Crafting a Single Cloth

An essay presented in partial fulfilment for the degree of
Master of Design

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Abstract

Pattern-making and garment construction is often an over-looked practice within the fashion industry. This practice-led design project seeks to highlight the craft of pattern-cutting and how it can be used as an alternative method for clothing design. Through an iterative and 'risky' design method, one-piece pattern-construction is explored to create a new fashion aesthetic that was influenced by the cocoon. Experimentations with alternative uses of felt addressed some of the challenges faced when working with a single cloth. New processes were developed to create a more efficient, economical and holistic approach to garment design and construction. These investigations lead to the development of three evolving garments. Transitional aspects in each design encourage user engagement and introduce wearers to rethink their relationship with their clothing. These alternative methods clearly embedded in 'slow fashion' principles.

Key Words: One-piece pattern construction, patter-cutting, drape, craftsmanship, felting, fashion design and sustainability, slow fashion

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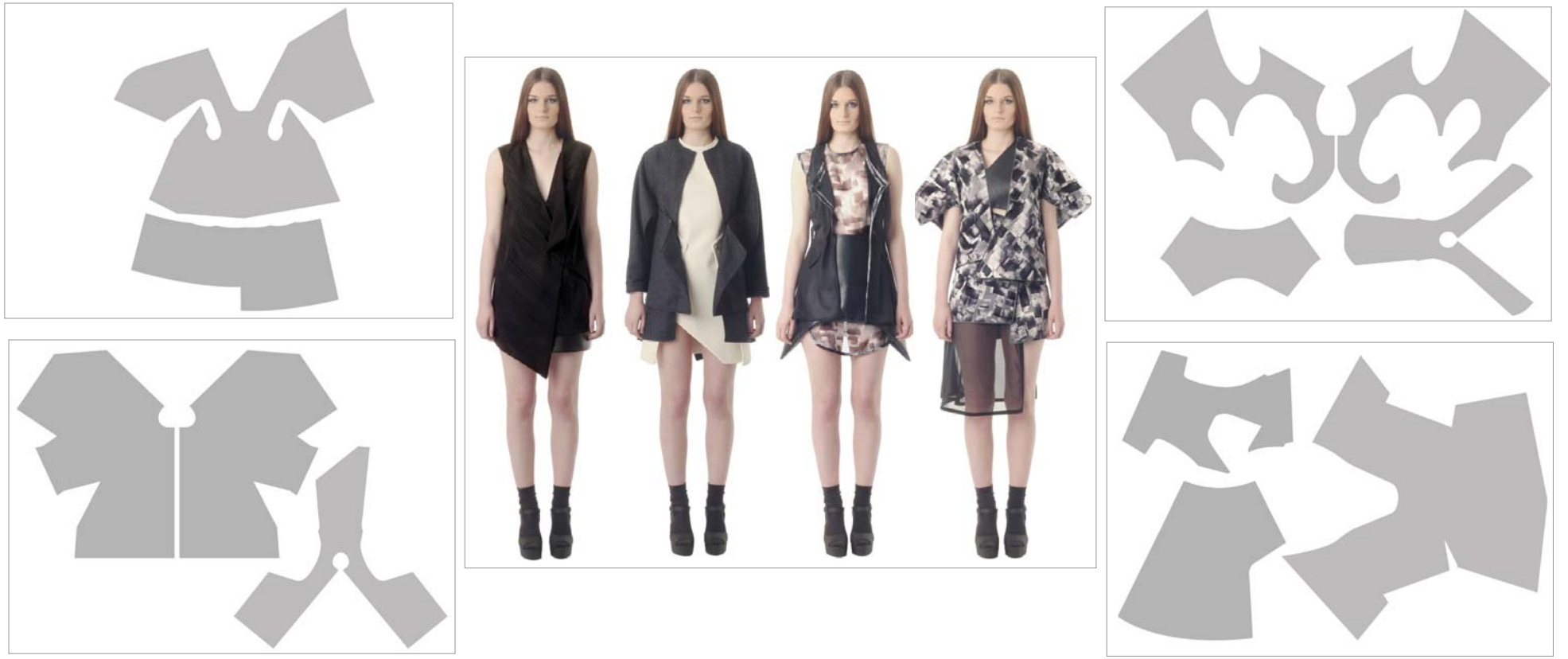

Fig. 1
Kim, Juran. Bachelor Graduate Collection 'Sole Shadows'. 2013.Wellington, New Zealand. Photograph Isaac Gutschlag, courtesy of Juran Kim.

Introduction

This practice-led design research seeks to highlight the craft of pattern-cutting[1], an often over-looked practise within fashion design. The fashion industry promotes the designer as the mastermind behind the creation of a new collection, disregarding the many skilful hands in a production team (Roberts, 2011). The pattern-maker is one of these able craftspeople, the backbone to every collection. "Designers require pattern-cutters to make the sometimes impossible-seeming creative ideas take shape" (Karimzadeh, cited in Almond,1999).

Divorcing the role of the pattern-cutter and designer and flattening the design process can impair the discovery of new aesthetics. Pattern-cutters usually work separately from the designer, forcing them to communicate through highly detailed specification drawings (McQuillan et al., 2013). This has been intensified by the production requirements of the fragmented and globalised 'fast fashion' system that has developed to keep up with high consumer demand. 'Fast fashion' refers to a fast response system that mass-produces low-cost clothing collections that mimic luxury fashion trends (Joy et al., 2012). This involves the designer drawing a sketch of the final garment, which then gets passed over to the pattern-cutter who interprets the drawing into flat patterns; these patterns are then transferred and cut out of the desired fabric. These pieces will then be passed on to the machinist who sews them together. Once the pattern is created, it can be reproduced in a dizzying array of different colours and prints. As a design process, there is little risk-taking and creativity. However, creative pattern-cutting pushes the boundaries of design and "breaks all the traditional rules in order to innovate new and exciting ideas and shapes", and allows the pattern-cutter to become the designer (Almond, 2009).

My previous honours design research explored alternative methods of pattern-cutting that led to a collection of seamless garments created through draping a single piece of cloth on a dress form (Fig 1). Not being a proficient illustrator, I felt the conventional method of constructing garments from a sketched drawing had crippled me as a designer.

The fundamental principles lie dressmaking lies in the relationship between the body and the fabric, however today's fashion industry focusses on trends and styles and and it is often easy to forget the body beneath (Kirke, 1991/1998). Rather than a flat sketch dictating a three-dimensional garment, one-piece pattern-cutting embraces uncertainty and discovers new designs through draping on a dress form. It could be argued that such a draping approach allows the final design to visually evolve with few elements of uncertainty (Linqvist, 2013). However, without cut panelling, nothing is strictly defined, and every wrapping and pulling action influences the evolution of the rest of the garment. One-piece pattern-cutting challenges the designer to recognise the natural drape of the cloth, allowing a greater exploration of form and proportion. Unlike traditional flat pattern-drafting methods, which demand accuracy of measurements, draping encourages the maker to design through their interpretation of the

[1] Pattern-cutting can also be referred to as pattern-making, pattern drafting, pattern construction and pattern design.

fabric behaviour on the body and it welcomes happy accidents. As Roberts (2013) states, that pattern-cutting is "about possibilities and 'what if's'. . . which unexpectedly surprise you".

This Masters project used explorative pattern-cutting and draping methods in order to discover a new aesthetic. My undergraduate project focussed on understanding the technical aspects of how a single cloth could wrap around the body, which led to a collection of form-fitting, static garments with column-like silhouettes. The continuous wrapping process alluded to that of a cocoon and this would inform my aesthetic.

I was interested in seeking structural shapes that resembled a cocoon. I envisaged using 'loose draping' techniques that engulfed the body. I aimed to interrogate the pattern's external shape and internal cut lines, and how this could inform the structure and form of the garment.

