Journal of Creativity Student
http://journal.unnes.ac.id/journals/jcs

Interpretation of Tenun Bulu and Upcycled Denim in Ready-to-Wear "*Veerangana*" Based on Circular Fashion

Tika Nur Aini[1*], Maria Krisnawati [2]

[1]Universitas Negeri Semarang, Indonesia, https://orcid.org/0009-0001-7055-9729
[2]Universitas Negeri Semarang, Indonesia, https://orcid.org/0009-0005-2608-3582

*Corresponding Author: tikanur03@students.unnes.ac.id

Abstract
This study aims to explain the application of the circular fashion concepts in the ready-to-wear fashion collection "Veerangana" through the utilization of upcycled denim and tenun bulu textiles within a single aesthetic and functional design. The research background is grounded in the increasing volume of textile waste resulting from linear consumption patterns and the limited use of traditional textiles in contemporary fashion, thereby indicating the need for innovation that supports environmental sustainability and the preservation of local culture. The method applied is Research and Development (R&D) using the ADDIE model, which consists of the stages of Analysis, Design, Development, Implementation, and Evaluation, encompassing literature review, concept and moodboard development, as well as the prototyping and construction of the "Veerangana" fashion. Product feasibility was assessed through expert judgment by three fashion design experts using six indicators: design, sizing, aesthetics, sewing technique, performance, and uniqueness indicators. The assessment results show that the "Veerangana" ready-to-wear fashion falls into the "Highly Feasible" category, thus meeting visual, constructional, and functional feasibility standards, and has the potential to serve as a model of circular fashion implementation that contributes to reducing textile waste and strengthening the position of tenun bulu within the sustainable fashion industry.

Keywords: fashion circular, upcycle denim, ready to wear, tenun bulu textile

INTRODUCTION

The development of the fashion industry in Indonesia occupies an important position as it provides a significant contribution to the national economy.[1] As one of the leading sectors prioritized in the development of the creative economy, the fashion industry plays a role in encouraging job creation, the development of creative innovation, and export performance at the national economic level.[2] However, behind this development, increasingly complex environmental problems caused by large scale textile production and linear consumption patterns that create a tendency to use disposable clothing. This condition contributes to an increase in the volume of textile waste, giving rise to the urgent need to implement the concept of circular fashion as a sustainable alternative solution through waste reduction and the reuse of textile materials.[3]

[1] Arini Arumsari and Faradillah Nursari, "Peluang Pengembangan Produk Ramah Lingkungan Pada Industri Fashion Di Indonesia," *Desain & Aplikasi Bisnis Teknologi (SENADA)* 7 (2024): 11–16, https://eprosiding.idbbali.ac.id/index.php/senada/issue/view/10.

[2] Gwyneth Edelweyss Magdalena Nibaely, "Dampak Paris Fashion Week Terhadap Industri Fashion Dan Budaya Indonesia," *Universitas Kristen Indonesia Institutional Repository* (2025), http://repository.uki.ac.id/id/eprint/20027.

[3] Penty et al., "Penerapan Konsep Ekonomi Sirkular Dalam Pengembangan Industri Busana Muslim," *Ecobankers : Journal of Economy and Banking* 5, no. 2 (2024): 156–61, https://doi.org/10.47453/ecobankers.v5i2.2703.

The implementation of circular fashion is becoming increasingly relevant as consumer awareness of the impact of fashion industry waste grows. The transition from a linear consumption pattern to a circular system requires the implementation of upcycling practices to reduce the amount of textile waste. In Indonesia, textile waste is estimated to increase every year, most of which comes from the mass production of ready-to-wear fashion that has not fully implemented the principles of upcycling.[4] This condition encourages the need for innovation in ready-to-wear fashion design, particularly through denim upcycling techniques, as a tangible contribution to reducing waste in the fashion industry.[5]

This study developed ready-to-wear fashion that combines upcycled denim with tenun bulu textiles, that has a distinctive fuzzy texture, with the theme "Veerangana" as a symbol of strength and courage as well as an affirmation of commitment to sustainability through the application of circular fashion principles. The selection of denim as the primary upcycled material is based on its high level of use and the environmental impacts generated during its production process. The production of new denim requires large amounts of water, energy, and chemicals, making the utilization of denim waste an important strategy in reducing waste fashion industry.[6]

The challenges are growing due to limited recycling infrastructure and consumer preferences for fast fashion products with short lifespans.[7] Consequently, linear consumption models continue to dominate, causing used materials to end up in landfills and resulting in environmental pollution.[8] On the other hand, tenun bulu traditional textiles face challenges in the context of cultural preservation. The low adaptation to contemporary fashion tastes and needs has resulted in a decline in young people's interest in traditional fabrics.[9] Numerous studies have examined circular fashion, denim upcycled, and design development based on traditional textiles, but most still focus on material sustainability or cultural aspects separately, without integrating both dimensions into tangible ready-to-wear fashion, especially those that integrate upcycled materials and tenun bulu traditional woven textiles.

Based on the limitations of previous studies, which generally discuss sustainability and cultural aspects separately, this study was designed to complement existing literature through the development and feasibility testing of ready-to-wear fashion that specifically integrate upcycled denim and tenun bulu as a model for the application of circular fashion. The design of the "Veerangana" collection aims to implement circular fashion concept in ready-to-wear fashion that contribute to reducing textile waste, while also evaluating product feasibility based on aspects of functionality, accuracy of construction techniques, and design suitability. Accordingly, the "Veerangana" collection is expected to serve as a tangible representation of the application of circular fashion in ready-to-wear fashion and to meet established product feasibility criteria.

METHOD

[4] Tsaabitah Haanii Aanisah et al., "Studi Pengolahan Denim Jeans Bekas Sebagai Produk Sustainable Fashion Di Queen Mozza," *Seminar Nasional PTBB* 19, no. 1 (2024): 1–10, https://journal.uny.ac.id/index.php/ptbb/index.

