smock x knit

Exploring the possibility of shape in knitwear by looking at the aesthetic properties of smocking, drawing inspiration from sportswear.

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2018 05
Line-up
The skier
The spa
The bobsleigh
The overall
The after ski sweater
The figure skater
The mascot
Abstract

Since late eighteenth century smocking has been a part of different fields of fashion. From agricultural clothing and swimsuits, and also inspiring architecture.

The approach of smocking has always been to tighten the fabric against the body. This work will challenging this by exploring the possibility to build form with smocking on the body, placing it in the context of personas on a winter vacation.

By extracting elements of the smocking and sketching directly in the knitting machine using different techniques and yarn with contrasting characteristics, the ambition has been to translate aesthetic aspects of smocking via volume, pattern, material and colour into knitted material, targeting a sporty silhouette and expression.

The result show an alternative way to bout fabricate and view the smocking. By letting the technique build form, placing it in a sports context suggest that smocking no longer is a technique solely for romantic dresses.

Key words
Knitwear, smocking, fashion design, textile design, sport
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Introduction to the field

Definition of Smocking

Smocking is a textile manipulation technique divided into three main categories. Wolff (1996) gives a collected definition of these in the book The Art Of Manipulation Fabric:

Smocking secures and adjust the folds of finely pleated field of fabric with hand stitching. When the stitching is visible, it superimposes an ornamental thread design on the surface of the pleats, organizing and bending the underlyng folds into cellular formations. When the stitching is invisible, the fluctuation movement of the folds become the decorative focus. Smocking fabric acquires the same thickness as its pleats, and loses flexibility across the pleats.

Here the three most used versions of smocking are described.

English/Direct smocking
Ornamental thread design that are build on top of closely packed pleats. The eye are drawn to the embroidery design which can consist of a variety of patterns like the examples in Figure 1.

American smocking
This differs from the English smocking as there is no visible stitches or embroidery on the surface. Instead there is a system of pulled stitches alternating with slack stitches that reshape the fabric into an intricate composition of folds. There is a range of different pattern for this version of smocking where the Lattice variation seen in Figure 2 is one of the most used.

Italian smocking
In this adaptation shown in Figure 3, the fabric is gathered into pleats on rows of stitching that turn and angle, this causing the pleats to bend and crumble where the stitches turn. There is also a way to gather the rows of pleats using straight stitches with skipped areas that form a puffy design.

Three variations with the same origin which creates various expressions.

History of Smocking

Smocking can be traced back to late eighteenth century England where it was used in agricultural wear. The embroidery technique were incorporated into body and sleeves of the garment smock (also known as shift or chemise) to create fullness, elasticity and shape (Holland, 1985).

The stitched embroidery design have been debated to have had a connection between the design of the pattern and the occupation of the wearer (Holland, 1985). An extensive study where conducted and reported in Folk Life by Anne Buck (1963) where she found no evidence of this statement. However the opinions are still divided and in Victorian Embroidery: An Authoritative Guide, Morris (2010, p43) agrees with Holland (1985) and argues that the embroidery design where a way to recognize different professions.

One of the oldest decorative smock that survived is dated 1779 from Sussex. As seen in Figure 4 the pattern of the smocking where small yet it holds a great deal of fabric.

During the Industrial Revolution the smock where no longer a suitable work-wear. The draping fullness of this clothing where not fit to operate heavy machinery in as the risk of accidents where to big. This lead to that the garment transitioned into being worn only on special occasion.

Transition into fashion

In the late nineteenth century smocking went up in hierarchy and were incorporated in fashionable outfits. It was first presented in sports wear such as tennis dresses and later on in gowns, blouses or children’s wear. Thanks to Weldon’s Practical Needlework (1887), “the fashionable ladies learned the art of smocking for themselves” (Morris, 2003, p44). Weldon’s 12 volume book series included patterns and design for different smocking patterns, as seen in Figure 5. Tea-gowns were usually smocked across the bust and waist, letting the remaining fabric hang loose. As seen in Figure 6 blouses could be smocked at the yoke and bust, both at the top and bottom of the sleeves as well as the waist.

In the 1940s the first pleating machine was invented. This opened up for a faster and more efficient way to execute smocking (Read, 1947). This machine gathers even accordion fold pleats on threads, the material can afterwards be embroidered with desired design. A variation of sizes have been manufactured by Read Pleater (1947) with a difference in needle count. The amount of needles equal the amount of pleated fastening points. The first small machine had a count of 16 needles, followed by 24, 32 and 47 needles.

Swim wear

Smocking got a foothold in swim wear early on. As it is a technique used to gather the fullness of fabric one can see the upsides of it being used in these cloths where a lot of fabric is not a practical thing. Kennedy (2007) takes us on the journey of the swimsuit through her book The Swimsuit, presenting various examples of how smocking has been present in this sport-context fashion.
The suit displayed in Figure 7 is an example from 1918. Smocking is incorporated at the waist to fit the body and decrease the fullness as the garment is made from a woven fabric.

Continuing to 1940 on can see that a lot has happened. The swimwear now consists of less fabric. In Figure 8 a example is displayed made entirely in smocked fabric. Thus the garment is given characteristics of hugging the body tightly.

The technique of smocking is transcending from a need to control fullness to decoration as the manufacturing of elastic fabrics increases. Figure 9 shows Sandra Dee in 1960 in a two piece bathing suit made in knitted material. It has a smocked surface, even though it is not needed for the fit. This is for the sake of fashion and as a styling. This sort of smocking in the 60s where associated with clothes for children. In this context it is therefore meant to act as a way to express the innocence of Sandra Dee (Kennedy, 2007).

Today one can see that the aesthetics of smocking is still desired in swim wear. 2018 Tory Burch presents a smocked bikini with classic needle work on top. Not for the technical aspects of the technique, but for the fashionable (Figure 10.).

The aspect of using smocking in sport today has stopped at swim wear. To continue exploring the possibilities in the meeting of these two variables will be part of this project.

Knitted smocking

There are different kinds of smocking technique as well as different kinds of knitting technique. These two elements meet in a knitting stitch called Smocking stitch (Figure 11.). By a combination of plain and purl knit with likeness to a rib, together with a stitch going over two of the rib rows an expression appears looking like a traditional English smocking good. Though it is technique creating smocking through knitting, it does not create shape.

Smocking meets knitting

Sandra Backlund presents a variety of experimental knitting work. She shows an efficient way how to create sculptural pieces in knitwear, taking advantage of the different techniques it has to offer. By creating different directions in the pieces, surfaces and cavity are constructed. With these means Backlund manage to present not only knitwear, but displays illusions of architectural and mathematical structures not too different from smocking.

In Backlunds collection Last Breath Bruises (Sandrabacklund.com, 2008) she presents strong and almost aggressive looking pieces in the color scheme of bruises. The contrast in this, the naked fleshy colors of bruises and the strong thick knit shows a smart way of mixing story and context. The voluminous silhouettes built by the manipulates of techniques has a strong reference to American smocking in the way it creates depth and patterns.

The sculptural opportunity in knitwear that Backlund is displaying in her work is a stepping stone to add on. What expression can be created with when the smocking is intentionally added in this equation.