I was also interested in finding alternative methods to address finishing, stability and fastenings to complement the organic nature of a cocoon. The characteristics of felt and the process of felting seemed to make it the obvious choice of textile, and I was interested in explore its possibilities seek substitutes.

Awkward pattern shapes that created excessive fabric wastage and the overlapping of numerous layers of fabric that would create extra bulk. Felting could also potentially address my concerns with one-piece pattern-cutting.

Felting can control fabric usage and embodies the values of 'slow fashion'. The 'slow fashion' movement is a sustainable approach in the fashion sector. It is "not-time based, but a quality-based approach" (Nakano, 2009) that encourages the fashion industry to choose sustainable productions methods that emphasises quality, craftsmanship and experienced labour .

In keeping with the cocoon concept and its biological relationship to metamorphosis, I was interested in challenging myself to create 'evolving' patterns and garments. I sought a pattern that could inform multiple garment shapes and generate the potential for each garment to be altered by the wearer. This could also address the static and predictive nature of conventional pattern-cutting methods- such methods design garments for the static body and I was interested in creating garments for the moving body. I wanted to explore changeable patterns and garments to give the garments an inherent sense of movement on the body.

Finally, this research intended to provoke thinking about sustainable applications. User engagement is encouraged through the transitional aspects of the garments to seed ideas for consumers to rethink their relationships with clothing and shifting their focus from seasonal trends. As Cline, (2012) has observed, "clothing could have more meaning and longevity if we think less about owning the latest or cheapest thing and develop more of a relationship with the things we wear".

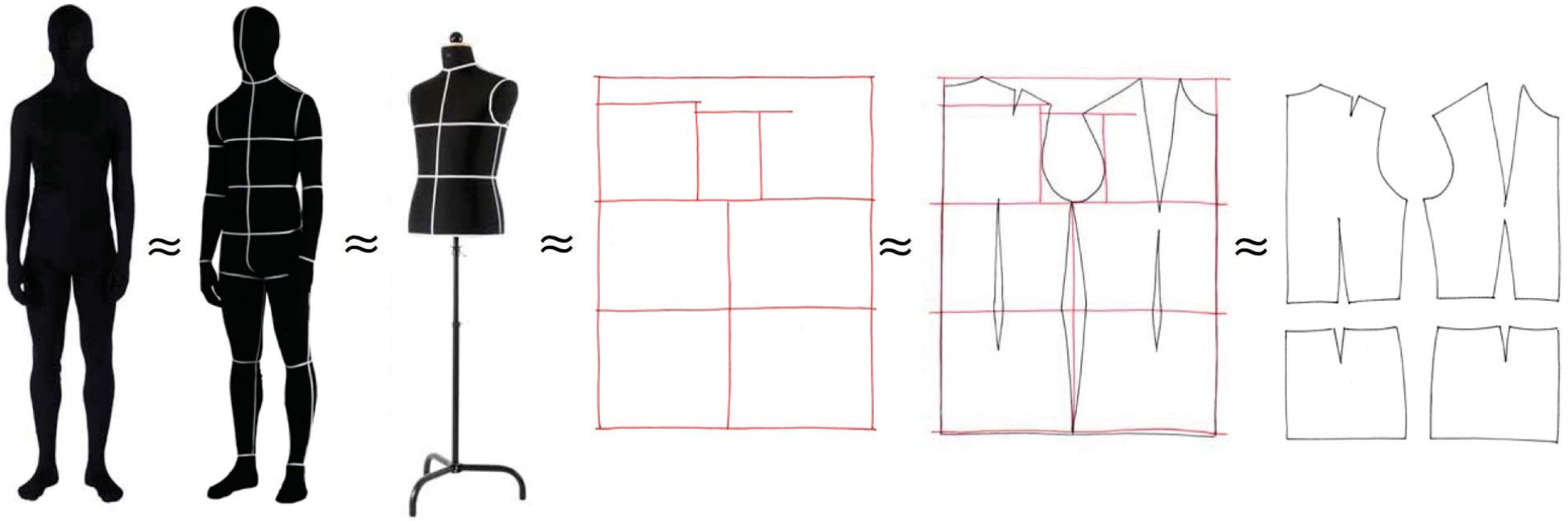

fig. 2
The tailoring matrix. Lindqvist (2013).

1. Contextual Framework

1.1. CONVENTIONAL CONSTRUCTION METHODS

"Construction is the foundation of clothing and fashion design" (Fischer, 2009). Pattern cutting is both a technical and craft based skill. It can be practiced in a variety of ways. The most predominant and traditional method is flat pattern-cutting which is based on a series of body measurements which creates a three-dimensional shape to fit a human body (Lindqvist, 2013).

In industry, flat pattern-cutting is the most common method used to create mass-produced, 'fast fashion' garments (Almond, 2010). Flat-pattern-cutting's predictive and straightforward nature makes it the ideal method to keep up with the ever-changing 'fast fashion' trends. However, mass-manufacturing has forced the fashion industry to cut corners on quality, construction, and detail, which has led the majority of people to wear painfully simple designs that are crudely slapped together (Cline, p. 7, 2012).

'Fast fashion' garments are usually simply constructed making it easier and faster to manipulate blocks. Flat pattern-cutting involves creating a block, which is a two dimensional template for a basic garment form that creates a second skin that relies on "using a matrix drawn after the body measurements" (Lindqvist, 2013) (fig. 2). This approximation of the body aims to simplify cutting as a block can be quickly manipulated to create the desired shape as dictated by the design (Almond, 2010). The general character of flat cutting is to make predictions of the result easier which can restrict experimentation.

However, draping is a three-dimensional approach that can be used as a design method to explore and develop new shapes. Draping requires shaping a piece of fabric on a mannequin to create a flat pattern (Jaffe, 1993). In my experience, draping offers a more exciting way to cut compared to flat pattern cutting. The design is shaped before your eyes and it can encourage new aesthetics by observing and manipulating the fall of the fabric in unexpected ways.

Lindqvist (2013) argues that even though flat pattern drafting and draping is presented as two different construction methods, they are both based on the same logic and theory of relying on approximations of the body. A similar matrix can be applied to the dress form to act as a foundation while draping on a stand (fig. 2). Mannequins are usually marked with the same balance lines that are used is usually measured when drafting a flat pattern. Due to the same perception of the static body, Lindqvist (2013) states that draping on the dress-stand can have the same tendency to create rigidness as flat pattern-cutting.

However, I consider draping on the mannequin allows for a sensitivity toward movement inherent in the fabric and this can be used to respond to

fig. 3
Madeleine Vionnet draping pattern on half scale mannequin, 1923. Photo by Thérese Bonney. (Kirke, B. 1991)

the body and create new aesthetics. While I do agree that the moving body is crucial to dressmaking, I argue that this is more important when draping fitted garments. When draping loose garments on the three-dimensional dress-form, the body can be introduced later to in the toiling stage because the body can move freely in these designs. The mannequin can be used to resolve initial shapes but it is imperitave that the body is used to assess proportions and movement.

I also argue that balance lines are are not always necessary when draping, especially when draping creatively to form the design. The centre front and back is necessary when draping a symmetrical garment as it is almost impossible to drape two sides identically (Amaden -Crawford, 2005).

Madeleine Vionnet's, a 1920's fashion designer, work is "based on the dynamics of movement" (Kirke, 1991/1998). The bias cut, which she discovered enabled her to use the elastic quality in the bias of a woven fabric to flow on the body of the wearer to create a harmony with movement (Kirke, 1991/1998). She designed through shaping and cutting muslin that spiralled around a half-scale mannequin through draping (fig. 2). Working on a small wooden doll enabled her to see the body as a whole. She expressed that she "never learned sketching. . . I would not use this method. We should not dress with a pencil, but start using the fabric" (1991/1998). Her simple concept of exploring the relationship the body and the fabric surrounding it has led to an aesthetic "filled with grace, poetry, and classicism" (Miyake, 1991/1998). The simplicity and innovative geometric cutting has allowed her garments to transcend through the times.

