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Development of Contemporary Ready-to-Wear "Viramrdu" Using Upcycle Denim and Tenun Bulu for Sustainable Fashion

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Abstract
This study examines the development of contemporary ready-to-wear apparel "Viramrdu" by integrating upcycled denim and tenun bulu as an effort to address textile waste issues while preserving traditional Indonesian textiles. The rapid growth of the fashion industry has increased denim waste and reduced the relevance of local textiles in modern fashion, necessitating sustainable and innovative design approaches. This study employed a Research and Development (R&D) method using the ADDIE model, which includes analysis, design, development, implementation, and evaluation stages. Product feasibility was assessed through expert judgment involving three professional fashion designers using evaluation indicators covering design, size, aesthetics, sewing techniques, fashion performance, and product uniqueness. The findings indicate that the "Viramrdu" ready-to-wear fashhion achieved a "Highly Feasible" category across all assessment indicators, demonstrating strong design quality, proportional sizing, aesthetic value, functional comfort, and innovation in material exploration. The integration of upcycled denim and tenun bulu successfully produced a contemporary, edgy, and functional fashion while maintaining sustainability principles. This study concludes that combining upcycled materials with traditional textiles has significant potential to support the development of sustainable ready-to-wear fashion with a strong design identity and market relevance.

Keywords: sustainable fashion, upcycle denim, ready to wear, tenun bulu

INTRODUCTION

The fashion industry is one of the sector that has experienced rapid growth and has had a significant impact on global environmental conditions. The rapid development of fashion trends encourages people to continuously update their styles of dress, thereby leading to an increase in the production of fashion products. Fashion has become a representation of lifestyle and social identity in modern society, thereby contributing to excessive material consumption.[1] As a result, textile waste has increased over time and has triggered various environmental problems.

Improper waste management can cause environmental damage, and one fashion material that contributes significantly to this is denim. GT-NEXUS data shows that global denim material usage reaches 2.7 million meters per year, with more than one billion denim products circulating annually. Indonesia is even recorded as one of the major exporting countries of women's jeans.[2]. Despite its

[1] Ahdiar Febri Ramadhan, "Tren Fast Fashion Pakaian Masa New Normal Di Indonesia: Efektivitas Konsep Sustainable Fashion Terhadap Lingkungan" 1, no. 2 (2024): 77–89, https://doi.org/https://doi.org/10.61511/jwsc.v1i2.2024.1247.

[2] Felycia Santoso, Florentina Tamariska Wijaya, and Stefanie Ibrahim, "Pengelolaan Sisa Dan Bekas Kain Denim Menjadi Produk Pelengkap Fashion Dan Elemen Interior," *Simposium Nasional RAPI XVI – 2017 FT UMS*, no. December (2017): 214–15,

relatively high material durability, many denim products ultimately become waste due to rapid changes in fashion trends and the low level of public awareness regarding the upcycling of fashion waste. Denim waste that is disposed of or burned improperly can pollute the soil, water, and air, thereby negatively impacting the environment.[3] Therefore, a sustainable fashion approach is needed to reduce the amount of textile waste.

The sustainable fashion approach is the right solution to reduce the amount of textile waste. One such practice is upcycling, a technique that transforms discarded materials into new products with higher aesthetic and functional value. Upcycling not only utilizes waste materials but also provides designers with opportunities to explore creative and innovative approaches.[4] The processing of discarded denim through an upcycling approach is capable of producing fashion that are both modern and environmentally friendly.[5] This approach emphasizes that sustainability can be achieved through creative processes utilizing existing materials.

Beyond environmental issues, Indonesia also faces another challenge, namely the sustainability of traditional textiles amid the tide of modernization. One traditional textile with significant potential to address this challenge is tenun bulu. Tenun bulu is characterized by distinctive motifs formed from fine threads that are twisted and layered to create a raised, three-dimensional appearance.[6] The existence of tenun bulu is inseparable from the role of local artisans, as this fabric is mostly produced by artisans in Jepara. Design innovation is an important factor in maintaining the relevance of traditional textiles so that they can continue to be accepted in the modern fashion market.[7] This finding shows that creative efforts are needed to connect traditional values with ever-evolving aesthetic needs.

Several previous studies have examined the utilization of traditional textiles and waste materials. However, the integration of traditional textiles and upcycled denim within a single design composition remains relatively rare. This condition serves as the basis for the design of the "Viramrdu" ready-to-wear fashion, which embodies aesthetic values, sustainability, and cultural preservation. The design process emphasizes the accuracy of material selection, construction techniques, functionality, and the alignment of design principles. The use of discarded denim aims to reduce textile waste and demonstrate the potential of old materials to be reprocessed into valuable products, while Tenun Bulu serves to revitalize traditional textiles and maintain their relevance for younger generations. The contemporary ready-to-wear design approach positions this work in alignment with modern market preferences without disregarding cultural heritage. In the fashion context, the contemporary concept is understood as a style that is deconstructive and deviates from conventional norms, characterized by bold, exploratory, and asymmetrical design elements that emphasize a modern aesthetic.[8] Accordingly, "Viramrdu" represents the intersection of global issues and local wisdom.

Through this development, the "Viramrdu" collection is expected to contribute to the development of sustainable fashion design based on local materials. Furthermore, this collection can

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https://www.researchgate.net/publication/321835587_Pengelolaan_Sisa_dan_Bekas_Kain_Denim_Menjadi_Produk_Pelengkap_Fashion_dan_Elemen_Interior.

