

FORM AS INSPIRATION

Creative Pattern Cutting as a Design Tool



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TIIVISTELMÄ

Opinnäytetyön tavoitteena oli tutkia ja kerätä tietoa kokeilullisesta vaatetusmuotoilusta ja sen tekniikoista keskittyen innovatiiviseen muodonantoon ja erityisesti kokeilullisiin kaavoitustekniikoihin.

Kokeilullista vaatetusmuotoilua tutkitaan terminä sekä teemojen kautta, jotka ympäröivät innovatiivista muodonantoa ja kaavoitusta vaatetusmuotoilussa. Lisäksi tutkitaan vaatetusyrityksiä, jotka käyttävät kokeilullisia kaavoitustekniikoita ja valmistavat innovatiivisesti muotoiltuja vaatteita. Yritysten tutkimuksessa keskitytään tekniikoihin, prosesseihin ja motiiveihin kokeilullisuuden takana. Kokeilullisista kaavoitustekniikoista valittiin tutkimukseen neljä tekniikkaa, joista lisäksi toteutettiin kokeiluja. Nämä tekniikat olivat subtraction cutting, muotoilu, zero waste kaavoitus ja one-piece kaavoitus.

Opinnäytetyön tuloksena on kerättyä teoreettista ja käytännön tietoa kokeilullisesta vaatetusmuotoilusta, sen prosesseista ja tekniikoista sekä kokeilullisista kaavoitustekniikoista. Tietoa arvioidaan sen pohjalta, miten ne sopivat kirjoittajan arvoihin jonka pohjalta se muovaa hänen muotoilija-identiteettiään sekä tulevaisuuden suunnitelmiaan.

Avainsanat kokeilullinen vaatetusmuotoilu, vaatteiden kaavoitus, kokeilulliset kaavoitustekniikat

Sivut 66 sivua

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ABSTRACT

The aim of this thesis was to research and build knowledge on experimental fashion design and its techniques focusing on innovative shape creation and therefore creative pattern cutting. The subject reflects the interests and knowledge accumulated by the author.

In this thesis experimental fashion design is examined as a term and through the themes surrounding innovative shape creation and pattern cutting in fashion. Selected fashion design companies are researched which are designing innovatively shaped garments and are utilising creative pattern cutting techniques in their work. The focus is on the techniques and processes used and motives behind their experimentality. Lastly, four creative pattern cutting techniques are researched from which try-outs are produced. These techniques include subtraction cutting, draping, zero waste pattern cutting and one-piece pattern cutting.

The outcome of this thesis is theoretical and practical knowledge acquired on experimental fashion, its techniques and processes as well as creative pattern cutting techniques. The information is evaluated with the values of the author which moulds their designer-identity and future plans.

Keywords experimental fashion design, pattern cutting, creative pattern cutting,

Pages 66 pages

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1 INTRODUCTION

1.1 Background

The aim of this thesis is to research and build knowledge on experimental fashion design and its techniques, focusing on innovative shape creation and therefore creative pattern cutting. The subject is being researched through experimental fashion as a term and the themes surrounding it, experimental fashion design companies and four creative pattern cutting techniques which are also tried out during this research. Creative pattern cutting is designing while cutting the garment. It is new way of thinking in constructing garments and pattern cutting. (Rissanen & Mcquillan, 2016, p.45)

The subject of this thesis reflects the interests and acquired knowledge of the author. Pattern cutting and garment construction are most inspiring parts of fashion design for me as a designer. Pattern cutting is the process that enables the garment design idea to be made in to a usable product. (Parish, 2013, p.14) It is transferring ideas of clothing to 2D-forms which are then constructed in 3D. (Roberts, 2013, p.13) During the design process, I focus on drafting out the shape of the garment and construction before considering colour and materials. Constructing the garment and drawing the pattern are a natural way for me to illustrate my designs. I have always wanted to research in depth creative pattern cutting techniques and see what more they would bring to my work and design process. In addition, I am intrigued by a more organic and impulsive design process and the motives of experimentality in fashion. Therefore, I am interested to build knowledge on experimental fashion companies' processes and motives of being experimental and the phenomena surrounding the theme of experimentality in fashion, especially silhouettes.

Important aspects in design for me are ecological materials, ethical production, wearability and story of garments without forgetting the aesthetics. The researched information is therefore examined with these aspects as well as how I would utilise the processes and techniques in the future. This thesis is thus moulding my designer identity and future plans.

Previous to this degree I have studied millinery. Making of hats is concentrated in 3D-thinking, innovative shape creation and searching for a desired shape on the block is central in the design process. Usually the design which is being created does not have a ready-made pattern, but the pattern and way of producing it are being realized during the process. During one-year exchange studies at Falmouth University in Cornwall, England we studied innovative and creative pattern cutting techniques. The techniques that we tried out were one-piece pattern cutting, bias

pattern cutting, geometric pattern cutting and draping which we used to create basic blocks of for example the bodice, pants and skirt. In one of my internships, I was introduced to experimental fashion and its techniques in practice and tried out one-piece pattern cutting with the designer.

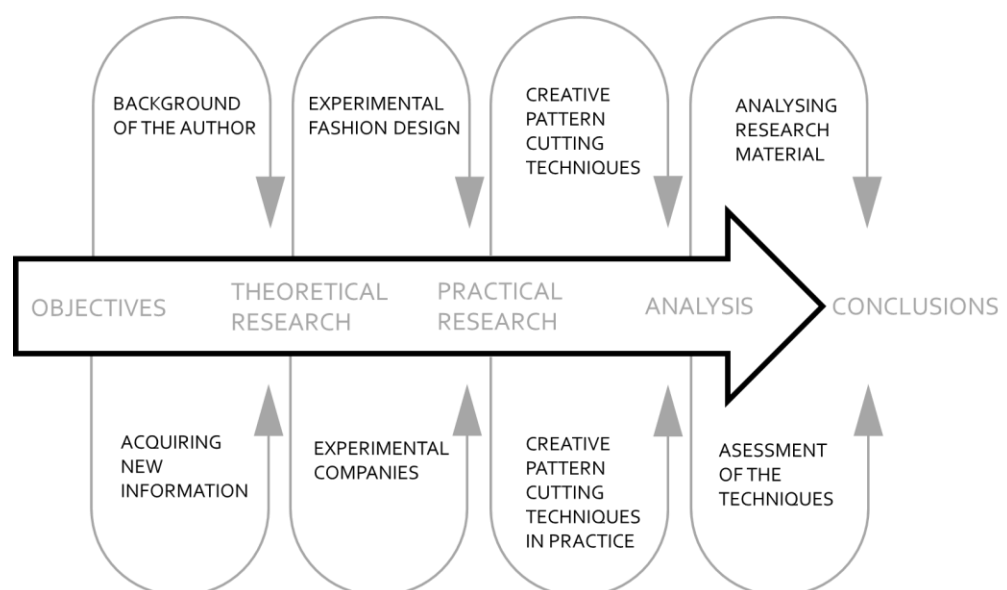
1.2 Work structure and objectives

First section of this thesis examines experimental fashion as a term and a phenomenon and the questions and the motives surrounding fashion design that creates experimentally shaped garments.

The second chapter researches experimental fashion companies that utilise creative pattern cutting techniques and design innovatively shaped garments. The focus is on the processes and techniques used and motives behind designing experimental clothing.

The third section focuses on four creative pattern cutting techniques: subtraction pattern cutting, draping, zero-waste pattern cutting and one-piece pattern cutting, which are researched and further tried out in the next section of this thesis.

During the research process, conclusions are made on the suitability of the techniques and processes to be utilised in the future. The creative pattern cutting techniques are evaluated through a criteria that examines the wearability of the designs, required time, material usage and the possibility of replicating the design in production. The result of this thesis is new information and practical knowledge on processes and creative pattern cutting techniques which are shaping the future plans and designer-identity of the author.



Picture 1. Process structure of this thesis

This thesis is focusing on experimental fashion design that utilises innovative shape creation. Even though experimental fashion is greatly utilising and creating innovative fabrics, material innovations and manipulation, these are cropped out of this research. The try-outs of the creative pattern cutting techniques are made in full-scale, but there are no final products made of all the designs, the basis is on research and acquiring practical knowledge of the techniques for the future. The basic principles used to create the try-outs are shown in this thesis' sixth section, without explaining all details.

1.3 Research questions, research methods

The main research question of this thesis is:

What are creative pattern cutting techniques subtraction cutting, draping, zero waste pattern cutting and one-piece pattern cutting and how are they used in practice?

The refining questions are:

What is experimental fashion design that focuses on innovative shape creation?

Which processes and techniques are experimental fashion design companies using and what are their motives in being experimental?

What are the wearability, time and material usage and manufacturing possibilities of garments made with creative pattern cutting?

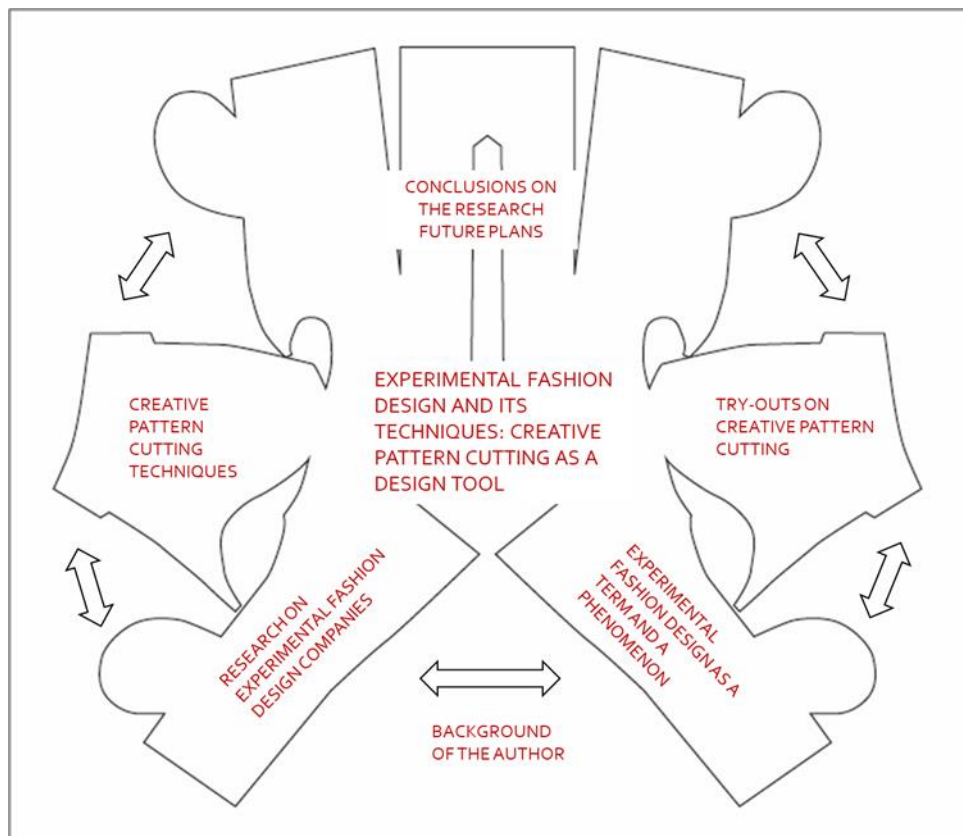
There are various resources used in this thesis. The topics are examined through literature, internet resources, as well as interviews resourced from youtube, films and podcasts. In addition, I carried out a personal interview with Gabi Asfour of threeASF0UR in New Jersey in January 2019. Ethnographic research is being utilised from previous design processes and pattern cutting experiences accumulated from internships and an exchange year in England.

1.4 Framework

The framework of the thesis has all the aspects of this work that contribute to the result of it: conclusions made on experimental fashion design and creative pattern cutting techniques.

The base of the framework is the background of the author; the values and experiences acquired during studies and internships in the topics of fashion design, pattern cutting and materials.

On top of the experience gained there is a one-piece pattern, front pieces, sleeves and back piece spreading to different directions. In the front pieces, there is the research on experimental fashion and experimental fashion companies. These are then connecting to sections of research on creative pattern cutting and practical knowledge gained through try-outs on the techniques. Lastly, in the back piece there are the conclusions made through the research that is affecting the future plans of the author. Like a one-piece pattern that is combined with all the pieces sewn together, all the sections of the framework are communicating with each other resulting in a finished piece of work.



Picture 2. The framework of this thesis

2 EXPERIMENTAL FASHION DESIGN

Experimental fashion is not a genre of fashion that can be categorized easily. Experimentality in fashion is not tied to a certain style or time-period and the term itself is subjective to many. In my research, I have encountered experimentality being linked to anti-fashion movement from the 1980s onwards, avant-garde fashion of the runways of today and radical fashion that in many cases has political undertones that comment the happenings of the world of a certain time-period.