Draping is commonly associated with haute couture where it has been practiced for hundreds of years and draping methods continues to be used in contemporary designs with increased complexity (Chalayan (year), Comme des Garcons (year), Gareth Pugh (year)).This "labour intensive process is much too expensive for mass-produced, ready to wear garments... generally a highly simplified version is used" (Duburg and Van der Tol, 2008).

However, draping's origins go back much further. Draping shares its foundation with historical methods seen in early wrapped clothing types such as the Roman toga and Indian sari. The body is central to this method as these garments were rectangular pieces of fabric "that remained unrefined in shape until dressed, recreated each time they were worn"(Lindqvist, 2013).

It is a common argument that flat pattern-cutting must be understood in order to drape capably (Mee and Purdy, 1987). However, I think it is more logical to know draping methods first to understand the flat pattern shapes and how they relate to the body when the toile is taken a part. Understanding the basic rules of flat-pattern cutting and draping can lead these rules to be broken or manipulated that can lead to the discovery of new aesthetics.

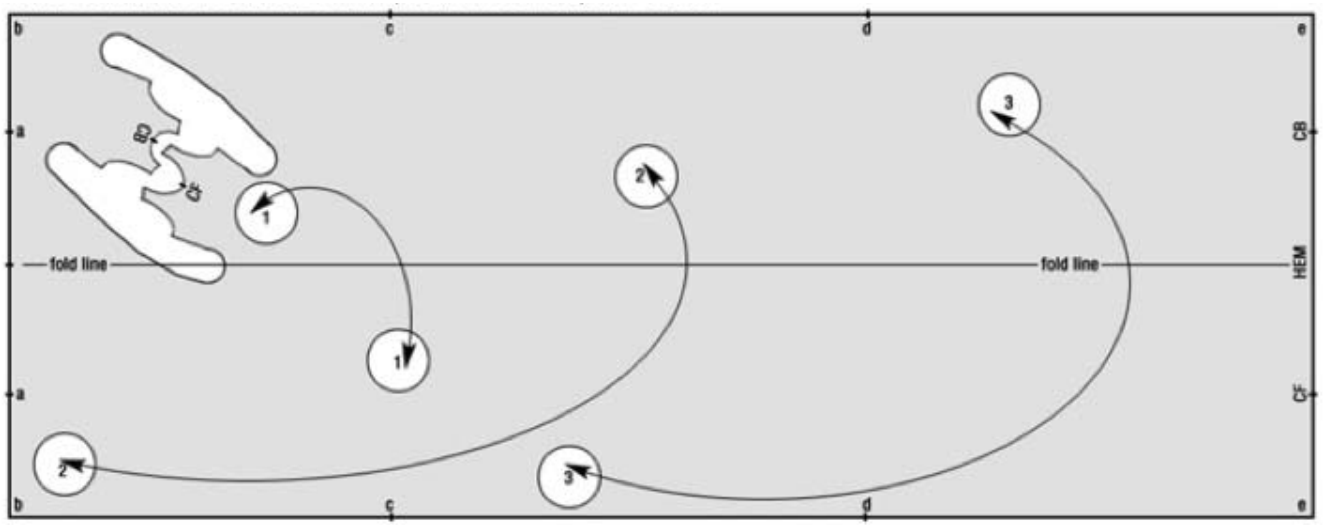

fig 4.
8 Hole Subtraction Dress Pattern, Roberts, 2008.

1.2. AN ALTERNATIVE APPROACH

The past few years have seen a rise in practitioners challenging traditional block manipulation methods. Lindqvist (2013) states that recent interest in alternative pattern-cutting methods can belong in one of two categories. The first group emulates draping through block manipulation. Methods included in the Pattern Magice series by Tomoko Nakamichi (2005, 2007), and the Transformational Reconstruction by Shingo Sato (2011). Both favour creating new shapes and expressions that is normally associated with drape and this is done through the manipulation of basic blocks. Relying on flat blocks instead of creating draped expressions that follow the shape and movement of the body, the garments created can be limited to a static body.

The second group experiments with pattern pieces or other shapes in order to create new and exciting shapes (Lindqvist, 2013). These methods include Subtraction Cutting by Julian Roberts (2008) and the contemporary zero-waste cutting movement which include Timo Rissan (2011), Holly McQullian (2013) and Zandra Rhodes (2011).

Subtraction cutting involves cutting pieces away from a tube of fabric and the holes created are stitched together in various ways which shape the fabric (Mcqullan et al., 2013). He views the garment from an ariel view and designs the negative space for the garment. Roberts (2013) states that Subtraction Cutting is about "designing with patterns, rather than creating pattern for design". When explaining his method, the body is depicted with the use of arrows illustrating how the body travels through the garment (fig. 4).He claims that space and balance is what cutting is really about (Roberts, 2013). He contrasts his method to that of many dry and rule-addicted cutting techniques.

Zero-waste cutting involves integrating the entire width of fabric so that it produces no off-cuts. McQuillan describes this technique as "embracing uncertainty". McQuillan manipulates blocks into unconventional shapes to fit into the fabric length's limitations (Gwilt and Rissanen, 2011), making it difficult to predict how the three-dimensional garment will look.

Timo Rissanen (2011) also curious about the pattern's possibilities, incorporates the fabric, that would have otherwise been cut away, into extra seam allowances, larger hems and reinforcement pieces. This is to allow the garments to go through alterations and repair to prolong the garments lifespan.

Zara Rhodes (2011) explores using textile design to inform her zero-waste garments. *Chinese Squares* (fig. 5) demonstrates the textile leading the garment design. The pattern is cut around the hand-painted square motif so that it does not disturb the painted print. The pattern design references historical 'square-cut' garments.

It may seem that zero-waste fashion design has only emerged in recent

fig 5.
Crepe de Chîne Wrap Dress 'Chinese Squares', Chinese Collection Spring/Summer, 1980

years as part of the latest wave of 'sustainable fashion', however, Dorothy Burnham's (1973) research demonstrates that garments have been made little or no waste for centuries (Gwilt and Rissanen, 2011) as seen in the Japanese kimono and European chemise. This was due to labour intensive weaving processes which created the fabric which made it highly valuable.

The mentioned cutters all emphasise the pattern itself as a tool for creation. Roberts (2008), points out that sometimes the garments can lead to 'walking patterns' and have little to do with the moving body.

fig. 6
A-POC Making, Issey Miyake & Dai Fujiwara,1999

1.3. A SINGLE CLOTH

Another technique investigating alternative ways of looking at pattern design involves one-piece pattern-cutting. One-piece pattern-making references ancient ways of dressing; wrapping a singular piece of cloth on the live body. There are numerous ways to approach one-piece pattern-cutting. Contemporary designers including, Rickard Lindqvist (2013), Genevieve Sevin-Doering (2013), Deb Cumming (2014), David Telfer (2015) and Issey Miyake (1999) have developed their own unique method that uses a single cloth.

Research carried out by Rickard Lindqvist (2013), offers an alternative method of pattern cutting. Lindqvist uses qualitative expressions of the body by draping on live models rather than using traditional flat-pattern drafting or draping on a dress-stand which rely on quantitative static approximation of the body.

Sevin-Doering (2013) developed a method where the aesthetic and the physical balance of the garment in relation to the body directly gave it shape (Linqvist, 2013). She argues that there is no clear logic to split the garment at the shoulders and sides. She states that the shoulders is the most natural points from which the garment rests on the body and where gravity pulls down the cloth from. Both Lindqvist and Sevin-Deoring drape directly onto the human body to maintain the core of dressmaking which should be about the relationship between body and fabric to create "an expression of the body" (Lindqvist, 2013).