Knitting technology

Definition of Knit (dictionary.com):
verb (used with object), knitted or knit, knitting.
1. to make (a garment, fabric, etc.) by interlocking loops of one or more yarns either by hand with knitting needles or by machine.

Knitting dates back to the Egyptians where one of the earliest findings of a knitted garment is a pair of socks from dated somewhere around the 4th century (Victoria&Albert museum). From surviving tax lists in archaeological findings, one can see that the use of knitted goods spread across Europe from the 14th century.

The technique was developed during the late sixteenth century, starting with the invention of the first flat knitting machine in 1589 by William Lee of Calverton. Followed by the French engineer Marc Brunel in 1816 who placed knitting needles in a circular formation, thus creating the first circular knitting machine.

The progression of knitting machines has advanced with technology. Since the materials characteristics are stretchy, comfortable and absorbent, the increasing use of the material in sportswear has expanded the demand for the material (Udale, 2014).
**Motive/Idea**

**Scale**

The usage of smocking in contemporary fashion is an recurring event. The exploration of the technique is ever so diverse as the expression changes rapidly depending on a variety of variables.

Molly Goddard's play with pleats and smocking is an clear example on how different the technique can be perceived. The work involves layering which emphasizes the structure of the techniques. In her autumn/winter collection for 2018 (Vogue, 2018.) The play with scale is present. From a yellow and black figure hugging dress (figure 13.) with a small smocking, to a peach pink flowing dress enhanced with a voluminous part. The search for opposite spatiality that expresses smocking is one of the focuses of this project. This to explore what kind of scale, volume and ponderosity that can express the aesthetics of smocking.

**Contrast**

In Goddard's pink dress in figure 13, she touches upon the aspect of mixing scale in one smocking. The manipulation done in the upper versus the lower part of the dress gives two different expressions. The lower part gives a heavier expression whilst the upper part have a lighter, fluffy expression. Most of the smocking techniques is symmetrical and repetitive. By breaking this pattern the smocking is challenged and distorted due to the amount of gathering becoming asymmetric. To introduce more asymmetry, or mixing of scale in "one" smocking, the exploration into more organic smocking expressions in the project is accessible.

In contrast to Goddard's playful smocking, Katie Roberts Wood presents a more modest take to the technique. Roberts-Wood's work with minimalistic cuts with a modern aura, yet the smocking is presented in a old-fashioned way. Placing the gathering at the waist, the expression of a corset is present (figure 14.). In comparison, Goddard uses the technique to build out from the body, whilst Roberts-Wood often use it to tighten the garment.

In the light of these two work contrasting each other, the knowledge of them origination from the same technique, the work of this rapport will exploring how wide the range of scale in smocking expression can be without the breaking the concept.

**Relation to the body**

The question of what smocking is, can be a questioning on how fabric is gathered. Goddard's sculpturing with smocking has two sides. First is the classic gathering, the tightening of fabric towards the body, this is also the main subject of Roberts-Wood's autumn/ winter collection (Vogue, 2018). Second is the shape building, the spatial sculpturing away or around the body. Emphasising not only the body, but the silhouette of garment. The dynamic of these two ways of looking at smocking is a step towards something new within the technique. The approach of smocking has always been to tighten the fabric against the body. This will now be challenging in an exploration to build volume and spatiality on the body.

**Colour**

Goddard’s play with different colours show how play a big part on the expression of the technique. With a shiny golden material the smocking give a chaotic expression with the help of reflection, light and shadows. The same technique in a semi opaque dark organza tells a more low-key and romantic story (figure 13).

Presenting the smocking in monochrome colours, as in Roberts-Woods collection, lets the technique speak loudest. As this is how smocking historically has been presented colour wise, a challenge will be to push the technique away from historical references with the help of colour.

**Material**

Both Goddard and Roberts-Wood keeps to conventional smocking materials regarding that they are woven. The exploration into other kinds of material is an aspect that will push the novelty of the technique in fashion. Goddard is toughing upon this with the use of lustrous material, yet there is room too advance more.

What can a collection like this deliver if one of the variable is changed. If the technique stay the same but the material is swapped to ones with various characteristics, chunky knit, plastic, or wood. What can the technique bear and still be perceived as smocking.
Technique

Smocking can be seen in many different ways. One being the physical technique of pleating and sewing the material in a pattern, another one is the aesthetic expression of it.

3D

Marina Hoermanseder presented a 3D printed piece in her spring/summer 16 collection. (Vogue, 2016) Details in the work consisted of small flower smocking. This was translated into a printed corset which imitated the aesthetic expression of the that technique (figure 15.). The physical production and material of the technique has been changed, yet it speaks the smocking language.

Robotic bending

The same year Andrew Saunder and Gregory Epps publicized a research in Robotic Fabrication in Architecture, Art and Design (2016) called Robotic Lattice Smock. They presented “a method for transposing pliable fabric folding techniques of smocking to an architectural scale through robotic bending and folding of rigid planar sheet metal”, (p.79). Based on Gottfried Semper’s philosophy from Der Stile (1860), that textile is the mother of all arts, Saunder and Epps investigated what this can mean practically by placing the smocking, an old textile technique, in a technological context.

By breaking the concept of smocking into different parts, there is new possibilities to grasp what smocking can be. Changing the material, like in Hoermanseder’s 3D printed corset, or the course of action, like Saunder and Epps the range of how the smocking can be expressed increases.

Expression

The exploration of recontextualizing in fashion is an ever ongoing investigation. It is happening with materials, techniques, garments and the meeting between these. A mix of these variables in smocking are however lacking. That is the motive of this work, to explore smocking through new variables.

Knitwear

Helen Lawrence’s investigation of different materials in knitwear can be interpreted as an adaption of the concept that is smocking. By exploring materials and the meetings between these in a knitted garment, she finds expressions linked to that of smocking.

Her autumn/winter collection from 2017 (Vogue, 2017) displays ribbed garments with concentrated points of gathering. The gathering parts consisting of one material, and the ribbed surrounding material consisting of another. This creates tension and a crinkling effect connected to the aesthetics of smocking (figure 17).

Form

By using material with divergent characteristics the outcome will result in a conflict. To use this conflict to create shape is a effective way to build form. Connecting this back to the original smocking where the meeting of fabric and thread is creating a tension. In this project the aspect of a thread will be eliminated from the equation and replaced with characteristics of different yarn qualities and knitting techniques. The manipulation of form will be limited to the technique in a knitting machine, investigating how diverse the expressions can become.

The way Lawrence’s use material gives an expression of contraction in the form. In the collaboration between Moncler and Craig Green the expression is the opposite (Vogue, 2018).

With silhouettes resembling space suits crossed with a life raft the spatiality is present. Though one can clearly see straps around most of the garments (figure 18.) the expression shown is that they are expanding. The volume created is a focus that have not been explored in smocking. By the adoption of this kind of volume the smocking will have opportunity to leave the body-tight expression and grow.

