



# The Creation of the Hydrangea Multi-Styling Dress to Support the Slow Fashion Movement

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**ABSTRACT** - The fashion industry faces ongoing environmental challenges due to fast fashion practices that accelerate resource depletion and textile waste. Slow fashion has been proposed as a sustainable alternative; however, its application in Indonesia remains largely confined to zero-waste and upcycling approaches, while studies on transformative clothing are still limited. This research aims to develop the *Hydrangea Multi-Styling Dress* as a sustainable fashion innovation inspired by the adaptive characteristics of hydrangea flowers. Hydrangeas are employed as a biological metaphor to represent flexibility and resilience in transformative fashion design. The study adopts a practice-led research methodology through a three-stage design process consisting of concept formulation, creative exploration, and implementation. Data were analysed through systematic design documentation, development of multiple styling configurations, and expert validation involving academics and fashion practitioners. The findings indicate that the garment enables five distinct styling variations within a single product and facilitates user participation through a co-creation approach. This study contributes to the discourse on sustainable fashion by integrating transformative design, user engagement, and biological inspiration, offering an alternative pathway for advancing slow fashion practices beyond conventional strategies.

**Keywords:** Slow fashion, transformable fashion, multi-styling dress, Hydrangea.

## INTRODUCTION

The fashion industry continues to expand in response to increasing consumer demand for diverse styles and rapid trend cycles. This growth has been accompanied by the widespread adoption of fast fashion practices, characterized by accelerated mass production and consumption, which generate substantial environmental impacts. Data from the National Waste Management Information System (SIPSN) show that textile and fabric waste accounts for 2.63% of total national waste generation, indicating that fashion production and consumption remain significant contributors to waste, particularly through the buy–use–discard pattern inherent in fast fashion systems (Kementerian Lingkungan Hidup dan Kehutanan, 2024).

As an alternative, the slow fashion movement emphasizes sustainability, quality, and environmental responsibility through mindful design processes, the use of environmentally considerate materials, and the production of long-lasting garments. Laitala et al. (2015) identified ten sustainable design strategies, two of which are particularly relevant to addressing overconsumption. The first is *design to replace consumption needs*, which involves creating a single product capable of fulfilling multiple functions or appearances. The second is *active design*, an approach that encourages consumer participation in determining how products are worn, styled, or transformed.

These principles form a conceptual foundation for transformable fashion, where multifunctional garments enable multiple looks within a single product and active design enhances user engagement. Transformable fashion not only emphasizes structural flexibility but also prioritizes user experience as a contributor to both aesthetic and functional

value (Rahman & Gong, 2016), supporting more responsible consumption patterns in line with Sustainable Development Goal 12 (Pérez-Bou & Cantista, 2023).

Despite its potential, research on transformable fashion in Indonesia remains limited, particularly studies that integrate consumption replacement, active design, co-creation, and natural metaphors within a unified design framework. Existing sustainable fashion studies in Indonesia predominantly focus on zero-waste and upcycling strategies, while research combining material efficiency, user participation, and symbolic or biological inspiration is scarce. Addressing this gap, the present study develops the *Hydrangea Multi-Styling Dress* as a transformable garment inspired by the hydrangea flower, selected for its ability to change colour in response to environmental conditions and its resilience, which symbolise adaptability and sustainability (Li et al., 2024).

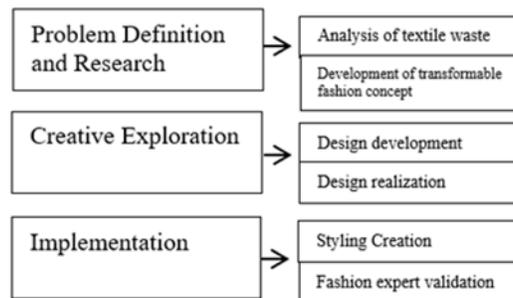
This study contributes to transformable fashion research by demonstrating the integration of co-creation and biological metaphors within a sustainable design system, offering an alternative approach to extending garment lifespan and promoting more responsible fashion consumption.