Cumming (2014) uses drape to derive patterns with alternative balance lines that respond directly to the body and movement. With the use of laser cutting tehnology to enhance the qualities of fold, drape and fit she creates designs that transform from 2D to 3D without conventional construction techiques (Cumming, Weaver, 2014).

David Telfer (2015) approach one-piece construction from a sustainable point of view. He explores one-piece pattern-cutting to investigate methods of tailoring. Telfer states, that he " liked the idea of starting with a square piece of fabric and finishing with a tailored, stylish garment without cutting the fabric into multiple pieces" (Telfer, 2015)

Issey Miyake explored new design techniques by wrapping, fastening and tying techniques that were based on traditional Japanese dress (Amaden-Crawford, 2005). The A-POC (fig. 6), a piece-of-cloth, was based on the kimono's principle of not cutting into the woven cloth but to "respect the integrity of the material and use its shape to house the body" (English, 2011). Miyake claims that "you can wear it as you like—they're your clothes". With the A-POC, Miyake (2011) redefined the boundaries of clothing in both functional and aesthetic contexts and created new methods of clothing production. This idea of making clothes from a single piece of cloth has always been central to his work. 'The basis for clothing design lies in a piece of cloth, which no fashion or trend can alter', he argues. (Blanchard 1999)".

1.4. LOOKING TOWARDS A NEW INDUSTRY

The fast-paced fashion industry has stripped the craftsmanship of garment making and its inherent relationship with the body. Instead, designs rely on ever-changing trends which results in the use of poor quality fabrics and finishing techniques.

In ancient clothing types, the entire cloth is used to minimise waste. Cloth and clothing was considered highly valuable due to its labour-intensive making process. However, "with today's ease of manufacture we take textiles for granted and the wasting of cloth does not worry us" (Burnham, 1973). The lack of transparency within the manufacturing process has driven down the environmental and social standards that makes these methods possible (Fashion Futures, 2025, n.d.). This includes the huge volume of water and toxic chemicals used to grow and process textiles and the use of poorly paid workers.

"The trend appears that consumers are seeking new ways to link materials and processes to environmental awareness, and this process is still emerging" (Niinimäki, 2010). There is a growth of a new movement that counteracts the demand for 'fast fashion' - the 'Slow fashion' movement (Pookulangara and Shephard, 2013). The slow fashion concept is based on sustainability within the fashion industry and to design using high quality, small lines, regional productions and fair labour conditions (Slow Fashion Award, 2010). The slow fashion process encourages fashion firms to include sustainable, environmental, and ethical practices into their designs.

McQuillan (2013) discusses that creating opportunites for deeper and richer engagement between designer, maker and consumer need to be on the top of th fashion design agenda.

"Aesthetics are important to sustainability because they act as a great social attractor. . . giving direction to the choices of a greater number of people" (Fletcher, 2008). Stuart Walker (1997) discusses that we should be develop products and restructure our manufacturing systems so that they are conceptually and sensibly align with sustainable principles. He argues that doing so that will create new types of products whose aesthetics "go deeper than shape and surface and which start to embody ethics, and to reflect these new sensitivities and understandings" (Walker, 1997).

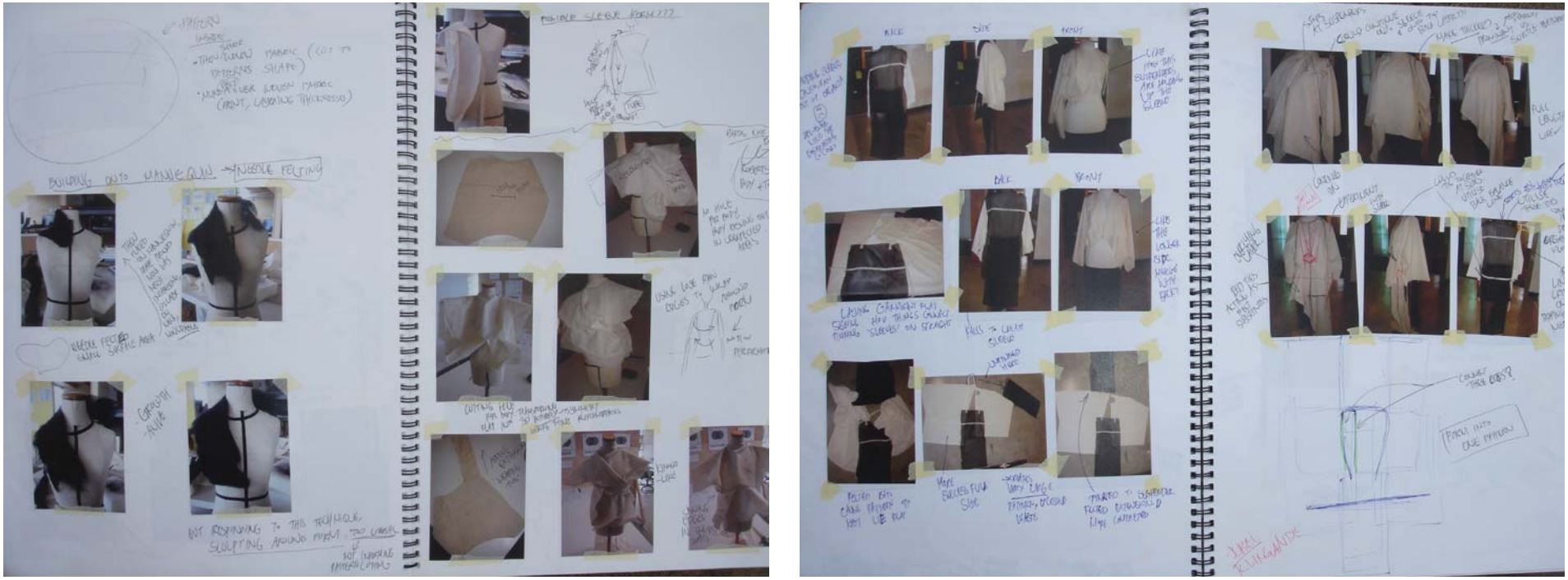

fig. 7
Juran, Kim. Crafting A Single Cloth - Design process-Workbook images. 2015. Wellington, New Zealand. Photograph Juran Kim, Courtesy of Juran Kim.

2. Methods and Processes

My method is explorative and relies on tacit knowledge. I do not like knowing the final outcome. Draping with a single cloth allows me to investigate the fabric's response to my action and this informs the design. My process allows me to explore shapes three dimensionally, to design while making as a simultaneous process.

I go through a process of creating, documenting and reflecting on iterations (fig. 7). I begin by identifying a challenge or enquiry into pattern shape, body or form. I start experimenting by draping on a half-scale mannequin. I do this mainly to save the amount of fabric used in the toiling process and manipulate the fabric around the form due to its smaller scale. I also find that the small scale enables you to view the working design in its entirety, preventing me from focussing on minute details. During the development process, I document my process by taking photos of each iteration. This helps me to reflect and analyse why a design was successful or not. By documenting each iteration I can identify repetitions that starts to identify my thought process.

I carried out multiple samples and have selected the iterations that informed the creation of my final forms.

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i. Nuno Felting

Felt feels like something that exists in nature. Although it is manufactured both by hand and by machine, felt has the gravitus of a raw material, such as wood of stone... Its dense, fibrous texture inspires an almost primal sense of comfort and protection (Brown, 2009).

To fit the cocoon aesthetic, merino fibre will be used for this project due to its organic and tactile properties. Out of the many types of wool that are available, merino is considered to be the most highly prized and produces the best quality (Hibbert, 2004). As Jeremy Moon, founder of Icebreaker, explains the secret to the success of his business was "merino itself. When people tried on Icebreaker, they loved the way it felt. They loved the fact that it was made by nature." (Moon, 2015).