Combining the spatiality of Moncler and Green with the technological aspect of interpreting smocking that Hoermanseder’s, Saunder and Epps are investigating, together with the material exploration conducted in Lawrence work will open up for an investigate to give smocking a new expression. By channeling Goddards playfulness regarding color and silhouette, the work will aspire to place itself in a new context, a context building on that of swim wear, a sport context. To show that smocking no longer is a technique solely for romantic dresses.
Aim

The aim of this work is to explore the possibility of shape in knitwear by looking at the aesthetic properties of smocking, drawing inspiration from sportswear.

Method

Extraction

This work is based on the appeal of aesthetics in smocking. The difference in volume, pattern and structure are together transforming a flat fabric to something interesting. What this project will try to do is extract the aesthetic of this transformation and put it in a new context with new qualities.

The extraction will be based on Jones method of “Divergence”, “Transformation” and “Convergence” (Design Methods, 1992). Jones describes this as:
1. Divergence, “breaking the problem into pieces,” where everything is valued, nothing is wrong. The important part is to open up the project for all kinds of solutions to the problem at hand.
2. Transformation, “putting the pieces together in a new way,” meaning the time to experiment and take decisions. Terminate ideas which does not work, and stick to the ones that do.
3. Convergence, “testing to discover the consequences of putting the new arrangement into practice”. In this stage the identification of one saluting is found and tested against the original problem. (p.63).

Junction

Thornqvist presents a method of finding a clash between two subjects. In Artistic Development in [Fashion] Design (2010), he stats that the idea When Words Rendez-vous is to “Simply juggle with different concepts until you find something interesting. A vague but unforgiving measurement of the word’ liking to each other is, perhaps the immediate arise of unfamiliar images and thoughts.”(p.97).

The two fundamental words of this project is smocking and knitting. Combining this two words, this two techniques, it is crucial to keep searching for new possibilities and not hold back and rely on past experience. This will also be a difficulty in the means of knowing when to stop the exploration of new things and start narrowing it down.

A third word is also present, sportswear. This is the contextualiser of the work, where the material gets a larger purpose. By placing the aesthetics of smocking through knitwear (which already is a vital material in sportswear) in the context of sport, this will not only present a new smocking expression, but a new material expression to sport. This meeting will be investigated through colour and silhouette experimentation.

Experiments

As this work will be conducted through experiments, the method of trial-and-error are embraces. Expressions will be searched for through the methodology of Twenty-first Century Learning by Doing (Meloy, 2012). Following this method a vast amount of experiments will be produce which later can be evaluated based on the criteria of smocking. This will give a quantity of knowledge about how material, form and technique can or can not work together.

Sketching

Working with experiments as the most important approach, sketching will be done directly in the knitting machine. The method of sketching through material in the knitting machine opens up for findings that can not be thought of before hand. Karin Landahl argues that “This corresponds well to the demands and wishes for newness in fashion.” (On Form Thinking in Knitwear Design,2013. p.46). She goes on presenting two alternative ways of thinking regarding form sketching.
1. The form-thinking of geometrical figures. If wanting to create a geometrical figure there are many different techniques the maker can use in knitting to complete the task.
2. The form-thinking of invariants. First, decision of a technique (in this context, knitting). Second is necessary functions, such as openings. Third is to find ways to connect these two together. After this is a sketching phase where the technique and the materials function as the sketching tools.

The invariants form-thinking will be adapted in relation to both technique, form and material exploration. Investigation will be conducted through what similar forms or patterns can express in different material or techniques, and vice versa. This to get an understanding of what potential this exploration can create. How can smocking aesthetics be defined in an alternative way when translated in knitwear.
Development

Initial inspiration.

The first step in this project was an idea to mimic a smocking sample created during an earlier project. This sample is based on a Honeycomb smocking which consists of evenly pleated rows of fabric where stitches are placed in a even zigzag pattern (figure 19). This technique was altered by pleating the fabric uneven, (figure 20) resulting in the expression shown in figure 21.

Material investigation: Thermoplastic yarns.

With the aim to create a new way of pursuing the smocking’s aesthetic without having to sew pleats and forms into position, the investigation of thermoplastic yarns with a shrinking effect began. There is a number of different yarns with the possibility to shrink where in this project try outs where made in:

**Pemotex®**
A thermoplastic yarn which shrinks 200% when exposed to heat. Seen in Figure 22 is a sample of an intarsia knit. In the upper half, the knit consisting of cotton in the denser white part and pemotex in the sheerer section. The bottom half of the sample has been exposed to heat and the Pemotex® has shrunk. The quality of the shrinking yarn has got a terry cloth tactility and has become stiffer.

**Comfil®**
Figure 23 is a sample consisting of the same cotton yarn in the denser part, but in the sheerer is now Comfil®. In comparison to Pemotex® this thermoplastic yarn has a shrinkage of 400% and gets a stiffer plastic feeling after the heat treatment.

In Figure 24 Pemotex® and Comfil® has been mixed in the sheerer part of the sample. When treated with heat the shrinkage became around 300%. The surface got an uneven look as the different yarns unevenly lays in the front. This could be avoided by plating one of the yarns.

**PVA (polyvinyl alcohol)**
This material shrinks and harden to a plastic when exposed to water. If the material is exposed to water for a longer time, it will start to dissolve. Figure 25 is a sample knitted with Comfil® and PVA. At the top of the sample the material has not been exposed to any after treatment. In the middle section it has been exposed to heat. And at the bottom it has been washed with water. The parts knitted with PVA has dissolved and left the Comfil® as a skeleton.

Analysing these samples the decision is made to continue using the Comfil® yarn. It has the highest percentage of shrinking which will give possibility to build volume within a material consisting of multiple yarns.
Size experiment
Figure 26-28 shows try outs where the aim is to reach the expression of the previously presented pleated smocking sample in figure 21. A Honeycomb smocking inspired intarsia is knitted with cotton and Comfile. Different amounts of Comfile loops next to each other are tried to investigate how many is needed to get as close to the aimed expression as possible.

With a count of 24 loops next to each other the resemblance in expression appeared. Though the aesthetic has occur, the material does not provide the volume that is desired. As the stiffness becomes very limited to certain areas, the surrounding cotton, which in this case is most of the material, is still soft and the spatiality weak.

Technique investigation: Cross tubular
Understanding the weaknesses of the intarsia experiment the knitting technique Cross tubular is investigated. This technique is explored on a flat-knitting machine with gauge 5 (heavy knit) and creates a two layered material. A two colour pattern is made where one colour equals one yarn/material. The two yarns will create a mirror of itself from one side to the other, binding together at the edge of the colours in the pattern when the yarn goes from front to back bed in the knitting machine.

Honeycomb
The Honeycomb (figure 30) inspired sample from the previous experiment is further developed. The pattern is scaled up into two larger sizes to investigate the relation of an asymmetrical pattern and the smocking aesthetic.

The material is knitted with Comfilee (white) and cotton 30/1(orange) as shown in figure 31. When exposed to heat, the shrunken Comfilee lines forces the surrounding material to form a pocket which pops out (figure 32). On the mirroring back the cotton creates wrinkled lines (figure 33). With a backside consisting of mostly shrinking yarn, the ability to create stiffer parts which can create form becomes greater than in the intarsia experiments. The aimed expression is now closer than in the previous sample.
Lozenga

A pattern is drawn from the Lozenga (figure 34) based on the strong horizontal and vertical lines. Compared to the Honeycomb this expression has more feelings of blocks. Extracting the pattern these block-like characteristics are enhanced (figure 35).