## METHOD

This study adopts a practice-led research approach employing a three-stage design process framework as the foundation for implementation. Practice-led research was selected because it positions creative practice as the primary driver for the formulation of research questions, exploratory directions, and the generation of new knowledge. Within this approach, practice functions not merely as an outcome but as a means of inquiry through which theoretical insights, concepts, and understandings are developed and critically reflected upon in an academic context (Smith & Dean, 2009).

To structure the research systematically, a three-stage design process framework was applied. Originally introduced by LaBat and Sokolowski (1999), this framework comprises three sequential stages: problem definition and research, creative exploration, and implementation. The model has been widely applied in fashion design research to support reflective and process-oriented knowledge production, as demonstrated in previous studies such as *Mermaid Adaptation through Exploration of Scales in Party Fashion* (Ode Amalia & Sekar Nurindah, 2025) and *The Creation of Fantasy Dresses Inspired by Mythological Gods* (Wahyuni & Puspitasari, 2024).

In the present study, the three-stage design process guided the development of the *Hydrangea Multi-Styling Dress*, ensuring a structured, reflective, and academically accountable design trajectory. An overview of the research stages and their interconnections is presented in **FIGURE 1**.



**FIGURE 1.** Stages of the research (Adaptation of LaBat & Sokolowski, 1999).

This study involved three experts selected through purposive sampling based on their academic qualifications, professional experience, and engagement in sustainable fashion, transformable fashion, textile technology, and creative product development. Two experts in fashion education and textile technology participated during the concept development and early design stages to validate the alignment of the proposed design with slow fashion principles and multifunctional design strategies. An additional expert specializing in fashion design and sustainable fashion was involved at the final stage to evaluate the completed garment and assess its potential for user participation in product use.

The expert validation focused on four main criteria: transformation mechanism functionality, aesthetic quality, wearing comfort, and sustainability aspects, including material efficiency and garment lifespan extension. During the concept development stage, semi-structured interviews were conducted with two experts to assess the design's

alignment with slow fashion principles, particularly its capacity to reduce consumption needs and encourage active design. This feedback informed design refinement prior to the creative exploration and implementation stages. At the final stage, one expert evaluated the finished product to assess transformation effectiveness, aesthetic coherence, comfort, sustainability performance, and the emergence of user participation (co-creation) during product use. Data were collected through semi-structured interviews and structured expert assessment sheets to enhance the methodological rigor and credibility of both the design process and research outcomes.

## RESULTS AND DISCUSSION

### Moodboard

The concept of transformable fashion applied in the design of the *Hydrangea Multi-Styling Dress* emphasizes stylistic flexibility through a single garment that can be configured into multiple looks. This approach aligns with slow fashion principles, particularly product durability, material efficiency, and long-term aesthetic relevance. The design process follows a three-stage framework consisting of creative exploration, development of design alternatives, and implementation of a multi-styling system. Analytical reflection is conducted at each stage to ensure coherence between design concepts, construction techniques, and functional performance.

The moodboard serves as the initial design tool that establishes the aesthetic direction and visual identity of the garment. It functions as a curated collection of inspirational elements—such as colour palettes, textures, silhouettes, and stylistic characteristics—that inform subsequent design decisions. In this study, the mood board plays a critical role in defining creative boundaries and reinforcing conceptual consistency during the development of design alternatives. By translating abstract inspiration into a structured visual reference, the moodboard supports the articulation of a clear creative identity and guides the systematic transformation of conceptual ideas into tangible design outcomes (Krismonita, 2019).



FIGURE 2. Moodboard.

The primary inspiration for the design is derived from hydrangea flowers, which exhibit distinctive biological characteristics, particularly their ability to change colour in response to environmental conditions. This colour variation results from molecular interactions between anthocyanin pigments and aluminium ions ( $Al^{3+}$ ), producing diverse chromatic gradations under different soil conditions (Li et al., 2024). This naturally occurring chemical response serves as a conceptual reference for flexibility and transformation, which form the core principles underlying the development of the *Hydrangea Multi-Styling Dress*.