My design enquiry started with wet felting techniques to explore and gain understanding of felt's behaviour.. Felting can be practised by agitating fibres with hands or punching needles. However, I thought it was necessary to begin with exploring hand felting technique. I was not familiar with felt and its methods. Using my hands enabled me to explore its tactile qualities as the cloth is slowly formed with my hands rather than needles.

With these samples (fig. 8) I began by laying the fibres across the desired areas, then drizzled warm soapy water over the fibres. With light pressure, I used my hands to slowly agitate and massage the fibres together.

My sampling began with exploring ways that the felt could applied to the woven fabric to resolve some of the issues with one-piece pattern-cutting. The first felting technique I explored was Nuno Felting, a felting method that entangles wool fibres with a woven structure (Clay, 2007). The fabric used must be lightweight and loosely woven in order for the fibres to pass through the structure successfully.

I began by experimenting with stabilising and strengthening methods that fit the cocoon aesthetic. Sample 1-3 demonstrates how felt can be applied to areas of the fabric to create stability while achieving different aesthetics. I liked the graphic nature of sample 2 but questioned if this was 'organic' enough. 1 and 3 achieved this look. Whilst I like the result of sample 3, I thought that this may not be stable enough to stabilise a garment. Sample 2 proved to be the most successful.

Through these samples I realised that the lightweight fabrics would minimise unwanted bulk when draping a single pattern.

Sample 4 and the edges on sample 5 explored finishing methods. I used line and varied the thickness to achieve different outcomes. Sample 5 seemed to convey a more 'natural' aesthetic.

The fibres can pass through multiple layers of fabric and this fastens the separate fabrics together. Sample 5 and 6 tested this. Sample 6 also experimented with shaping the felt within a perimeter.

fig. 8
Juran, Kim. Crafting A Single Cloth - Design process- Nuno felt. 2015. Wellington, New Zealand. Photograph Juran Kim, Courtesy of Juran Kim.

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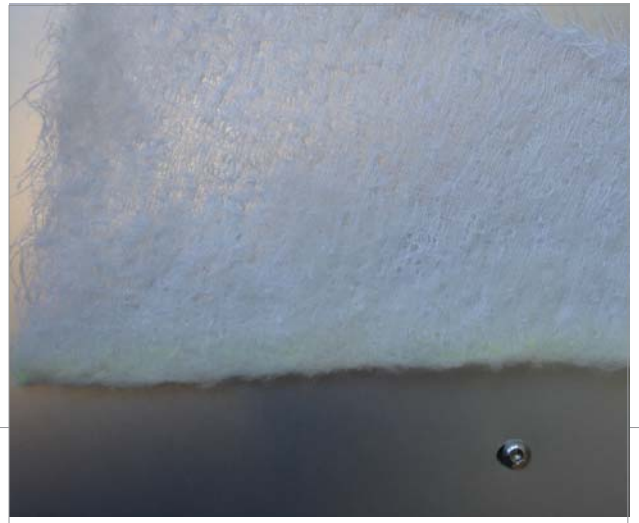

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ii. Needle Felting

Once the behaviour of felt was realised through wet felting, I decided to test needle felting to observe if this created new behaviours within the felt.

Sample 1-3 are samples where I needle felted by hand. Sample 1 tests joined two edges of a fabric together. This method joins and finishes the edges at the same time. Sample 2 shows extensions that can be created from the woven fabric and also experimented with reinforcing areas of the fabric. Sample 1 and 2 were created with a knit fabric and this would not have been possible with a woven fabric. It was also apparent that I had more control with needle felting so I decided to utilise this aspect and develop three dimensional forms, seen in sample 3. I liked the organic nature of this sample and thought this could act as 'fastening' points within the garment.

Sample 4-6 were testing the needle felting machine, otherwise known as a felt loom. Sample 4 shows experimentation with a finishing technique and how the needles created rows of punched holes. This gave the fabric a more textured effect which responded nicely to the organic aesthetic I was aiming for. Sample 5 was an iteration from sample 4 to create a cleaner finishing technique. Here, I folded the rough edge over the edge of the woven fabric from sample 4 and then let the machine felt it. I appreciated this finishing method more as this created a crisper line. This would be more useful in the final garments as the edges of the fabric would be more defined. Sample 6 was using the same 'fold-over' technique as seen in sample 5 but was used to shape the edges of felt. This was created to offer more ease when shaping felt into the patterns which would create the garments.

While I did like the tactile approach that was wet felting, I found that needle felting techniques to be quicker and it was easier to control the shape and shrinkage.

fig. 9
Juran, Kim. Crafting A Single Cloth - Design process-Needle Felting. 2015. Wellington, New Zealand. Photograph Juran Kim, Courtesy of Juran Kim.

fig. 10
Juran, Kim. Crafting A Single Cloth - Design process-Moulding. 2015. Wellington, New Zealand. Photograph Juran Kim, Courtesy of Juran Kim.

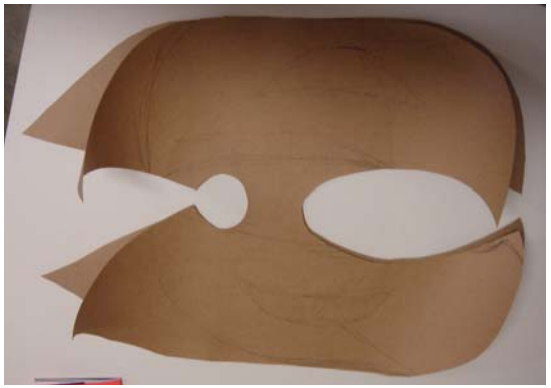
fig. 11
Juran, Kim. Crafting A Single Cloth - Design process- Moulding. 2015. Wellington, New Zealand. Photograph Juran Kim, Courtesy of Juran Kim.

iii. 3D Moulding and Structure

I was curious to investigate felt's structural and moulding capabilies. Experiments with moulding felt around structures started with the use of a simple mug which enabled me to decipher methods and shapes to work with (fig. 10). The mug handle allowed me to shape a 'sleeve'. This was created by spinning the partially moulded felt 180 degrees so that I could create the other 'sleeve'. I found that the felt could be gently pulled over the handle and could be moulded around a structure. Once I was satisfied that all the fibres had successfully felted together, I left it to dry. Once dried, the felt had shrunk which reminded me that shrinkage had to be considered when utilising felting into cutting methods. The sample had retained its form well and the shape left was a soft structure with slight surface texture, evidence that it had been made with human hands.

For the next sample, I tried shaping around a larger structure, using a large measuring cup. However, I explored using more force when agitating the fibres. This caused the fibres roll and split in random places (fig. 11). I quite liked the organic effect of this and continued in this manner. I started to notice holes coming through and decided to use one of these as a 'neck hole'. I gently eased it around the neck of a half-scale mannequin and left it there to dry. This resulted in felt nuances that varied in thickness, and unpredictable fibre direction.

By using objects instead of the body, I was creating new and unfamiliar forms. These exercises gave me a better understanding of felting and shaping processes.



i. Bird's-Eye Shaping

"The main activity of a true dressmaker is to integrate these elements of cloth, body, gravity, and adornment" (Kirke, 1991/1998). This experiment initially started with my enquiry with the role of gravity with the cloth. It is a method that involves looking at the body from a 'birds eye' perspective instead of the front, back and side view, a perspective that Roberts (2008) employs in Subtraction Cutting. However, he fails to address the arms with his cutting method and I believe that the arm should be viewed as one continuous entity. Traditionally, set in sleeves separate the arms from the body, I sought a new derivation of these sleeve types.

This method utilised felt's moulding ability in the one-piece pattern process. The pattern piece could be used as a template to mould the felt around and close the edges so that it creates a continuous layer on either side of the pattern.

In following exercises, I trialled the pattern shapes in calico (fig. 12). I began curving the perimeter's edges and creating symmetrical sleeve like tubes. Once put on the body, the garment had a structural quality to it which the felt would utilise felt's natural qualities.