[3] Novia Hidayatunnisa, I. D. A. M Budhyani, and P.A Mayuni, "Pengembangan Busana Ready-to-wear Berbahan Limbah Denim Dengan Sumber Ide Ombak Laut" 15, no. 2 (2024): 164–74, https://doi.org/http://10.23887/jppkk.v15i2.69374.

[4] Ainur Rosidah and Dan Ratna Suhartini, "Desain Upcycle Pakaian Bekas Sebagai Fashion Berkelanjutan," *Jurnal Online Tata Busana* 10, no. 3 (2021): 183–91, https://ejournal.unesa.ac.id/index.php/jurnal-tata-busana/article/view/43509.

[5] Nofi Rahmanita, Mega Kencana, and Yurisman, "Upcycling Denim as an Eco-Friendly Fashion Solution," *Journal of Scientific Research, Education, and Technology (JSRET)* 4, no. 3 (2025): 1332–46, https://doi.org/10.58526/jsret.v4i3.797.

[6] Dewi Maisaroh and Dian Permatasari, "Etnomatematika Dalam Tenun Troso: Konteks Pembelajaran Untuk Transformasi Geometri," *Judika (Jurnal Pendidikan Unsika)* 12, no. 1 (2024): 79–93, https://doi.org/10.35706/judika.v12i1.11076.

[7] Farzana Amatul Noor, "Revitalisasi Kain Tenun Baduy melalui Adibusana: Peran Inovasi dalam Melestarikan Warisan Budaya," *Journal of Fashion & Textile Design Unesa* 5, no. 1 (2024): 41–50, https://doi.org/https://doi.org/10.26740/baju.v5n1.p41-50.

[8] Deviana Susanti, "Pusat Fashion Kontemporer Di Yogyakarta," *Repository UAJY*, 2023, 1–20, https://e-journal.uajy.ac.id/1651/.

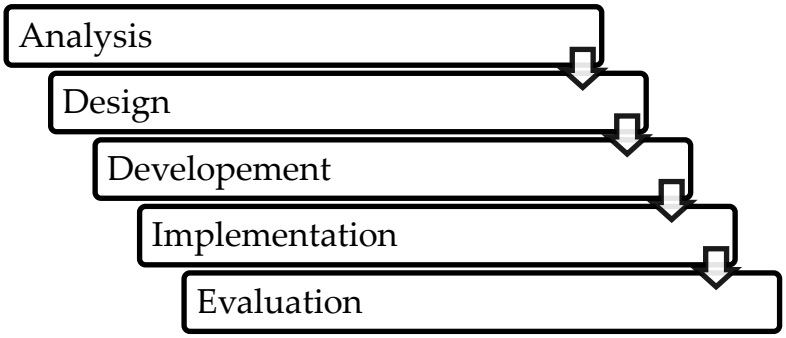
serve as an example of how cultural values and sustainability can go hand in hand through a creative, innovative, and conscious design approach.

METHOD

This study was designed using the Research and Development (R&D) method, a systematic approach in academic and industrial contexts aimed at producing innovations in the form of applicable products, systems, or models. The R&D approach is oriented toward the development of practical solutions that are validated through iterative testing processes.[9] The R&D method was chosen because this study focuses on the process of developing and testing the quality of the "Viramrdu" fashion design, which integrates sustainability values and cultural elements through design, construction techniques, and functional aspects.

The development model applied in this study is the ADDIE model, which comprises five stages: (1) Analysis, (2) Design, (3) Development, (4) Implementation, and (5) Evaluation.[10] Through these stages, the construction process was carried out based on well-considered conceptual, aesthetic, and technical aspects. Therefore, the use of the R&D method is considered relevant, as it allows both creative and technical processes to be conducted systematically and supported by a clear academic rationale. The stages of the ADDIE model can be seen in Figure 1.

Figure 1 ADDIE model stages



Source: Faulan Devi et al., 2025

This study uses data analysis techniques based on the results of the feasibility test of "Viramrdu" ready-to-wear fashion, which was assessed by three expert panelists. All three are experienced fashion designers based in Semarang, so the aspects assessed include design, construction techniques, and functional aspects that reflect the professional perspectives of experts in the field of fashion.

The preliminary study stage was conducted by collecting data on environmental issues in the fashion industry, the concept of sustainable fashion, and Indonesian textiles. Literature studies and visual reference collection were carried out to understand the potential solutions that could be applied in the context of contemporary design. This analysis also included observing fashion trends, collecting references, reviewing literature, and determining design needs relevant to the ready-to-wear fashion market. The findings from this stage formed the basis for the design concept of the "Viramrdu" fashion line, which focuses on sustainability and cultural preservation.

The design stage includes developing the design concept, creating mood boards, developing several alternative sketches, determining the final design, creating initial prototypes to test the feasibility of the form, selecting materials and colors, and making visual adjustments so that the design balance is applied consistently to represent the character identity that you want to display in the clothing. At this stage, design principles such as harmony, proportion, rhythm, and balance are applied to ensure that the design remains aesthetically pleasing and in harmony with the character of the

[9] Ade Rahayu, "Metode Penelitian Dan Pengembangan (R&D) : Pengertian, Jenis Dan Tahapan," *DIAJAR: Jurnal Pendidikan Dan Pembelajaran* 4, no. 3 (2025): 459–70, https://doi.org/10.54259/diajar.v4i3.5092.

