

# The Lanikai Skort

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Documentation



# Design Brief

## END USER

The intended user is a female aged between 16 and 35, living in a range of settings, including urban, regional, and rural areas. The individual has an active lifestyle and enjoys activities such as bushwalking, travelling, and daily walking. She has a medium-high income, therefore is willing to invest in durable, sustainable, high-quality garments that reflect her values and lifestyle.

This user wants functionality without sacrificing style, favouring feminine and flattering clothing, but often finds that available outdoor and activewear is overly utilitarian, masculine, or single purpose. She enjoys clothing that transitions from activewear to casual settings and travels, eliminating the need for multiple outfit changes throughout the day or excessive garments. Additionally, she values sustainability and actively looks for sustainable, organic, ethically sourced fabrics.

In addition to appearance and sustainability, comfort and practicality are key. This includes breathable fabrics, discreet built-in coverage, and accessible storage solutions that eliminate the need for an additional bag or belt. The end user expects a garment that performs across multiple situations and environments while aligning with her personal style and ethical considerations.

## CONTEXT AND PROJECT SCOPE

**Who:** Women aged 16–35 who lead dynamic lifestyles, including bushwalking, yoga, travel, and everyday activities, and who prioritise modesty, functionality, and sustainable design in minimalist, feminine clothing.

**Why:** Current outdoor activewear options are often overly masculine or not versatile enough. There is a lack of garments that are both performance-focused and feminine.

**What:** A stylish, breathable, and high-functioning skort that can be worn during exercise, travel, and everyday life.

**How:** By combining eco-friendly materials, practical design features, and a flattering aesthetic, the product meets both functional and emotional needs.

**Where:** On bush walking tracks, during travel, while sightseeing, commuting, running errands, or engaging in casual leisure.

## DESIGN CONSTRAINTS

**The product must include built-in shorts for modesty and movement.**  
Specification: The shorts must extend a minimum of 5 cm down the inner thigh from the crotch point to provide modesty during sitting, bending, or physical movement.

**Testing:** This will be evaluated through a wear trial that includes walking, squatting, and sitting, and feedback from users will be recorded regarding comfort and coverage.

**The product must be constructed from breathable, natural fibres.**  
Specification: The fabric must be made of at least 95% natural fibres such as linen, cotton, or hemp.

**Testing:** Fabric suppliers will be researched for fibre composition, dye source, and certifications (e.g., GOTS or OEKO-TEX). Breathability and water absorption will be tested using standard water drop and airflow methods.

**The product must be aesthetically pleasing and maintain a feminine silhouette.**

**Specification:** The silhouette must be feminine which defines the waist, and the overall skirt shape must be visibly flared or A-line to enhance a feminine appearance.

**Testing:** Design sketches and mock-ups will be assessed visually and through peer feedback. The feedback must describe the garment as 'stylish' or 'feminine'.

**The product must include at least one secure and functional pocket.**  
Specification: At least one pocket must be included that can fit a standard-sized smartphone (minimum pocket dimensions 8 cm x 16 cm) and include a closure (zip, flap, button, or deep internal structure).

**Testing:** Pocket functionality will be tested during a simulated walk to assess bounce, security, and accessibility. User feedback will be collected, and the item must remain secure during movement.

## FUNCTION

The product is an exercise/travel skort which is a skirt with shorts, intended for use in outdoor and active contexts such as bushwalking, walking, and travelling. It will also suit casual, day-to-day wear.

**Key functional needs:**

- **Coverage:** Shorts underneath provide modesty, prevent chafing, and allow free movement.
- **Storage:** Secure pockets for carrying small essentials (e.g. phone, keys, ID, cards, small snack), ideally without bulk.
- **Breathability & Comfort:** Fabric must manage moisture and airflow to minimise sweat and overheating.
- **Versatility:** It should look appropriate in multiple settings, from a bushwalking trail to a cafe or travel destination.
- **Durability:** It must withstand frequent use, walking, sitting, and wear in different outdoor conditions.
- **Aesthetics:** Maintain a stylish, feminine look with a flattering cut, clean lines, and fabric choices that allow the piece to be dressed up or down.
- **Sustainability:** Incorporate eco-conscious choices in fabric, construction, and longevity.

The product should support the user's active and mobile lifestyle, reducing the need for multiple outfit changes or less functional clothing compromises. Its goal is to become a core staple in her wardrobe.