The sample shown in Figure 36 is knitted with monofilament as one color and Comfil as the other. Exposed to heat the Comfil shrinks and the surrounding monofilament rises. The effect of cavity that appears in the material gives an intriguing depth. This outcome also gives the material a good vertical flexibility in comparison to its horizontal. Though, the monofilament is too soft and collapses on itself.

Material investigation: Mixing material with Comfil.

The Comfil yarn is only available in colour white. Here the ability to choose colour by mixing Comfil with other yarns is explored.

The orange areas of Figure 38 is a mix of Comfil, lycra and polyester. This reduced the shrinking ability too much to be able to create the manipulation the technique is aiming for (figure 39).

To only mix the Comfil with lycra the voluminous effect works (figure 40). With the lycra, the untreated parts of the material gives a shadow of shrinkage, yet still holds the ability to be shrunk into desired expression (figure 41).
Material investigation: Stainless steel.

Aiming to achieve a more voluminous material mimicking Lozenga smocking that does not collapse on itself, samples are conducted with stainless steel. The same pattern as in the previous Lozenga test is used to see what differences this can accomplish.

**Naked steel**

Monofilament is switched to stainless steel, and the Comfil® is mixed with lycra to identify if the untreated shrinkage will work in this experiment too. The top of the sample is treated with heat as the lower part is not (figure 42). Compared to the monofilament this material does not collapse on itself but creates the desired voluminous effect. Bout in the shrunk and un-shrunk areas

**Plated**

In figure 43 the Comfil® and lycra mix is plated with green polyester. As the pattern is smaller than the one in the previous experiment the achieved effect of the shrinkage is still present. This creating a very interesting shadow effect under the steel. It opens up for a transparent light expression of knitted smocking. The qualities of the material becomes firm yet flexible. Like a pleated textile it is easy to bend along the material, but hard across (figure 44).

**Thickness**

In contrasting a mix of steel, black wool and black monofilament is knitted. A strong and heavy expression appears, the opposite of the previous sample (figure 45).

**Technique investigation: Rib**

While going through technical samples the intarsia technique shown in figure 46 was found (Shima Seiki, n.d.). By programming the knitting machine to not lock the different sections on the same needle, vertical openings can easily be achieved.

Placing Comfil® plated with wool in every other section and a only wool in the remaining (figure 47), a ruffle expression is accomplished when heat treated (figure 48). With the plating technique the outcome becomes that everything gets the same colour/material, but the shrunken areas and the part which does not transform (figure 49).

This technique is based on the concept of smocking. It does not have a specific source of inspiration as previous experiments has had, but speaks more of the core of smocking being a gathering technique. The choice to use a ribbed construction is to further strengthen the gathering inspiration. As rib is used in ends to tighten the fullness of e.g. sleeves, the gathering is the techniques strongest characteristic. The rib is also a common element in sportswear which speaks to the concept of the work.
**Technique investigation: Double layer jacquard.**

Expressions here are explored on a circular knitting machine. This special circular machine is a modification which can produce a material with two layers in gauge 20. It is similar to the cross tubular technique that it binds the two layers together, but instead of mirroring the pattern the back and front can have different materials, thus creating other possibilities to investigate different qualities, spatiality and expressions.

Having focused on creating a bigger scale of smocking in previous samples this exploration will be about finding a contrasting small smock to appreciate the scale.

**Crinkled arrow**
The inspiration for this manipulation is the motion of sewing a diagonal stitch which is used in a plurality of smocking techniques (figure 50). In the search for a variety of expressions it feels important to explore all different aspects in the smocking.

The pattern drawn reminds of a herringbone pattern (figure 51). The white areas is the front side of the material, knitted with one material and the black is the backside which is/can be knitted with another. Where the lines are drawn, the backside will bind together with the front side creating cavities between.

When heat treated the bottom layer which is knitted with lycra and Comfil® shrinks, wrinkling the top layer into the crunchy expression shown in Figure 52. An expression connected to the aesthetics of arrow smocking (Figure 53.).

**Small pleat**
The inspiration for this material is based on the first step in original English smocking, the small pleats (figure 54). It is the first step in the technique and is thus an important factor. This work is about investigates new aspects of smocking therefore is the uneven pleated approach from the projects initial inspiration incorporation in this pattern (figure 55).

Letting the material being untreated one can clearly see the "pleats"(Figure 56.). When exposed to heat the lines breaks and the creates an abstraction of the "pleats" where you can distinguish them by the different sizes in the pattern (figure 57). This creating a flowing organic expression less repetitive from the previous sample.
Technique investigation: Double layer jacquard with filling.

The double layer circular machine also has the possibility to add a filling yarn. This means that the cavities created in the material is filled with a yarn, a material, much like stuffing in a pillow. Exploring scale, spatiality and ponderosity in smocking, this inlay is added to the exploration.

**Lozenga 2**

The same lozenga smocking (figure 58) explored in cross tubular is tried in this technique. A simplified bigger pattern is made (figure 59), this to investigate the maximum volume that the material, machine and technique can accomplish.

The white in the pattern translate to the pink neon polyester in the knitted material in figure 60. The grey colour is knitted with Comfile® to get the opportunity to shrink and tighten the pattern after knitting it. Finely the black outline is where the front and back side binds together. The backside consisting of lycra and Comfile® to give the material shape-building properties.

Shown in figure 61 is the material on body. Here one can clearly see the scale and volume of the knit, this being the biggest accomplished body of smocking so far in the investigation.

The machine has limitations on how far apart the binding between back and front side can be, this pattern is pushing it to the maximum, thus this is the limitation of pattern size.

**Lattice**

As the pattern in the previous explorations have kept to the symmetric aesthetic of smocking, this example is made to investigate a more organic expression.

The inspiration is a lattice smocking (figure 62). This choice is based on the diagonal angles in the technique, in contrast to the horizontal/vertical lines in the lozenga.

Having the expression of a braided surface, the pattern extracted is curved rectangles in two sizes. These are placed in clusters forming an irregular pattern (figure 63), again trying to push the maximum width the machine can handle.

The material corresponding between the pattern and he knitted material is the same as in the previous experiment. The only difference is that the pink polyester yarn is exchanged to a cotton yarn (figure 64).

Figure 65 shows the material on body. Here one can clearly see the scale and volume of the knit. The irregularity in the pattern creates an organic flow contrasting other symmetrically expressions as the lozenga.
Material investigate: Stiffness

The ability of shrinkage incorporated into the material through lycra and Comfil® is one of two ways this work will achieve the smocking effect. The other one being the filling yarn in previous experiment. The Comfil® becomes a semi-hard plastic when processed with heat. To finding a balance between stiffness and softness in the material the ability to apply the material towards the body without being a hard plastic-sheet is desirer. Thus the material can not become to hard, yet has to shrink enough for the desired volume and shape to occur.