[10] Faulan Devi et al., "Model Pengembangan Produk Fashion Recycle Limbah Tekstil Untuk Pelengkap Busana (Tas)" 24, no. 3 (2025): 1698–1704, https://doi.org/https://doi.org/10.17509/e.v24i3.88666.

material. The selection of colors and textures for Tenun Bulu and upcycled denim pieces is tailored to the visual concept of "Viramrdu," which carries a strong, bold character, yet still displays a soft side through edgy touches.

Product development is the stage of realizing the design into a ready-to-wear fashion. This process includes pattern making, cutting materials, sewing, and refining the construction. The outer uses tenun bulu fabric with additional interlining and shoulder padding to strengthen the structure, while the inner top is made from selected used denim based on the quality of the material. The skirt is made using a combination of tulle and plain weave to reinforce the contemporary identity of the design, and embellishments are added to strengthen the character of the fashion. At this stage, construction quality is ensured through precise sewing techniques, meticulous finishing, and shape stability to ensure the product meets standards for comfort and functionality.

The implementation stage consisted of a feasibility assessment conducted through expert judgment by panelists specializing in the fashion field. The evaluation was carried out using an instrument that included indicators of design, size, aesthetics, sewing techniques, fashion performance, and fashion uniqueness. The scores provided by the panelists were then analyzed using the following formula (1):

$$N = \frac{\text{score achieved}}{\text{score maximum}} \times 100\% \quad (1)$$

The percentage results obtained were subsequently presented in tabular form to facilitate data interpretation. The determination of feasibility criteria was conducted based on the following procedure:

1. Determine the ideal score percentage (maximum score): 100%
2. Determine the lowest score percentage (minimum score): 25%
3. Determine the score range (100% - 25% = 75%)
4. Determine the desired intervals (Highly Eligible, Eligible, Sufficiently Eligible, Ineligible)
5. Determine the width of the interval with a score of 75%: 4 = 18.75%

These calculations can be used as the percentage range and criteria presented in Table 1 according to Azwar in the research by Suherdiyanto and Adhitya Prihadi as follows. [11]

Table 1. Percentage Scale of Feasibility

No	Percentage (%)	Category
1	81,25 - 100	Highly Feasible
2	62,50 – 81,24	Feasible
3	43,75 – 62,49	Fairly Feasible
4	25 – 43,74	Not Feasible

Source: Azwar, 2014 in Suherdiyanto and Adhitya Prihadi, 2022

These categories were used to determine the level of fashion feasibility and to provide guidance for improvements when necessary.

The evaluation stage was carried out by reviewing the feedback provided by expert panelists regarding design, size, aesthetics, sewing techniques, fashion performance, and fashion uniqueness. This evaluation process served as the final determinant of the feasibility of the "Viramrdu" as a ready-to-wear fashion work based on sustainable fashion principles and the preservation of local cultural heritage.

RESULTS AND DISCUSSION

The ADDIE model, which includes the stages of Analysis, Design, Development, Implementation, and Evaluation, was used as a framework in the design and realization of the

[11] Suherdiyanto Suherdiyanto and Adhitya Prihadi, "Kelayakan Media Pembelajaran Mobile Learning Berbasis Android," *Sosial Horizon: Jurnal Pendidikan Sosial* 9, no. 1 (2022): 1–12, https://doi.org/10.31571/sosial.v9i1.3100.

contemporary ready-to-wear fashion "Viramrdu." This model was applied to ensure that the development process was systematic and structured. This section systematically outlines the ADDIE stages involved in the design of the "Viramrdu" ready-to-wear fashion.

1. Analysis

The analysis phase is the initial stage in the ADDIE model, which aims to analyze needs based on identified problems and determine alternative solutions through the creation of new products.[12] In the design of the contemporary ready-to-wear fashion line "Viramrdu," the analysis focused on the problem of textile waste, particularly denim, generated by fast fashion practices, as well as the low rate of reuse of these materials in functional fashion products. In addition, the analysis stage also includes an assessment of the potential of local Tenun Bulu textiles as a cultural element that has aesthetic value and development opportunities in contemporary fashion design.

This analysis stage not only serves as a conceptual basis, but also as a reference in determining the visual direction of the "Viramrdu" fashion design, which carries bold, assertive, and strong characteristics. These characteristics are translated through the analysis of color selection, materials, silhouette design, and clothing detail processing. The selection of materials was made by considering the contrasting characteristics between upcycled denim, which represents firmness and strength, and tenun bulu, which represents traditional values and refinement. The analysis of the silhouette and clothing details was aimed at producing modern, bold, functional ready-to-wear designs that are in line with the principles of sustainable fashion.

2. Design

The design stage represents the implementation of the analysis results into the visual and technical aspects of fashiondesign. This stage includes the creation of a mood board, the selection of materials and colors, design development, and prototype production. The entire design process was carried out to ensure alignment between the sustainability concept, the visual character of the fashion, and the functional requirements of the "Viramrdu" ready-to-wear fashion.

a. Moodboard

The design process began with the creation of a moodboard. The purpose of creating a mood board was to define the objectives, direction, and guiding framework for the themed design, thereby ensuring that the creative process remained aligned with the predetermined concept and did not deviate from the established theme.[13] Figure 2 shows the moodboard that has been compiled, which serves as a basic visual reference in the development of the "viramrdu" ready-to-wear fashion design concept.