**When:** Worn regularly, especially in warm weather. Designed for use several times per week without rapid wear and tear.

**Deliverable:** A fully functional, aesthetically appealing skort prototype that is:

- Breathable and comfortable
- Multi-functional and versatile
- Durable for repeated use
- Sustainable in design and material choices
- Flattering and feminine in appearance

## DESIGN CONSIDERATIONS

### Functional movement without stretch

As stretch fabrics are excluded, freedom of movement will be created through thoughtful construction, such as a wrap style, and relaxed shaping rather than synthetic elasticity.

### Colour and styling versatility

The colour palette may include neutral, earthy, or soft tones that align with both sustainability values and personal style preferences. The skort should be easily styled with other wardrobe pieces.

### Seasonal adaptability

Although the skort is primarily designed for warm-weather wear, it may be layered with tights or leggings in cooler seasons. The length and fabric weight should support this versatility.

### Ease of care and maintenance

The product should ideally be machine-washable and low maintenance. While natural fibres tend to wrinkle, options such as blended weaves or softened finishes may be explored if they remain within sustainability requirements.

### Sustainable and minimal waste construction

Where possible, fabric waste should be reduced through efficient pattern layouts, minimal offcuts, and simplified construction methods that still maintain durability and appearance.



# CARE, REPAIR & REUSE



## Little fixes, longer life

- Add extra buttonholes for the perfect fit
- Reattach a button with a simple hand stitch
- Reinforce seams with a zigzag or overlocker touch-up

## Rewear. Reuse. Reimagine.

- Repurpose worn fabric into cloths, pouches or patches
- Skirt and shorts can be used separately if one wears out
- Just repair or replace what's needed, not the whole product

## Size Reference

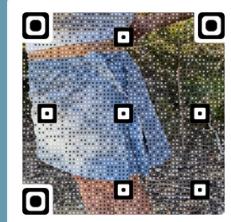
(example for XS–S)

| Size | Waistband Width       | Shorts Inseam |
|------|-----------------------|---------------|
| XS   | 64–70 cm (adjustable) | 10 cm         |
| S    | 70–76 cm (adjustable) | 10 cm         |

## SEE IT IN MOTION

Want to see how the Lanikai Skort moves, fits, and functions in real life?

Scan the QR code  
or click [here!](#)



(actually functions)

## DESIGNED BY GEM

Thoughtfully created in Sydney, using locally sourced materials and low-waste techniques. The Lanikai Skort is just one piece in GEM's vision for beautiful, practical, and responsible apparel.



# THE LANIKAI SKORT

Feminine. Functional. Future-Friendly.  
Made for movement. Styled for life.

From bushwalking to brunch, gym to travel, The Lanikai Skort is your go-to solution for breathable, modest, and stylish freedom of movement.



## STAY CONNECTED WITH US!



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# WHY CHOOSE THE LANIKAI SKORT?

You shouldn't have to choose between movement, modesty, and style.

That's why GEM designed the Lanikai Skort. A thoughtfully engineered, feminine alternative to utilitarian activewear.

## ONE PRODUCT. MANY LIVES.

Whether you're:

- Climbing coastal trails, powering through Pilates, navigating airports, running errands, or heading out for brunch

The Lanikai Skort adapts. Wear the bike shorts and wrap skirt together or separately, depending on your day.



## WHAT MAKES IT DIFFERENT?

- Modular 2-in-1 design: skirt and shorts are separate
- Feminine wrap silhouette that actually moves with you
- Soft, breathable, natural fibres with stretch where it counts
- Pockets that are actually useful
- No elastic. No zips. No nonsense.



## FEATURES THAT MOVE WITH YOU

### ✿ Wrap A-line silhouette

Flatters the body and moves freely, secured with adjustable buttonholes

### Detachable bike shorts

10cm inseam offers modest coverage and chafe protection without restriction

### 紫色 Pockets, reimagined

A welt pocket on the skirt (with button) and a patch pocket on the shorts keep essentials close

### 无缝 Seamless comfort

No elastic, no zips, just soft structure and breathable fabrics

### 蓝色 Wear it your way

Together or apart, from studio to street, walk to weekend

## MATERIALS & SUSTAINABILITY

### 🌿 Natural fibres, thoughtfully chosen

- Skirt: 100% cotton drill: durable, breathable, biodegradable
- Shorts: 95% cotton, 5% Yulex: a plant-based stretch alternative to spandex

### 🧵 Built with care

French seams, twin-needle stitching and overlocking extend the life of the garment, made to be reworn, repaired, and re-loved.