[5] 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.

[6] Labiba Carisya Aulia, Ira Wirasari, and Sri Nurbani, "Perancangan Kampanye Mengurangi Limbah Kain Berbahan Denim Di Kota Bandung," *EProceedings of Art & Design* 7, no. 2 (2020): 1758–65, https://openlibrarypublications.telkomuniversity.ac.id/index.php/artdesign/article/view/12628.

[7] Mochammad Charis Hidayahtullah et al., "Sustainable Design Approach: Eksplorasi Limbah Denim Menggunakan Teknik Sashiko Kearifan Lokal," *Jurnal Desain Indonesia.* 7, no. 02 (2025): 186–98, https://jurnal-desain-indonesia.com/index.php/jdi/article/view/595.

[8] Putu Ayu Adiyanti, "Asih Asuh: Kreasi Fashion Berkelanjutan Dari Limbah Konveksi Dan Tenun Endek Bali," *Prosiding Bali Dwipantara Waskita: Seminar Nasional Republik Seni Nusantara* 4 (2024): 16–30, https://eproceeding.isibali.ac.id/index.php/bdw/article/view/525%0Ahttps://eproceeding.isibali.ac.id/index.php/bdw/article/download/525/272.

[9] Kurniawaty Yusuf and Abdul Qadir Jaelani, "Gerakan Rasa Wastra Indonesia Indonesian Wastra Movement," *Jurnal Konvergensi* 3, no. 2 (2022): 333–47.

This study applies the Research and Development (R&D) method. Through the R&D approach, each stage of product development is directed towards achieving validity, effectiveness, and feasibility through a series of structured evaluative procedures.[10] The selection of the R&D method is based on its focus on the creation of innovative products that can be systematically tested, with an emphasis on the importance of material selection, the application construction technique, functionality, and alignment with design aspects.

The development model employed in this study is the ADDIE model, which consists of five stages: Analysis, Design, Development, Implementation, and Evaluation.[11] Through the application of the ADDIE model, the product is expected to meet aesthetic and functional standards and to be feasible for its intended development objectives.[12] Based on this explanation, the application of the R&D method is considered appropriate for this study because it is capable of managing both creative activities (concept exploration, design development, and the selection of upcycled denim and tenun bulu materials) and technical processes (pattern making, construction, finishing, and feasibility testing) in a planned and structured manner, thereby ensuring that the results can be academically accountable. The following figure presents the five stages of the ADDIE development model.

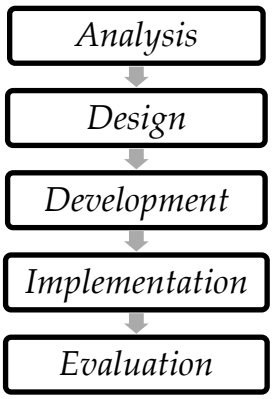

Figure 1. Stages of the ADDIE model
Sources: Dr. Liangyue Lu dan Meredith L. C. Sides, 2022

The analysis phase is the first stage in the ADDIE model. This phase is conducted through data collection, which includes a literature review and collection of visual references related to the application of circular fashion concepts in ready-to-wear fashion that combines upcycled denim and tenun bulu textiles.[13] Based on the results of the analysis, a deep understanding of aesthetic values, philosophical meanings, and relevant technical aspects was obtained, ensuring that the resulting designs are not only visually innovative, but also have a strong conceptual basis and aligned with the development objectives of "Veerangana" ready-to-wear fashion based on circular fashion.

In the design phase, this study began with the formulation of concepts, which is then visualized in the form of moodboards as a visual representation of the main ideas. The moodboard serves as the basis for two-dimensional design development through sketches, which are subsequently realized into initial prototypes to test the practical suitability of the concept. This process is accompanied by the selection of materials and colors that are consistent with the theme and material characteristics.

[10] Marinu Waruwu, "Metode Penelitian Dan Pengembangan (R&D): Konsep, Jenis, Tahapan Dan Kelebihan," *Jurnal Ilmiah Profesi Pendidikan* 9, no. 2 (2024): 1220–30, https://doi.org/10.29303/jipp.v9i2.2141.

[11] Dr. Liangyue Lu and Meredith L. C. Sides, "Instructional Design for Effective Teaching: The Application of ADDIE Model in a College Reading Lesson," *NOSS Practitioner to Practitioner*, 2022, 4–12, https://eric.ed.gov/?id=EJ1343586.

[12] Loso Judijanto et al., *Metodologi Research and Development (Teori Dan Penerapan Metodologi RnD)*, ed. Sepriano and Seprita, *PT. Sonpedia Publishing Indonesia*, Book (Jambi: PT. Sonpedia Publishing Indonesia, 2024).

[13] Torang Siregar and Yuni Rhamayanti, "Implementasi Pengembangan Model ADDIE Pada Dunia Pendidikan," *Jurnal Hasil Penelitian Dan Pengembangan (JHPP)* 3, no. 1 (2025): 85–100, https://doi.org/https://doi.org/10.61116/jhpp.v3i2.561.

Throughout all stages, design principles including harmony, proportion, rhythm, and balance were consistently applied to integrate the visual contrast between the relatively coarse texture of upcycled denim and the softness of tenun bulu, resulting in ready-to-wear fashion that appears both edgy and elegant.[14]

The next stage is product development, which realizes the design into physical fashion items. This process includes pattern making, cutting materials, sewing, as well as finishing processes and the application of decorative elements in the form of upcycled denim details and metal chain ornaments to reinforce the design character. The assessment of construction quality is conducted by examining the accuracy of sewing techniques, the neatness of seam finishing, and the strength of stitching connections. As a result, the produced ready-to-wear fashion not only meets aesthetic standards but is also comfortable and functional.