[12] Tri Handayani, Dewi Rahmawaty, and Anisa Yulia Rahma, "Pengembangan Teknik Upcycle Dari Sisa Kain Produksi Massal Dan Pakaian Bekas Menjadi Pelengkap Busana Yang Berkualitas," *Jurnal Desain - Kajian Bidang Penelitian Desain* 2, no. 1 (2022): 123–29, https://journal.interstudi.edu/index.php/journaldesain/article/view/1396.

[13] Afif Ghurub Bestari and Ishartiwi, "Pengaruh Penggunaan Media Mood Board terhadap Pengetahuan Desain Busana pada Mahasiswa Pendidikan Teknik Busana," *Jurnal Inovasi Teknologi Pendidikan* 3, no. 2 (2016): 122–37, http://journal.uny.ac.id/index.php/jitp%0APENGARUH.

Figure 2. Moodboard

The moodboard was created as a visual medium to summarize the concept, atmosphere, and character of the "Viramrdu" fashion design. The visual elements included in the mood board include references to upcycled denim textures, metal details and chain accents, woven fabric elements, and contemporary fashion visuals with dark and expressive nuances. In addition, the mood board also features a color palette of denim blue, navy, and black, which represent a strong and modern character. This mood board serves as the main reference in maintaining the consistency of the design concept, particularly in the processing of materials, details, and clothing silhouettes, so that they remain in harmony with the concept of sustainability and contemporary aesthetics.

b. Design

Design represents a creative idea realized through the form, lines, and details of a fashion.[14] The "Viramrdu" fashion design was developed using a contemporary approach through the application of a modern and structured X-silhouette, along with asymmetrical cuts at the lower section to create an expressive impression. Firm shoulder structures and defined waistlines were applied to further reinforce the character. Figure 3 shows the final design of the "Viramrdu" ready-to-wear fashion

Figure 3. Ready-to-Wear Fashion Design "Viramrdu"

The design development process began with the creation of sketches as an initial visualization of the concept, followed by the development of Production Design I and II, which included

[14] Azkiya Nasywa Kamila et al., "Perancangan Desain Outer Modest Wear Dari Kain Brokat Sebagai Alternatif Busana Kondangan Kontemporer," *TEKNOBUGA Jurnal Teknologi Busana Dan Boga* 3, no. 1 (2025): 1–7, https://www.researchgate.net/publication/392980960_Perancangan_Desain_Outer_Modest_Wear_dari_Kain_Brokat_sebagai_Alternatif_Busana_Kondangan_Kontemporer_Designing_Outer_Modest_Wear_from_Brocade_Fabric_as_an_Alternative_for_Contemporary_Wedding_Attire.

specifications related to the silhouette, material distribution, detail placement, and fashion construction. Subsequently, presentation designs were prepared to illustrate the front and back views of the "Viramrdu" design along with samples of the primary materials used. The outcomes of the design stage consisted of fashion illustrations that served as technical references for pattern making, material cutting, and fashion construction in the subsequent prototype development stage.

c. Prototype

The development of this prototype serves as an evaluative tool to assess the form, function, and comfort of the established design and patterns, enabling refinements prior to production using the actual materials.[15] The prototype design stage was conducted as a visual and functional test of the "Viramrdu" fashion design. This process began with the creation of basic patterns adapted to the production design, comprising an inner halter top, an outer with structured shoulders, and a layered asymmetrical skirt incorporating tulle combinations, followed by fabric cutting. Subsequently, the fashion components were assembled through sewing stages that adhered to the construction procedures of ready-to-wear apparel as planned for the final product. Figure 4 shows a prototype of "Viramrdu" ready-to-wear fashion using calico fabric.

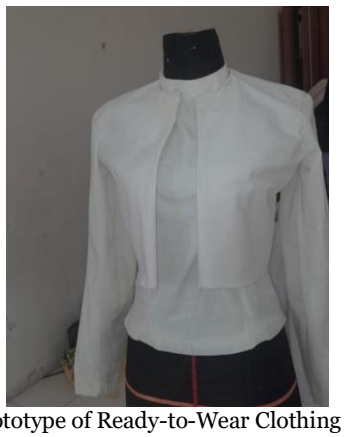


Figure 4. Prototype of Ready-to-Wear Clothing "Viramrdu"

After the prototype was completed, an evaluation was conducted through fitting trials on a mannequin to assess the suitability of the silhouette, proportions, and comfort of use. The evaluation was carried out with the involvement of lecturers and fellow students to obtain feedback from multiple perspectives. The results of this evaluation served as the basis for design revisions, adjustments to patterns and sizing, and refinement of construction techniques prior to the final fabric cutting stage.

d. Material and Color Selection

The purpose of material selection was to identify fabrics that could support the artistic expression and convey the exclusive value of the fashion, rather than merely using commonly available materials. [16] The selection of colors and materials in the design of the contemporary ready-to-wear collection "Viramrdu" was carried out as part of a conceptual process to establish a strong, assertive, and bold visual character. The color palette is dominated by shades of blue, specifically denim blue for the upcycled denim material and navy for the outer skirt and outerwear as the primary colors, complemented by black on the inner skirt and footwear. In addition, silver was chosen for detailing or ornamentation, further enhancing the modern and edgy impression. The following Figure 5 shows images from the selection of fabrics for the "VIramrdu" ready-to-wear fashion.