With this in mind, I focused on experimenting with altering the shape of the perimeter to create different structural shapes. I found that putting the sample on the mannequin in unexpected ways along with tucking and folding areas whilst the sample was on the dress-form achieved different forms. Here, I attempted to combine flat pattern and draping techniques. I used draping methods so that the garment could be able to adjust into different shapes but this proved to be difficult. I experimented with adding extensions of fabric but this proved to be unsuccessful.

I decided to start applying the patterns onto kraft (fig. 13), predicting that the rigid paper would mimic the behaviour of felt and accentuate the form of the pattern when it was put on a half scale dress form. The kraft exaggerated the undulations of the pattern creating organic curves and bends. I liked how the eye travelled with the clean lines.

With the next samples, I wanted to observe how the patterns shape reacted with a woven fabric. Unfortunately, the structural shapes were lost because of the limp fabric. I attempted to revive this by taping kraft to follow the perimeter. Although this was an improvement, I found that because there were no support within the perimeter of the pattern, it resulted in too many collapsing areas and forced a lot of the structural shapes to get lost. I found that the weight and strength of the fabric was very important.

While I liked the unexpected shapes that were created by altering the flat pattern, I found this method to be very disconnected to the body. The flat pattern dictated the final design and it was difficult to manipulate the shape and silhouette once it was on the body. This method lacked the exploration of the fabric's response to the body.

fig. 12
Juran, Kim. Crafting A Single Cloth - Design process- Calico. 2015. Wellington, New Zealand. Photograph Juran Kim, Courtesy of Juran Kim.

fig. 13
Juran, Kim. Crafting A Single Cloth - Design process- Kraft. 2015. Wellington, New Zealand. Photograph Juran Kim, Courtesy of Juran Kim.

One draping action will always effect the next, each placement must be thought out. The final drape is a result of a series of cumulative actions.

This experiment demonstrates my investigation with internal cut lines and with draping fabric in different directions. I started draping on the half-scale pattern. Rather than hanging vertically from the shoulders, the fabric was draped to fall from the right shoulder and while maintaining a bit of slack at the bottom the fabric is pulled up to the left shoulder. The free falling fabric created an elongated fold down from the right shoulder, creating the ideal foundation to cut and create a sleeve. I created a sleeve with a large cut-out through the middle, only connecting at the wrist. I left a large cut-out in the sleeve as I wanted to see how an unconventional cut shape worked with the remaining bodice section. Initially, the 'cut-out' effect was not very noticeable as it remained hidden on the side of the body. After experimenting with the layers surrounding the torso, I started to rethink the placement of the 'cuff'. What if the cuff actually sat on the shoulder? By pulling the cuff upwards, the length of the sleeve now becomes the connecting piece from the back to the front, creating a loose loop that the right arm can move through. The pulling of excess fabric led to unplanned discoveries. With the sleeve sitting vertically rather than horizontally on the body, the rest of the garment also sat differently on the body. The left sleeve was accidentally created with that movement alone.

After a number of iterations, I was satisfied with the outcome. The cuts

Fig. 14
Juran, Kim. Crafting A Single Cloth - Design process- Body and Arms. 2015. Wellington, New Zealand. Photograph Juran Kim, Courtesy of Juran Kim.

I made were internal to the pattern. The cuts made were curved lines, following the body's natural curves. The perimeter was untouched so a zero-waste method could be applied as a further development. From the half-scale pattern I created a full size version from felt (fig. 14). The large surface area of felt led to an excess of bulk. I considered varying the weight of the felt such as thinner areas around the hems and thicker sections at the end of cut lines and the shoulders.

However, this toile would not allow the wearer to adapt their garment while remaining stable on their body. Without anchor points, the garment would fall off the body when the wearer adapted their garment. While manipulating the felt I noticed that there were still a lot of pieces that were being held up by being pinned to the mannequin. The stability and balance needed attention.

It was here that I had to interrogate and modify my thinking when draping. I had to think could the body reach this? Would the wearer be able to pull the fabric this way while they were wearing it?

With this in mind, I started a new drape. I experimented with changeable garments and exploring less orthodox ways of draping the sleeve set against the body. With this new toile, I started with the draping down from the shoulder, creating a certain amount of slack at the bottom, then returning to the shoulder point. With the second layer acting as the sleeve I cut an armhole for the arm to pass through the first layer of fabric. I thought that this could help with transformation of the garment as the second layer could be removed from the shoulders to transition into a sleeveless style.

2.3. NEEDLE FELTING AND CUTTING

i. Felt extensions

With the next sample I needle felted extensions on a half scale dress-form. The fibres are agitated with puncturing the fibres together, as opposed to wet felting which uses soapy water and friction made with the hands.

I started a new drape on the half scale mannequin (fig. 15). Throughout the draping process I thought of how I could make it morph into another garment type. I came to create large fold lines so that these could easily be released and allow the garment to be changeable. Since this was a woven sample I had to think about how it would be finished with felt but as I was needle felting the edge I found myself extending the felted edge to create an extensions. Along with these I considered the use of 'anchor' points which the extensions could tie to.

On applying felt extension to a full scale garment, the felted extensions served a structural purpose. The waist extensions could extend and pull the underarm area so that it created a more prominent sleeve. (fig. 16)

Fig. 15
Juran, Kim. Crafting A Single Cloth - Design process- Extensions. 2015. Wellington, New Zealand. Photograph Juran Kim, Courtesy of Juran Kim.

Fig. 16
Juran, Kim. Crafting A Single Cloth - Design process- Extensions. 2015. Wellington, New Zealand. Photograph Juran Kim, Courtesy of Juran Kim.

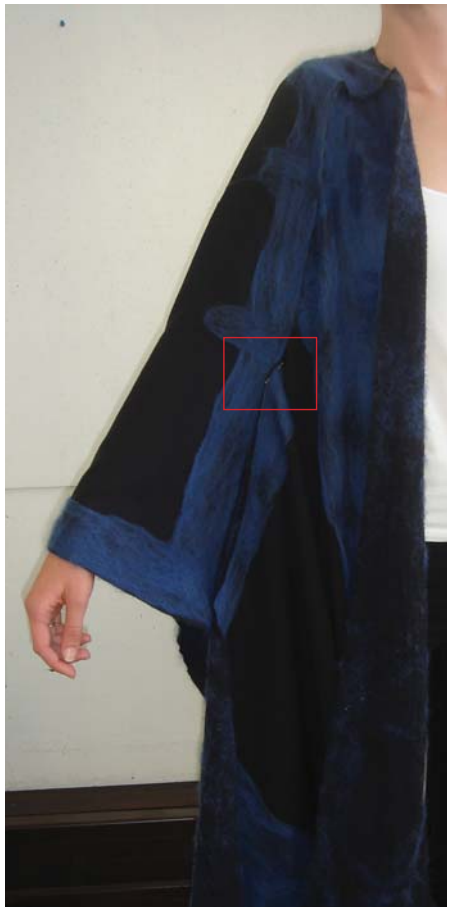


fig. 17
Juran, Kim. Crafting A Single Cloth - Design process- Mapping and edges. 2015. Wellington, New Zealand. Photograph Juran Kim, Courtesy of Juran Kim.

fig. 18
Juran, Kim. Crafting A Single Cloth - Design process- Felt Mapping. 2015. Wellington, New Zealand. Photograph Juran Kim, Courtesy of Juran Kim.

fig. 19
Juran, Kim. Crafting A Single Cloth - Design process- Mapping and edges. 2015. Wellington, New Zealand. Photograph Juran Kim, Courtesy of Juran Kim.

fig. 20
Juran, Kim. Crafting A Single Cloth - Design process- Mapping and edges. 2015. Wellington, New Zealand. Photograph Juran Kim, Courtesy of Juran Kim.