Fashion has a tendency to look forward and yearn to create something that has not been seen before; this is a feature that is pronounced in experimental fashion. Even though focusing on new is in the centre of this kind of design, the garments are not usually produced in fast pace and created for the sake of creating but experimental nature of fashion especially, is linked to discovering new things within the industry; creating new technology in manufacturing and innovations in materials and pattern cutting. Since I am interested in creative pattern cutting, in this thesis I am focusing on fashion that is experimental in shape creation and silhouettes.

2.1 Experimentality in garment's shape

Experimentality in fashion design can be showing in materials, construction, silhouette and presentation (Granata, 2017, p.3-4) and usually has an underlying motive or objective behind the work, either to raise questions of the norms of a society or create new innovations in the industry. Experimentality is appreciating deeply old techniques and manufacturing of clothing, but is embracing new technology, researching on all topics of interest profoundly. Innovations in the industry require years of hard work to come together. (Wilcox, 2001, p.4-5) This kind of fashion is not concerned with the time and trends of its time but making clothing to fit to their own aesthetic. (Wilcox, 2001, p.2) Experimental fashion has a characteristic of valuing collaboration with other designers and creatives to better the ideas and share knowledge. (Wilcox, 2001, p.6)

Experimentality in fashion is questioning the existing norms comparing itself to the current society, asking questions of 'what if?' from its spectators. By using tools of disorder, exaggeration and performance experimentality is testing what could be accepted behaviour in this society and how would the future's society look like. (Clark, 2001, p.17) Experimental fashion is challenging people to look at things differently not caring about limitations, but still trying to find the balance between the opposites of eccentricity versus acceptable and functionality versus decorative. (Wilcox, 2001, p.6) Experimentality in shape creation in clothing comments on the areas of normative bodies, feminism and gender, challenging the standards of beauty and masculinity. (Granata, 2017, p.3)

There is power in the clothing we wear; either showing the natural shape of the body or reshaping it, functioning to fit our lives or restricting our movement, being accessible to all or remaining obscure. (Wilcox, 2001, p.1) Shapes and proportions in clothing are connected to the cultural and social change in society. Clothing is interpreted in relation to the body which is carrying it and therefore the questions of normative bodies surface when exaggerated, oversized or otherwise out of the norm shapes are being worn. The shape of a garment may be referred to as the silhouette which is changing in fashion with the overall ideal body admired during a certain period in history. Exaggerated shapes in clothing can be linked to extreme situations in history. For example, it could be argued that Dior's post war womanly hourglass silhouette rebelled against the lack of glamour and fabric rationing during war years while showing the female form's full hips implying for the need of repopulation. (Parish, 2013, p.62)

3 RESEARCH ON EXPERIMENTAL FASHION COMPANIES

In the next chapter, I am researching various experimental fashion companies focusing on ones that use innovative shapes and silhouettes and creative pattern cutting techniques in their work. The companies are examined through their style, design processes, experimental techniques used and the motives behind their experimentality. The research is concluded with examples and evaluations of the companies' work from their presentations and publications.

3.1 Issey Miyake

Issey Miyake established Miyake Design Studio in 1970 in Tokyo. (English, 2011, p.9-36) In 1994 Miyake gave the position of creative director of men's line to his long-time assistant Naoki Takizawa following with the womenswear in 1999. (Blanchard, 2016) Central in Miyake's work is new technology combined with traditions in manufacturing clothing and fabric. (English, 2011, p.9-36) Miyake is focused on profound research and work not relating to trends. (Chandès, 1999, p.114) Materials and colours serve a big part in Miyake's clothing, he sees them generating feelings in people and thus making customers connected to the garments. (Chandès, 1999, p.109)

Clothing in Miyake's opinion must have contact with the everyday lives of the public and produce a solution to a problem. (Chandès, 1999, p.105-108) Miyake thinks that clothes have to appeal to everyone, and it is needed to make everyday clothes that are easy to wear, such as jeans and t-shirts. In addition to this, clothes must have something special in

them that will generate a reaction and a feeling in the customers. The body and its clothing needs are most inspirational to Miyake and every collection starts by looking at it. (Chandès, 1999, p.107-109)

Miyake's clothing is simply cut and sculptural, wrapping the body in fabrics and giving freedom of movement and flexibility to the wearer. The clothing is made from natural materials such as paper, linen and silk or new invented materials and combined with historical references from Japan and innovative forms. (English, 2011, p.9-36)

In addition to utilising new technology to produce materials and clothing, Miyake is also utilizing old unused machinery or a pre-existing material in an unseen manner. Miyake's projects are long-term which make it possible for the ideas to grow and be better during time and experience, he believes that something completely new in the industry can take up to three to five years to be realized. (Chandès, 1999, p.106-107) Collaboration and sharing and exchanging ideas is important to Miyake to have conversations in order to generate and further creativity. (Chandès, 1999, p.105) Miyake finds it best to work with all kinds of different people to keep the curiosity in one's work (Chandès, 1999, p.111) and believes strongly in learning and teaching others. (English, 2011, p.9-36) In Miyake Design Studio the design process is executed in teams. In the design studio each member of the team researches a theme first individually and then the ideas are combined to be selected on. The manufacturing process is decided from there. (Sato, 1999, p.51)

One of the profound researches of Miyake Design Studio has been Pleats please, clothing that is combining the elasticity of pleating with new synthetic fabric. (English, 2011, p.9-36) With pleats please Issey Miyake detached himself from the traditional making of clothing and researched how clothing was being used. This resulted in the idea of clothing that would be easy to wear and take care of (Chandès, 1999, p.106-107) simultaneously detached from the restrictions of age, gender and time, making it accessible to all. (Sato, 1999, p.20)

The manufacturing process of Pleats please clothing starts in their own factories in Japan. The clothes are first sewn two to three times bigger than the actual size; pleating being created afterwards with special machines. (Sato, 1999, p.23)

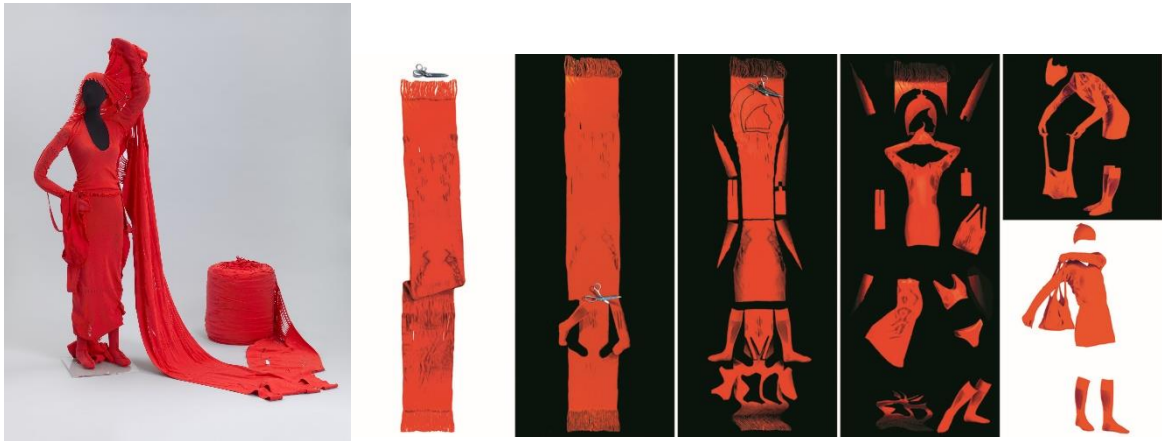


Picture 3. Left: Frankfurt Ballet dancer in Pleats 1990, centre: Bamboo Pleats, right: Zigzag Pleats (Lamèr, 1999; Meier, 1999; Meier, 1999)

In picture 3 it is possible to see how the pleating technique acts on the body and without it. The technique enables the body to be wrapped comfortably in fabric making movement easy, but still creating unusual forms around it.

Another long-time research for Miyake has been the A-POC series (a piece of cloth) which was first launched in 1998. A-POC-clothing is being created with a special knitting machine that is producing fabric from which customers can cut out their clothing as they wish. The tube knit is woven with various shapes with ribbed outlines that are showing the edges from where to cut. (English, 2011, p.9-36)

The A-POC clothing was inspired by Ancient clothes such as the Roman toga and Indian sari, which are created with only one piece of cloth. There is a strong performance aspect, interactivity with the customer in A-POC clothing as well as in many other Miyake's designs. (English, 2011, p.9-36)



Picture 4. A-POC Queen Textile from 1997 (Roulin, n.d.)

In picture 4 it can be seen how the tube of fabric is possible to be cut in pieces and different garments. This technique reminds of Ancient clothes, rectangles of fabric wrapped around the body and material being used as a whole to create one garment. This technique is also zero waste pattern cut since the process of manufacturing and cutting is done without fabric waste.



Picture 5. Colombe dress 1991 (Styletheorist, 2013)

In 1991 Miyake launched a collection called Fete, which celebrated technology and life. One of the pieces shown in this collection was Colombe dress. (English, 2011, p.9-36) In picture 5 is the Colombe dress' pattern laying flat and the garment put together. The technique used is one-piece pattern cutting since it is made out of one piece of cloth and fastened with snaps to transform it to a draped dress. (English, 2011, p.9-36)

3.2 Yohji Yamamoto

Yohji Yamamoto established his company called Y in 1972 and presented his first fashion show in Tokyo 1977. (Yohji Yamamoto, n.d.) In his work

Yamamoto wants to bring feeling and emotion in to clothing. (London College of Fashion, 2011) Classical and contemporary are at harmony in Yamamoto's work bursting with historical references used in new ways. Central in Yamamoto's work is combining the masculine and feminine aspects of clothing, creating garments that are not showing any parts of the body but still stay provocative. (English, 2011, p.37-66)

Yamamoto works mostly in black and has said that he is most concerned of the silhouette and proportions of his clothing and the lack of colour emphasises these features. (Frankel, 2011) When he is putting colour in his work it is usually strong red and white which is comparable to the black. (London College of Fashion, 2011) Yamamoto's clothing is usually oversized, wrapping the body in fabric as opposed to revealing it, drawing inspiration from asymmetry and imperfection. (Frankel, 2011) Some describe Yamamoto's clothing as having a lived-in look, almost a second hand item that is cherished by the owner. (English, 2011, p.37-66) Yamamoto wants his garments to be timeless (London College of Fashion, 2011) and having the ability to be worn for a long time. (The Chau, 2016) Since 2001 Yamamoto has had a growing interest towards sportswear, adding these details to his clothing and has collaborated with Adidas. (English, 2011, p.37-66)

Yamamoto starts with his designs with the feel and look of the fabric, moving on from there to the shape. Yamamoto is known for his drapery and usage of fabric, creating unseen shapes in clothing. (English, 2011, p.37-66) In fittings the garments are made of the actual fabric that is used for the final samples, this way it is possible to see how the garment actually drapes and moves. The fitting process is elaborate, so it is seen how the garments look like on the customers. (The Chau, 2016) Yamamoto is appreciating tailoring and craftsmanship in making clothing, finding it important to choose the right placements for details such as pockets and buttons making the design comfortable for the wearer. (London College of Fashion, 2011)

Yamamoto is inspired by work wear since it is similar all around the world and second hand clothing which is showing the wear of time. (London College of Fashion, 2011) Another big inspiration for Yamamoto has been the photographs of August Sander who photographed the German people all around the country showing people from all walks of life. (English, 2011, p.37-66)

Since the start of his career Yamamoto wanted to make easy clothes for independent women that were claiming their own life, not being dependent on men. (Frankel, 2011) From the start of 80s Yamamoto's clothing was worn mostly by intellectuals and arts people, drawing up on the mysteriousness of black and different outlook on clothing (English, 2011, p.37-66)



Picture 6. Yohji Yamamoto presentations (Lucioni, n.d.; Feudi, n.d.)

When examining Yamamoto's clothing in picture 6 it can be seen having in many instances an oversized, relaxed and asymmetrical silhouette that builds on layering and draping. There are also influences from tailored clothing, which are deconstructed and assembled in new ways. Many times his collections include totally black looks varying in silhouettes showing skin in unusual places and mixing textiles. There are also pieces that are complete opposite to this aesthetic, bright coloured show pieces including artistic details such as painted pictures and prints. It is easy to see the handcraft of his clothing in the details and shapes created. The draped garments seem to be constructed on the dress stand by inspecting the fabric or by using a fabric manipulation technique prior to draping. These garments seem to be achieved during a long process of trying different options and learning through the making and pattern cutting process.