In addition to their chromatic adaptability, hydrangeas are perennial plants known for their resilience and longevity, with the capacity to thrive for decades under appropriate care (Tongfen et al., 2025). This biological durability is employed as a metaphor for slow fashion values, emphasizing extended product lifespan, sustained

relevance, and resistance to rapid obsolescence. Such characteristics reinforce the sustainability narrative embedded within the design concept.

The moodboard was developed to visually translate the themes of transformation and resilience into design elements. A colour palette comprising dusty pink, lavender blush, cream, and soft white was selected to evoke a soft, feminine, and romantic aesthetic while reflecting the hydrangea's natural colour spectrum. Textile choices, including tulle and satin, create a contrast between transparency and refinement, balancing delicacy and structural strength. Additional visual elements, such as floral motifs, ruffles, and layered materials, further interpret hydrangea forms and colour gradation (Moreira da Silva, 2025).

Overall, the moodboard functions as a visual framework that establishes the aesthetic identity of the design while reinforcing the symbolic narrative of adaptability, transformation, and sustainability that underpins the *Hydrangea Multi-Styling Dress*.

### Design and Technical Drawing



FIGURE 3. Design and technical drawing.

The design of the *Hydrangea Multi-Styling Dress* was developed based on the moodboard as a two-piece ensemble consisting of an inner dress and an overskirt. The inner dress features a bustier-style bodice combined with a semi-circular skirt to create a balanced and feminine silhouette. The overskirt is constructed from fully crimped tulle fabric, providing volume and a soft visual effect. Two multiway straps positioned at the waist serve as the primary functional elements, enabling the garment to transform into various configurations in accordance with the multi-styling concept.

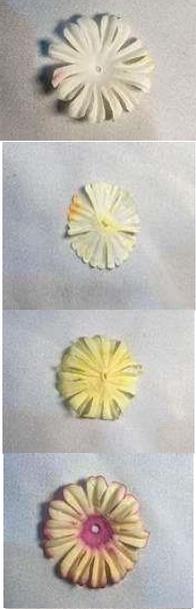
The design expresses a soft, romantic femininity while maintaining adaptability and contemporary relevance. The dress can be styled into at least five configurations—one-shoulder, halter-neck, V-neck, strapless, and off-shoulder—through user-controlled transformations. This transformable approach functions as a slow fashion strategy by extending product lifespan and reducing the need for repeated clothing purchases.

Expert validation supports the conceptual and functional foundation of the design. Asri (2025) identified the *Hydrangea Multi-Styling Dress* as a form of transformable fashion aligned with slow fashion principles, highlighting its capacity to support multiple styles within a single garment and thereby extend its service life. Sustainability considerations were also emphasized through the use of durable materials, robust construction, and colour selections with long-term aesthetic relevance. Similarly, Samuel (2025) noted that transformable fashion represents an effective strategy for reducing fashion consumption while responding to consumer demand for stylistic variety, particularly among younger users.

The selection of dusty pink further reinforces sustainability objectives. As a low-saturation soft tone, this colour is easily adaptable and less susceptible to rapid trend obsolescence, supporting long-term use (Rahman & Gong, 2016). Decorative three-dimensional hydrangea floral elements are applied gradually from the lower to upper sections of the

garment and complemented by accessories such as bracelets, hair ornaments, and shoe details. These elements symbolise resilience and adaptability, reinforcing the sustainability narrative embedded in the design. Overall, the *Hydrangea Multi-Styling Dress* achieves visual unity while integrating aesthetic, functional, and sustainability-oriented considerations within a transformable fashion framework.

**TABLE 1.** Application of hydrangea decorative elements.

Stages	Process Description	Image
Flower Sheet Selection	Choose four ready-to-use flower sheets with varying color brightness levels to produce gradations.	
Color Gradient Arrangement	Sorts four sheets from the most intense color tone on the base layer to the lightest tone on the top layer.	
Arrangement of Four Stacks	Stack the four sheets gradually.	
Mound Formation	Bringing the entire pile together to produce a single decorative unit that resembles a hydrangea mound.	

Application to the product

Locking the arrangement with fine seams on the product.