### 🌿 Sustainability by design

- Low-waste cutting layout to reduce offcuts
- Locally sourced materials = lower transport emissions
- No synthetic blends in the skirt for easier end-of-life composting
- No elastic = fewer mixed materials, more recyclability

### ♻️ End-of-life ready

- Modular: repair or replace only the part that wears out
- Coconut or wood buttons = compostable
- Metal buttons = recyclable
- Cotton-based fabrics can be shredded for compost or repurposed into cloths or accessories

# Product Design Evaluation

| EVALUATION CRITERIA   | SPECIFICATIONS  | PRODUCT DESIGN FACTOR      | JUSTIFICATION   | WAYS TO ACHIEVE THIS  | CHECKING METHOD ON FINISHED PRODUCT  |
|---|---|----------------------------|---|---|--|
| Does the design ensure modesty and comfort during a range of body movements, including sitting, squatting, and walking?               | The built-in shorts must extend at least 5 cm down the inner thigh from the crotch point to ensure the wearer is covered when bending, sitting, or moving actively.           | Function / Human-centred   | Built-in modesty shorts improve user confidence, reduce exposure during daily movement, and make the skirt suitable for a range of public and active settings. This is especially important since the outer layer is a wrap-style skirt that may shift during wear. | Draft shorts pattern with required coverage, toile fit-testing to ensure placement doesn't ride up during wear.   | Conduct physical movement tests (sitting, squatting, walking), record peer and user feedback during wear trial regarding coverage, fit, and confidence. Yes. The built-in shorts provided secure coverage across a full range of movement, including sitting, squatting, walking, and even during light workouts. Peer feedback confirmed that the fit was flattering and that the added modesty made the garment feel comfortable and appropriate for public or active settings, as intended. The inseam length was 10 cm, which met the minimum design requirement and helped prevent ride-up during wear. While the prototype used a cotton-elastane blend out of necessity, future versions could use Yulex (Yulex, n.d.) or structured natural-fibre techniques such as wide double-turned hems or tailored shaping to maintain hold and comfort without relying on synthetics, supporting both modesty and sustainability values.  |
| Is the skirt made from breathable, natural fibres that suit warm weather?   | Fabric used must be at least 95% natural fibre, such as cotton or linen, offering moisture absorption, softness, and air permeability.  | Materials / Sustainability | Breathable natural fibres improve wearer comfort, reduce skin irritation, and support sustainable sourcing. Avoiding synthetics also aligns with eco-conscious consumer values and reduces microfibre pollution during washing.                                     | Research fabric sources (e.g. GOTS or OEKO-TEX certified), perform absorbency tests (water drop) and airflow trials during prototyping, prewash to assess shrinkage | Confirm fibre composition through supplier label or certification, perform water-drop and airflow test, and compare heat retention after wearing indoors/outdoors.<br>Partially. The outer skirt is 100% natural fibre (cotton), but the shorts require a 95% cotton, 5% elastane blend for stretch and fit. This compromises end-of-life recyclability due to the synthetic content. Ideally, the final product would use Yulex (Yulex, n.d.), a sustainable alternative to synthetic elastane made from FSC-certified natural rubber and water-based lamination. Yulex retains stretch properties while being more biodegradable and recyclable, though it was not accessible at this stage. I also used fusible interfacing to attach the pocket and hem the shorts, which I later realised is made from polyester and polyamide. In future versions, I would explore natural interfacing options or refine techniques to avoid needing interfacing at all.   |
| 1. Is the silhouette of the finished garment visually flattering, clearly feminine, and consistent with the intended aesthetic goals? | The garment must define the waist visually and include a visibly flared or A-line skirt shape. The final silhouette should appear soft and flowing rather than boxy or rigid. | Aesthetics / Human-centred | A feminine and flattering silhouette increases user appeal and marketability, particularly for end users seeking stylish yet functional clothing. Skirt shape contributes to the perception of movement and lightness.  | Use shaping in the waistband and <b>flared skirt panels</b> ; visually compare mock-ups and final fit; refine seam placement for body contouring.                   | Conduct a peer review of the silhouette using photos and in-person try-ons, and collect feedback using design terms like "feminine," "flattering," or "stylish."<br>Yes. The silhouette successfully achieved the intended feminine aesthetic. I created three toiles to refine the fit, and peers described the final look as "girly" and visually appealing. The skirt ended up slightly longer than originally planned, which improved its versatility and made it suitable for a wider range of settings, including modest dress travel contexts. The welt pocket added a sleek, polished finish that elevated the look beyond something bulky or utilitarian. The only limitation was the colour mismatch between the skirt and shorts due to cost and fabric availability, ideally, both would match. In future versions, dyeing both layers together or sourcing cohesive fabric would improve visual unity. Minor seam or shaping adjustments could also refine the flow of movement across the garment. |