3.3 Rei Kawakubo of Comme des Garçons

Rei Kawakubo established her label Comme des Garçons in 1973 and showed her first collection in Tokyo 1975. (The Business of Fashion, n.d.) During her career Kawakubo has challenged the norms of body, identity and beauty, making clothing at the intersection of art and fashion. (Campbell, 2017, p.7) Her work is not set on a certain kind of beauty, but it is always recreating itself including anti-fashion features, exposed details, unusual textures and materials, asymmetry and objects. (English, 2011, p.67-90)

It is sometimes hard to make sense of Kawakubo's clothing since the garments are in many occasions unlike anything seen before worn on the body. (Bolton, 2017, p.12) Kawakubo is not concerned by the underlying body in her clothing but is without preconceptions exploring the space and volume, creating patterns not relating to natural proportions. In Kawakubo's clothing, details such as sleeves and pockets have different functions to conventional clothing, her pieces can be worn in multiple ways or not at all. Kawakubo's ideas require abstract pattern cutting, resulting in an architectural concept rather than functionality. (English, 2011, p.67-90)

Kawakubo's clothing carries a certain mythology with them. She does not like to explain her work giving short titles for her collections and leaving it as the only description for them. When asked to explain her work Kawakubo would rather focus on the construction of her clothing than the meaning of it. (Bolton, 2017, p.12) Kawakubo is a modernist designer that yearns for originality; she is constantly searching for in her own words 'newness'. (Bolton, 2017, p.14)

One of the big themes Kawakubo is commenting with her work is the norms of women's appearance. (English, 2011, p.67-90) This can be seen in several of her collection of depicting unusual silhouettes and pregnant bodies that are not seen ideal in the Western society. One of these comments on ideal bodies of women was Comme des Garçons spring/summer 1997 *Dress Becomes Body* collection. Padding was added to garments in various uncommon places such as on the back and hips distorting the shape of the body. The same idea was recreated slightly differently again in 2010. (English, 2011, p.67-90)



Picture 7. Left: Body Meets Dress presentation SS 1997, Right: Collaboration with Merce Cunningham for his dance production *Scenario* (Condé Nast Archive, n.d; Lasblog, 2015)

In picture 7 Kawakubo's Body Meets Dress clothing can be examined. Padding is added under the garments on top of which fabric is draped and placed on. In my opinion these garments may be constructed through a draping process, since then it is easy to see how much fabric is needed to cover the shaping. Many Body Meets Dress clothes are constructed by using stretch fabrics that make it easier for the material to shape around the padding.

Kawakubo has been working in collaboration with various designers, artists and photographers and Comme des Garçons has collaborated with other labels of the industry such as Levi's, Nike, Moncler and H&M, which have established a more profound financial base for the company (English, 2011, p.67-90)

Kawakubo claims that she is starting every collection from nothing not being influenced by anything but her ideas. (Bolton, 2017, p.14) Her collections start usually with collaboration with experimental fabric designers. During the design process Kawakubo is giving minimal information to her staff and pattern cutters. She has been known to give pattern cutters sketches with little information, verbal instructions or a photograph from which the work is started from. The pattern cutters are having a big role in the design process and are required to have a lot of creativity. This kind of conceptual process is unique in the world of fashion. (English, 2011, p.67-90)

Kawakubo has expressed in variable ways that her ideal customer is an independent woman who knows her worth. In 1983 Kawakubo commented that her ideal customer was the New York bag lady, in 1984 a woman that 'earns her own way' and in the 1990s women who are

strong and 'attract men with their minds rather than their bodies'. (English, 2011, p.67-90)



Picture 8. Comme des Garçons presentations (Vlamos, n.d.; Vlamos, n.d.; Vlamos, n.d.; Weston Arnold, n.d.; Oberrauch, n.d.; Vlamos, n.d.)

Rei Kawakubo's clothing is conceptual and utilises many unusual forms and pattern cutting techniques. Kawakubo's collections differ quite a lot from season to another, always having a new take on shapes, fabric manipulation, prints and colours. Kawakubo's designs are voluminous and her design aesthetic values eccentricity. Generally her garments have an oversized silhouette that is emphasized by rich fabrics and prints. In picture 8 it can be seen how Kawakubo utilises exaggeration and shaping that is made without the body in an architectural manner. It can also be seen how she deconstructs clothing to be combined to a new garment and uses manipulated fabric to drape on to the body.

3.4 Rick Owens

Rick Owens established his company in 1994 (Fury, 2017) and had his first fashion show in New York in 2002. (Furniss, 2002, p.20-21; Fury, 2017) Rick Owens' aesthetic is broken idealism, basing in his influences from art and design he appreciates that usually has a decayed element to them. With his aesthetic he wants to express emotion in clothing and bring a personal aspect to them. (Zahm, 2005, 114-115) Owens' style is dirty chic (Furniss, 2002, p.20-21), he wants to make clothes that are discreet and quiet in their aesthetic, and intends all his clothing to be worn in people's everyday lives. (Tchkonia, 2013)

In practice his style appears as precious fabrics and leather distressed, manipulated and washed to give them texture and disturbing proportions exaggerated and draped over the body. At first look the clothes can seem complicated and difficult to wear, but with a closer look they prove to be seductive, wrapping the body in layers of fabric. Owens experiments with fabric and silhouettes, often questioning the norms of clothing with sexuality and gender; his clothes for men are as bold and transgressive as the ones for women, without sacrificing manliness. (Fury, 2017)

With his designs Owens is more concerned about how the garment feels rather than looks. (Davies, 2007, p.89) The garment must physically wrap and shape the body; the design is about the surface and texture it creates and the emotion of caressing it brings to the wearer. Owens' collections have usually muted colours, mainly black and shades of grey and brown. He has said that he is more concerned about the shapes of the clothes and sees great peacefulness and gentleness in muted colours. (Zahm, 2005, 114-115)

Owens designs collections that are independent from the normative fashion cycle (Fury, 2017), the collections have similar aesthetics from one to another, creating a continuation of expression. Owens does not believe in changing the aesthetic of the collection depending on the source of inspiration, rather he appreciates the idea of continuation through one's work. (Zahm, 2005, 114-115)

Inspiration Owens gets from architecture (Friedman, 2014), designers such as Vionnet, Fortuny and Gres (Furniss, 2002, p.20-21), old black and white Hollywood movies (Zahm, 2005, 114-115) among other cultural references, mixed with growing up in Los Angeles and experiencing old Hollywood boulevard. (Zahm, 2005, 114-115) Classical references are therefore decomposed, distressed and translated to fit to the everyday wardrobe. The basis in Owens' work comes from his background in pattern cutting (Furniss, 2002, p.20-21) and understanding how the body needs to be dressed. Classical references from for example Vionnet are showing in his work with a lot of bias cut and draped garments. He sees the long-

draped silhouette classical and inspirational but does not want to make clothes that are too cliché. (Zahm, 2005, 114-115)

Owens does not use mood boards to show what his collection is about or make fashion illustrations of his clothing. (The Talks, 2014) He does not like having literal references in front of him during the design process, this is resulting in having to be forced to work using only a memory of the references. (Friedman, 2014) Owens wants to work straight with the material and shape. (The Talks, 2014) Owens is examining previous collections of his more than anything else, making it possible to progress by studying the successes and mistakes of the past. (Friedman, 2014)

Rick Owens has managed to design a customer for his clothing as well. Known as the "Tribe", these followers are finding wearing Owens' clothing as a lifestyle and part of their personality. (Foley, 2017) Owens himself expresses that he designs for someone that might have had a extravagant phase in their life and afterwards wants to focus on anonymity. (Davies, 2007, p.89)





Picture 9. Rick Owens presentations. (Fior, n.d.; Weston Arnold, n.d.; Rick Owens, n.d.; Rick Owens, n.d.; Vlamos, n.d.; Rick Owens, n.d.)

Rick Owen's clothing has its complete own aesthetic. His main technique is using draping to create many of the garments, by using pieces of fabric or pre-made garments and their details which can be seen in picture 9. To me it seems like the draped garments have been achieved through a long process of working with the shape and fabric, which is not possible through merely starting with a sketch. Jackets are deconstructed to be made into skirts and materials are combined and manipulated to be added to one garment. His materials are natural and soft, and the body is layered with them creating a cohesive yet profound mix of textures.

3.5 threeASFOUR

In 1998 Gabriel Asfour, Angela Donhauser, Adi Gil and Kai Kühne founded a fashion collective As Four in New York. From the start As Four focused on creative construction techniques and unexpected cut in their garments, showing their first runway show in 2001. In 2005 Kühne left the collective and the remaining designers formed the new company threeASFOUR the same year. (Stanfill, 2007, p.82)

All the three designers come from different backgrounds, Asfour was born in Lebanon, Donhauser in U.S.S.R and Gil in Israel. ThreeASFOUR describes themselves as a fashion collective of three artists, working in the field of fashion, creating garments which are combining art and fashion together while mixing appreciation of traditional garment making with new technology. (threeASFOUR, 2019)

In 2008 threeASFOUR decided to focus more on the conceptual fashion and art aspect of clothing in order to have creativity within their brand. Taking a step back from creating fashion to the market threeASFOUR had

the opportunity to focus more on their interest in technology, for example 3D-printing and laser cutting. (Coiro, n.d.)

In their work threeASFOUR wants to creatively investigate themes of awareness of the world and cultural questions. (threeASFOUR, 2019) Their focus is on creating unity between people and a sense of community, and as a result connecting with people. (American Fashion Podcast, 2016) Making clothing is used as a medium for this idea because garments are speaking and addressing everyone. Ideas of unity and cultural coexistence behind threeASFOUR's creations are resulting in garments that have a special message in them, the designers are not wanting to create something without meaning to a world with abundance of existing clothing. (American Fashion Podcast, 2016)

Creativity and experimentality of threeASFOUR origins from adventurousness and the rebellion of the designers, not wanting to follow how things have been done previously. (American Fashion Podcast, 2016) The main inspiration in all threeASFOUR garments is sacred geometry. Sacred geometry is meaning to threeASFOUR the geometry and repeat that can be found all around us in the world, in the nature and our bodies. The circle is the most common of these shapes, but does not limit to solely it, the shapes are uniting us all in for example plants and in our fingerprints. Nature has proportions that are present everywhere, threeASFOUR believes. (Coiro, n.d.)

It has been important for threeASFOUR to explore new possibilities and technologies within the industry, but they are also making complex patterns that origin from the body. (American Fashion Podcast, 2016) The patterns have asymmetrical cuts and curved seams that swirl around the body, described by the designers as so complex that they need someone close to them to understand. (Stanfill, 2007, p.82)





Picture 10. threeASFOUR presentations (Tondo, n.d.; Garofalo, n.d.; Vlamos, n.d.; Tombolini, n.d.; Somoza, n.d.; Oberrauch, n.d.)

When examining threeASFOUR's garments in picture 10 it can be seen how their clothes are relating to geometry that is fitted on and around the body. Laser cutting and 3D-printing are used to create unusual textures and innovation but the shaping of the garments is in the centre. ThreeASFOUR's patterns have a certain organic flow with them which makes them natural on the body and cohesive from collection to another.

3.5.1 Interview with Gabi Asfour

I carried out a personal interview with Gabriel 'Gabi' Asfour 2.2.2019 in Mana Contemporary, New Jersey where threeASFOUR has their current studio space. In this interview it was wanted to get up to date and personal information of Asfour's view on the company's philosophy, their customer, design process, experimental techniques used, and the possible difficulties they had faced in being an experimental fashion company.

The first question asked from Asfour was to describe threeASFOUR and the philosophy behind the brand. Asfour started by saying that the basis of threeASFOUR is bringing technology and clothing together, experimenting with it and therefore developing themselves as designers. With experimentation the company is aims at inspiring others and discover new things within the industry. The inspiration that they have comes from sacred geometry that can be found everywhere in the world, in nature or around the body of a human. Asfour also said that the three designers all coming from different backgrounds and countries want to be aware of the happenings of the world and comment it during their work. Most of all threeASFOUR in Asfour's opinion is about collaboration between the three designers and other creatives and artists.

The next question asked was about the customers of threeASFOUR, if they had a specific type they were designing for or had noticed to wear their clothing. Asfour answered that they had noticed during the years that their customers are usually artistic, intellectual and aware of the world around them. He also added that they have many people that are somewhat spiritual in a way.

After this question it was asked about the design process of the designers. Asfour replied that sometimes the three designers are starting with sketching, other times pattern cutting or materials. They are not having a conventional process between the three designers, but the process is more about each one of them being able to express themselves the way they are. It is about everyone having the freedom to be yourself. They do not believe in the more conventional design process but appreciate order in other aspects of design and understand that things must be done in time and within the frames of the clothing manufacturing process.