Product feasibility testing is conducted through expert judgment by a panel of experts with competencies in fashion design. The assessment involves three expert panelists, all of whom are fashion designers based in Semarang, ensuring that the feedback reflects professional evaluations in the field of fashion design. The evaluation process utilizes an assessment instrument consisting of the following indicators of design, size, aesthetics, sewing technique, performance, and uniqueness indicators. The assessment results were used to determine the level of product feasibility and serve as the basis for formulating improvement recommendations if deficiencies are identified in specific aspects. The scores provided by the panelists are processed into percentage values for each aspect and subsequently presented in tabular form to facilitate systematic interpretation of the results. The calculation of the percentage scores from each panelist is based on formula (1) according to Afriyanti et al., in the research by Syafira Aulia et al.[15]

$$N = \frac{Score\ Obtained}{Maximum\ Score} \times 100\% \qquad (1)$$

Based on the percentage scores obtained from the assessment results, the product feasibility criteria were determined using a percentage range scale with a maximum value of 100% and a minimum value of 0%. This calculation is presented in Table 1, adapted from Arikunto as applied in the study by Rajib Ghaniy and Satriyo Leksono.[16]

TABLE 1 Feasibility Percentage Scale

No	Persentage (%)	Category
1	81% – 100%	Highly Feasible
2	61% – 80%	Feasible
3	41% – 60%	Fairly Feasible
4	21% – 40%	Not Feasible
5	<21%	Highly Infeasible

Sources: Arikunto, 2009 in Rajib Ghaniy and Satriyo Leksono, 2023

Based on the application of the structured R&D method, this study is expected to produce the "Veerangana" ready-to-wear fashion that represents the concept of circular fashion through the integration of upcycled denim and tenun bulu, while meeting criteria related to aesthetic and visual design, accuracy of technical construction, and functionality.

[14] Sri Listiani et al., "Analisis Prinsip Desain Sustainable Fashion Upcycle Pada Busana Kasual," *Productum: Jurnal Desain Produk (Pengetahuan Dan Perancangan Produk)* 7, no. 1 (2024): 11–20, https://doi.org/10.24821/productum.v7i1.10938.

[15] Syafira Aulia et al., "Uji Kelayakan Media Pembelajaran Interaktif Berbasis Android Menggunakan Articulate Storyline 3" 5, no. 2 (2022): 50–59, https://doi.org/https://doi.org/10.21107/nser.v5i2.11854.

[16] Rajib Ghaniy and Satriyo Leksono, "Penerapan Internet of Things Untuk Kontrol Lampu Rumah Melalui Chatting Via Telegram," *TeknoIS : Jurnal Ilmiah Teknologi Informasi Dan Sains* 13, no. 1 (2023): 32–43, https://doi.org/10.36350/jbs.v13i1.167.

RESULTS AND DISCUSSION

The ADDIE method, which consists of the stages of Analysis, Design, Development, Implementation, and Evaluation, was used as the main structure in the design of the "Veerangana" ready-to-wear fashion collection based on circular fashion. The following section presents a detailed discussion of each ADDIE stage in the development of this collection.

1. Analysis

The analysis stage begun with an in-depth exploration of textile waste issues and the importance of implementing circular fashion in the ready-to-wear fashion industry. A literature study was conducted to understand the environmental impact of textile consumption, the urgency of waste reduction, and the potential use of local materials such as tenun bulu textiles and upcycled denim. The analysis stage plays a crucial role as the initial basis that determines the quality of the final design outcome, and serves as a conceptual link between ideas and the realization of the work.[17] The results of this analysis form the basis for establishing the main concept of the "Veerangana" collection, which is an interpretation of strength and courage while affirming a commitment to sustainability through the integration of traditional materials and upcycled denim based on circular fashion.

2. Design

The design stage is a planning phase that focuses on concept development and formulation, which is the process of organizing and synthesizing sources of inspiration derived from the analysis into design solutions to be realized.[18] The fashion design techniques applied in this prototype employ a series of systematic procedures aimed at realizing the design concept into a ready-to-wear fashion product that is not only aesthetically valuable but also functional. This design stage includes the development of a moodboard, design, the construction of prototype, and the selection of materials and colors.

a. Moodboard

The development of a moodboard is a crucial step in the initial visualization process, aimed at reinforcing and concretizing the established design concept. At this stage, the moodboard is composed by integrating various relevant visual elements, such as edgy fashion reference images, the distinctive textures of tenun bulu textiles, color palettes, and examples of modern and dynamic ready-to-wear fashion silhouettes. In addition, the moodboard also includes inspiration from upcycled denim as the primary material, as well as metal chain accents that emphasize an edgy and contemporary character.

The primary color palette used in the moodboard consist of a combination of navy and denim blue tones, enriched with silver metallic accents that convey a bold and modern impression. The moodboard also present references to construction detail, such as the contrast between the coarse texture of denim and the softness of tenun bulu. Other visual elements included comprise accessory inspirations and finishing details, as illustrated in Figure 2 presented below.

[17] Anggun Ica Maydasari et al., "Penciptaan Busana Ready to Wear Deluxe Dengan Sumber Ide Rumah Adat Suku Tengger," *Mutiara : Jurnal Penelitian Dan Karya Ilmiah* 3, no. 4 (2025): 189–205, https://doi.org/https://doi.org/10.59059/mutiara.v3i4.2691.

[18] Irfan Arifin, Bakhrani A Rauf, and Arifin Ahmad, "Inovasi Melalui Desain: Model R&D Yang Diperbarui Dengan Metode Perancangan Desain Grafis Pada Konteks Pengembangan Buku Ajar Yang Kreatif," *Efektor* 10, no. 2 (2023): 196–206, https://doi.org/https://doi.org/10.29407/e.