[15] Indarti, "Metode Proses Desain dalam Penciptaan Produk Fashion dan Tekstil," *Journal of Fashion & Textile Design Unesa* 1, no. 2 (2025): 128–37, https://doi.org/https://doi.org/10.26740/baju.v1n2.p128-137.

[16] Anak Agung Ngurah et al., "Penciptaan Busana Haute Couture Dengan Konsep Burung Jalak Bali," *Moda* 3, no. 2 (2021), https://doi.org/10.37715/moda.v3i2.1950.

Figure 5. Ready-to-wear clothing material "Viramrdu"

The material used is upcycled denim, which is applied to the inner part as a halter top and belt that serves as a fashion statement. Fleece fabric is used on the outer layer as a surface material that reinforces local cultural identity while providing a textural contrast to the stiff denim. In addition, plain navy blue fabric is applied to the outer layer of the skirt to emphasize the silhouette and give the impression of layered volume. The use of dark tulle on the inner layer of the skirt creates a transparent effect and light volume that contrasts with the stiffer character of the denim and weave.

The combination of upcycled denim, tenun bulu, plain navy weave, and tulle was considered based on functionality, comfort, and its ability to form a ready-to-wear silhouette that is bold yet flexible. Through the selection of colors and materials, the "Viramrdu" collection visually and functionally represents the concept of sustainable fashion, while simultaneously presenting a strong, distinctive contemporary character.

3. Development

The development stage is the process of turning designs into actual fashion products. This stage includes pattern making and cutting materials, sewing, and finishing.

a. Pattern Making and Material Cutting

The pattern making and fabric cutting stage is the initial part of the fashion development process that serves as the basis for the overall construction of the fashion. The main purpose of pattern making is to produce an accurate two-dimensional template that guides fabric cutting, ensuring the fashion fits the body properly, is comfortable to wear, and aligns with the intended design.[17]

In developing the "Viramrdu" fashion design, the basic pattern was created using a practical pattern that was developed and adapted through draping to match the model's measurements. A practical pattern is a pattern that has been made to fit the wearer's measurements. These patterns are drawn on paper, representing flat outlines of the fashion's front and back bodice, sleeves, skirt, collar, and other components.[18] Draping patterns, on the other hand, are created by placing and shaping fabric directly on a mannequin or the human body, allowing the pattern to form from the three-dimensional arrangement of the fabric on the body rather than from calculations on paper, as is the case with flat construction patterns.[19]

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[17] Verdani Lesmana Halimka, Hapsari Kusumawardani, and Agus Hery Supadmi Irianti, "Analisis Titik Pas (Fitting Factor) Blus Pas Badan Menggunakan Sistem Pola Winifred Aldrich Pada Bentuk Tubuh Wanita Pendek Kurus," *Jurnal Inovasi Teknik Dan Edukasi Teknologi* 1, no. 5 (2021): 329–43, https://doi.org/10.17977/ UM068v1n5p329-343.

[18] Fitrah Qalbina and Ernawati Ernawati, "Faktor-Faktor Kesulitan Belajar Pembuatan Pola Praktis Pada Mata Pelajaran Pembuatan Pola Tata Busana Di SMKN 1 Ampek Angkek," *Jurnal Ilmiah Profesi Pendidikan* 10, no. 1 (2025): 832–39, https://doi.org/10.29303/jipp.v10i1.3196.

[19] Nimas Oktaviani Putri and Ariyana Damayanti, "Pembuatan Gaun Pesta Malam Menggunakan Teknik Pola Draping Dan Pola Konstruksi Making Evening Party Dresses Using Draping Pattern

The patterns were developed based on the silhouette and design details, including the outer fashion, which utilized a practical female bodice pattern with tailored jacket sleeves, skirts made with circle patterns developed with asymmetrical cuts in accordance with the design, inner halter top was constructed using a draping method and complemented with a Shanghai collar, the upcycled denim belt was developed by repurposing sections of used pants and jackets, then adapted to align with the overall design.

Fabric cutting is done according to the established patterns, taking into account the direction of the fabric fibers, the motifs on the tenun bulu, and the characteristics of the used denim material, which varies in thickness and texture. Specifically for upcycled denim, the cutting process began with dismantling the old fashion and sorting out the fabric parts that are still usable, ensuring that the resulting material pieces were optimized without compromising visual or functional quality.

b. Sewing

Kufner pressing and the application of stiff interfacing were carried out on fashion sections that require shape stability, such as the tenun bulu outer and halter top collars, and other areas serving as support for the fashion's structure. The pressing process was carried out gradually, carefully regulating time, temperature, and pressure to ensure that the interfacing adhered optimally to the main fabric before proceeding to the sewing stage.

The sewing process began with sewing the halter top, which is sewn using the main fabric and lining. Upcycled denim is used as the main fabric and sewn according to the model's measurements. with the pattern divided into princess seams and additional darts added on the sides to reduce excess looseness. Next, the halter lining is sewn separately using rayon viscose fabric. After that, the Shanghai collar is attached to the lining.