The sample shown in Figure 66 consists of a backside 50% lycra 50% Comfil®. The expression occurring after heat treatment correspond with the aiming appearance of arrow smocking and has a stable yet flexible backside.

In comparison, the sample in Figure 68 has a backside knitted with 1/3 lycra and 2/3 Comfil®. This gives the same expression on the top layer as the 50/50 material mix, but the backside becomes much stiffer with very little flexibility. If working with this material against the body, the garment will neither be comfortable or pliable when moving.

The conclusion is that the amount of Comfil® in big areas can not exceed 50%.

Colour investigation

The exploration of colour in relation to the smocking is present through the work. A variate of colours have been tried in different techniques to find a balance between the pattern, technique and expression. With the aim to present smocking in a new context, the colour aspect opens up for associations with sport wear, which often is presented in strong colours.

Swatches

Many of the darker colours tried are resulting in a loss of the volume or depth in the material (figure 69), whilst to light soft colours lack a novelty in the expression (figure 70).

After a vast production of colour swatches and samples in different materials and techniques, the aspect of neon colour was presented (figure 71). In the desire to elevate smocking through colour the project needs to go the opposite way from the expected.

Inspiration

A appreciated movie as a child was Sällskapsresan II: Snowroller (1985). In this movie, the cool ski club Hökarängen is wearing 80s fashionable neon coloured ski uniforms with matching make-up (figure 72). Deciding to work with this stinging colour, and the desire to place the work in a sport context, the muse for colour, shape and styling is the Hökarängen gang on winter vacation.
Motivation
With the four neon colours decided a sketching for additional colours is conducted.

As the Comfil® only is available in white this will be an addition. It has an optical white expression so to add it to the neon will not create a clash.

To appreciate these popping strong colours they will need contrast. Placing samples together to find the contrast results in the plum colour used in experiments with lettuce smocking fits in. It is not too dark for the volume and texture to disappear but dark enough to create a nice pause in the collection (figure 73).

The use of lycra is a big part in many of the materials. Like the Comfil®, the lycra has a limited amount of colours. It is available in black and white. As white already is a part of the palette, black is also added.

Deciding the distribute of colour within each outfit Hökarängen is looked upon for inspiration. In 80s skiwear there is two ways to go regarding colour distribution. Either full on graphic patterns with a cluster of different colours, or the use of one colour as a base building patterns with others upon this. As stated in motive the use of one colour lets the technique speak clearest, that is why the choice of distribution will be the latter mentioned one colour base.

Sketching
Deciding to let one colour guide each outfit, sketching is conducted to see the relation between these in a collection (figure 74). With the realization that the plum colour is to much of a contrast on its own, a scale is made between the neon pink and the plum. This will give the two opposite ends a meeting ground in the middle (figure 75). Having one colour as a base, details will be allowed to be conducted in different colours. This to tie the collection together, and to refer back to the graphicness of sportswear.

Decided colourway shown in figure 76 will be the base to build the collection.
Form investigation: The figure skater.

Idea
The idea with this outfit is to create the persona of a figure skater.

Jacket
The Honeycomb cross tubular material is draped with in the search for a silhouette and garment reference.

Figure 77 shows two variations of draping with successful and unsuccessful elements. The sleeve draping works as the material follows the arm good. The downside is that it is too much material and the body gets lost.

The second part of figure 77 shows a draping where the material flips over showing the backside of the cross tubular. It creates a contrast and dimension from the bulkiness of the frontside. The garment reference of a lapel appears which gives the garment recognisability. In this draping this elements takes over too much, showing almost exclusively the inside when seeing the garment from the front.

The successful elements of the drapings are taken and the silhouette shown in figure 78 is created. It has a decreased version of the sleeve, and a more concentrated form of the lapel.

Figure 79 shows the garment fully draped. Adding up the aspects of how the garment curves around the body, the sharp edge of the lapel, the flowing drape in the back and the expression of the material, the piece has references to a blanket being thrown on over one's shoulder to keep warm.

Figure skater costume
To get the expression of the figure skater the cut and fit of a classic tight costume is made in the Small pleated jacquard material. With this material a texture is appearing yet the body-fitted expression is present (figure 80). By adding a long sleeve with archetypical sportswear thumbholes and a high turtleneck the winter outdoor context is elevated.

Figure 81 shows the two garments together. By having the undergarment in a darker shade then the jacket the boarder between them is visible.
Trimming
To strengthen the blanket reference a trimming of rib is added to
the jacket. Figure 82 shows the exploration of possibly taking in
another colour of the collection in this garment as well as changing
the colour of the undergarment. This is rejected as these details will
take to much focus from the material and expression of the jacket.
Figure 83 shows the chosen trimming, a 5/3 rib in the same orange
as in the jacket. To get sharp edges a monofilament tape is inserted
in the rib. This will ensure that the rib will lie flat and not loose its
shape (figure 84).

Shoes
To enhance the idea of the figure skater this outfit represents,
another archetypical aspect is explored, the tights and the skate.
Figure 85 shows a draping of the same material as in the jacket,
shaped as a shoe. The expression of this alone is working, but to
add the thighs, shown in the same picture, on top of this material,
the spatiality is lost as the tights pushes together the material. The
rib used in the trimming of the jacket is instead used.
Looking at a skate and down-slippers skater use in brakes during
practices the expression to aim for is chunky but shaped shoe. This
is met by using a duvet, dressing it with the rib (figure 86). The
expression is shown in figure 87 where the shoe is covered with the
tights as figure skater would wear it.

Headpiece
To add to the ski resort a head piece is explored. A classic cap is
tried as well as a headband. The headband expresses the figure
skater better as a person of this profession might have there hair
in a bun or a ponytail (figure 89). Also referring back to the 80s ski
style.
Form investigation: The overall.

Idea
Creating the persona of wearing an big warm winter overall.

Overall shape
The expression of the cross tubular Lozenga material with stainless steel is in figure 90 and 91 explored in horizontal and vertical positions. The finding is that the material builds most spatiality in a vertical position (figure 91) as it collapses on itself when placed horizontally (figure 90).

Using a wider piece from top to bottom the possibility to shape the pant and body into desired shape is present. The different expressions of shrunk/not shrunk material is then also given room to be visible (figure 91)

A 3/4 sleeve is decided on, this to have room to show the body/wrist to create dimension in the outfit.

Fit
The garment is constructed with one piece for each side of the body/leg, adding on a sleeve (figure 92). To have the possibility to shrink a great deal and yet have a width in the garment, the material is knitted in 1/3 bigger than the garment is intendant to be when finished.

The garment is tried on a body and areas which are about to be treated is located (figure 93).

Heat treated
The inside of the leg is heat treated (picture 94). This resulting in the length on the leg shrinking about 15 cm. Areas around the opening of the garment is treated to narrow the fit, as well as over the chest, around the armholes and along and across the collar.
Undergarment
The aspect of showing the materials transparency, thus expressing another way for smocking to be presented is an important part of this outfit.