# Product Design Evaluation

| EVALUATION CRITERIA  | SPECIFICATIONS  | PRODUCT DESIGN FACTOR                        | JUSTIFICATION  | WAYS TO ACHIEVE THIS  | CHECKING METHOD ON FINISHED PRODUCT  |
|--|---|--|--|---|--|
| Does the garment include at least one secure, easy-to-use pocket that holds a standard smartphone without excessive bounce or discomfort?        | At least one pocket must fit a standard-sized smartphone (minimum 8 cm x 16 cm), with a closure such as a flap, welt, or depth-based design to prevent item loss. | Function / Technologies, tools and processes | Pockets are essential for modern user needs. A secure pocket allows hands-free activity and prevents damage or loss of valuables. In a skort, pocket bounce or exposure risk is a design concern during walking. | Construct test pocket samples; reinforce seams, ensure placement avoids tight areas, conduct wear trials with phone inside to assess bounce and security. | Insert a phone, perform walking and sitting tests, inspect item retention and accessibility, and collect user feedback on convenience and security.  |
| Does the fastening system (button and tie) stay secure during active wear, and can it be fastened independently without confusion or discomfort? | Waist fastening must withstand movement and not loosen or come undone. It should also be easy to fasten independently without strain or confusion.                | Function / Ergonomics                        | A secure but accessible fastening supports independence and practical usability. The tie-wrap design must balance adjustability with reliability to prevent slipping or discomfort.                              | Position button and tie at natural waist, trial usability in fitting sessions, reinforce stress points, test on different body types for usability.       | Simulate full-day wear, and document whether the wearer could adjust the garment independently and confidently.<br>Yes, the fastening system (a button and tie) remained secure throughout movement and daily wear. When the tie is double-knotted, it stays in place due to the slight grip from the cotton drill fabric. It was also easy to fasten independently without needing assistance. While interfacing was tested during prototyping, it was not required in the final product because the drill fabric provided sufficient structure and durability on its own. In future iterations, the tie ends could be repositioned to reduce bulk, and alternative fasteners such as D-rings, slides, or buckles could be explored for improved adjustability and ease of use.   |
| Can the skort be comfortably layered in cooler seasons and styled across different settings without reducing its function or appeal?             | Skort should be breathable and lightweight for summer, but also long and flexible enough to layer over tights in winter.  | Sustainability / Function                    | Extending the usability of the garment increases sustainability and user value. A multi seasonal piece supports ethical consumption by reducing the need for multiple seasonal purchases.                        | Choose medium-weight natural fabrics, ensure skirt length supports layering, trial wearing with and without tights.                                       | Wear test with stockings, evaluate mobility and warmth, peer review for seasonal versatility and comfort during different weather conditions.<br>Yes, the skort worked well as a year-round piece. It was tested over tights and remained comfortable and visually appropriate for cooler weather. The drill fabric used in the skirt offers enough weight for warmth without being overly stiff. While the colour of the final garment may not suit everyone's winter aesthetic, functionally it can be worn in multiple seasons. Its versatility ultimately depends on styling preferences rather than limitations in the garment's design. In future versions, seasonal adaptability could be enhanced by offering the skort in additional colourways or fabric finishes such as brushed cotton or natural twill to appeal to winter styling preferences. A lining option or double-faced fabric could also increase thermal comfort without compromising the natural fibre content or breathability. |