Next, it was moved on to ask of the experimental techniques used in threeASFOUR's clothing. Asfour replied that they have used laser cutting, 3D-printing, digital print on fabric among other techniques. He also added that threeASFOUR was one of the first ones to use digital print on clothes, but in other techniques there has been some other inventors before them. For threeASFOUR the only way is to profoundly and in-depth research and try a technique, doing it merely on the surface is not an option.

From this question it was continued to ask of their creative pattern cutting and if they had anyone, they looked up on that. Asfour said that they are basing their pattern cutting on wrapping the pattern to hug the body, using a circle, spiral, symmetry. ThreeASFOUR wants their patterns to be natural on the body and they may look at the muscles and bones, the movement. Traditional block patternmaking is not for threeASFOUR, even though they have appreciation for it. Asfour replied that when it comes to idols in pattern cutting, there have been many before them, not wanting to say anyone by their name. ThreeASFOUR was not the first to use one-piece pattern cutting, it has been around for centuries. Asfour can see their own influence on the industry especially on leggings with cut-outs, which have been a staple for threeASFOUR.

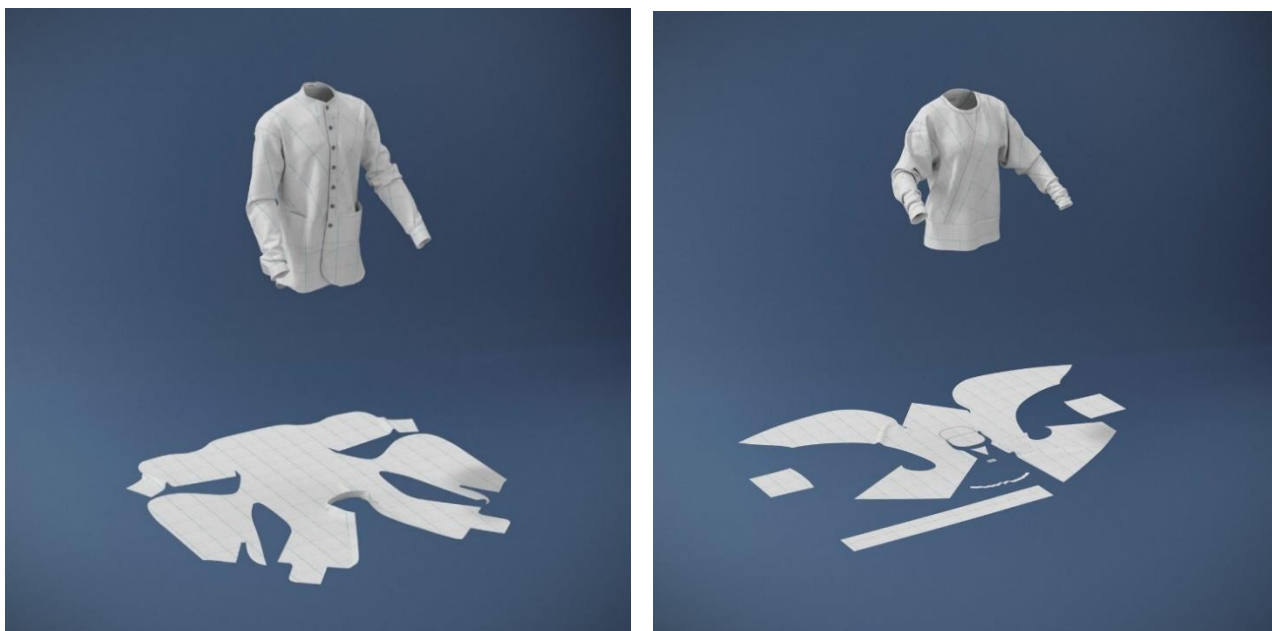
The final question asked was if they had faced any difficulties in experimentality. Asfour replied that they have had difficulties, the biggest one being manufacturing and garment making. For threeASFOUR's clothing special expertise is needed to understand the patterns, the way they are cut and put together. Now they have a factory in Brooklyn that manufactures for them, making it easy to communicate with the production. Asfour said that one of the reasons threeASFOUR moved to Mana (Mana

Contemporary, contemporary art museum in New Jersey) was the possibility of having a small-scale factory there in the future.

3.6 Atacac

Atacac is a fashion company that is focusing on rethinking the garment design and producing process as well as presentation and ways of selling. It is founded in Sweden by Richard Lindqvist and Jimmy Herdberg. (Atacac, n.d.) Atacac bases their garment design on the body creating an alternative way of making garments. This method is called *Kinetic garment construction*. In Kinetic garment construction the normally static lines of conventional pattern cutting are placed on the body supported by certain points that experience more movement in the body. Atacac focuses on research and thinking clothing in alternative ways to inspire others and discover new things. Atacac is exploring three-dimensional garment design that is aided by computers, making it possible to see the garment come to life in front of you on the computer screen, changing the ways of generating ideas during the design process. (Atacac, n.d.)

The three-dimensional presentations of garments make it possible to show how the garment looks like before production and communicating the design to the consumer in new ways. The three-dimensional visualisation enables the company to sell the garment before it is being produced minimizing the need for a stock. Atacac produces their garments in their own in-house micro factory. (Atacac, n.d.)



Picture 11. Left: Hammershark shirt, right: /-Sweater. (Atacac, n.d.) It can be seen how Atacac's clothing is constructing from a one-piece pattern that is wrapping around the body.

4 CREATIVE PATTERN CUTTING TECHNIQUES

In the next chapters I examine different techniques of creative pattern cutting. As previously explained creative pattern cutting is new ways of thinking pattern cutting and making of garments, designing with patterns. (Rissanen & Mcquillan, 2016, p.45) Usually patterns are made with conventional pattern cutting which uses basic blocks to create garments and works from the outside towards the body. This method starts with straight lines drawn on paper and shapes from which unwanted space is removed in the manner of for example darts. (Lindqvist, 2016, chap. 1.7) Basic blocks are flat two-dimensional templates made using the measurements from the body. They are showing parts of the body in their simplest form. (Parish, 2013, p.32) The blocks cover different parts of the body for example the bodice and the sleeve. They are based on a specific size and in conventional pattern cutting usually serve as an outline for the wanted garment design. (Parish, 2013, p.12) Basic blocks are also utilised in creative pattern cutting. There are many ways of rethinking garment making and patterns, in the next section I am focusing on four individual techniques.

4.1 Subtraction pattern cutting

Subtraction cutting is a method of pattern cutting developed by Julian Roberts; fashion designer, film maker and a teacher. (Royal College of Art, n.d.) Roberts used subtraction cutting as a basis for his collections, and in 2002 published an online source of his techniques called "School of subtraction cutting". From 2006 onwards Roberts started to teach the technique to others. (Roberts, 2013, p.4)

The basic principle of the technique is simple: the shapes on the garment are created by subtracting material rather than adding it. By subtraction this method is creating space for the body and giving the fabric an ability to drape on the body in forms otherwise unimaginable. (Roberts, 2013, p.12) The technique is challenging the conventional pattern cutting methods by an organic approach of handling the shape creation. Exact measurements and sizing scales are exchanged to cutting fast, embracing the chance and progress by discovering. (Roberts, 2013, p.13)



Picture 12. Subtraction cut garments by Julian Roberts. (Syndication, n.d.)

Roberts encourages to design with patterns and embracing the risk in it, he wants people to make mistakes and learn and discover new things from them. With non-conventional techniques it is usually hard to know what the final outcome is, (Roberts, 2013, p.15) this is why he advises to not always thinking what the shape being created is going to be as a result. This way it can be examined as it is on the dress stand deciding the front, back or use of it. (Roberts, 2013, p.40-41) Roberts also encourages to use other things as measurement than rulers and measuring tapes. (Roberts, 2013, p.32) He wants people to think of patterns as non-static things but rather having a moving person in them. The fabric is not static either, it goes down with the logics of gravity. (Roberts, 2013, p31, p.27)

Subtraction cutting techniques include the tunnel technique, the plug technique and displacement technique.

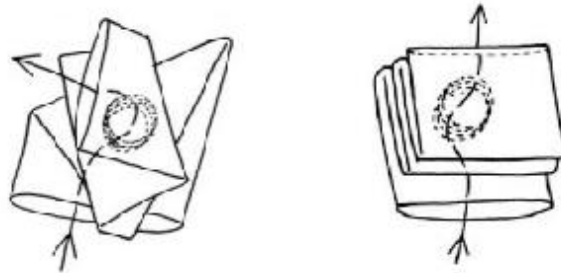
When cutting with subtraction cutting it is important to know that the patterns represent the negative spaces that create the area for the body to go through, instead of the shape of the garment; the shape emerges when the garment is put together. (Roberts, 2013, p.14) Roberts describes that negative space is apparent in all garments, in fact the garment is simply put a hollow tube through which the body goes through. (Roberts, 2013, p.25)

4.1.1 The tunnel technique

The basic principle with this technique is to understand how the body can go through the pattern multiple times. The pattern is a tube of fabric that has shapes cut out for the body to occupy. The shapes cut out should be larger than the hip measurement, since they are during construction

sewn together to form a continuous shape, a hollow space. (Roberts, 2013, p.34)

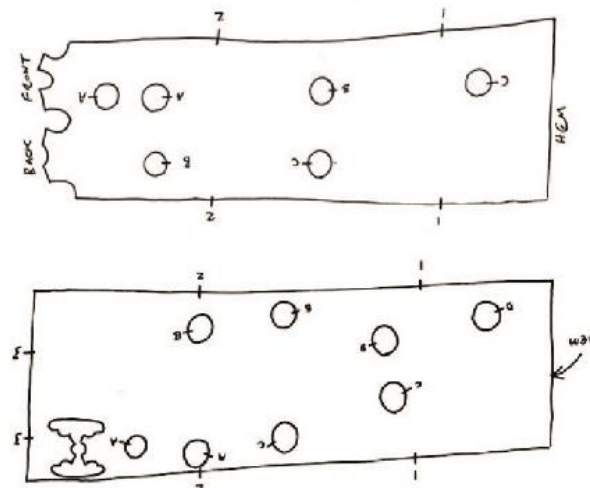
The shapes can be sewn together always folding the fabric like an accordion (Roberts, 2013, p.36) or turned towards the next shape like a spiral. (Roberts, 2013, p.49) The shapes can be cut in line with each other so that the fold is symmetrical but also more arbitrary so the fabric is folding twisted (Roberts, 2013, p.38-39)



Picture 13. The shapes can be sewn together in various ways. (Roberts, 2013)

There are two ways of using the tunnel technique. One can either create basic blocks of front and back of a garment, then extend them by at least 3 metres (Roberts, 2013, p.42-43) or sew a long piece of fabric from selva-ge to selva-ge together and one end of the tube closed, afterwards placing blocks at the end of the tube. (Roberts, 2013, p.45-46)

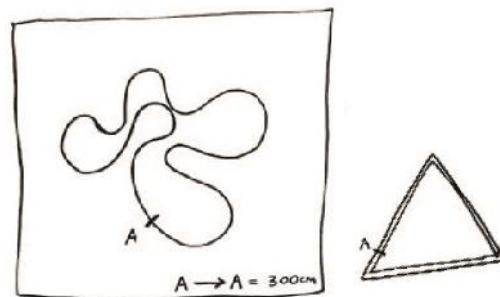
In the first technique front and back pieces are separate and sewn together, the cut shapes are added afterwards which are then sewn together to make the final silhouette of the garment. (Roberts, 2013, p.44-43) In the second technique the blocks of front and back can be arranged at any angle in relation to each other and the fabric. (Roberts, 2013, p.65) After drawing the neckline, shoulder seams and part of side seam, the blocks are simply connected from the armhole with a line from front to back. This negative space is then cut out in order to sew the shoulder seams together. After this the holes can be added. (Roberts, 2013, p.46-47)



Picture 14. Two ways of constructing a tunnel subtraction dress. (Roberts, 2013)

4.1.2 The plug technique

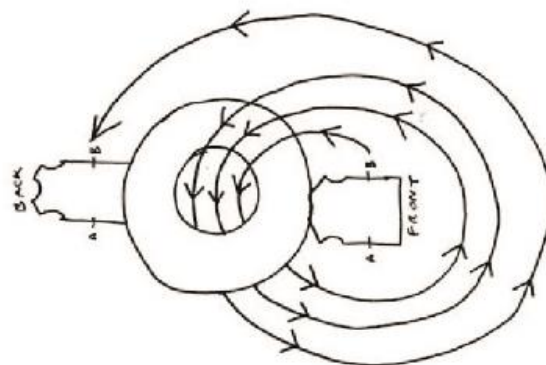
The plug technique bases on the idea of creating mismatching shapes, a cut out and a separate shape which are sewn together. One shape is cut out (on the pattern piece) and another one is then sewn on the place of the cut out. The shapes can be mismatching because of the same circumference of the hole and shape sewn on it, only adding a double seam allowance at the edge of the shape that is sewn on. This creates new three-dimensional volume because of conflicting shapes being forced to be combined. (Roberts, 2013, p.52-54)