For this sample felting was used to finish the edges as well as mark the underarm sleeve position (fig. 17). Here, I wanted to 'map' the two dimensional pattern to the three dimensional garment's construction (fig. 18).

In order to avoid the felting loom's needles puncturing the visible woven fabric, I marked a 'boarder' on the pattern's edges to indicate where the fabric would be felted. I used two different tones to experiment with colour and line. Whilst I appreciate the contrast and graphic result, I felt the harsh lines prevented me from achieving an organic aesthetic (fig. 19). Using colour on a full scale garment made me aware of using colour appropriately. Here, I felt as though the blue and black looked 'artificial' and thought it may be beneficial if I used more subdued tones were preferred.

Conventional seams act as a guide as to how a garment might sit on the body, with standardised shoulder seams, side seams, waist seams, centre front and centre back lines. I felt that 'mapping' the garment's construction could limit the garment's adaptable quality. The absence of seams enables the wearer to manipulate the rest of the garment.

Whilst examining the garment's response to the arm's movements, I noticed that shoulder flap was falling back off the shoulders and this needed attention (fig. 19).

fig. 21
Juran, Kim. Crafting A Single Cloth - Design process- Balance. 2015. Wellington, New Zealand. Photograph Juran Kim, Courtesy of Juran Kim.

i. Balance and Adaptability

An inbuilt foundation meant that there was an internal area that enabled part of the garment to remain stable on the body while the rest of the garment could be altered. The 'foundation' became a very important feature within these garments as to enable the wearer to be able to adapt their own garments. With the 'foundation' decided, I resolved the shoulder flaps to give the substantial support to keep them in position. I needed to pull the front edge of the shoulder flaps forward to prevent them from falling backwards and off the shoulders. I experimented with thinner extensions on the front straight edge of the shoulder flaps and wrapping them around the waist to secure them (fig. 21). Thicker straps seem to work the best as the weight of more fabric pulled down the shoulder flaps naturally. The extensions also put further emphasis on the shoulder area and helped to balance out the 'heaviness' on the bottom.

I trialled the potential adaptable aspects on myself to make sure the transitions could be possible while still on the body. With the straps, I found numerous ways to wrap around the head, neck and waist. Adding 'slots' also allowed the option of having the garment to be fastened from the front. A garments does not have to be stagnant in terms of its use. I saw that there was potential in this pattern shape, due to it duel layers and 'straps'.

I wanted to capture the movement 'peeling' action and thought that a woven fabric combined with felt would best achieve this.

1

2

3

The resulting pattern from the previous exercise measured 120cm by 260cm. Since this pattern had to be cut on the fold, the total dimension of the fabric needed would be 240cm by 260cm. To me, this was too large and conflicted with my initial aims to reduce fabric waste. I challenged myself to reduce the pattern size. The pattern acted as my 'map' as I draped, I could identify which areas I had to stay within. I also wanted to re-cut the back of the neck and arm hole to produce the least amount of waste so decided to leave this area uncut and would use drape to resolve this. I found that in previous iterations, the neck and arm curves revealed the pattern's construction instantly. I felt that this limited the pattern to be applied to the body in only one manner.

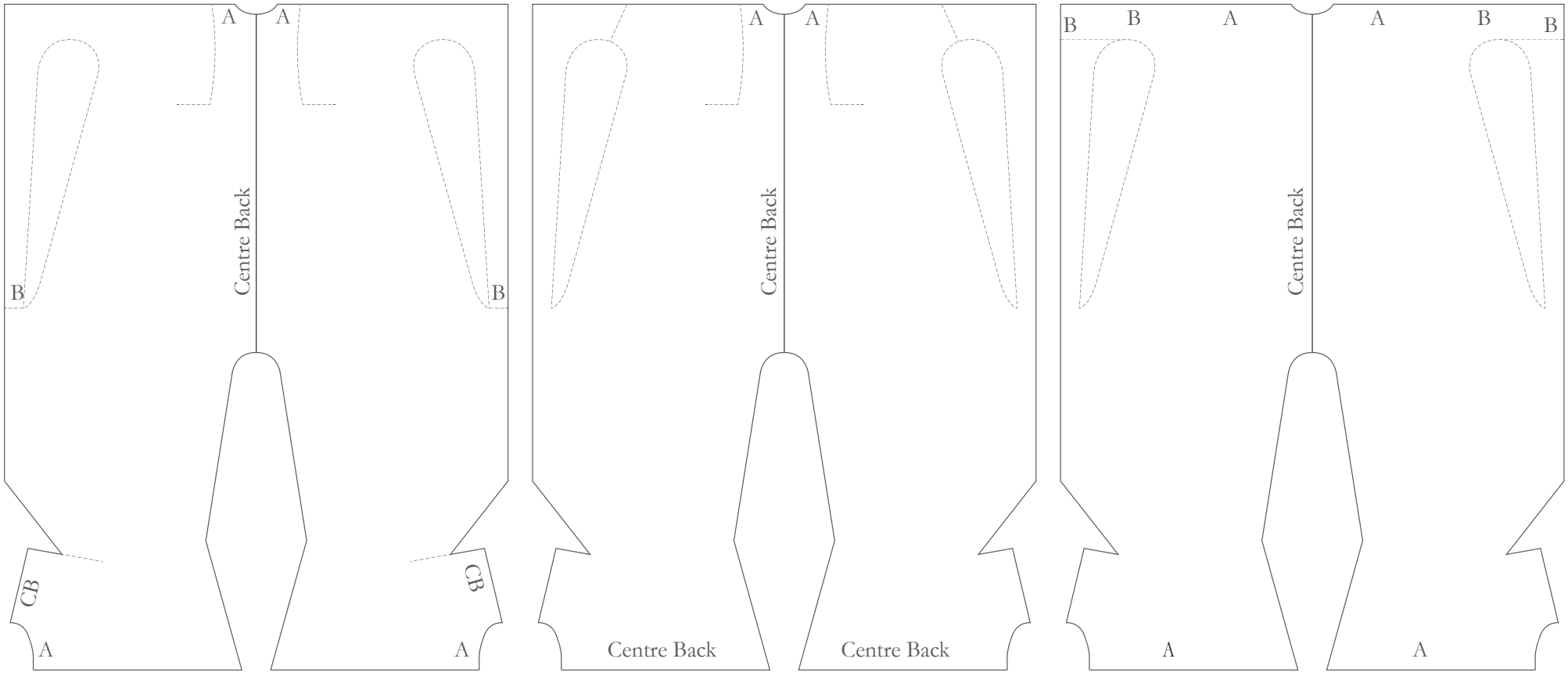
I began by narrowing the width, I examined the pattern as a three-dimensional garment and noticed that the garment was over-sized around the shoulder area and had excessive flare at the hem. I pinned and marked the areas that could be reduced and transferred this onto the kraft and led to the creation of pattern 1 (fig. 22). These modifications reduced the widthe from 120cm to 90cm.

Satisfied with the new width, I now seeked to shorten the length. I observed that the 'strap' secured the front shoulder flaps (A) proved to elongate the final pattern and it produced an excessive amount of fabric waste. However, if I cut the 'strap' off the pattern it would result in the shoulder flap to fall off the body. I looked to other area of the garment and noticed that section (B) was an area that would produce a large off-cut. so I challenged myself to utilise this area to accommodate the 'strap' in order to shorten the pattern. Area (C) on the pattern sat closely to the bust and followed the edge of the pattern and I decided this would be the perfect edge for the new 'strap'.

A second pattern was cut with these moderations. I applied this pattern to the body to see how this new 'extension' I had created from point (C) would behave. Through draping, I discovered that the end of this new 'extension' (D) could be attached to point (A) and consequently remove the initial 'extension' and shorten the pattern piece.