# Product Design Evaluation

| EVALUATION CRITERIA   | SPECIFICATIONS   | PRODUCT DESIGN FACTOR                       | JUSTIFICATION   | WAYS TO ACHIEVE THIS   | CHECKING METHOD ON FINISHED PRODUCT  |
|---|--|---|---|--|--|
| Are the construction techniques, seams, and finishes appropriate for long-term durability, comfort, and ease of repair?               | Seams must be finished (e.g. overlocked), lie flat, and be free from excessive bulk. They must also withstand repeated wear and washing. | Quality / Human-centred                     | Clean, comfortable seams increase perceived and actual quality of the garment. Seam finishes affect durability, wearability, and satisfaction. Poor finishes may lead to discomfort or garment failure. | Use overlocker for high-stress areas, test stitching tension and seam strength, trim seam allowances, choose soft, natural thread. | Inspect internal seams visually and through touch, wear-test to detect irritation, pull-test for strength, check stitch density.<br>Mostly achieved. Seam finishes were deliberately selected for comfort, strength, and wearability. The shorts used overlocked seams, providing low-bulk durability in high-friction zones like the inner thigh. The skirt's French seams offered a refined internal finish, with no exposed raw edges, contributing to comfort and longevity. Movement trials, including walking and workout simulations, confirmed that all seams remained smooth against the skin without irritation. However, the twin needle hem on the shorts produced limited elasticity and occasional tension inconsistencies. A professional cover stitch would significantly improve hem recovery, durability, and tactile comfort for future prototypes. |
| Have low-waste cutting and construction methods been used to reduce material waste without compromising garment quality or structure? | Offcuts should be minimised through thoughtful pattern layout and unused fabric should be kept for reuse or sampling.                    | Sustainability / Technologies and processes | Minimising textile waste reduces environmental impact and supports low-waste design goals. It also models professional sustainable design practice.   | Map cutting layout before cutting; reuse offcuts, consider using square/rectangle-based patterning.                                | Document layout plan, including photos or diagrams of the layout.<br>Yes. Fabric waste was intentionally minimised through strategic layout and component reuse. Although the shorts pattern required irregular shapes, interstitial gaps were efficiently used for cutting waistbands, pockets, and test samples. The skirt's slightly curved rectangular panels were arranged to maximise yield and minimise offcuts. This planning reflects a deliberate low-waste design approach. All salvageable remnants were retained and repurposed, reinforcing sustainable practice. In future versions, waste could be further reduced by refining pattern geometry to reduce seam numbers or simplify forms. This could lower seam allowance use and improve marker efficiency, moving the design closer to a modular or zero-waste outcome.                              |

# *Product Design Evaluation*

## EVALUATING THE DESIGN, PLANNING AND PRODUCTION PROCESSES

### **DESIGN ACTIVITIES**

The design development process was iterative, exploratory and constantly evaluated against clearly established design constraints. I began with a broad intention: to design a skort that incorporated built-in shorts for modesty while maintaining a flattering, feminine silhouette suitable for both movement and lifestyle wear. I stretched my design ideas by deliberately challenging the conventions of exercise skorts, which are typically athletic in appearance, highly synthetic, and lack aesthetic appeal. I wanted to create something that felt stylish enough to wear socially but still functioned well for active use. Alongside silhouette and construction choices, I selected breathable natural fibres to align with sustainability goals, trialling available options and reflecting on what a more environmentally responsible version might include in future.

To push the originality of my concept, I explored a range of visual ideas through hand sketching and digital mood boarding. These tools helped me clarify the visual identity of the skort and consider a range of structural possibilities, such as fixed versus adjustable wraps and different fastening options. I rejected zips and heavy closures in favour of more elegant options that maintained the garment's soft aesthetic. The decision to include a welt pocket, for example, was based on both visual refinement and reduced reliance on synthetic fasteners. I constructed several test pockets to ensure functionality and durability.

I committed early to an A-line wrap silhouette after evaluating alternatives like flowy or tighter styles. The A-line provided modest coverage, freedom of movement, and visual balance. Over three skirt toiles and eight shorts toiles, I refined the fit through adjustments to rise, crotch depth and waistband shaping. Each iteration helped address comfort, seam alignment, and layering logic. I also refined the technical approach through repeated testing of seam finishes, tie positioning, and closure strength.

My target market was users seeking garments that could bridge activewear and social wear, particularly younger women looking for comfort without sacrificing visual appeal. The button choice, layered construction, and shaping details all supported that positioning. In future, I would prioritise clearer early technical drawings with measurements and seam allowances to avoid confusion during construction, and consider incorporating modular adjustments for sizing or layering versatility. This project significantly expanded my confidence in pattern modification, fitting techniques, and balancing aesthetics with functional demands.