Picture 15. In the plug technique a shape is cut on one fabric and a contrasting shape is sewn along the cut line with the same circumference. (Roberts, 2013)

4.1.3 Displacement technique

The displacement technique uses separate front and back pieces that are sewn on a form with a shape cut out, for example a circle with a smaller circle cut out. The other pattern piece has to then travel through the shape within the shape in order to be sewn to the other pattern piece. (Roberts, 2013, p.66-67)



Picture 16. Displacement technique (Roberts, 2013)

4.2 Draping

Draping, the French term *moulage* comes from the word *moule*, a mould, and means forming something with the aid of a mould. Draping is a pattern cutting technique that requires working in three-dimensional way straight away either on the dress stand or human body as opposed to flat pattern cutting which is started with two-dimensional pattern pieces. In draping the design and pattern are both being achieved at the same time. (Duburg, van der Tol, & Schacknat, 2011, p.9) Garments have been categorized in history to fitted garments and draped garments, meaning fitted when sewn together from pieces of cloth and draped when made from a single piece of cloth that is wrapped around the body. Today it is known that draping can be used to make patterns of any kind of clothing. (Sterlacci, 2013)

Draping fabric on to the body is the oldest way of dressing. In Ancient Greece and during the Roman Empire fabric was draped on the body according to certain rules. (Duburg etc. 2011, p.11) Nowadays similar draping can be found with Indian sari and Indonesian sarong. There are not many documents of draping existing in garment making from the Roman Empire till the Haute couture's rise in the 19th century, even though it is likely it was used. (Duburg etc. 2011, p.13) Draping was reinvented in the 19th century onwards with the likes of Madame Grès who was inspired by the Grecian dress and made her designs mainly from jersey and Madeleine Vionnet who invented the bias cut. (Sterlacci, 2013) Draping was most appreciated during the rise of haute couture but experienced from 1950s onwards to be replaced more and more with flat pattern cutting. Nowadays draping is still being used by many fashion companies but remains as more of a niche than a largely used technique. This is mainly because it is not being taught as much as flat pattern cutting and the skills are transferred in ateliers from masters to apprentices which makes it harder to learn. (Duburg etc. 2011, p.13-15)

In draping the fabric, sometimes cut into pieces is arranged on to a dress stand or human body. There might be a design sketch that is being followed or merely an idea which is then tried on the dress stand. When using the fabric straight away in wanted ways it becomes easy to see where alterations are needed, what are the proper placements of details (Amaden-Crawford, 2005, p.22) and what can be achieved with the chosen fabric. (Duburg etc. 2011, p.9) It is not always possible to predict how the final garment will look like (Amaden-Crawford, 2005, p.22), the results might not be possible to imagine on paper. (Duburg etc. 2011, p.9) Draping is dialogue with the fabric basing on imagination, intuition and experience which allows freedom with design that is not based on calculations. (Duburg etc. 2011, p.9) Draping requires practice since the designer has to learn to shape the fabric over the dress stand by hand, by smoothing it and learning its qualities. (Amaden-Crawford, 2005, p.26)



Picture 17. Making of a cowl back and bias front. In draping fabric is arranged on the dress stand straight away to create a garment.

Connie Amaden-Crawford in her book *The Art of Fashion Draping* (2005, p.18) explains the importance of knowing different fabrics before starting draping. Fabric knowledge and the abilities of their performance is in the centre of successful draping designs. There are natural fibres including for example wool, linen and cotton and manufactured ones for example acrylic and polyester. The difference of fibre contents as well as the construction and colorization will affect the draping of the fabric and how the final garment will look like. (Amaden-Crawford, 2005, p.18) It is good to use a similar fabric to the one wanted to be used in the final garment for draping to enable right fit of the garment. (Amaden-Crawford, 2005, p.26) If the draping design is wanted to be replicated for production toile fabric such as calico is used during the process, but it is also possible to use straight away the final fabric if the design is one of a kind. (The Cutting Class, 2014)

As well as knowing how the fabric is performing, it is important to consider the grainline of fabric. Straight grain is the most common used when cutting pattern pieces, it is parallel to the selvage of the fabric, the enforced edge running on both sides of the fabric edges. Crossgrain is

grainline running in a 90-degree angle from selvage to selvage. True bias stretches more than straight grain and cross grain and is used mainly when the design is wanted to fall on the body without using darts. True bias is on fabric at a 45-degree angle from the selvage. (Amaden-Crawford, 2005, p.20)

With draping you can quickly position the fabric on the stand in different designs and silhouettes before making a decision on one. This might result in moving quickly with the design without documenting the changes made. It may be needed to keep track of the changes by taking for example photographs and notes in case it is wanted to come back to the idea later on. (The Cutting Class, 2014)

With draping it is easy to see how the fabric falls with gravity on the stand when pinned to different positions. It is important to note that when pinning the fabric on to the stand you cannot see how the fabric will hold the wanted shape without the stand, and this has to be thought of. The pins must be positioned so that they are not supported by the stand and if the wanted details are not holding their shape it might be needed to have a structure underneath the garment which holds them in place. (The Cutting Class, 2014)

Draping straight on the dress stand usually results in close fitting garments shaped like the mannequin itself since the stand is the base on to which the fabric is moulded on. More interesting designs might be achieved when a base structure is made underneath the garment or by positioning shapes on to the stand on top of which the draping will take shape. It is also possible to manipulate the fabric before starting the draping process which might result in unexpected results. (The Cutting Class, 2014) When draping on to the stand the designer must note the movement of the body with considering ease and positioning armholes and lengths of the hems. The stand is a static object on to which shaping is easy to be made on, but the garment must move with the wearer and be easy to sit down in. (The Cutting Class, 2014)

Amaden-Crawford's steps in successful draping design (2005, p.26) start with analysing the wanted design and which draping techniques are being used. Then the fabric piece needed is measured and the grainline is drawn on to it. It is either possible to start with straight grain on either front or back of the stand or true bias which results in a more organic shape, either way the fabric is pinned at first on to the wanted grainline. The grainline is kept during the whole draping process, otherwise all shapes and folds created are permitted. During draping the designer has to make clips and cuts on the fabric when it is not folding as wanted, for example around the neckline. All unwanted wrinkles and folds have to be smoothed by hand. When the design is ready it is taken off the dress form and transferred on to pattern paper, where all the pattern details

and matching line lengths such as possible side seams are matched. Finally, the design is pinned together for a final check.



Picture 18. Draping is started usually with straight grain or bias from back or front. The grain line is marked to the fabric.

4.3 Zero waste pattern cutting

Zero waste pattern cutting is a technique that utilizes the whole fabric or material used, resulting in zero cutting waste. Zero waste designing is possible through including pattern cutting into the design process of garments, and pattern cutting therefore dictates the finished look of the design. (Rissanen & Mcquillan, 2016, p.11)

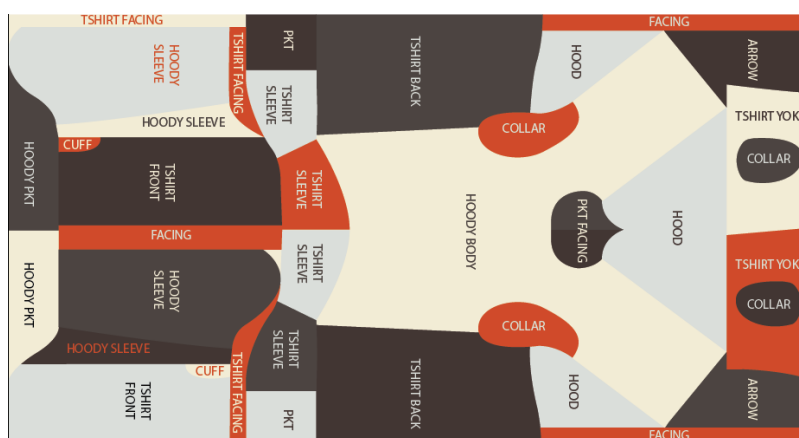


Picture 19. Timo Rissanen's zero waste cut hoodie. (Rissanen, 2010)

The term zero waste in fashion emerged in 2008 but utilizing the whole piece of material for a garment has been there from the start of wearing clothes. In the past many garments were made without fabric waste simply because fabric was more appreciated and cared for, there were not many materials available and making them was slow. (Rissanen & Mcquillan, 2016, p.11) After woven fabric was discovered, whole lengths of fabric were draped over the body, for example in ancient Greece and in India where the draped sari is still being worn. Another example of zero waste pattern cutting in the past is the Japanese kimono. The kimono is created from a single cloth which is cut in pieces, sewn by hand together and unpicked when cleaned. (Rissanen & Mcquillan, 2016, p.12)

Pattern cutting in zero waste is fashion design, the process requires conversation between cutting and designing. Pattern cutting is not a reaction to the design process but an important part in the creation of the shape of the design. (Rissanen & Mcquillan, 2016, p.42) On the other hand, pattern cutting being elaborate in zero waste may result in some difficulties of manufacturing; the grading of garments and cutting in factories. (Rissanen & Mcquillan, 2016, p.153, p.169)

The basic thought behind zero waste pattern cutting is the conversation of fabric width and garment cut, both are influencing the other. (Rissanen & Mcquillan, 2016, p.19) Holly McQuillan presents three common approaches to zero waste pattern cutting. *Planned Chaos* uses conventional pattern blocks when starting the design, *Geo Cutting* uses shapes and geometry and *Cut and Drape* uses the dress stand and free form in order to make the design. The techniques are used individually or combined to make the desired shapes. (Rissanen & Mcquillan, 2016, p.89)



Picture 20. Holly Mcquillan's embedded zero waste design where two garment's patterns are cut from a single piece of fabric. (Holly Mcquillan, n.d.)

Working with squares and rectangles is easiest in zero waste pattern cutting since the fabric is shaped like one. It is possible to use curved lines, which is reasonable considering the shapes and curves of our bodies. (Rissanen & Mcquillan, 2016, p.80) It is important to look at the negative

spaces in patterns since they are going to be in the finished garment in zero waste pattern cutting. This might work so that you make the shape of one wanted piece of pattern first and look at the negative spaces that are left on the piece of fabric and how could they be utilized for the rest of the pieces. (Rissanen & Mcquillan, 2016, p.88) All the needed pattern pieces have to be included when the fabric is cut, the facings and seam allowances have to be considered previous to this. (Rissanen & Mcquillan, 2016, p.90) Working digitally or half-scale can be useful in figuring out the outcomes of zero waste. (Rissanen & Mcquillan, 2016, p.130)

4.4 One-piece pattern cutting

Since it was extremely difficult to find literature or even internet resources on one-piece pattern cutting's history, theory and makers, in this research I am utilising Richard Lindqvist's *Kinetic garment construction* book as a comprehensive resource as well as my own experiences on one-piece pattern cutting. Lindqvist's *Kinetic garment construction* is basing on one-piece pattern cutting's theory of making clothing from a single piece of cloth, only developing it further on to his own way of constructing clothing. Richard Lindqvist is a co-founder of Atacac and has been trained as men's tailor and graduated from the Swedish School of Textiles with a PhD in fashion design. (Atacac, n.d.)