Figure 2. Moodboard
Sources: Authors, 2025

The moodboard serves as the primary visual reference throughout all stages of the design process, thereby ensuring systematic and well-directed consistency between the concept, material selection, silhouettes, and design details. Accordingly, the moodboard functions not only as an aesthetic guideline but also as visual communication tools that ensure all design decision remains aligned with the theme and the main objectives of the "Veerangana" prototype development.[19]

b. Design

The design development stage aims to interpret concepts and moodboards into technical and applicable design sketches.[20] This process begins with the preparation of several alternative design sketches for the "Veerangana" ready-to-wear fashion, which explore variations in silhouette, panel division, and the placement of decorative details. These alternative sketches present a combination of a bustier made from upcycled denim, an A-line skirt constructed from tenun bulu, and a bolero made of plain navy woven fabric, complemented by metal chain accents as distinctive ornamental elements, as illustrated in the "Veerangana" design shown in Figure 3 below.

[19] Afifatasna Rosidah and Yulistiana, "Hibiscus Rosa-Sinensis Linn Sebagai Sumber Inspirasi Pembuatan Busana Pesta," *Jurnal Penelitian Busana Dan Desain* 5, no. 2 (2025): 1–12, https://doi.org/https://doi.org/10.26740/jpbd.v5i1.

[20] Indarti, "Journal of Fashion & Textile Design Unesa," *Fashion* 1 (2020): 128–37, https://doi.org/https://doi.org/10.26740/baju.v1n2.p128-137.

Figure 3. Desain "Veerangana"
Sources: Authors, 2025

From several alternatives developed, one primary design was selected and subsequently detailed into Production Designs I and II. Production Design I contains more detailed technical information, such as cutting lines, the structure of the bustier made from upcycled denim, an A-line skirt constructed from tenun bulu with denim belt accent, and a modern bolero with structured sleeves. In addition, the design considers the placement of metal chain accents and finishing details that reinforce the edgy character and the circular fashion concept of the fashion. Meanwhile, Production Design II is complemented by detailed sizing information for each part of the fashion item. This design development stage not only produces aesthetically refined fashion illustrations, but also serves as a crucial technical basis for the pattern making process, material cutting, and fashion construction processes in the next stage.

c. Prototype Construction

The prototype construction stage is a crucial step in the "Veerangana" fashion design process, serving as an initial model to test the feasibility of the design before production using the primary materials and allowing for revisions to be made on the actual materials if discrepancies are identified.[21] The "Veerangana" fashion prototype is made using calico fabric as a temporary material, because its texture and drape are relatively similar to those of the primary materials while being more economical. This approach enables evaluation and revision without posing a significant risk of material loss. Figure 4 presents the bustier and bolero prototypes of the "Veerangana" fashion collection".

[21] M. M. Solikhah and Peppy Mayasari, "Penciptaan Teknik Anyaman Pada Busana Day Wear Dengan Sumber Ide Sparkling Tunjungan," *Jurnal Online Tata Busana* 13, no. 1 (2024): 11–20, https://ejournal.unesa.ac.id/index.php/jurnal-tata-busana/article/view/67302.

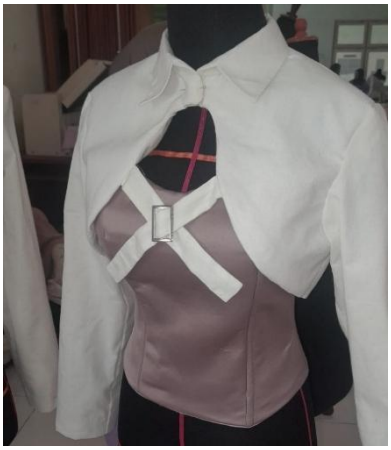

Figure 4. Prototype
Sources: Authors, 2025

This process begins with the creation of a basic pattern based on the agreed production designs. The patterns are then transferred onto calico fabric, with careful attention to the grain direction to ensure that the fabric drape represents actual conditions when using upcycled denim and tenun bulu. After the cutting process is completed, fashion components such as the denim bustier, the tenun bulu A-line skirt, and the plain navy woven bolero are assembled sequentially according to the construction procedures to be applied in the final product.

Prototype evaluation is conducted through fittings on a mannequin to identify aspects requiring improvement, such as the fit of the bustier to the body contour, the drape of the skirt, the proportions of the bolero, ease of movement, and the balance of volume between the upper and lower parts of the fashion. This evaluation process involved the supervising lecturer and fellow students, allowing constructive feedback to be obtained from multiple perspectives. The results of the prototype evaluation serve as the basis for pattern revisions, size adjustments, and construction technique improvements before cutting the primary upcycled denim and tenun bulu materials, which require special handling.

d. Material Selection

Material selection is a conceptual design stage that focuses on surveying and researching materials to determine the most appropriate materials for the concept and design of the product being developed. The selection of materials and colors in the design of the "Veerangana" fashion line was carried out in a targeted manner to realize the visual character, comfort, and suitability of the circular fashion concept. The primary materials consist of upcycled denim for the bustier and belt accent material, tenun bulu for the skirt, and plain navy weave for the bolero.

Denim upcycle was chosen for its strength and distinctive texture, while also supporting the principle of sustainability. Tenun bulu contributes a traditional nuance and local cultural value, while plain navy weaving adds a modern touch. The applied color palette focuses on a combination of navy and denim blue, enriched with silver metal accents from decorative chains. Navy and denim blue are used to create a bold, dynamic, and contemporary impression, while the metallic accents reinforce the edgy and modern character. The consideration of materials and colors is not only directed at the visual aspect, but also at their suitability for construction techniques, the materials' ability to form volume, and the comfort of the wearer in terms of appearance.

3. Development

The development stage represents the realization of the design into a real product.[22] The process begins with pattern making and cutting of materials, followed by sewing, finishing, dan realization.