As shown in figure 95 the leg is peeking behind the leg of the overall. This is enhanced by placing the same figure skater/swimsuit silhouetted garment as in the previous outfit, under the overall. The same turtleneck and arms with thumbholes are used as these sports references are strong (figure 96).

Detail
Details of the garment is again inspired from the referential garment, the overall. The with of the material is ruched together to create a padded looking collar (figure 97). Placing a rib at the opening represents a button edge and ties back to the undergarment.

A drawstring with matching metallic details is added to add another sport reference present in winter wear (figure 98).

Headpiece
Exploring headgear the aspect of a helmet are investigated (figure 99). The idea of exploring a helmet as a detail in the collection is suitable, but together with this outfit the expression becomes to coherent. The over all look needs a contrast as the collar already builds much volume. Instead the similar headband as in the figure skater outfit is created with the same rib as in the undergarment (figure 100).

Shoe
The same kind of shoe as in previously mentioned skate outfit is made. Nevertheless the padding is not incorporated as the material in the overall builds enough volume (figure 101).
Form investigation: The skier.

**Idea**
Creating a two piece ski set with references to the 80s fashion.

**Pant**
The Arrow jacquard is explored as it has a great deal of shrinkage which gives potential for a draping and contrasting texture.

Draping and size samples are made to find the silhouette and shape of the garment (figure 102). The chosen silhouette is a pant consisting of a fitted/shrunken pelvis part where the arrow expression is very present. The legs are partly shrunk in three places to create a drape, express the different structures of the smocking material, and referencing to a baggy ski pant (Figure 103).

**Top**
The sleeves of the top is constructed in the same way as the pant leg. This to highlight the quality of the material further on.

The neckline of the smocked material is pushed off the shoulder creating a 80s off-shoulder look. Here the exploration in crossing colours in the collection is explored again. This to create a sharp edge to highlight the 80s cut. Figure 104 shows suggestion of incorporating a green or a yellow collar. The yellow is chosen do to that they are expressing more of the same brightness in colour.

**Detail**
As the pant and top is narrow at the waist the importances of a contrasting waistband is explored (figure 105). Without highlighting the waist the expression of the outfit is more of a overall. The contrasting yellow waistband is then needed to highlight and creating a break between the two garments.
**Collar**
The characteristic attributes that the rib possess is strengthen by inserting an elastic band around the neck. This gives the contracting expression a more defined look (figure 106).

The boarder between the rib and the smocking is sharpen and balanced to strengthen and highlight the 80s aesthetic.

**Shoe**
Shoes are explored in the definition if there is need for another break and contrast in colour (figure 107). The same ribbed boot as to the green overall is made to tie the pieces together (figure 108).

**Headpiece**
As this outfit creates volume in the same spirit as the green overall, another headband is incorporated (figure 109).
Form investigation: The spa.

Idea
Create an after ski spa persona.

Jacket
The jacquard Lattice material is the most organic and irregular material in the collection. This complements the atmosphere of a spa persona.

Draping is conducted in the search for a silhouette. Cuts is used to open up areas of the material, but nothing is completely cut away to investigate how the cylindrical shape that comes out of the knitting machine can be used to an advantage (figure 110). There is also the aspect of the one pattern repeat in the width which will get lost if material is cut away.

As seen in figure 111 a short jacket is draped. With references to a cozy spa robe with an 80s waist cut. To highlight the organic flow in the pattern a opening is cut which follows the curvation of the Lattice shape.

Skirt
To the jacket a skirt is draped, to elongate the robe aesthetic and also referring to a towel wrapped around the waist (figure 112).

The same opening technique along the pattern as in the jacket is here explored. To get the outfits to talk a similar language the opening will have a ribbed border (figure 113). For the rib to be as crisp as possible there can not be a seam at the outer edge, meaning it will have to be folded. This means that there is a limit to how much the opening can curve and change direction as the rib can not be wider then 16 cm (what the knitting machine can produce in a 5/3 rib).
**Trimming**
As explored in earlier outfits the aspect of a contrasting colour is investigated (figure 114). Placing the green colour in the rib takes too much focus, in comparison the purple used in the smocked material, which does nothing for the towel expression. As there is already white areas in the lattice material, having a white rib brings the most harmony.

Placing the white rib in the outfit, draping it around the neckline highlights the reference of a spa robe (figure 115).

**Headpiece**
To enhance the spa look a hat in the shape of a head-wrapped towel is explored. The white is picked up from the rib, but gets too much focus as the garments are in a duller colour. A terrycloth in the same plum purple is introduced, with an orange stripe to pick up another towel reference.

**Shoe**
To complement the spa look, a pair of slippers in the same colour scheme as the headpiece is made. Placing the chunky 5/3 rib on the top of the slipper gives it heavier expression corresponding to the outfit.

**Change of silhouette**
Combining all the elements and seeing the outfit as a whole together with the rest of the collection, this look stands to much on its own. But regarding the darker colour, the curvation of the trimmed rib and the silhouette, it needs to be reduced.

To purify the expression of a spa persona, the robe reference is removed to only focus on the towel. The skirt is placed as a towel is wrapped around the bust (figure 119). The curved rib is replaced with a straight opening to illustrate the edge of a towel (120).
Form investigation: The after ski sweater.

Idea
Create an after ski, sitting by the fire sweater.

Draping
The intarsia illustrating the concept of smocking already has a strong sweater reference due to the ribbed construction.

A variety of draped silhouettes where easily achieved due to the diversity that the material gave as a result of the cavities in the knit (121). The expressions of the holes when not relating to the body, as for example a armhole, speaks about something that can not be found anywhere else in the collection. The two drapes in figure 122 is therefore stripped of the cavities that does not fill a function and merged together in the sketch shown in figure 123.

This garment will function as a pause in the collection. As the smocking effect is concentrate at the shoulder and along the arms, letting the rest of the dress be about the ribbed construction.

Pattern
Figure 123 shows the garment in a striped pattern. This is introduced to the garment to highlight the contraction that appears when heat treating the material.

Due to technical and physical restrictions the striped structure is not able to be knitted. The pattern shown in figure 124 is of the non striped silhouette shown in figure 125. To be able to knit the striped construction the double amount of colours will have to be programmed. The space to thread this amount of yarn does not exist in the facility.

Figure 125 shows the new direction. Highlighting the area which will be heat treated by knitting it with a black yarn.

Figure 121. Draping
Figure 122. Merge drapes
Figure 123. Pattern sketch
Figure 124. Knitting pattern
Figure 125. Draping material
Heat treated
Figure 126 displays the garment before heat treated. The
construction of the arm is visible where holes are knitted to be
draped in and out of the material.

Figure 127 shows the garment after heat treated. The black parts
knitted with Comfile has shrunk a great deal, lifting the hem of the
floor. It has also tightened the sleeve so the arm is no longer visible,
creating a draped expression of a voluminous sweater sleeve.

Silhouette change
The aim being to illustrate a sweater, the silhouette new refers
more to a dress. The length is therefore shorten to clearer express a
sweater (figure 128).

Pant
To enhance the after ski persona a tight thermal underwear pant
is introduced to the outfit. This to strengthen the reference of
undressing ones ski clothes after a day in the piste.