The final pattern 3 was created from these moderations. The extention shape was reshaped to create a strap. With the removal of section (A) the pattern was lenth was reduced from 296cm to 240cm. These changes meant that the a woven length of fabric will now only need to be 180 by 240cm.

fig. 22
Juran, Kim. Crafting A Single Cloth - Design process- Less is more. 2015. Wellington, New Zealand. Photograph Juran Kim, Courtesy of Juran Kim.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iii. Draping a Perimeter

With the final pattern perimeter determined, I now needed to work out how to utilise the perimeter shape onto the body to create new forms. I attempted to utilise the internal curved lines in the perimeter as alternative neck points, however felt as though these iterations were unsuccessful as these led to creating garments that could not be adaptable.

This led me to interrogate the initial garment shape that informed this pattern (fig. 23). What was working in this garment? How did the external and internal cuts effect its three dimensional structure? Through interrogation of the pattern and garment I discovered that it was the starting point of the draping process that led me to a successful adaptable garment. The starting point that proved to be the most successful was the back of the neck and shoulder points. By draping from this point the length of the pattern flowed down and this excess fabric would have to be pulled up, essentially creating two layers of fabric. This allowed for multiple applications.

By changing the placement of internal cuts and draping the fabric in varying directions, different aesthetics and forms were achieved. The curved lines in the pattern's perimeter proved useful as these mimicked the natural curves with the body, such as the underarm, around the shoulder etc.

Since structural shapes can deform the body, I made ensured not to 'lose' and abstract the body. I did this by examining the toiles on live models regularly. I also exposed the body in unexpected areas. Showing glimpses of skin seemed to break up the garment's 'heaviness'. Patterns 2 explores moving the arms through 'tunnels' to create new ways of wear. Felt would emphasise the structural shapes of this garment.

This garment is felted into the pattern shape like the previous garment, however this one incorporates the offcuts produced from 'Edges'. The off-cuts are used for 'straps' allow the wearer to pull, wrap and tie their garment. The straps that are attached to the neck-hole also act as a 'foundation' and can be tied so that the garment can remain securely on the body whilst the garment adapts.

The off-cuts also act as stabilisers to strengthen areas where two edges are felted together, such as the cuffs. The woven fabric reintfoces the felt and prevents pulling.

My experimentations had returned to the beginnings to create the essence of my final designs.

fig. 23
Juran, Kim. Crafting A Single Cloth - Design process- Draping a Perimter 2015. Wellington, New Zealand. Photograph Juran Kim, Courtesy of Juran Kim.


CRAFTING A SINGLE CLOTH
DESIGNED BY
JURAN KIM
MODELLED BY
SYDEL BERRYMAN
SHOT & EDITED BY
SHANG-POH YU
MUSIC BY
DETEKTIVBYRÅN


LOOM

3. Final Forms

3.4. IN MOTION

To conclude my findings, I developed three garments to showcase garment making. “Clothes making is a beautiful and intriguing process that deserves attention” (Roberts, 2013). I felt it was necessary to make a video to display the felting and adaptable aspects of my designs as these can be difficult methods to communicate through imagery and writing.

fig. 24
Juran, Kim. Crafting A Single Cloth - Design process- In motion. 2015. New Zealand. Photograph Juran Kim, Courtesy of Juran Kim.

fig. 25
Juran, Kim. Crafting A Single Cloth - In motion. 2015. Wellington, New Zealand. Photograph Juran Kim, Courtesy of Juran Kim.

Fabric: Merino felt.
Method: One-piece shaping, needle felted joined edges.

Fig 26.
Juran Kim. Crafting A Single Cloth-Cocoon. 2015. Wellington, New Zealand. Photograph Shang-Poh Yu, courtesy of Juran Kim

Fabric: Woven linen blend body, merino felted edges.
Methods: One-pattern perimeter, needle felted finished edges, needle felted joined edges.

Fig 27.
Juran Kim. Crafting A Single Cloth-Evolve. 2015. Wellington, New Zealand. Photograph Shang-Poh Yu, courtesy of Juran Kim

Fabric: Linen blend off-cuts, Merino felt.
Method: One-piece shaping, felt extensions, needle felting joining edges.

fig 28.
Juran Kim. Crafting A Single Cloth-Moth. 2015. Wellington, New Zealand. Photograph Shang-Poh Yu, courtesy of Juran Kim

Looking Back and Looking Forward

Deploying the 'risky' design practice of one-piece pattern-cutting, I investigated explorative pattern-cutting and draping methods to discover a new aesthetic. I focussed on achieving an organic and timeless aesthetic that paid attention to the body's movements, form and structure. I also developed alternative fastening, stabilising and finishing techniques with felt that matched this aesthetic.

Because I was more comfortable designing through draping and had started this project to discover new shapes though this method. However, found that using the flat pattern could act as a 'map' allowed me to drape more competently and enabled me to utilise more of the fabric width to reduce offcuts and inform surprising shapes. Combining flat-cutting and draping enabled me to recognise the pattern's role with the body. The flat pattern is can have multiple functions and not just used as a tool for design.

I was able to develop a more efficient manufacturing system utilising felting methods that merged the creation of cloth, pattern and garment into one production stage. The process combined the design, pattern-making and construction processes

I was able to refine seamless cutting into a more economical method. This process controlled the amount of material used and eliminated excess fabric wastage. It facilitated further experimentation with alternative aesthetics and production technology that requires less labour time and fabric use. Felting enabled me to eliminate fabric waste by producing the material to the pattern shape. This included the reduction of fabric bulk from wrapping multiple layers of fabric around the body.

An iterative design method was deployed to evolve the creation of a singular pattern perimeter, constructing three different garment shapes. By changing the placement of internal cuts and draping the fabric in varying directions, different aesthetics and forms were achieved. The three garments created embody the essence of my experimental design process. Wearers can determine the final shape of the garment and gives individuality to today's mass-produced market.

Each garment is able to evolve into different shapes and the end design is open for interpretation. As the maker/ designer of the garments, I have suggested ways in which the garments could be worn. However, these are options only and not final instructions for the design. A sense of empowerment is afforded to the user by allowing them to participate in the design process and determine the final outcome of their garment.

By interacting with different areas of the garment to achieve different shapes, the wearer is observing and participating in the core element of dressmaking; the relationship between human body and the fabric itself. I initially found it very difficult to not design the 'final' garment, and this

allowed me to rethink my role as a designer and maker.

The platform developed in this project is indicative of the potential application of integrating the user into the making process, blurring the lines between maker, user and object. Such integration of the wearer into the design process affords respect to the a 'participatory design' ethos, a method commonly used within the ecodesign movement to include all stakeholders within the design process (Chick and Micklethwaite, 2011). Letting wearers determine final outcomes potentially empowers the user to personalise and customise their garment, satisfying design-aware consumers seeking a more individual expression. Collaborative design

This project could be further developed to enable the wearer to become a part of the production and making process. This could include having the wearer's active collaboration in 'completing' a garment through felting. Workshops held every season could demonstrate to the wearer how the garment finished, as well as acting as a space to come together and share skills and knowledge. Find quote of Fletcher's about local wisdom. New pattern shapes could be released on a seasonal cycle, able to be customised by the wearer through felting methods.

A video was created to demonstrate the garments' adaptability and elevate the felting process. Such video productions could serve as a persuasive means of communicating to the consumer how the 2D material forms into a 3D garment, as well as introducing transparency to the manufacture of the garment. "Consumers are now slowly starting to invest not only in a piece that will incredible for years, but the integrity of the process via the 'slow fashion' route" (Slayer, 2007).

Together, these strategies of re-introducing hand-crafted techniques, bringing making to the forefront and encouraging the wearer to interact with their garments would instil a stronger relationship between relationship between wearer and garment. They are all strategies that align well with the principles and practises of the 'slow fashion' movement, which encourages producing, designing and consuming better. Combined with other standard approaches such as paying closer attention to sourcing of local materials, they offer models of more sustainable practises to garment manufacturers.

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