### **PLANNING ACTIVITIES**

The project was managed using a flexible weekly timeline that prioritised progress milestones over rigid daily scheduling. This approach allowed me to adapt to unexpected challenges while keeping the goal of a complete, wearable prototype by Week 12 in clear focus. My plan allocated rough timeframes to sourcing, prototyping, fabric testing, and final construction, which created useful structure and accountability. However, I underestimated the time needed for iterative prototyping. Although I originally planned to complete one or two toiles, I ended up making eight shorts and three skirt versions due to persistent fit, fabric, and construction issues. These setbacks, while frustrating, were crucial learning experiences and ultimately led to a more refined outcome. They also helped me problem-solve specific concerns like crotch depth, waistband rollover, seam placement, and layering logic which were factors I had not fully anticipated during the initial planning.

Sourcing challenges also disrupted my schedule. I discovered too late that the fabric used in earlier prototypes included elastane, affecting the stretch profile and final fit. When I substituted with what I believed was 100% cotton, the stretch properties were unexpectedly different, forcing me to remake a nearly completed garment. This cost me a full construction session and highlighted the need to verify fibre content more thoroughly before production.

I selected construction processes based on a balance of existing skills and functional needs. For instance, I chose overlocking and French seams for comfort and durability but had to reassess the use of a twin-needle hem after it created tension issues. These changes were informed by real-time testing and driven by a problem-solving mindset.

Although I had a foundation in textiles, several techniques including welt pockets, stretch pattern adjustment, and ergonomic shaping were unfamiliar. I filled these gaps by watching tutorials, analysing similar garments, and seeking feedback from peers. This continuous learning cycle supported efficient troubleshooting and incremental design refinement.

In future projects, I would create a more detailed and flexible timeline that builds in extra time for prototyping and material testing. I would also include checkpoints to verify sustainability goals (e.g. natural fibre content, non-synthetic notions) earlier in the planning phase. Better technical drawings in the early stages and more rigorous material verification would reduce production delays and support more confident, informed planning throughout.

# *Product Design Evaluation*

## EVALUATING THE DESIGN, PLANNING AND PRODUCTION PROCESSES

### **PRODUCTION ACTIVITIES**

The final product evolved substantially during construction. Initially intended as a single connected garment, I separated the skirt and shorts after discovering the combined version created layering bulk, waistband instability, and limited versatility. Making them modular improved wearability, styling, and laundering. I also lengthened the skirt during construction for improved modesty and cultural adaptability, based on toile feedback. I worked safely throughout production, using a pin cushion, unplugging machines before maintenance, and managing posture due to chronic neck and back pain. Although the workspace became cluttered at times, I ensured sharp tools were stored safely and paths remained clear. In a shared environment, I remained conscious of equipment use and spatial awareness.

Time management was strong, even when technical issues arose, especially frequent overlocker unthreading. I used downtime productively to test waistband finishes, pocket styles, and hem methods. This iterative approach allowed me to resolve design details with intention. To ensure quality, I made multiple construction samples: three welt pockets, waistband variations, and seam finish trials. I used overlocked seams for the shorts for strength and softness, and French seams on the skirt for a polished interior. These decisions enhanced both comfort and durability.

The domestic sewing machine and overlocker were my main tools. The overlocker, while challenging, delivered clean, stretch-compatible seams. I'm proud of the final construction which included accurate seam alignment, a clean stitch-in-the-ditch waistband, and a mostly professional-quality welt pocket, all achieved with new or challenging techniques. This project reinforced that strong outcomes come from flexible planning, targeted testing, and design decisions grounded in both function and aesthetics.

In the future, I would further streamline construction by simplifying or combining pattern pieces to reduce seam bulk and fabric waste. I would also explore the use of specialised equipment like a cover stitch machine for a stretch-friendly hem, and experiment with natural dyeing techniques to achieve colour-matched layers while preserving my sustainability goals.

### **SUGGESTIONS FOR FURTHER IMPROVEMENT**

### **AESTHETICS**

The visual outcome of the garment was largely successful in achieving a feminine, polished look. The wrap silhouette, contrast buttons and A-line shape produced a flattering and elegant appearance, particularly in the skirt. However, the colour mismatch between the skirt and shorts impacted visual cohesion. This was not a design decision but a result of cost and fabric availability. Matching the colour or texture of both components would improve the unity of the design. In future, I would explore batch dyeing both layers using natural dyes or sourcing fabric in bulk to ensure full-colour consistency.