Figure 129 shows colour exploration of the pant, again raising the
question to cross colours in the collection.

As this outfit will function as a calmer element in the collection, the
pants are made in the repetitive 5/3 rib in the same yellow as in the
sweater (figure 130).

Headpiece
For the headpiece a more covering ski accessory is placed in the
outfit. To have diversity in the collection regarding references a
balaclava is introduced (figure 131). As the main smocking appears
at the shoulders and around the neck, placing something larger or
more detailed will shift the focus.

Shoe
As the pants are tight against the leg a more detailed shoe can be
introduced. Taking inspiration from a ski boot a laced construction
going up on the leg is made. Using the same yellow rib as a tongue
to elongate the leg and frame the sides with the black used at the
shoulder of the sweater, a coherency occurs (figure 132).
Form investigation: The mascot.

Idea
Create the mascot at the ski resort.

Draping
The voluminous jacquard Lozenga is explored in the same way as in the Spa outfit. Exploring how to use the tube from the knitting machine (figure 133).

A silhouette referring to a closed jacket or a big sweater is found (figure 134). It is disregard due to the exploration of the same element in the Spa outfit.

Figure 135 shows a manipulation where one tube of the material is attached to a second tube which has been cut open this creating another kind of silhouette. In this way it is not the smocked material which builds the shape and this is therefore disregarded.

The twist
The manipulated piece in figure 135 is placed on the head, due to the abstract facial features in the pattern resembling eyes and a nose the reference to an animal like mascot is presented (figure 136).

Silhouette
On account of the jacket being rejected in the Spa outfit, the silhouette is again introduced for this outfit. Figure 137 shows draping and sculpting to get the fit and length for the garment.
**Detail**
The exploration of introducing sweater details for more garment references is investigated. The aspect of having a ribbed ending at the bottom hem and sleeves (figure 138) to introduce the garment as a sweater. With this detail the attitude of a resort mascot is somewhat lost to the sweater. Introducing it without these details (figure 139) is therefore clearer.

As the lower part of the body becomes rather exposed the usage of an undergarment in the shape of tights is explored (figure 140). This once again weakens the expression of the mascot, thus this element is disregarded.

To push volume to the maximum the parts in the pattern that consists of Comfilee is heat treated. This forces the filling in the material to push outward creating a more vigorous expression (figure 141).

**Headpiece**
The manipulated tubular material is refined as a hat/mask. Using the facial features of the eyes as eyes for the wearer (figure 142), and heat treating the material the same way as in the body garment to get the whole expression of a creature.

**Shoe**
As the tights did not fit into this outfit a more spatial shoe is needed to balance the outfit. Inspiration is taken from a moonboot, its spatiality and clumsy expression (figure 143) matches the aesthetic of a mascot/animals big paws (figure 144).

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Figure 138. Rib detail.  
Figure 139. No rib detail.  
Figure 140. Undergarment.  
Figure 141. Before/after heat.  
Figure 142. Hat/mask.  
Figure 143. Draped shoe.  
Figure 144. Shoe.
Form investigation: The bobsleigh

Idea
To create a persona riding a bobsleigh.

Colour
The undergarment introduced in the Mascot outfit is picked up and presented as an individual outfit (figure 145). To contrast the voluminous pieces of the collected this more subtle smocking version is needed. The material is the Small pleated jacquard used in the figure skater costume, which clearly demonstrates the smocking in a subtle way.

To tie the collection together a colour scheme which position itself between the purple in the Spa outfit and the pink in the Mascot is explored (figure 146). A pink which places itself more towards the Mascot is picked for the body, with a contrasting purple towards the plum colour of the Spa in a complimentary upscaled version of the material to function in accessories (figure 147).

Headpiece
The exploration of a helmet which started in the green Overall outfit is picked up. As the garment in this outfit is close to the body this look can benefit of having contrasting bigger volume placed at certain areas.

Looking at the accessories of a bobsleigh rider, a helmet, much like a motorbike helmet is used. This is sculptured in the upscaled purple material (figure 148) complimented with the plum purple rib in details over the nose to achieve the helmet aesthetic.
**Glove**
The aspect of bringing in a glove to create more dimension in the placement of the upscaled purple material is investigated. Displayed in figure 149 is the glove together with the headpiece and an intended shoe. The expression of the three placements in one outfit is to much like something a child would wear. The glove is therefore rejected.

The usage of the thumbhole is therefore reintroduced. Thus the hand is not completely exposed and yet has a referencing sporty expresses.

**Shoe**
As the glove in this outfit was rejected the shoe is given more room to be expressed. The moonboot style from the Mascot outfit is reintroduced as this look will need a bigger piece then in for example the Overall outfit.

The shaft is raised higher then in the Mascot to counterbalance the rejection of the glove. Highlighting the lacing with the same pink tone as in the main garment (figure 152).
Result
This work results in a series of seven examples of how to translate smocking in knitted material.

Scale
The exploration of different scales has been one of main aspects of this work. To try and push the material to maximum expressions, still expressing the smocking technique. The physical execution in scale has on one part been controlled by the restrictions of the knitting machine. There is only so much the machine can do. As for the filled jacquard material in outfit 2 and 7 the width in the pattern is pushed to the absolute maximum that the machine can handle. As a result of this a counterpart, a small volume as in outfit 3 has been necessary to present in the collection, as to have a reference to look at to understand the difference in scale.

Colour
Colour has been a vital part in the expression of the collection. Aiming to push the context of smocking away from romantic pastel and historical references, the important of eye catching neon colours is the extrema opposite. The situation in which these colours are connected to, one being the 80s ski fashion, has supported the recontextualisation of the technique. Like the contrast in scale, contrast in colour has been necessary to experience the strength of neon. Therefore the presentation of the plum purple in outfit 2 and the graduation in outfit 3 functions as a bridge between darker and lighter colour.

Shape
The extraction and abstraction of the aesthetic expression of smocking has been the vital step in each outfit. The pattern extracted from the inspirational technique has been adapted through knitting techniques, material and scale, and placed together with the aim to create each outfit/look in the search. Specificity placed focus-points, as the gathering areas in outfit 5. The draping around the arm in combination with the contraction properties in the yarn is what is building the shape.

Silhouette
The choice to use winter sport references to recontextualisation the technique has benefited and positioned the collection in a clear context. As the materials build spatiality and volume in themselves, to position them in a winter situation is rational.

To use recognisability within the outfits which consists of little cuts and seams, the material has been given great room to express the technique and aesthetic. When draping with smaller components the material has instead gotten lost in the cuts and seams. The majority of the focus garments are ready made in the knitting machine. No excessive material has been cut away, thereby it is the technique, pattern and material which together creates the shape.
The skier

Figure 153. Front, side, back.

Figure 154. Shrinkage, drape.

Figure 155. Collar
The spa

Figure 156. Front, side, back.

Figure 157. Rib opening

Figure 158. Undergarment.
The bobsleigh

Figure 159. Front, side, back.

Figure 160. Hat/helmet

Figure 161. Material
The overall

Figure 162. Front, side, back.

Figure 163. Shrinkage, drape

Figure 164. Undergarment
The after ski sweater

Figure 165. Front, side, back.