The outer was sewn starting from the side sections of the main fabric until the body of the outer was fully formed, followed by joining the side sections of the lining and the interfacing at the center front. Next, the center front of the main fabric and the lining were combined, followed by sewing the main fabric shoulders together with the lining shoulders. The lower edge of the outer was then finished using tailoring techniques to create a neat hem, with padding and stay stitching added to the seams to give the shoulders a more structured appearance. The next step involved attaching the sleeves, followed by finishing the lining of the sleeves with tailoring techniques, ensuring that the inside of the blazer looks neat and is comfortable to wear**.**

The construction of the tulle skirt began with cutting the tulle into rectangular shapes, which were then gathered to match the model's waist circumference and sewn at the sides with a back seam. Nine meters of tulle were subsequently cut into random rectangular pieces to create an asymmetrical effect, shaped into cones and arranged around the waist of the skirt before being sewn one by one to form a layered pattern. The final step involved attaching an elastic waistband at the waist to secure the skirt.

The construction of the plain woven skirt began with cutting the fabric according to the pattern that has been made, followed by inserting a zipper on the side and sewing the skirt sides to form the intended silhouette. Next, the skirt lining was cut following the same pattern, the lining sides were sewn, and the main fabric was joined with the lining using a basting stitch along the waist slightly above the seam line to secure their position. After that, a waistband and hook-and-eye closure were attached to fasten the skirt.

The construction of the upcycled denim belt began with cutting and dismantling used denim pants and jackets, then connecting the pieces according to the design to form the belt frame. Subsequently, the lining was attached to the denim, with the waistband lining pinned and resewn following the original waistband stitching of the pants.

c. Finishing

The finishing stage represents the final step in fashion construction. Finishing is done on the bottom hem of the skirt using a som stitch technique to ensure a neat and clean finish. The collar and denim belt are also finished with a som stitch on parts that are difficult to sew with a machine. Additionally, snap buttons were attached to the Shanghai collar of the halter top.

The addition of fashion details was realized through the incorporation of eyelets on the upcycled

Techniques and Construction Patterns," *Garina : Jurnal Ipteks Tata Boga, Tata Rias, Dan Tata Busana* 13, no. 3 (2021): 142–57, https://doi.org/https://doi.org/10.69697/garina.v13i2.74.

denim belt and feathered woven outer, as well as metal chain embellishments secured with pins. Overall, the finishing stage not only completed the technical aspects of construction but also reinforced the visual character of the "Viramrdu" ready-to-wear fashion, ensuring that the prototype met the aesthetic, functional, and conceptual consistency criteria established from the initial design stage.

d. Realization of Viramrdu Ready-to-wear Fashion

The realization of the "Viramrdu" ready-to-wear fashion represents the final stage in the design and development process, conducted using the ADDIE method. This fashion features an X-silhouette with a modern look through the use of upcycled denim and tenun bulu fabric. The combination of upcycled denim, feathered woven fabric, plain woven fabric, and tulle creates a balanced exploration of textures between a sturdy and light feel, representing the principles of sustainable fashion.

Visually, "Viramrdu" highlights asymmetrical cuts, chain details as decorative accents, and layering techniques that create a proportional and stable silhouette when worn. The tenun bulu outer, paired with the layered skirt, halter top, and belt made from upcycled denim, generates an edgy look while demonstrating a cohesive integration of concept, materials, construction techniques, and functional wearability. Consequently, the "Viramrdu" ready-to-wear fashion can be regarded both as an academic work and as a commercially viable fashion product with a strong design identity. The finished "Viramrdu" ready-to-wear clothing is shown in Figure 6.

Figure 6. The Realization of Viramrdu Ready-to-wear Fashion

4. Implementation

The Implementation stage in the ADDIE model for the development of the "Viramrdu" ready-to-wear collection represents the phase in which the fashion is subjected to product feasibility testing. This process was conducted using the expert judgment method, involving a panel of fashion design specialists to assess the suitability of the design results with the actual performance of the clothing. This process was carried out using an instrument encompassing indicators of design, sizing, aesthetics, sewing techniques, fashion performance, and product distinctiveness. The evaluation results were analyzed to determine the product's feasibility and to provide recommendations for refinement, if necessary, before the product is deemed suitable for quality improvement.

The data from the feasibility test are presented in tables compiled based on the assessments of three panelists on the completed "Viramrdu" fashion. These tables provide an overview of the product's feasibility level according to the indicators of design, sizing, aesthetics, sewing techniques, fashion performance, and product distinctiveness. The results of the feasibility test are presented in Tables 2 through 7, showing the total scores awarded by each panelist for each indicator.

Table 2 Evaluation Results for the Design Indicator.

Panelist	**Percentage (%)**
Panelist 1	97%
Panelist2	83%
Panelist 3	90%
Average	**90%**
Category	**Highly Feasible**

Based on the results of the feasibility test for the design indicator in Table 2, the "Viramrdu"

ready-to-wear fashion received an average score of 90%, which falls within the range of 81.25%–100% and categorized as Highly Feasible. The assessment was conducted by three expert panelists, referring to six design indicators: color and theme suitability, strength of design lines, shape or silhouette, proportion, focal points, and overall design harmony.

The evaluation results indicated that the choice of colors and materials for "Viramrdu" was considered effective in representing an edgy and contemporary design character. The use of upcycled denim as the main material, combined with the layered skirt, produced a visually diverse yet harmonious appearance. This combination was deemed appropriate for supporting the fashion's concept while reflecting a sustainable fashion approach.

Regarding the design lines and silhouette, the panelists assessed that the fashion's construction and the arrangement of the layered skirt effectively guided the viewer's visual attention. The resulting lines support the body's silhouette, conveying a modern and expressive impression while remaining functional as a ready-to-wear fashion. The silhouette achieved does not create any distortion or visual imbalance.