The development of the *Hydrangea Multi-Styling Dress* concept is grounded in a metaphorical interpretation of the biological characteristics of hydrangea flowers. Rather than functioning solely as a visual reference, the hydrangea is conceptualised as a symbolic framework representing flexibility, sustainability, and product durability within the context of slow fashion. These biological attributes are systematically translated into design principles that inform shape transformation, material efficiency, and extended garment lifespan.

Each key characteristic of the hydrangea is interpreted and operationalised into specific design strategies that guide the development of the transformable garment. This metaphor-driven approach ensures conceptual coherence between natural inspiration and functional design outcomes, strengthening the alignment between aesthetic expression and sustainability objectives. The translation process from biological characteristics to design strategies is synthesised and presented in **TABLE 2**.

**TABLE 2.** Concept development visualization.

Inspiration	Visualization	Results
Hydrangea discoloration (flower color can change according to the pH of the soil)	The phenomenon of color change is interpreted as a metaphor for adaptability and the capacity for transformation in response to environmental conditions. This meaning is translated into a design concept that allows a single garment to present multiple styles through user-controlled transformation mechanisms.	Multi-styling dress hydrangea, which is a dress that can be created into various styles of wear.
Long lifespan of Hydrangea flowers (durable and not easily wilted)	Durability and longevity are interpreted as metaphors for sustainability, emphasizing long-term use, repeated wear, and resistance to trend obsolescence. This concept supports the development of garments with extended product lifespans and more responsible consumption patterns.	Sustainable clothes that follow the principles of slow fashion through transformation features, material efficiency, and the potential for many uses.

Inspiration	Visualization	Results
Physical shape of the Hydrangea (small petals stacked together to form a solid ball)	The layered structure of the petals is understood as a metaphor for texture, volume, and visual complexity. The design adopts this character as inspiration to create decorations that accentuate layering and floral impressions.	Hydrangea's decorative element, in the form of a series of artificial petals that are arranged and applied to clothing to present a distinctive visual identity of Hydrangea.

### Estimated Styling Outcomes

The style estimation of the *Hydrangea Multi-Styling Dress* was conducted through a systematic analysis of the previously developed technical drawings. These drawings served as the primary reference for identifying construction details, transformation mechanisms, and attachment points that enable stylistic variation. Based on this technical documentation, a visual simulation process was carried out to map and evaluate the range of potential styling configurations achievable through the garment's transformable design system. This process aimed to ensure that each style variation was technically feasible, functionally stable, and consistent with the overall design concept. The resulting style configurations derived from the transformation mechanism are presented as follows:

*Halter neck dress*



**FIGURE 4.** Halter neck design.

A halter neck dress is a fashion style with straps that drape behind the neck, highlighting the shoulders and upper back. In the design of the *Hydrangea Multi-Styling Dress*, this style is formed when the two straps are pulled upwards and crossed behind the neck to create a simple knot. The resulting design illustrations show how this process creates an elegant look, with an emphasis on the firm shoulder area, in keeping with the modern, feminine halter neck character.

### *One Shoulder Dress*



**FIGURE 5.** One shoulder design.

A one-shoulder dress is a dress that has only one side of the shoulder covered, creating an asymmetrical silhouette. Based on simulations from technical drawing, this style can be achieved by shifting the strap to one side of the shoulder. The resulting design illustrations clarify asymmetrical shapes that create a dynamic and artistic impression, in accordance with the definition of a one-shoulder dress that highlights asymmetrical styles.

### *V-neck Dress*



**FIGURE 6.** V-neck design.

A V-neck dress is a fashion style with a neckline that forms the letter V, which can give the neck and chest a longer, more elongated impression. Technical analysis shows that this style can be achieved when the strap is directed front-to-back to form a V-shaped neckline.

### *Strapless Dress*



**FIGURE 7.** Strapless dress design.

A strapless dress is one that is strapless on the shoulders, so it emphasizes the shoulders and upper arms. Based on the analysis of the technical drawing, the strapless style can be achieved by wrapping the rope only around the chest area without reaching the shoulders. The resulting design illustration features a silhouette without shoulder straps, giving a minimalist, elegant impression.