[22] Tri Handayani et al., "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.

a. Pattern Making and Material Cutting

Pattern making is a crucial stage in fashion production, serving as a reference for cutting fabric to obtain pieces that meet the specifications required for the sewing process.[23] The basic patterns for the "Veerangana" fashion are developed by adapting standard construction systems and modifying them according to design requirements and the model's body measurements. The patterns include an upcycled denim bustier, an A-line skirt made from tenun bulu, and a navy plain woven bolero. Pattern making is carried out carefully by considering construction lines, body proportions, and fashion volume to achieve a proportional silhouette aligned with the design concept. Material cutting is performed based on the completed patterns, with attention to fabric grain direction, motif placement on tenun bulu, and drape characteristics. The cutting process is executed with high precision and clear markings to minimize errors that could affect construction quality.

b. Sewing

The fashion construction process begins with the preparation of materials through the pressing of kufner and stiff fabric on sections requiring a firm and stable silhouette structure. Kufner is applied to the bolero, while stiff fabric is used on the bolero collar to create an upright effect. All pressing processes are conducted carefully to ensure proper adhesion, particularly on the plain woven bolero material, which is prone to bubbling.

The sewing stage is carried out using techniques that ensure strength and comfort, adapting to the thick character of denim and the finer texture of tenun bulu. Sewing begins with the construction of the bustier using upcycled denim as the primary material and rayon viscose lining, which is constructed according to the pattern and reinforced with boning to shape the body contours, with a back opening equipped with straps as a fastening system.

The bolero sewing process involves joining the sides and shoulders of the front and back panels, assembling the main fabric with the lining, attaching the collar, and adding padding to the shoulders to emphasize the structure, then finishing by sewing the sleeves to the body. The skirt is constructed in two layers an inner layer of rayon viscose that is slightly longer to create a layered effect, and an outer layer of tenun bulu with lining to maintain comfort and neatness of the fabric.

The belt components are made from a combination of several pieces of upcycled denim according to the pattern, accompanied by modifications to the position and size of the pockets, as well as additional collar and strap details from used denim jackets to reinforce the edgy character. The belt is designed asymmetrically, with the straps connected to the inner skirt layer to create a gathered effect that forms abstract skirt draping. Meanwhile, straps made from upcycled denim are added to the sleeve ends, featuring 1 cm metal rings as both functional and aesthetic accents.

c. Finishing

The fashion finishing stage is the final stage in the production process, which aims to perfect and ensure that all component of the "Veerangana" ready-to-wear fashion items is properly attached and wearable.[24] At this stage, chain details are attached to the right and left shoulders to emphasize the edgy and modern aesthetic character of the fashion, while reinforcing the design theme. Meanwhile, the belt straps are equipped with 2 cm diameter rings and hook to connect the belt to the skirt, adding visual accents while enchacing structural strength and comfort during wear.

The bolero sleeves are finished using a hidden stitching technique to produce smooth edges without visible stitching on the outside, thereby maintaining the neatness of the construction and aesthetic quality. The finishing stage concludes with an overall pressing process applied to all parts of the fashion, using temperature settings adjusted to the characteristics of each material, both upcycled denim and tenun bulu, to prevent unwanted bubbles, wrinkles, or creases on the fabric surface.

---

[23] Noor Hana Othman, Muhammad Hisyam Zakaria, and Nasa'ie Zainuddin, "Inovasi Simply Curve : Alat Bantu Mengajar Dalam Pembuatan Pola Pakaian," *ANP Journal of Social and Humanities* 2, no. 2 (2021): 52–62, https://doi.org/https://doi.org/10.53797/anpjssh.v2i2.7.2021.

[24] Maydasari et al., "Penciptaan Busana Ready to Wear Deluxe Dengan Sumber Ide Rumah Adat Suku Tengger."

d. Realization of the "Veerangana"

The final realization of the "Veerangana" ready-to-wear collection is the result of a series of systematically implemented design and development processes through the application of the ADDIE model. The collection is realized in a two piece silhouette consisting of a bustier, skirt, and bolero, combining upcycled denim, tenun bulu, and plain navy woven fabric that complement each other visually. The application of layered details on the skirt, the integration of elements from a discarded denim jacket into the belt and the addition of metal chain accents on the shoulders and waist areas create a dynamic and proportional composition, while reinforcing a design character aligned with circular fashion principles. The visualization of the final "Veerangana" ready to wear fashion product is presented in Figure 5.

Figure 5. Realization of the "Veerangana"
Sources: Authors, 2025

4. Implementation

Implementation is a series of planned activities aimed at achieving predetermined objectives.[25] The implementation stage is carried out by evaluating the feasibility of the product through an assessment instrument.[26] The feasibility of the "Veerangana" ready-to-wear fashion line was assessed through product feasibility testing using an assessment instrument with six indicators that were systematically compiled and filled out by three expert panelists in the field of fashion design. The scores obtained are then processed into percentages by referring to Table 1, which presents the feasibility percentage scale according to Arikunto, as applied in the research by Rajib Ghaniy and Satriyo Leksono, so that the product feasibility category can be determined objectively and the results obtained are valid.[27]

The feasibility test data is presented in a summary table that describes the three panelists' assessments of the "Veerangana". These tables provide a comprehensive overview of the product's feasibility level based on six indicators, namely design, size, aesthetics, sewing technique, garment performance, and product uniqueness, each of which is presented in Tables 2 through Table 7 along with the scores from each panelist.

---

[25] Agus Salim Salabi, "Efektivitas Dalam Implementasi Kurikulum Sekolah," *Education Achievment: Journal of Science and Research* 1, no. 1 (2020): 1–13, https://doi.org/https://doi.org/10.51178/jsr.v1i1.177.

[26] Moses Adeleke Adeoye et al., "Revolutionizing Education: Unleashing the Power of the ADDIE Model for Effective Teaching and Learning," *JPI (Jurnal Pendidikan Indonesia)* 13, no. 1 (2024): 202–9, https://doi.org/https://doi.org/10.23887/jpiundiksha.v13i1.68624.

