribbon strips according to the design requirements.

The next stage is to arrange the ribbon strips into a motif using a weaving technique according to the design. After the weaving motif is arranged according to the pattern, the weaving motif is then attached to the denim fabric by hand sewing (*checking*) neatly. After the denim fabric pieces and weaving motif are finished, all parts are sewn together as one product. The final stage in the production process is refinement or *finishing*. The purpose of finishing is to improve and perfect the final result so that the product is clean, neat, and comfortable to wear and the product is guaranteed ready to wear. The finishing process includes pressing or ironing, installing buttons according to the design, checking the stitching, tidying up the remaining threads and soothing.



Figure 10. Product Photo

4. CONCLUSION

A vest product using leftover fabric with a weaving technique is carried out as a solution to overcome the problem of utilizing leftover fabric in fashion products that have aesthetic and functional values. Through an approach involving trend research, field studies, interviews, and literature studies, *the vest* is designed with a loose silhouette and the application of brightly colored geometric motifs made using a weaving technique, which suits the character of the active user. The use of denim as the basic material in the *vest structure* was chosen to be able to provide additional strength to the woven motif and provide comfort when worn. This design proves that the use of weaving techniques on leftover fabric and combined with denim as the basic structure, is effective in creating *a vest* that has both aesthetic and functional value that is comfortable to wear and is an alternative technique for processing leftover fabric.

This design still leaves room for further development and research, both in terms of technical exploration, motif design, clothing types, and product diversification. Efforts are needed to optimize the techniques and methods used so that the design results have higher value both functionally and aesthetically. Furthermore, innovation in the application of weaving techniques to various other forms of fashion is crucial to expand the potential use of leftover fabric. In further research and design, the focus can be directed towards production time efficiency, technical development and increasing the durability of the woven motif structure so that the product is unique and strong and can be produced on a larger scale.

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