### *Off-shoulder Dress*



**FIGURE 8.** Off-shoulder design.

An off-shoulder dress is a fashion style that shows the shoulder area with straps that wrap around the upper arms. Technical drawing indicates that off-shoulder forces can be generated when straps are placed around the upper arm. The resulting design illustrations show how this process creates a romantic, feminine impression, in keeping with the off-shoulder character that emphasizes softness.

This process of analyzing technical drawings to produce design illustrations demonstrates the consistency between technical concepts and their visual realization. The five resulting design illustrations not only validate the technical feasibility of the transformation mechanism but also provide visual evidence of the Hydrangea Multi-Styling Dress's design flexibility.

### *Styling Creations*

The styling creation process utilizes the versatility of multiway tulle straps on the overskirt as the main element of shapeshifting. Five styles were successfully created through manipulation, setting, and tying straps. The creative flow of each style is described as follows.

#### 1. V-neck



**FIGURE 9.** Styling creations V-neck.

Figure description:

1. Lifting both straps forward;
2. Directing the ends of the straps to the back of the neck;
3. Tie it with a knot or ribbon as a solution



**FIGURE 10.** Final result V-neck.

## 2. Halter Neck



**FIGURE 11.** Styling creations halter neck.

Figure description:

1. Lifting both straps to the front of the body;
2. Cross it at the front and point to the back of the neck;
3. Tie it with a knot or ribbon as a solution.



**FIGURE 12.** Final result halter neck.

## 3. One Shoulder



**FIGURE 13.** Styling creations one shoulder.

Figure description:

1. Directing both straps to one shoulder;
2. Pulling the straps transversely to the back of the body;
3. Tie it to the back waist area as a finish.



**FIGURE 14.** Final result one shoulder.

#### 4. Off-shoulder



**FIGURE 15.** Styling creations off-shoulder.

Figure description:

1. Directing straps around the upper arm and torso;
2. Steering the straps to the back;
3. Tie it with a knot or ribbon as a solution.



**FIGURE 16.** Final result off-shoulder.

## 5. Strapless Dress



**FIGURE 17.** Styling creations strapless dress.

Figure description:

1. Wrap the straps around the chest area;
2. Pull the ends of the straps to the back of the body;
3. Tie it at the back waist.



**FIGURE 18.** Final result strapless dress.

The implementation stage, realized through the development of multiple styling configurations, demonstrates that the two-piece dress set design provides a high degree of flexibility in generating stylistic variations aligned with the intended design objectives. Manipulation of the tulle-based multiway straps enables the formation of five primary styles: V-neck, halter-neck, one-shoulder, off-shoulder, and strapless configurations. Each style is achieved through specific strap arrangements and tying techniques while maintaining structural stability and preserving the overall aesthetic coherence of the design. These findings confirm the effectiveness of the transformable mechanism in supporting multi-styling functionality without compromising the garment's visual identity.

### Co-Creation in Transformable Fashion

Co-creation in fashion refers to a process in which consumers actively participate in shaping the aesthetic and functional value of a product through creative interaction. Transformable fashion provides a particularly suitable platform for co-creation, as it offers interpretative flexibility that allows wearers to engage beyond predefined uses. In the *Hydrangea Multi-Styling Dress*, the multi-styling strap mechanism enables users to explore configurations beyond the five primary styles initially designed. Through this interaction, designers, products, and users collectively contribute to the generation of new value.

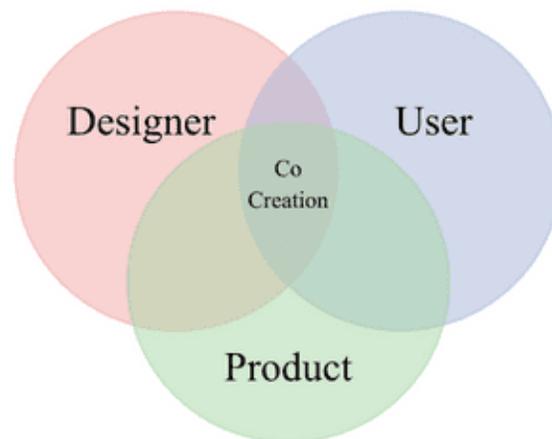
This approach aligns with the argument of Hur and Beverley (2023) that co-creation emerges when a design system maintains structural stability while remaining sufficiently flexible to accommodate creative interpretation. Designs