[27] Ghaniy and Leksono, "Penerapan Internet of Things Untuk Kontrol Lampu Rumah Melalui Chatting Via Telegram."

TABLE 2 Evaluation Results for the Design Indicator

Panelist	Persentage (%)
Panelist 1	100%
Panelist 2	93%
Panelist 3	100%
Average	**98%**
Category	**Highly Feasible**

Sources: Authors, 2025

The assessments provided by the three panelists in Table 2 indicate a consistent and positive appreciation for the "Veerangana" ready-to-wear fashion design. Panelist 1 and Panelist 3 each gave a score of 100%, which means that the fashion design was considered to meet all assessment criteria without any significant notes from either panelist. Panelist 2 gave a score of 93%, which remains within the "Highly Feasible" category range, indicating that the design was generally considered excellent, although certain details could be further optimized from the panelist's perspective.

On average, the assessment percentage from the three panelists reached 98%, which clearly falls into the "Highly Feasible" category according to the percentage scale table used in this study. Therefore, it can be concluded that the assessment of the design indicators in this study has met high feasibility standards in terms of concept, proportion, thematic relevance, and visual integrity, and has received quality recognition from the evaluating panelists. The "Highly Feasible" category reinforces the position of the design as a strong and relevant representation of the concept promoted in the study, and supports the study's objective of presenting aesthetically pleasing and high-quality ready-to-wear fashion based on circular fashion.

TABLE 3 Evaluation Results of the Size Indicator

Panelist	Persentage (%)
Panelist 1	93%
Panelist 2	97%
Panelist 3	97%
Average	**96%**
Category	**Highly Feasible**

Sources: Authors, 2025

The assessment of the size indicators presented in Table 3 shows that the quality of size accuracy of the "Veerangana" ready-to-wear garment in this study falls within a very high category. Based on the feasibility percentage scale, the range of 81–100% is classified as "Highly Feasible", meaning that all results obtained by the panelists are in the highest category.

For the size indicator, Panelist 1 assigned a score of 93%, while Panelist 2 and Panelist 3 each awarded a score of 97%. The average percentage score from the three panelists was 96%, which clearly placed the size indicator in the "Highly Feasible" category. This indicates that the "Veerangana" is considered to be well aligned with body proportions, demonstrates accuracy in measurement, and shows consistency between the planned measurements in the pattern and the final product outcome. Thus, it can be concluded that in terms of size, the resulting ready-to-wear fashion meets high standards of feasibility and supports comfort and fit for the wearer.

TABLE 4 Evaluation Results of the Sewing Indicator

Panelist	Persentage (%)
Panelist 1	97%
Panelist 2	80%
Panelist 3	100%
Average	**92%**
Category	**Highly Feasible**

Sources: Authors, 2025

The assessment of the sewing technique indicator in Table 4 shows that the quality of garment construction is at a very high level and falls into the "Highly Feasible" category. For the sewing technique indicator, Panelist 1 gave a percentage of 97%, Panelist 2 gave 80%, and Panelist 3 gave 100%, with an average score of 92%. Although one of the panelists gave a slightly lower score (80%) and was just below the lower limit of the "Feasible" category, the overall average still placed the sewing technique indicator in the "Highly Feasible" category. This indicates that, in general, the neatness of the stitching, the accuracy of the construction techniques, the finishing of the edges, and the strength

of the seams were rated very highly by the experts, although there were still some areas that one of the panelists felt could be improved.

Therefore, it can be concluded that from a sewing technique perspective, the resulting ready-to-wear fashion meets high feasibility standards, supports durability, comfort, and aesthetic quality, and requires only minor improvements in specific details to achieve more optimal results.

TABLE 5 Evaluation Results of the Aesthetic Indicator

Panelist	**Persentage (%)**
Panelist 1	100%
Panelist 2	67%
Panelist 3	100%
Average	**89%**
Category	**Highly Feasible**

Sources: Authors, 2025

The assessment of the aesthetic indicator in Table 5 shows that the visual quality of the "Veerangana" ready-to-wear fashion line is in the "Highly Feasible" category based on the average assessment results of the panelists. For this indicator, Panelist 1 and Panelist 3 each gave a percentage of 100%, while Panelist 2 gave a score of 67%, resulting in an average of 89%, which falls within the range of 81–100% and the "Highly Feasible" category.

These results indicate that Veerangana's ready-to-wear fashion is considered to have strong visual appeal, including color composition harmony, proportion balance, material selection and combination, and design suitability with the concept presented. The score of 67% from one of the panelists indicates a critical perspective on certain aesthetic aspects that are considered to still be optimizable, such as the addition of ornament details and visual balance. However, the dominance of maximum scores from the other two panelists and the high average reinforce the conclusion that, overall, the aesthetics of the fashion is at a very high level and capable of supporting the achievement of the design objectives.

TABLE 6 Evaluation Results of the Performance Indicator

Panelist	**Persentage (%)**
Panelist 1	100%
Panelist 2	90%
Panelist 3	97%
Average	**96%**
Category	**Highly Feasible**

Sources: Authors, 2025

The performance indicator presented in Table 6 shows that the functionality and wearing comfort of the fashion fall within the "Highly Feasible" category based on the panelists evaluations. For this indicator, Panelist 1 awarded a score of 100%, Panelist 2 gave 90%, and Panelist 3 provided 97%, resulting in an average percentage of 96%, which lies within the 81–100% range and is classified as "Highly Feasible."

The results indicate that "Veerangana" ready-to-wear fashion is considered to perform very well when worn, including comfort of movement, stability of form during use, suitability of fabric drape, and the ability of the fashion to maintain its silhouette and design details under normal wearing conditions. The consistently high percentages from all panelists indicate that, in terms of performance, the fashion is not only visually aesthetic but also functional and supportive of the wearer's needs in the context of ready-to-wear fashion.