Although I intentionally avoided the typical "sporty" look, the result leaned more towards fashion than functionality in appearance. While some users may appreciate this versatility, others might find it too styled for outdoor use. This highlights a tension between aesthetic and contextual function. In future development, I would consider introducing light utilitarian elements such as tonal topstitching, matte surface finishes, or a structural cotton twill to signal more hybrid use while retaining the garment's feminine identity. These refinements would support clearer communication between the visual and practical attributes of the product.

### **FUNCTIONAL ASPECTS**

Functionally, the garment performed strongly across all key evaluation criteria for modesty, movement, and versatility. The built-in shorts remained secure and did not ride up during walking, squatting or exercise. The skirt's wrap construction provided additional coverage without limiting stride length or flexibility. However, the pocket system could be refined. The skirt pocket, while functional and secure, can swing uncomfortably when carrying heavier items like a phone. Placing it on the back would compromise comfort during sitting, while the current side-front placement affects leg movement during activity.

Additionally, the pocket closure system which is a button is secure but less accessible for items requiring frequent access. In future versions, I would explore an integrated phone sleeve within the skirt pocket or trial concealed side seam pockets to improve usability without altering the silhouette. I would also consider refining the waistband tie to reduce visible bulk, especially when worn under tops. Lowering the tie height or tapering the ends could provide a flatter finish. These adjustments would support both ergonomic comfort and appearance.

# *Product Design Evaluation*

## **SUITABILITY OF MATERIALS**

The material selection met the intended balance between comfort, structure and movement. The cotton drill used for the skirt held its A-line shape effectively while remaining breathable and soft. The only performance issue observed was minor fabric cling in windy conditions, where the skirt occasionally pulled inward toward the thighs. This is typical of lightweight woven fabrics and not a fault in quality, but it affects the perception of security in motion. If produced commercially, I would trial weighting options such as interfaced hems or low-bulk internal binding to counteract this issue.

The shorts were made from a 95% cotton, 5% elastane blend. While this material was functional and provided the required stretch, it does not align fully with sustainable goals due to the inclusion of synthetic fibre. In future, I would source a cotton-Yulex blend (Yulex, n.d.), which uses FSC-certified natural rubber to offer similar stretch while improving end-of-life recyclability. Although currently difficult to access at a small scale, this fibre innovation aligns with the product's sustainability values and performance goals. The combination of drill and cotton-stretch fabric functioned well in terms of layering and did not create bulk or interference between layers.

## **QUALITY**

The construction quality of the skort is a major strength, with accurate seam alignment, strong structural integrity and clean finishes across most areas. The waistband sits flat, the pocket construction is reinforced and the silhouette is symmetrical and stable. Testing revealed that both components held up well to repeated wear, and the final outcome matched the intended fit. However, some technical issues affected the quality of the hem. The twin needle used on the short hem lacked adequate stretch, leading to visible stress lines and tension imbalance. Additionally, the raw edge beneath showed some unevenness due to cutting. A cover stitch machine would have offered a more flexible, durable and professional finish. I would use this equipment in future development for high-stretch hems.

On the skirt, tension issues caused by a poorly fitting plastic bobbin created inconsistent stitching on the hem, resulting in multiple unpickings. Although resolved, the hem's start and stop points show some aesthetic irregularities. These did not affect durability but detracted from the overall refinement. In future work, I would pre-test bobbins and thread compatibility and consider using bias binding to conceal edge variations. Additionally, securing the wrap panel internally with a flat button or snap could improve hold and minimise movement drift over time.

## **SUSTAINABILITY**

Sustainability informed key design and production choices, although several limitations emerged due to material availability and budget. Both fabrics were sourced from Spotlight (Spotlight Pty Ltd., n.d.), which does not offer transparent certification. My ideal version would be constructed using GOTS-certified organic cotton (Global Organic Textile Standard, n.d.) or OEKO-TEX (OEKO-TEX®, n.d.) for the skirt and a cotton-Yulex blend (Yulex, n.d.) for the shorts to reduce reliance on synthetics and improve biodegradability. I also avoided zippers and plastic components, selecting metal buttons and reinforced stitching as low-impact alternatives. These decisions align with principles of circular design and responsible sourcing. In the future, wood or coconut shell buttons could be used to make the skort 100% biodegradable however, these are harder to source in the correct size and look.