One-piece garments are made from a continuous single piece of cloth which is resulting in a garment. Oldest one-pieced garments origin from ancient dressing of Ancient Greece and Roman Empire which were rectangular pieces of fabric that wrapped around the body according to certain rules. (Lindqvist, 2016, chap. 2)

Richard Lindqvist started his research for *Kinetic garment construction* as practical work and making remarks while working as a tailor at A.W. Bauer & Co. in Stockholm, as a pattern cutter for Vivienne Westwood in London and visiting the atelier of Geneviève Sevin-Doering in France. (Lindqvist, 2016, chap. 1)

French costumer designer Geneviève Sevin-Doering is known for her method of constructing clothing from a single piece of cloth. She has been developing her method since the 1970s in which the design is reached on the wearer. Sevin-Doering has researched clothing that was constructed before establishing the conventional pattern cutting technique, for example clothing used in the Middle Ages. (Sevin-Doering, 2004; Lindqvist, 2016, chap. 1.5)



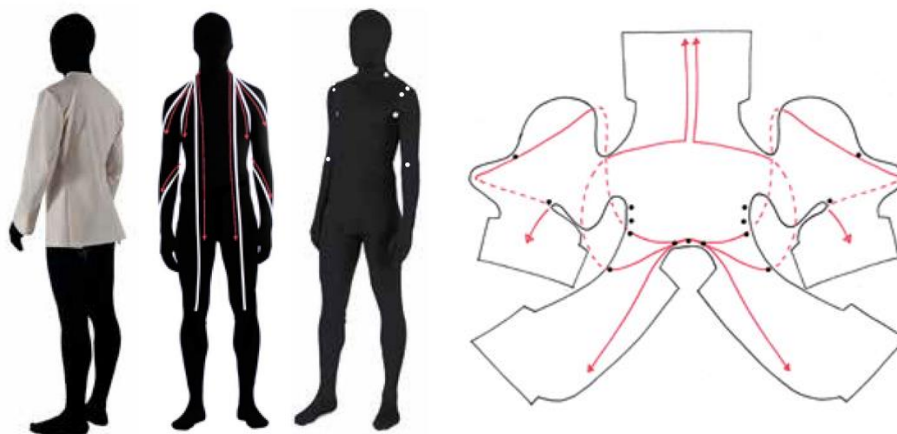
Picture 21. Geneviève Sevin-Doering's patterns laying flat. The one on the left constructs as a dress and the right one as a pants and a top. (Fasanella, 2010)

In Sevin-Doering's patterns the starting point is the body on to which the fabric is wrapped around. Block patterns and dress stands do not make any use since the garment is made on the person who is meant to wear it while they move. According to Sevin-Doering there is no need to cut fabric on the shoulders or on the side since the fabric falls naturally by gravity, this was seen while working straight on the body. (Lindqvist, 2016, chap. 1.6)

Lindqvist spent time at the Sevin-Doering studio getting to know her practices of pattern cutting. From 2009 to 2011 he experimented with similar patterns trying to make out his own by researching Sevin-Doering's patterns and altering the shapes of them. This time he called designing with patterns since the pattern and how it would come together determined the overall look of the garment. Lindqvist tried also using conventional pattern blocks in order to make one-piece patterns and therefore shifting the usual seam placements. (Lindqvist, 2016, chap. 1.6)

Lindqvist's theory of *Kinetic garment construction* tries to answer questions on how make the body the centre of design and seeing how the fabric reacts to the body. (Lindqvist, 2016, chap. 3.2)

By examining fabric being draped on the body Lindqvist created proposals of lines where the fabric naturally falls, neither falling off it nor restraining its movements. He also noticed certain points where cuts are needed in order for the body to move. These are considered in this theory to enable natural movement. Kinetic garment construction emphasises the biomechanical functions of the body rather than the pattern (Lindqvist, 2016, chap. 3.2)



Picture 22. Kinetic garment construction's theory of having lines on the body where the fabric drapes and points where there is more movement in the body. One-piece pattern made with this theory's principles. (Lindqvist, 2016)

Lindqvist has executed experimentation in relation to this theory to see how it is working in practice. The experiments start with a live body. Starting from the centre back of the neck or the waist, a rectangular piece of fabric is placed on the shoulders or around the waist and cuts are made to it according to where the fabric wants to drape, taking into consideration the body's movements and gravity. The cuts are made in all directions and shapes to get a natural expression. Afterwards the lines are compared to the muscle lines of the body and some alterations are made. (Lindqvist, 2016, chap. 3.3)

One-piece patterns can be achieved with Lindqvist's and Sevin-Doering's techniques of first placing the fabric on the body and making cuts to it to fit and create shape. There are more techniques to try within this method of pattern cutting, which I have tried out during my exchange and internship. It is possible to utilize basic blocks to create a design or pre-made patterns of a garment which can be made in to a one-piece design. This way new design lines are created when the pieces are forced to be combined to one cohesive pattern.

Another technique is to make a pattern of a garment which is then taped together from pattern paper to 3D. Then a style line is added as wanted on the design, the line has to be continuous around the pattern so the design is one-piece. This line is best when it cuts through the most curved parts of the pattern, for example the dart's highest point, making it easier to make the pattern flat. After the line is drawn the pattern is cut open along it resulting in a one-piece pattern.



Picture 23. One-piece pattern cutting technique in which the pattern is first taped together and cut along one continuous line.

The main aspects to consider when designing one-piece patterns are the lengths of sleeves and hems and size of the fabric. All parts of the design have to be included in one pattern, therefore long sleeves and hems are not always possible to arrange as wanted. This may also result in having to use more fabric if the pattern becomes very long and elaborate. The fabric width and length are in the centre of what kind of design can be achieved, in many cases the pattern has to be placed on the fabric cross-grain or bias. The pattern will have this grainline on the back or front piece, but the other parts of it will fall on the fabric according to the pattern shape created.

5 CREATIVE PATTERN CUTTING TECHNIQUES IN PRACTICE

The next chapter focuses on trying out the creative pattern cutting techniques in practice. Using creative pattern cutting techniques, when not thought through, can result in compromising aesthetics over practicality. As Rissanen (2016, p. 87) explains the aspects to investigate while designing a zero-waste garment (or a garment in general) are the style and details of the garment, fit and wearability, the cost of manufacturing (from time used to materials), sustainability in materials and other aspects of

producing the design and finally the possibility of replicating the design in production. (2016, p.88)

In these experiments of the techniques I wanted to focus on reviewing them in regards of wearability of the design, usage of time, the amount of materials required and whether there was a possibility of manufacturing the design in production or would it merely be a one-of-a kind piece.

5.1 Subtraction cutting

5.1.1 Tunnel technique

In many Julian Roberts' dresses two lengths of fabric are combined to form a tube of fabric. In my try-outs I only utilized one length of fabric reducing the fabric needed but also the volume that could be created.

In this first try-out, I wanted to see how the basic thought of subtraction cutting of removing material rather than adding it would work. I folded the fabric in half lengthwise and sewed the side and one end closed creating a continuous tube. I placed previously made basic front and back blocks as I wanted in the closed end of the tube of fabric. Then by combining the sides of the blocks from the front piece to the back, I created the form that would be cut off.

As seen on picture 24 the whole form did not fit to one side of the fabric, but that I had to continue to the other side. This form was then cut off resulting in an empty space that made it possible for the shoulder seams to be sewn together. The side seams were also sewn together until the armhole. In this design the 'forms' (the triangles in the closed end of the fabric) fell on the back of the garment. Originally the shape was not much to my liking but it gave me an insight on how the basic idea would work. In the end I decided to drape some of the fabric in the front and back to create more form to the dress.

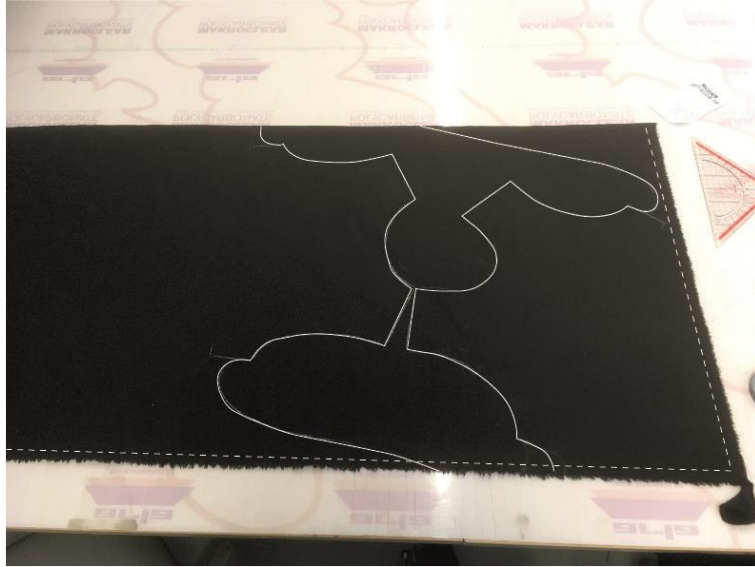


Picture 24. Placing front and back blocks in the closed end of the tunnel of fabric, the side seams connected. This shape is cut off.



Picture 25. Finished first subtraction dress made with tunnel technique. Fabric is draped in the front and back.

The second try-out on subtraction cutting was another version of the tunnel technique. This time the triangular shapes would fall on the front of the dress. This helped me to think more comprehensively how the shapes were forming in this technique. This composition of the forms was more aesthetically pleasing and I thought I could utilise a similar idea on a different garment.



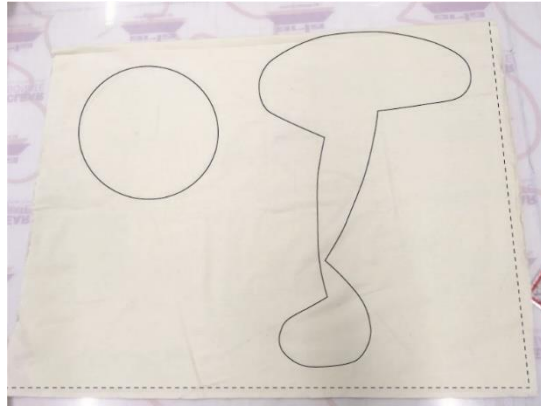
Picture 26. Second subtraction cutting tunnel dress.

For the next try-out I used a tube knit that made the process of subtraction even more straightforward since it was eliminating the need for one more 'seam' on the selvage side of fabric. For this one I used a t-shirt block and placed the shapes on straight grain on the fabric. Because of the added sleeves on the top, the cut-out got quite long and took more fabric than in the sleeveless designs. The shape created was quite different to the other tunnel try-outs since it was equally boxy and long in the front. I did not determine which was the front and which was the back of the shirt before cutting since I wanted to decide afterwards on which side would the shape be. I decided after fitting it that it was better in the front and tried out different drapes with the shape created which proved to be very interesting. This shaping in the front could be arranged in multiple ways, depending on the preference of the wearer resulting in multi-functionality.



Picture 27. T-shirt try-out of subtraction cutting's tunnel technique. The shaping in the front can be arranged in multiple ways.

With the other techniques I had not tried putting shapes on the pattern where the body goes through and I wanted to try that in either pants or a skirt. I sewed a piece of fabric closed in the same way as before in the other try-outs and drew two waistlines of a skirt pattern in an arbitrary manner and connected the side seams by free hand. I added two holes through which the body would go through when they would be sewn together to form a tube.



Picture 28. A skirt made with subtraction cutting's tunnel technique

5.1.2 Plug technique

For the plug technique I tried combining multiple different shapes that in the end did not work in creating a lot of shape. The shape cut out and shape added had to have enough contrast for the form to have an effect. Finally I tried this version of cutting only slashes to the fabric and then sewing straight rectangular pieces of fabric on the cut line. This resulted in a nice voluminous shape which I would like to utilise in some garment in the future.



Picture 29. The plug technique. A slash is made to fabric on to which rectangular pieces of fabric is sewn on.

5.1.3 Inspired by subtraction cutting

This try-out got its idea of subtracting material in order to create shape from subtraction cutting. I used a regular sleeve block and cut circle shapes on top of the inner seam which were the same circumference as my arm. The arm would go through the circles when the sleeve would be put together resulting in gathering on the inner sleeve seam and puffiness on the other side. From the first toile it was evident that the sleeve block was too short in length to create a full length sleeve after the gathering so the pattern had to be lengthened. After some calculations the sleeve pattern appeared to have to be so long it would not fit to fabric and it had to be cut to pieces. Even though this design was not the most material efficient I wanted to try and make a complete garment by utilising it since the effect created was interesting. I made a top pattern with

the same idea; cutting circles in the centre front of the pattern. This try out resulted in an unusual shape which I would like to develop further.



Picture 30. Pattern development from first toile to the finished patterns.



Picture 31. Finished try-out inspired by subtraction cutting

5.2 Draping

With draping I started by arranging fabric on to the dress stand in various ways to see a design I would like to construct. This way it was possible to see variations of an idea and then decide on one that was wanted to be manufactured.



Picture 32. This was the design I wanted to start making.



Picture 33. First try of making the wanted drape design

I started to make the pattern for this dress with the same manner as the sketch made with fabric. This proved to be too complicated since I did not have experience on how to keep the folds and tucks in place when the fabric was twisting from the front towards the back and other side of the dress stand. This resulted in a pattern that would not be easily manufactured so I wanted to try and see if a simpler idea could be executed with this shape.

In the next try-out I started to make each part of the design individually by having side seams in the dress.



Picture 34. Each part of the design is draped individually and the folds and the dress stands' markings are made straight to the toile fabric.

After this the pieces were transferred to pattern paper and the first toile was sewn. This still required another toile to make the pattern more fitted on the side seams.