TABLE 7 Evaluation Results of the Uniqueness Indicators

Panelist	**Persentage (%)**
Panelist 1	97%
Panelist 2	67%
Panelist 3	100%
Average	**88%**
Category	**Highly Feasible**

Sources: Authors, 2025

Based on the uniqueness indicators presented in Table 7, it shows that the level of uniqueness and distinctive value of the fashion items is in the "Highly Feasible" category based on the panelists'

assessment results. For this indicator, Panelist 1 gave a score of 97%, Panelist 2 gave 67%, and Panelist 3 gave 100%, with an average percentage of 88% in the range of 81–100%, thus categorized as "Highly Feasible".

These results show that "Veerangana" ready-to-wear fashion is considered to have a strong and unique character, including through the use of upcycled denim material combined with tenun bulu within the application of the circular fashion concept. The score of 67% from one of the panelists reflects the view that the aspect of uniqueness can still be further optimized, for example by strengthening certain details to make them stand out more compared to similar fashion items. Nevertheless, the dominance of high scores from other panelists and the average score in the "Highly Feasible" category confirms that the fashion items have conceptual and aesthetic advantages that differentiate it and support the design objectives of this study.

5. Evaluation

Evaluation is an important reflective stage to ensure the quality and usefulness of a product.[28] The evaluation of the "Veerangana" ready-to-wear fashion line was conducted through a series of assessments designed to examine the product's compliance with standards of comfort, aesthetics, and functionality in accordance with the design concept and principles of circular fashion. The feasibility test employed the expert judgment method by three expert panelists who are competent in the field of fashion design, with evaluation instruments covering six indicators, design, size, aesthetics, sewing techniques, performance, and peculiarity indicators.

Based on the processing of scores on the six indicators, the evaluation results show that the "Veerangana" ready-to-wear fashion is categorized as "Highly Feasible" with reference to Table 1 of the feasibility percentage scale according to Arikunto's research. These evaluation results show that the fashion line has successfully achieved the research objectives, namely interpreting tenun bulu and upcycling denim in ready-to-wear fashion based on circular fashion, although several aspects of the aesthetics and uniqueness indicators still have the potential to be optimized. Overall, the evaluation stage confirms that the application of the circular fashion concept in the "Veerangana" ready-to-wear fashion has been achieved with a high level of effectiveness and meets product feasibility criteria.

CONCLUSION

Based on all stages of research using the R&D method based on the ADDIE model, it can be concluded that the "Veerangana" ready-to-wear fashion line has successfully implemented the concept of circular fashion through the integration of upcycled denim and tenun bulu materials into an aesthetic and functional design. The application of the ADDIE development model across the stages of Analysis, Design, Development, Implementation, and Evaluation has proven effective in systematically guiding the creative and technical processes, resulting in products with a strong conceptual foundation that also meet technical construction considerations.

The results of the feasibility assessment conducted by three expert panelists indicate that the "Veerangana" ready-to-wear fashion line is in the "Highly Feasible" category based on six indicators: design, size, aesthetics, sewing technique, performance, and uniqueness indicators. These results indicate that the combination of tenun bulu and upcycled denim not only represents the strength and courage of modern women, but also has the potential to serve as a model for the development of circular fashion that supports the reduction of textile waste and the preservation of local textiles.

REFERENCES

Aanisah, Tsaabitah Haanii, Nurul Aini, Hapsari Kusumawardani, and Annisau Nafiah. "Studi Pengolahan Denim Jeans Bekas Sebagai Produk Sustainable Fashion Di Queen Mozza." Seminar Nasional PTBB 19, no. 1 (2024): 1–10. https://journal.uny.ac.id/index.php/ptbb/index.

Adeoye, Moses Adeleke, Kadek Adrian Surya Indra Wirawan, Made Shania Satya Pradnyani, and Nyoman Intan Septiarini. "Revolutionizing Education: Unleashing the Power of the ADDIE Model for Effective Teaching and Learning." JPI (Jurnal Pendidikan Indonesia) 13, no. 1 (2024):

[28] 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.