The fashion's proportions were assessed as harmonious, demonstrated by the balance between the upper and lower sections and the proportional arrangement of volume in the skirt layers. Additionally, the focal points created through the use of upcycled denim were strategically placed, effectively drawing attention and reinforcing the design identity without appearing excessive.

Overall, the results of the feasibility test for the design indicator indicate that the "Viramrdu" meets the criteria for good and feasible design. The Highly Feasible category confirms that the fashion's design does not require fundamental revisions, only minor refinements, and possesses the potential to be developed both as an academic work and as a competitive sustainable fashion product.

Table 3. Evaluation Results for the Size Indicator

Panelist	**Pecentage(%)**
Panelist 1	100%
Panelist 2	93%
Panelist 3	100%
Average	**98%**
Category	**Highly Feasibly**

Based on the results of the feasibility test for the size indicator in Table 3, the "Viramrdu" ready-to-wear received an average score of 98%, falls within the range of 81.25%–100% and categorized as Highly Feasible. This assessment referred to six sizing aspects: body circumference accuracy, fashion length, left–right balance, precision of pattern cuts, neatness of the hem, and overall size suitability in relation to the wearer's body characteristics.

Analytically, the panelists assessed that the size application in the "Viramrdu" ready-to-wear corresponds well with the model's body proportions, as evidenced by the absence of overly tight or loose areas around the bust, waist, and hips. The pattern cuts were considered to accurately follow the body's contours, supporting both wearing comfort and a visually proportional appearance. The fashion length, particularly in the layered skirt, was evaluated as balanced and in harmony with the design without restricting the wearer's mobility.

The left–right balance of the fashion, as well as the neatness of the hems and the fall of the lower sections, were also evaluated as excellent, contributing to visual balance and a professional appearance when worn. Overall, the evaluation results indicate that the sizing indicator for the "Viramrdu" fashion meets the technical and proportional standards of ready-to-wear apparel and is suitable for implementation without requiring fundamental improvements.

Table 4. Evaluation Results for the Sewing Technique Indicator

Panelist	**Percentage (%)**
Panelist 1	93%
Panelist 2	77%
Panelist 3	97%
Average	**89%**
Category	**Highly Feasible**

Based on the results of the feasibility test for the sewing technique indicator in Table 4, the "Viramrdu" ready-to-wear received an average score of 89%, falls within the range of 81.25%–100% and categorized as Highly Feasible. This assessment referred to six aspects, the quality of the main

seams and seam allowances, the neatness of interior finishing, accuracy of pattern junctions, application of decorative techniques, and the absence of technical defects. These results indicate that most of the sewing technique criteria have been met according to ready-to-wear standards.

Analytically, the panelists observed that the main seams and seam allowances were executed neatly, consistently, and securely, supported by clean interior finishing and precise pattern junctions, including in curved areas. The application of decorative techniques, such as chains, was considered appropriately positioned and proportioned, well-installed, and not disruptive to the overall design cohesion. Furthermore, the fashion was free from technical defects, reflecting good quality control. Overall, the sewing techniques employed in the "Viramrdu" fashion were deemed sufficpient to support the visualization of the design concept and the Gelar Karya presentation, while meeting professional ready-to-wear standards, with only minor refinements suggested for certain technical details.

Table 5. Evaluation Result for the Aesthetics Indicator

Panelist	**Percentage (%)**
Panellist 1	100%
Panelist 2	70%
Panelist 3	97%
Average	**89%**
Category	**Highly Feasibly**

Based on the results of the feasibility test for the aesthetic indicator in Table 5**.** The assessment of the aesthetics indicator showed that the "Viramrdu" ready-to-wear received an average score of 89%, which, based on the feasibility category (81.25–100%), falls under the "Highly Feasible" classification. This result indicates that the fashion's aesthetic aspects have met most of the established evaluation criteria and are capable of visually representing the design concept. Differences in assessment between panelists did not affect the overall level of aesthetic suitability.

The evaluation results indicated that the unity of design elements was assessed as strong, demonstrated by the harmonization of blue denim with black tulle in the layered skirt. The combination of the coarse texture of denim with the transparency of tulle created a controlled contrast, reinforcing the edgy character as a defining feature of the design. The layered skirt introduced visual dynamics and balanced volume, while the silhouette proportions between the upper and lower parts of the fashion were maintained. The use of chain embellishments was deemed effective in enhancing the fashion's character without disrupting design harmony. Overall, the aesthetics indicator for the "Viramrdu" ready-to-wear fashion was rated as Highly Feasible.

Table 6. Evaluation Results for the Fashion Performance Indicator

Panelist	**Percentage (%)**
Panelist 1	100%
Panelist 2	90%
Panelist 3	93%
Averange	**94%**
Category	**Highly Feasible**

Based on the results of the feasibility test for the fashion perfomance indicator in Table 6. The fashion performance indicator for the "Viramrdu" ready-to-wear received an average score of 94%, which, based on the feasibility category (81.25–100%), falls under the "Highly Feasible" classification. This assessment was based on aspects such as the fashion's proportional fit to the model's body, shape stability when worn, ease of wear, and the alignment of the fashion's appearance with the wearer's character and the design theme. The high score indicates that "Viramrdu" performs optimally under actual wearing conditions while maintaining visual quality during show.