Picture 35. The finished drape try-out dress

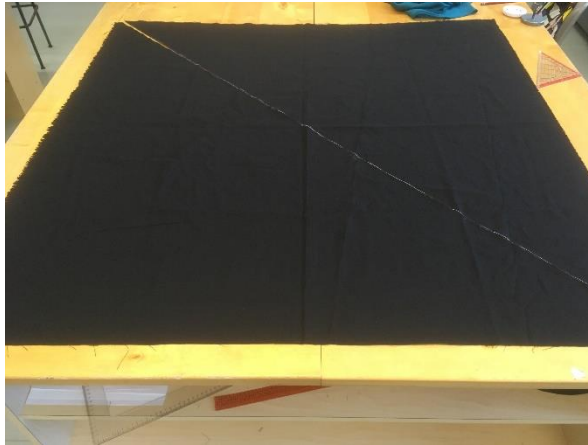
The next draping try-out I made by utilising circular strips and arranged them on the dress stand in wanted ways. One strip each was arranged on the shoulder seams and strips connecting the two were added to the back and side.



Picture 36. Draping circular strips on the stand

5.3 Zero waste pattern cutting

With my first zero waste pattern cutting try-outs I wanted to start with squares so it was possible to see how much fabric was left after cutting. I cut a square of fabric that was the same length and width in half from corner to corner, which resulted in two big bias cut pieces. I put the sel-vage side of the fabric along the neckline and folded the corner in the front two times resulting in the shape and a pocket. I found the shoulder seam on the dress stand and cut the fabric in a straight angle down to make an armhole. This resulted in one more triangle that I used to make the back to the garment. The two triangles that were left after the other side of the garment was made I placed in the back so that the longest seam was towards the neck and shoulder seams and the second one was sewn with the same direction in to the corner that was falling down-wards.



Picture 37. Cutting the fabric and finding the shape and shoulder seam on the stand.



Picture 38. Finished zero waste top

The next zero waste garment was also made with squares, but multiple ones and the remaining fabric that was left after the cutting of six squares was made into two straps that were attached from the shoulder to the waist of the garment. This try-out was executed with six squares; four in the front and two in the back. In the front the squares were again put on the body in bias when hanging from the shoulders. The fabric used was linen or a linen mix therefore it was draping organically on the stand. The back squares were attached from one side to the front pieces and folded in the back to create a recreation of the voluminous shape in the front.



Picture 39. Zero waste dress by utilising squares.

The next zero waste try-out was one that I had an idea of on the paper and wanted to try it after sketching in real fabric. This idea did not work as originally wanted because I miscalculated the size of the fabric and it was otherwise also quite complicated. Originally I wanted to make a one-piece bat-sleeve jacket and see if I could make trousers of the pieces left on the sides after the cutting. This shape was created because I wanted to include pockets to the jacket pattern which left an unusual negative space. I cut the jacket anyway and wanted to see if I could utilise the shapes in other ways. I placed the shapes on the stand to try and see different options to use them all together to form a garment. The most interesting option was this vest that was created by placing the curve of the negative space from the jacket's sleeve as shoulder seam and closing the side seam with folds.





Picture 40. Zero waste cut jacket and a vest pattern development from an idea to the products

5.4 One-piece pattern cutting

When making a one-piece pattern that is symmetrical it is best to start with merely one side of the pattern which is then cut on the fold. With one-piece pattern cutting I started with a pattern I had made previously of an oversized blazer. I started by combining the front and back pieces from the shoulder seam and attaching the sleeve on its sleeve head. I had to alter the sleeve and the side panel of the pattern to make it fit in one piece.



Picture 41. Making the blazer pattern to one-piece



Picture 42. One-piece blazer pattern cut and assembled

With the next try-out on one-piece pattern cutting I also utilised a pre-made pattern that I altered to fit to one continuous one. The challenge with this pattern was the neck area since the front piece was connecting to the back piece and the sleeve requiring more alterations.

I connected the back piece to the sleeve on the sleeve head and made a cut on the front piece so it would fit to the same area. For this pattern I also created more volume on the sleeves by creating folds to the inner seam. This resulted in a very long sleeve which would take too much fabric as a one-piece pattern. For this pattern therefore if made in one-piece I would make the sleeve without the folds making it possible to be fitted in straight grain to a fabric.



Picture 43. The second one-piece pattern made and cut



Picture 44. The finished second one-piece garment

6 CONCLUSIONS ON CREATIVE PATTERN CUTTING

6.1.1 Subtraction cutting

Subtraction cutting was a completely new idea and technique for me which seemed interesting from the start. Pre-set measurements and calculations of pattern cutting were dismissed to have room for intuition and new ways of thinking garments. This stirred up the imagination and got me excited of the possibilities of the technique. Working, experimenting and making discoveries through the process were in the centre of this technique. Subtraction cutting felt like creative play with fabric which made me think of patterns in a new way and have questions why pattern cutting is made usually with similar methods. When starting with the experiments it was difficult to see how the shape and garment would eventually look like. As I was continuing with it, it was easier to see certain ways of working resulting in specific shapes.

The wearability of subtraction cut garments depends on the design that is being made. Generally, there is a lot of 'bulk' created with this technique, which may not be to everybody's liking. If the shapes created are quite big and static, they may effect on how you can move in the garment but especially the designs made from stretch materials such as jersey were most comfortable since the shapes were draping more organically and giving room for movement. The t-shirt that I made in my try-outs with the tunnel technique was versatile and the shapes could be arranged as

wanted after the cutting and sewing, resulting in a multifunctional product. Overall, I did not see an issue with the wearability of the designs, it was more relating to the aesthetic of the technique, whether you like it or not.

Subtraction cutting was a quick technique that left room for discovery and intuition. The shapes were drawn on fabric with aid from blocks but connected with free hand. In the plug techniques shapes could be created endlessly with only imagination as the limit. When something was tried out it was always possible to look at the shapes created on the dress stand and alter them with new ideas. The process of creation was organic and fast, being able to see the results almost instantly.

Subtraction cutting uses quite a lot of fabric, especially when making long dresses with the tunnel technique, but the fabric is used almost as a whole. The pieces cut out serve as patterns that may be used if the same design is wanted to be replicated. The technique uses straight away the fabric that is resulting in a finished product; if the design is successful it is reducing fabric waste but if it is not, the fabric may be wasted. On the other hand, in conventional pattern cutting multiple toiles are created and sewn of the wanted design before it is manufactured using the actual fabric. With subtraction cutting, ideas that do not work can result in new discoveries, even though the garments may not be used in the end.

In subtraction cutting the pattern cutting, design process and manufacturing the garment are closely connected and communicating with each other. Thus, it may be difficult to replicate the designs in production, if the factory is not working closely with the designer. In my opinion it is possible to make some of the designs, possibly with the aid of computer programs which could show the exact placements of the cuts or with close contact with the production and precise instructions of the construction of the garments.

For myself personally this technique felt like sketching with real material and I could in the future utilize some ideas created with this technique to be used in other garments, such as in the last try-out of subtraction cutting in my practical work in this thesis. Subtraction cutting in my opinion is strongly Julian Roberts' technique which he is teaching and has made several collections with. Therefore, it would not feel comfortable using this technique as it is for my own designs since it would feel like copying his aesthetics.

6.1.2 Draping

Draping I had tried previously during my exchange year when we made all basic blocks utilizing draping and tried cutting in bias. Even though I had tried this technique it still felt that I needed more practice with knowing how the shapes stay in place not altering the other parts of the

design. I learned a lot when trying with this technique, mostly through trial and error and it reminded me that everything is not as straightforward even though it is a technique you know. It is needed to have a lot of practice and research on how draped garments are actually constructed. In theory arranging fabric on the body in wanted ways is actually quite far away from the traditional draping technique where the grainline for each piece is set from the start and the side seams are drawn accordingly. The shape of the stand and basic block pattern cutting is therefore present in the shaping process.

Draping is a versatile technique that can be used to create garments from basic blocks to flamboyant showpieces. The wearability, time and material usage and manufacturing possibilities of draped garments depends on the shapes created, if the design is elaborate and complex it is affecting more negatively on these aspects. It is possible to use a live body on to which fabric is draped on, but usually draping takes place on a static dress stand, which does not have arms or a head. Even though the dress stand is depicting the human body in its natural form, it is not possible to see how the garment created works on a live body. The wearability of the garment is showing when it is natural to move with the garment, sit down and raise your arms. This is why I would recommend to have a fitting on the body with the garment to take the wearability more in to account, and see how the details, for example folds and tucks are holding without a dress form.

Draping as a technique is quite time-consuming, especially if you do not have experience with it. When draping a garment that is wanted to be replicated, the pattern is created by using toile fabric, which is arranged on the dress stand and has to be prepared and properly marked during every step of the process; these pieces of fabric represent the patterns that are going to be cut from the final fabric. This process is time-consuming and requires precision from the pattern cutter. On the other hand, it is possible to see multiple ways of arranging fabric on the dress stand resulting quickly in different and exciting shapes, this way draping can be used to sketch and study the properties of the fabric. Draping fabric on the dress stand enables to see an idea of the result instantly, only the process of making the actual pattern is taking more time. If the garment made is a one of a kind piece, made straight from the final fabric and the drape is more organic and intuitive, the technique is quicker because it is not needed to make markings on the fabric or record the steps of the pattern cutting.

In draping the pattern is created by using toile fabric, which is not utilized after the markings and shapes from it have been transferred to pattern paper. This is resulting in unwanted fabric waste, but a similar process of making toiles to establish the right shape of the garment is used in conventional pattern cutting as well. Draped patterns when cut from fabric use similar amounts of fabric and thus create similar amounts of fabric

waste than conventional pattern cutting. Draping can be used to create zero waste garments when there is no fabric waste created.

Manufacturing draped garments depends on the design, if it is a one of a kind garment or one that is meant for reproduction. When creating one of a kind piece the designer and production are in close relation, since there is only one piece manufactured. If the garment is from the start decided to be made for production, the pattern is created accordingly, only thing to take in to account is making simple and readable markings on the patterns, if they are too vague the production will need more detailed instructions on construction.

Draping requires practice and practical knowledge on the qualities of different fabrics and how are they moulding in 3D. I had tried this technique before, but still found myself needing more practice to master it more profoundly, this is why I will continue to experiment with this technique in the future, since it was also very interesting to me and I liked the aesthetic created with it. In my try-outs I felt that I got stuck to the formalities of the draping method; making sure the grainline was straight and side seams drawn correctly. This is a good way to start with the technique, but it resulted in somewhat forced look instead of giving the fabric the ability to form more naturally. I would like in the future to try more intuitive draping and get away of making garments shaped like the dress stand. This is why I would try putting padding or shapes on the dress stand, drape on a live body or use pre-existing clothing to drape.

6.1.3 Zero waste pattern cutting

Zero waste pattern cutting I had not tried before, and I was positively surprised with the results and possibilities that could be created. Having seen some zero waste patterns and clothing from other designers I had preconceptions of zero waste pattern cutting being quite complicated and requiring a lot of practice. These preconceptions were true in some respects, but this technique was also very intuitive that could be used to create all kinds of clothing, depending on the way of using the technique. The question that I had with zero waste pattern cutting was if it was easy to make garments that were wearable and not merely aesthetically pleasing.

I first started with using squares and rectangles since it was most straightforward to see how much fabric was left and what could be achieved. I quickly noticed that experimenting with this technique could go on endlessly but needed a lot of practice to think patterns slightly differently and experience with different widths of fabric. As I was continuing with it, I found myself sketching ideas of cutting the fabric into zero waste garments, thus it proved to be very interesting how the cutting affected the design. The piece of fabric that was used was in the centre of this technique and made me alter my views of the size and abilities of a

fabric. The width and length of the fabric determined my process of what kind of garment I wanted to make of the material.

The wearability of zero waste cut garments depends on the design and technique used to create it. Many times zero waste cut garments are made with angular pieces such as squares, rectangles and triangles which may affect the wearability of the design. Curvier seams that suit the curves of our bodies better are possible with this technique, but this requires practice from the pattern cutter. The negative spaces created with curves have to be included in the finished product in other pattern pieces, this is what is sometimes resulting in difficulties. On the other hand, the negative spaces can be included in pattern pieces such as pockets that are not showing to the right side of the garment or can serve as new shapes created to the garment by chance and through the process. Rectangular pieces suit the body better when they are cut in bias or arranged in bias to the body, the fabric is then draping more organically and comfortably. It is possible to utilise basic blocks and pre-made patterns to create zero waste cut garments resulting in similar wearability as in conventionally cut garments.

The process of pattern cutting, deciding on the design and determining how each piece is going to be cut off the fabric was time consuming with zero waste pattern cutting. Making this process quicker would require practice and knowledge of fabric. The process of thinking the pattern and how it is going to be cut and constructed to me felt that was ongoing all the time in my head which made it easier to start with making it. Since I had no previous experience with this technique there were some ideas that worked better in my head and drawn on paper than made from the actual fabric. Usually the size of the fabric was not enabling the idea to work or the proportions of the garment did not look right. On the other hand, especially with the techniques of using cut squares and then arranging those into a garment gave room for fast progress that happened intuitively through working with the shapes and fabric.