202–9. https://doi.org/https://doi.org/10.23887/jpiundiksha.v13i1.68624.
Adiyanti, Putu Ayu. “Asih Asuh: Kreasi Fashion Berkelanjutan Dari Limbah Konveksi Dan Tenun Endek Bali.” Prosiding Bali Dwipantara Waskita: Seminar Nasional Republik Seni Nusantara 4 (2024): 16–30. https://eproceeding.isibali.ac.id/index.php/bdw/article/view/525%0Ahttps://eproceeding.isibali.ac.id/index.php/bdw/article/download/525/272.
Arifin, Irfan, Bakhrani A Rauf, and Arifin Ahmad. “Inovasi Melalui Desain: Model R&D Yang Diperbarui Dengan Metode Perancangan Desain Grafis Pada Konteks Pengembangan Buku Ajar Yang Kreatif.” Efektor 10, no. 2 (2023): 196–206. https://doi.org/https://doi.org/10.29407/e.
Arumsari, Arini, and Faradillah Nursari. “Peluang Pengembangan Produk Ramah Lingkungan Pada Industri Fashion Di Indonesia.” Desain & Aplikasi Bisnis Teknologi (SENADA) 7 (2024): 11–16. https://eprosiding.idbbali.ac.id/index.php/senada/issue/view/10.
Aulia, Labiba Carisya, Ira Wirasari, and Sri Nurbani. “Perancangan Kampanye Mengurangi Limbah Kain Berbahan Denim Di Kota Bandung.” EProceedings of Art & Design 7, no. 2 (2020): 1758–65. https://openlibrarypublications.telkomuniversity.ac.id/index.php/artdesign/article/view/12628.
Aulia, Syafira, Ana Yuniasti Retno Wulandari, Mochammad Ahied, Fatimatul Munawaroh, and Irsad Rosidi. “Uji Kelayakan Media Pembelajaran Interaktif Berbasis Android Menggunakan Articulate Storyline 3” 5, no. 2 (2022): 50–59. https://doi.org/https://doi.org/10.21107/nser.v5i2.11854.
Devi, Faulan, Agusti Efi, Ernawati, and Puji Hujria Suci. “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.
Ghaniy, Rajib, and Satriyo Leksono. “Penerapan Internet of Things Untuk Kontrol Lampu Rumah Melalui Chatting Via Telegram.” TeknoIS : Jurnal Ilmiah Teknologi Informasi Dan Sains 13, no. 1 (2023): 32–43. https://doi.org/10.36350/jbs.v13i1.167.
Handayani, Tri, Dewi Rahmawaty, Anisa Yulia Rahma, Sekolah Tinggi, and Desain Interstudi. “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.
Hidayahtullah, Mochammad Charis, Ulfah Nafi’ah, Reinny Devi Febryanti Razak, Galuh Puspita Sari, and Muhammad Hakim Bintang. “Sustainable Design Approach: Eksplorasi Limbah Denim Menggunakan Teknik Sashiko Kearifan Lokal.” Jurnal Desain Indonesia. 7, no. 02 (2025): 186–98. https://jurnal-desain-indonesia.com/index.php/jdi/article/view/595.
Indarti. “Journal of Fashion & Textile Design Unesa.” Fashion 1 (2020): 128–37. https://doi.org/https://doi.org/10.26740/baju.v1n2.p128-137.
Judijanto, Loso, Mas’ud Muhammadiah, Rahmawati Ning Utami, Lalu Suhirman, Laurensius Laka, Yoseb Boari, Suri Toding Lembang, et al. Metodologi Research and Development (Teori Dan Penerapan Metodologi RnD). Edited by Sepriano and Seprita. PT. Sonpedia Publishing Indonesia. Book. Jambi: PT. Sonpedia Publishing Indonesia, 2024.
Listiani, Sri, Eneng Lutfia Zahra, Suryawati, and Mohamad Ikbal Riski A. Danial. “Analisis Prinsip Desain Sustainable Fashion Upcycle Pada Busana Kasual.” Productum: Jurnal Desain Produk (Pengetahuan Dan Perancangan Produk) 7, no. 1 (2024): 11–20. https://doi.org/10.24821/productum.v7i1.10938.
Lu, Dr. Liangyue, and Meredith L. C. Sides. “Instructional Design for Effective Teaching: The Application of ADDIE Model in a College Reading Lesson.” NOSS Practitioner to Practitioner, 2022, 4–12. https://eric.ed.gov/?id=EJ1343586.
Maydasari, Anggun Ica, Imami Arum Tri Rahayu, Inty Nahari, and Lutfiyah Hidayati. “Penciptaan Busana Ready to Wear Deluxe Dengan Sumber Ide Rumah Adat Suku Tengger.” Mutiara : Jurnal Penelitian Dan Karya Ilmiah 3, no. 4 (2025): 189–205. https://doi.org/https://doi.org/10.59059/mutiara.v3i4.2691.
Nibaely, Gwyneth Edelweyss Magdalena. “Dampak Paris Fashion Week Terhadap Industri Fashion Dan Budaya Indonesia.” Universitas Kristen Indonesia Institutional Repository, 2025. http://repository.uki.ac.id/id/eprint/20027.
Othman, Noor Hana, Muhammad Hisyam Zakaria, and Nasa’ie Zainuddin. “Inovasi Simply Curve : Alat Bantu Mengajar Dalam Pembuatan Pola Pakaian.” ANP Journal of Social and Humanities 2, no. 2 (2021): 52–62. https://doi.org/https://doi.org/10.53797/anpjssh.v2i2.7.2021.
Penty, Cory Vidiati, Mohammad Ridwan, and Gama Pratama. “Penerapan Konsep Ekonomi Sirkular Dalam Pengembangan Industri Busana Muslim.” Ecobankers : Journal of Economy and Banking 5, no. 2 (2024): 156–61. https://doi.org/10.47453/ecobankers.v5i2.2703.
Rahayu, Ade. “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.

Rosidah, Afifatasna, and Yulistiana. "Hibiscus Rosa-Sinensis Linn Sebagai Sumber Inspirasi Pembuatan Busana Pesta." Jurnal Penelitian Busana Dan Desain 5, no. 2 (2025): 1–12. https://doi.org/https://doi.org/10.26740/jpbd.v5i1.

Salabi, Agus Salim. "Efektivitas Dalam Implementasi Kurikulum Sekolah." Education Achievment: Journal of Science and Research 1, no. 1 (2020): 1–13. https://doi.org/https://doi.org/10.51178/jsr.v1i1.177.

Siregar, Torang, and Yuni Rhamayanti. "Implementasi Pengembangan Model ADDIE Pada Dunia Pendidikan." Jurnal Hasil Penelitian Dan Pengembangan (JHPP) 3, no. 1 (2025): 85–100. https://doi.org/https://doi.org/10.61116/jhpp.v3i2.561.

Solikhah, Mia Mar'atus, and Peppy Mayasari. "Penciptaan Teknik Anyaman Pada Busana Day Wear Dengan Sumber Ide Sparkling Tunjungan." Jurnal Online Tata Busana 13, no. 1 (2024): 11–20. https://ejournal.unesa.ac.id/index.php/jurnal-tata-busana/article/view/67302.

Waruwu, Marinu. "Metode Penelitian Dan Pengembangan (R&D): Konsep, Jenis, Tahapan Dan Kelebihan." Jurnal Ilmiah Profesi Pendidikan 9, no. 2 (2024): 1220–30. https://doi.org/10.29303/jipp.v9i2.2141.

Yusuf, Kurniawaty, and Abdul Qadir Jaelani. "Gerakan Rasa Wastra Indonesia Indonesian Wastra Movement." Jurnal Konvergensi 3, no. 2 (2022): 333–47.