During construction, I took active steps to reduce textile waste. I reused offcuts from shorts to construct waistband and pocket pieces and used curved rectangular skirt panels to improve layout efficiency. However, the short pattern included complex curves and required multiple seam allowances, which increased material use. In future development, I would explore reworking the shorts pattern to reduce the number of panels or merge seamlines where possible, which would reduce offcut volume. While a zero-waste layout is unlikely given the fit requirements, pattern optimisation could reduce waste further. I would also investigate ethical suppliers and local dye houses to shorten the supply chain and reduce the product's carbon footprint. The garment's modest, versatile design also supports social sustainability, encouraging long-term use across seasons and contexts.

Social sustainability is also something I considered. The product is designed to empower the wearer with both modesty and style, suitable for diverse cultural settings, functional for outdoor use, yet still flattering and expressive. While not every material met my ideal standards, the design process was led by sustainable intention, and the final outcome reflects a genuine effort to balance practicality, ethics, and aesthetics within real-world constraints.

# Risk Assessment

## RISK ASSESSMENT: PRODUCTION

| Step, process, material or equipment               | Hazard  | Possible injuries                            | Level of risk<br>Likely? Serious?<br>(H/M/L) (H/M/L) |   | Safety precautions or controls needed to minimise risk   |
|--|---|--|--|---|--|
| Sewing with overlocker and domestic sewing machine | Moving needles, sharp parts, fast motion                      | Finger puncture, entrapment, fabric catching | M  | M | Use machine guards and proper threading procedures. Keep fingers clear of the needle path. No loose clothing or accessories. Tie back long hair. Follow SOPs for both machines and remain seated while operating (OnGuard Safety, n.d.). Stop the machine fully before replacing the needle or clearing jams.                      |
| Ironing and applying fusible interfacing           | Contact with hot plate or steam, risk of overheating adhesive | Burns to hands/wrists, inhalation of fumes   | L  | H | Use a dry, stable, heat-safe pressing surface. Hold the iron by the handle only. Always unplug when unattended. Apply interfacing with a pressing cloth and work in a well-ventilated area to avoid adhesive fume buildup. Check temperature before contact. Follow pressing guidelines in the textile SOP (OnGuard Safety, n.d.). |

## RISK ASSESSMENT: WORK ENVIRONMENT

| Step, process, material or equipment  | Hazard   | Possible injuries   | Level of risk<br>Likely? Serious?<br>(H/M/L) (H/M/L) |   | Safety precautions or controls needed to minimise risk  |
|---|--|---|--|---|---|
| Cluttered shared studio environment with pins, scissors and fabric offcuts on floor | Tripping, slipping, or stepping on sharp tools | Minor cuts, bruises, twisted ankle, puncture injury       | M  | M | Keep work areas clean and organised. Use designated trays and pin cushions. Conduct regular floor checks between activities. Always wear closed-toe shoes. Establish group cleanup routines at the start and end of the session. Maintain awareness in group zones.             |
| Poor posture or repetitive strain during prolonged sewing or cutting                | Extended strain on neck, back, wrists          | Muscular fatigue, postural strain, long-term joint issues | H  | M | Use an adjustable-height chair and work surface. Take a 5-minute break every 30–40 minutes. Stretch wrists, shoulders, and back between tasks. Change position when possible. Avoid cutting while seated for long periods. Follow ergonomic posture for sewing (BG ETEM, 2013). |

## RISK ASSESSMENT: PRODUCT

| Step, process, material or equipment   | Hazard  | Possible injuries  | Level of risk<br>Likely? Serious?<br>(H/M/L) (H/M/L) |   | Safety precautions or controls needed to minimise risk  |
|--|---|--|--|---|---|
| Welt pocket with button on outer skirt | Pocket may fail at seam if overloaded or not reinforced. Button could detach. | Small item loss or choking hazard if detached (low likelihood for adult wearers) | L  | M | Reinforce seams with bar tacks and twin stitching. Attach button with doubled thread and stress test during wear trial. Add a warning that the garment is not suitable for young children. Educate users to store heavy items in shorts pocket instead.                       |
| Wrap skirt front panel design          | Inadequate overlap may result in fabric opening during movement               | Temporary exposure, discomfort, minor embarrassment                              | M  | L | Ensure skirt wrap overlap is a minimum 18–20 cm. Test fit and movement during sitting and walking. Consider adding a hidden inner tie or flat button to secure the panel internally. Include advisory on intended wear setting (e.g. activewear with longer tops or layered). |

# References

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