that are overly rigid tend to restrict user expression, whereas excessively open systems may compromise functional clarity. The *Hydrangea Multi-Styling Dress* achieves a balance between these extremes through a guided yet adaptive transformation mechanism. This balance also reflects Fletcher's (2016) concept of the *craft of use*, in which the value of clothing evolves through users' practices of wearing, modifying, and styling, thereby enhancing emotional durability and extending product lifespan within a slow fashion framework.

Findings from expert interviews further support this perspective. Christabel (2025) noted that the transformation mechanism is intuitive, comfortable, and facilitates the emergence of additional styles beyond the original design intent. This observation indicates that co-creation occurs not only at a conceptual level but is realized in actual wearing practices. The expert also highlighted that the balanced integration of form, colour, and decorative details does not hinder the styling process, confirming that the design system provides optimal conditions for creative interaction between user and product. These findings reinforce the view that flexible design structures encourage active user involvement in producing new meanings and functions.

The relationship between transformable fashion, co-creation, and slow fashion is further strengthened by the observation that a single garment offering multiple styling possibilities can reduce the need for excessive clothing consumption. This outcome directly supports the principle of responsible consumption articulated in Sustainable Development Goal 12, wherein users gain greater value from a single product while designers promote more efficient and sustainable production practices.

This interaction is conceptually represented through a three-circle Venn diagram encompassing designers, products, and users. Designers establish the transformation framework, the product functions as a manipulable medium, and users actualize creativity through style exploration. The intersection of these elements represents the co-creation space, where new styles emerge organically. This model confirms that the *Hydrangea Multi-Styling Dress* operates not only as a transformable fashion product but also as a participatory design platform sustained through user engagement.



**FIGURE 19.** Co-Creation.

The *Hydrangea Multi-Styling Dress* demonstrates that transformable fashion can function as an effective and sustainable co-creation practice. The integration of a flexible design system, extended opportunities for styling exploration, and positive expert validation reinforces the garment's role as a viable example of sustainable fashion innovation. By enabling multiple configurations within a single product, the design addresses both environmental concerns and evolving consumer preferences, particularly among younger generations who exhibit increasing awareness of sustainability issues. Consequently, this study highlights the potential of transformable, co-creative design strategies to support responsible consumption while responding to contemporary industry demands.

## CONCLUSION

This study resulted in the development of the *Hydrangea Multi-Styling Dress* as a sustainable fashion innovation that integrates transformable fashion, co-creation, and slow fashion principles within a unified design framework. The application of a practice-led research approach using a three-stage design process proved effective in producing a

garment that is not only aesthetically refined but also functional and oriented toward long-term sustainability. The multiway strap-based transformation system enables at least five distinct styling configurations within a single product, allowing one garment to replace multiple fashion functions. This characteristic contributes to extending product lifespan and offers a practical strategy for reducing excessive consumption associated with fast fashion.

Expert validation confirmed that the design, construction, material selection, and transformation mechanisms meet key technical and aesthetic criteria of sustainable fashion. Moreover, user involvement in the styling process demonstrates the emergence of co-creation practices, where aesthetic and functional value evolves through interaction between designers, products, and users. These findings broaden the understanding of slow fashion beyond material and production considerations, positioning it as a participatory approach that enhances emotional durability and responsible product use.

From a practical perspective, this design approach shows strong potential for application within small- and medium-scale fashion industries as a means of developing multifunctional, durable, and market-relevant products while maintaining sustainability values. Future research is recommended to explore more modular transformation systems, expand the use of environmentally friendly materials, and involve larger-scale user testing to evaluate acceptance, comfort, and effectiveness in everyday and industrial contexts. Through such developments, transformable fashion can further strengthen the slow fashion movement and support responsible consumption practices in the fashion industry.

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