Zero waste pattern cutting does not produce fabric or material waste and the garments are usually made straight from the final fabric without the need of toiles. This is reducing the waste and material usage enormously compared to conventional pattern cutting. On the other hand, the ideas that are wanted to be executed in the garment are being tried out previously, possibly with fabric and if this try-out is not resulting in a successful product, it is creating unwanted fabric waste. In the latter case although fabric is not used afterwards, ideas can be generated to make a more successful product and when this product is put to production to be manufactured, it reduces fabric waste.

In manufacturing zero waste garments there are many aspects to consider. As Rissanen and Mcquillan express (2016, p.44) manufacturing zero waste garments requires close relation with the production and changing

the hierarchies of fashion companies. Difficulties in production are grading (making different sizes), cutting the fabric and assembling the garments effectively. The main difficulty in my opinion is cutting the pieces precisely especially if squares and rectangles are wanted to be made. The fabric is moving and may stretch in the cutting process, making it not possible to always cut completely straight from an already organic product. Using technology in making the patterns exact and easy to follow could help the production. Other ideas would be producing more simple designs and having detailed instructions on cutting and constructing. In more complex designs even closer relation with the production is needed or manufacturing in a small in-house factory in which communication is easy. This could result in more local production and smaller amounts of garments made which would make the garments even more ethical and ecological.

With zero waste pattern cutting I felt that I tried couple of techniques but wanted to have more and more experience with it, therefore in the future I would try to make all kinds of products with it and develop my skills further. I also want to try and see how to reduce cutting waste in already made patterns to create new ideas.

6.1.4 One-piece pattern cutting

One-piece pattern cutting I had tried previously briefly during my exchange studies and more thoroughly in one of my internships. This technique was interesting from the start and required thinking patternmaking in a new manner, especially its relation to the width of the fabric. It is exciting to figure out and see how the pattern can be made into one continuous one even though it takes practice, experimenting and trial and error. One-piece pattern cutting can be used to create all kinds of designs and it makes you look at things differently, thinking all the possibilities and patterns that could be achieved. The style lines that are being created when the pattern is arranged to be fitting in one piece may be otherwise unimaginable compared to other pattern cutting techniques.

One piece pattern cutting can be used to make all kinds of garments and patterns, the only qualification is that the pattern is made to be a one connected shape. The wearability of these garments is not depending on the technique but rather of the design that is wanted to be achieved. The try-outs that I made in this thesis were all very wearable, partly due to the fact that they were made with basic blocks and pre-made patterns that were already discovered to be comfortable and wearable designs. When making garments with Lindqvist's Kinetic garment construction technique the wearability of a garment can increase because the pattern is made straight with the body and side and shoulder seams are not in the conventional place giving the fabric the ability to drape more organically.

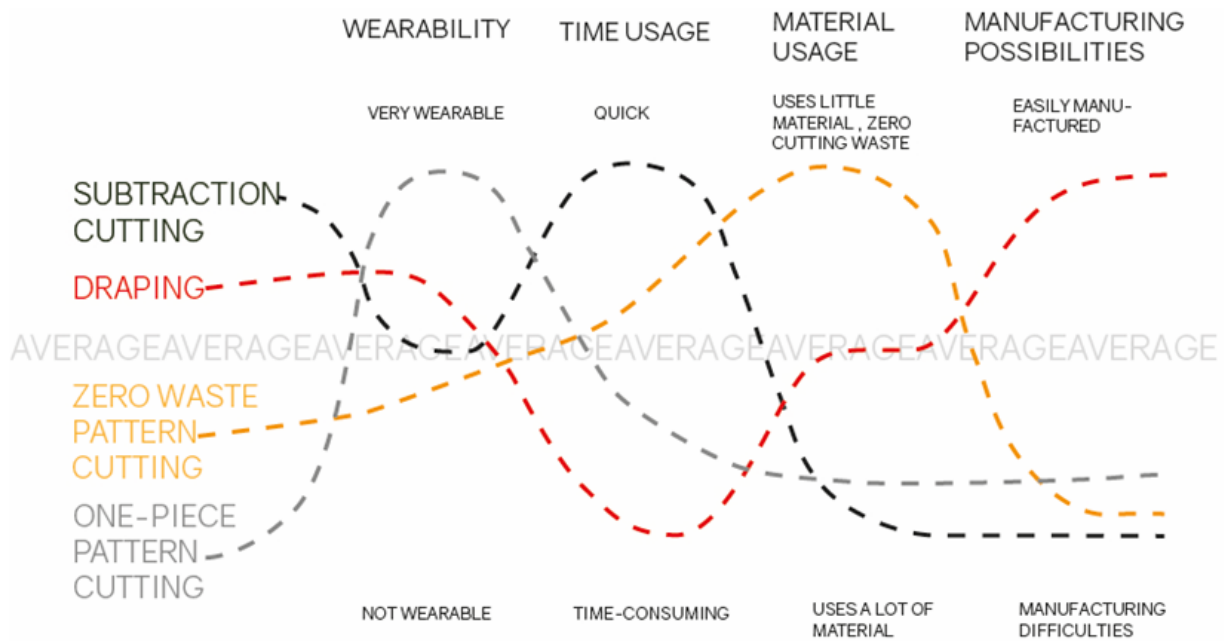
The time usage to create the pattern and garments depends on the technique used. Making a basic dress by combining the side-seams to create a one-piece product is quite straightforward, but when it is wanted to have longer hems and sleeves and seams that do not follow the conventional way of constructing clothing, the process becomes more difficult. When more detailed designs are wanted to be made the process is quite time-consuming since it is required to constantly assess if the shape is what is wanted to be achieved, if it can fit to the fabric used and marking the pattern and the steps of the process if it is wanted to come back to that moment of pattern cutting.

One-piece pattern cutting can utilise a lot of fabric when cut and require placing the pattern on to the fabric in an unconventional manner in order for it to fit, for example bias or cross-grain. This may result in parts of the fabric unused because the shapes of the pattern are cutting through it leaving awkward negative spaces. This is the problem usually if there are long sleeves or hems in the design that are making the pattern so long it has to be fitted cross-grain leaving the other selvage side of the fabric unused. This is why I think it should be thought during the design process of a one-piece garment if compromising a wanted design detail is reducing the amount of fabric used or fabric waste created.

Manufacturing one-piece garments would need same considerations as in zero waste pattern cutting. An elaborate one-piece garment is quite difficult to put together if it is not known which part of the pattern is which on the design, it is needed to have expertise from the production and knowledge on how each part will be sewn together and how the seams are finished. Close relation with the production is therefore important and explanations of the construction are key.

I personally would use one-piece pattern cutting more as a sketching technique to try new ideas or wanting to think an idea differently. That said there is a lot of more research to be made of this technique and I would like to try different garments and also Richard Lindqvist's technique of making a garment on a live body.

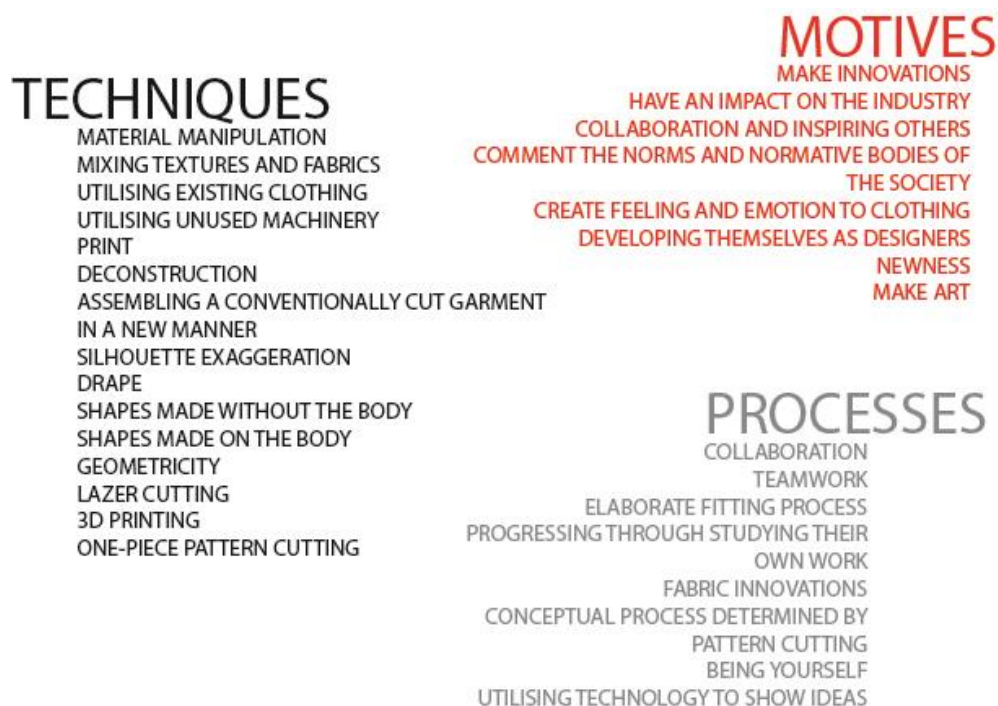
Every one of these four creative pattern cutting techniques has their strengths and weaknesses, it is hard to conclude one technique being better than the other. The usability of these techniques is basing more to the person who uses them, and which kind of garments are made. In picture 45 these techniques are compared to each other on the wearability, time and material usage and manufacturing possibilities.



Picture 45. Wearability, time usage, material usage and manufacturing possibilities of these techniques depicted in a picture comparing them to each other.

7 REFLECTION

When researching experimental fashion, it was interesting to find all the underlying themes and motives behind it, especially the commentary on normative bodies and reaching innovations in the industry. Experimental-ity in my opinion has sometimes a conception of producing new things that are difficult to use as wearable clothing but finding the meanings and processes behind the work made me appreciate the unexpected and unseen in a new manner. When researching the experimental companies, it was easy to see how some garments were made solely for show purposes and the garments that were sold differed sometimes a lot from them. All the experimental fashion companies had their own views and techniques of making clothing, but there were various that were similar among them which are depicted in picture 46.



Picture 46. Techniques, motives and processes of the companies' I examined

The whole process of this thesis was very interesting and challenging. The themes of experimentality in fashion and creative pattern cutting techniques were vast and compelling and I could have continued with the research and try-outs of the techniques further and further. Knowing to finish the researching was difficult since all of the information and aspects found were increasing my curiosity. With experimental companies I was too focused on the details and stories of the makers, that distracted the research from the actual topic; techniques used. From one-piece pattern cutting it was extremely hard to find any information online or in literature, which made the process hard and required me to use my own experiences as a reference, it also showed a need for gathering information in this topic. All in all I was happy with my research and it gave me a broad insight on the topics, even though there was too much material.

I found trying out creative pattern cutting techniques truly inspirational and could have continued further with the experiments, which I will surely do in the future. Therefore, in hindsight, I would have wanted to have more time to focus on them more thoroughly, or then I should have focused merely on one or two techniques. All of the four techniques gave new perspectives and ideas in pattern cutting, opened new views to what constitutes designing clothing, and raised questions of the practices used today.

When starting this project I thought that shapes in clothing were most inspirational for me when designing clothing, but it was easy to see how big of a role the fabric and its qualities have in shape creation; the fabric served as an inspiration on how the garment would look like. All of the techniques were relying on the size and qualities of the fabric, especially in zero waste pattern cutting and one-piece pattern cutting in which the design had to be fitted to the fabric most carefully. In conventional pattern cutting the fabric is not always as strictly considered, since the pattern pieces can be placed differently or more material can be bought.

These four creative pattern cutting techniques gave more freedom for making mistakes and trying different things and discovering something with the information. This required more spontaneity and not being afraid if the outcome was something unexpected. There were many moments when I was frustrated and nothing seemed to work but not giving up on these moments gave new paths to discover.

It was interesting to find that almost all of the creative pattern cutting techniques were deriving from similar origins and were in fact very old techniques of making clothing. For example, the garments worn in Ancient Greece were all made without fabric waste, from a single piece of fabric and draped to fit the body. Finding of the history of the techniques and trying out them in practice raised questions why pattern cutting is conventionally done in a similar way.

When evaluating the techniques it was easy to see how everything was not so straightforward, some aspects were admirable in one technique and others in another, there was not one technique that resulted in a perfect product. The techniques can be used to create garments that are not resulting in wearable products, it is all to do with the person who is using them and what kind of product is wanted to be made. Combining the techniques and seeing what results in the best option for yourself may be the answer. Another thing to consider is the value that creative pattern cutting techniques are bringing to the clothing. If customers see increased value in garments that are created with these techniques is still a question I would like to research.

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