The panelists assessed that "Viramrdu" has proportions that suited the model's body, as evidenced by a well-fitting silhouette across the bust, waist, and hips without compromising comfort. The structure remained stable during wear, including at the shoulders and layered skirt, without shifting or altering shape as the model moved. Additionally, the opening system was considered practical and did not disrupt the fashion's aesthetic, thereby supporting ease of use as a ready-to-wear piece**.**

Overall, Viramrdu's fashion performance is considered capable of consistently presenting an edgy, modern, modest, and professional impression The fashion not only supported the model's

comfort and freedom of movement but also reinforced the wearer's character in accordance with the intended theme. Thus, the fashion performance indicator was rated as Highly Feasible, meeting the functional and visual standards for presentation in fashion shows or semi-formal contexts, with only minor refinements required if necessary.

Table 7. Evaluation Results for the Fashion Distinctiveness Indicators

Panelist	**Percentage (%)**
Panelist 1	100%
Panelist 2	73%
Panelist 3	100%
Averange	**91%**
Category	**Highly Feasibly**

Based on the results of the feasibility test for the fashion distinctiveness indicator in Table 7. The fashion distinctiveness indicator for the "Viramrdu" ready-to-wear fashion received an average score of 91%, which, based on the feasibility criteria (81.25–100%), falls under the "Highly Feasible" category. This assessment was based on aspects such as the novelty of the design idea, innovation in shape and structure, exploration of materials and textures, uniqueness of color combinations and details, and the strength of distinctive features as a designer's signature. This score indicates that the fashion demonstrates a high level of differentiation and creativity compared to typical ready-to-wear fashion.

The distinctiveness of the "Viramrdu" ready-to-wear fashion is reflected in the upcycled denim combined with tulle and tenun fabrics within a controlled multilayered structure. The exploration of asymmetrical cuts, chain details, and the interplay of rough and light textures results in a unique yet functional look. The combination of materials and details not only reinforces the edgy and modern impression but also forms a consistent and easily recognizable signature style. Therefore, the fashion distinctiveness indicator was rated as Highly Feasible, demonstrating that the "Viramrdu" ready-to-wear fashion possesses a strong design identity and holds potential for development as a sustainable fashion product with high originality value.

Based on the results of product feasibility testing using expert judgment methods, the "Viramrdu" ready-to-wear fashion overall falls into the Highly Feasible category across all evaluation indicators, including design, size, sewing techniques, aesthetics, fashion performance, and fashion distinctiveness. The average percentage scores for each indicator demonstrate that "Viramrdu" ready-to-wear fashion met the standards for ready-to-wear design and technical quality, encompassing visual aspects, size proportions, seam quality, as well as functionality and comfort when worn. This confirms that "Viramrdu" design consistently represents the design concept from ideation and realization to performance.

Overall, the "Viramrdu" fashion collection is not only suitable from a technical and functional standpoint but also exhibits strong aesthetics, an edgy-contemporary character, and design distinctiveness through the exploration of upcycled denim and multilayer construction techniques. Panelist evaluations indicated that the fashion possesses a strong, innovative identity and holds potential for development both as an academic work and as a sustainable fashion product. Accordingly, the "Viramrdu" fashion is deemed fit for presentation and further development, requiring only minor refinements.

5. Evaluation

The evaluation stage is the final stage in the ADDIE model, which aims to assess the feasibility and quality of the product after going through the analysis, design, development, and implementation stages. The evaluation of the "Viramrdu" ready-to-wear collection was conducted through a fashion feasibility test using expert judgment by a panel of fashion design specialists, employing an instrument that encompassed indicators of design, size, aesthetics, sewing techniques, fashion performance, and fashion distinctiveness. The evaluation results indicated that the "Viramrdu" ready-to-wear fashion fell into the "Highly Feasible" category across all assessment indicators, confirming that the product has been able to represent the design concept visually, technically, and functionally in a consistent manner.

However, the panelists provided several comments and suggestions for improvement to enhance the quality of the products. The first panelist suggested optimizing the final pressing process to make the clothes look neater, while the second panelist emphasized the need to reinforce alignment between

the moodboard theme and the design outcome through bolder design exploration and the use of supporting materials to strengthen focal points. The third panelist noted that the hip area appeared bulky due to the layered skirt, suggesting an expansion of the upcycled denim belt pattern and the use of a circular skirt pattern for the inner tulle layer to reduce heaviness around the waist and hips. Overall, the panelists' feedback indicates that the "Viramrdu" ready-to-wear fashion still has aspects that can be improved to optimize visual, technical, and performance quality, without diminishing its feasibility as a ready-to-wear fashion.

CONCLUSION

This study proves that the development of contemporary ready-to-wear fashion "Viramrdu" based on upcycled denim and tenun bulu can be effectively realized through the application of the ADDIE model. The utilization of sustainable materials combined with traditional textiles produced a fashion that meets aesthetic, functional, and technical standards without compromising its contemporary and edgy ready-to-wear character, while maintaining comfort, structural stability, and visual harmony. Feasibility testing through expert judgment indicated that "Viramrdu" falls into the "Highly Feasible" category across all assessment indicators, with the highest scores in design, size, aesthetics, fashion performance, and fashion distinctiveness. These findings suggest that the use of upcycled materials and traditional textiles holds significant potential for sustainable fashion development in the ready-to-wear segment. Future research is recommended to further explore materials, construction techniques, and size adjustments to enhance adaptability and market relevance**.**

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