Figure 166. Sleeve

Figure 167. Pant and shoe
The figure skater

Figure 168. Front, side, back.

Figure 169. Shrinkage, drape

Figure 170. Undergarment.
The mascot

Figure 171. Front, side, back.

Figure 172. Hat.

Figure 173. Shoe.
Tech pack

The Spa

Figure 174. Repeat pattern

Figure 176. Front, side, back

Figure 175. Pattern, scale 1:1 in pixels

Figure 177. Inside, scale 1:10

A - Jacquard, Lycra, Comfil, Cotton, Polyester
B - 5/3 Rib, Polyester
C - Drawstring 8mm. Cotton
D - Clapper, PVC
E - Drawstring stop. PVC
F - Tape 25mm. Cotton

1 - 850mm
2 - 900mm
3 - 100mm (x2, folded)
4 - 2000mm
5 - 15mm
6 - 20mm
7 - 12mm
8 - 20mm

All seams are faced.
The Mascot

Figure 178. Repeat pattern

Figure 179. Pattern, scale 1:1 in pixels

Figure 180. Front, side, back

A - Jacquard, Lycra, Comfil, Cotton, Polyester
B - 5/3 Rib, Polyester
C - Tape 25mm, Cotton

1 - 400mm
2 - 800mm
3 - 280mm (gathered with a thread.)
4 - 150mm
5 - 560mm
6 - 400mm
7 - 100mm (x2, folded)
8 - 50mm

All seams are faced.
The Bobsleigh

Figure 182. Repeat pattern, scale 1:1 in pixels

A - Jacquard. Lycra, Comfil, Cotton, Lurex
B - Invisible zipper 500mm. PVA
C - Overlock, polyester

1 - 1600mm
2 - 800mm
3 - 400mm
4 - 350mm
5 - 390mm
6 - 180mm
7 - 500mm
8 - 600mm
9 - 90mm
10 - 120mm
11 - 210mm
12 - 100mm (x2, folded)
13 - 210mm
14 - 120mm
15 - 50mm
16 - 25mm

Overlock all seams.
Invisible seams at hem, arm, leg, thumbhole

Figure 183. Front, side, back
Figure 184. Front, scale 1:10
The after ski Sweater

Figure 185. Pattern for body. Pixel scale 1:2

Figure 186. Front, side, back

Figure 187. Pattern repeat for sleeve (5 repeats/sleeve) Pixel scale 1:1
- Green in sleeve to Green in body.
- Sleeve, fold at red line, sew yellow lines together.
- Body, fold at red lines in side. Sew purple lines together.
- Body. Continue sew yellow lines together.
- Sleeve, wrinkle together yellow line at bottom, fit to yellow line in cuff.
- Body. Wrinkle together yellow line at the middle, fit to yellow line in cuff.

Figure 188. Sleeve. Scale 1:5

Figure 189. Body. Scale 1:10

B - Links links. Polyester.
C - Links links. Polyester, Comfil, Lycra.

1 - 600mm
2 - 800mm
3 - 170mm
4 - 60mm
5 - 20mm
6 - 60mm
7 - 160mm
8 - 250mm
9 - 40mm
10 - 740mm
11 - 750mm
12 - 50mm
13 - 100mm
14 - 100mm
15 - 40mm
16 - 30mm
17 - 30mm
18 - 40mm
19 - 100mm (x2, folded)
20 - 50mm (x2, folded)

(Pattern before heat treated.
Measurements after heat treated)

Overlocked seams.
Raw/knitted hems straight from knitting machine
Discussion

The work presented strives to demonstrate an alternative way to construct and express smocking. It suggest a different way on how to achieve the aesthetic expression of smocking, here illustrated through knitwear and placed in a sport context to further recontextualise the technique. The main focus is not to create a copy of smocking techniques but to draw inspiration from the pattern, volume and shape that appears in said technique and translate it through knitted material. Through the use of material with shrinking ability and techniques which creates spatiality, clear smocking references has been achieved.

Findings

As stated in the background and motive chapter the technology and aesthetic expression of smocking has not advanced especially much in fashion. The result of this work shows that there is more to this technique than has yet been explored. By twisting the meaning of smocking from a fabric gathering technique which gathers the fabric inwards, this work has explored the opposite, expending the smocking outwards. This has given a variety of expressions and possibility to create a spatiality not represented in smocking before.

Exploring the same extracted smocking pattern in different knitting techniques or material is displaying that changing a variable in the method is vital for the expression. This is clearly visible in the exploration of stainless steel in the development (pp.19) where a transparent and a solid material expresses differences in both weight and shape.

The difference in expression from the Spa and Overall outfit is another clear example. They are executed in the same technique in similar scale, yet they visually express two different things as one of the patterns is structured and repetitive compared to the other which is organic and irregular. Both contain the aspect of smocking, but display the aesthetics in different ways.

Difficulty

The main issue through this investigation has been the amount of possibilities within the meeting of the three variables smocking, knitting and sportswear. Different directions to take have presented itself along the way, which has at times shifted the focus.

The restrictions of the knitting machine can also be seen as an issue. The width, pattern possibilities and limits in techniques in the machine has worked both as a hinder to explore things further, but also as a controlling variable for where to stop.

Continuation

Each of the outfits contains elements strong enough for further exploration. Regarding the material, one step would be to cross the patterns, knitting technique and scale to continue building a material library of new expressions.

An alternative visual presentation can develop to use the silhouette of the Bob outfit and change the material. Presenting the same cut of the garment, the actual volume and shape of the material would be vital to show diversity.

Another aspect would be to incorporate technology or electricity. As the green Overall outfit is made in stainless steel, this could be manipulated with electricity to work as the thermoplastic Comfile® yarn. By treating the material, get it to crumble together, thus being able fit the garment directly on a body.

The continuation in sportswear could be to adapt the material into other contexts of the area or to develop the expression further within the winter context. Exploring a mix in material, shape and expression. In the collection presented the Mascot outfit works as an actual outdoor garment as the filling yarn functions as isolating. This can be adapted in a commercialized purpose, presenting an alternative method to construct padded garments.

With a lot more possibilities left to explore this work creates a foundation to continue building upon regarding the advancement of smocking technique, shape building in knitwear and aesthetics in sportswear.

Figure 190. The Mascot.
List of references


Appendix 1. Critique

Emma Granberg Solfors degree work: Work it!

Emma’s work discuss in a clear way the meeting between the masculine aspects of function in work wear and the objectification of the female body through fashion, shape-wear and social media. The relevance to discuss the hierarchic of what is considered a functional garment in regards to gender and clothing is an effective way to question what is important and valued in the contrasting fields.

The work has a very strong method which allows Emma to stay focused throughout the project and execute it in a clear way. Thus allows the work to be very easy to follow step-by-step from the clashing of work-wear and shape-wear into the mixed hybrid. Following a very clear method allows good analysing of each experiment, where the aspects of what is working and what is not are clearly stated.

The extended research conduction for the project helps build an clear foundation regarding the meaning of colour, shape and function bout in the work-wear/masculine aspect and the shape-wear/feminine aspect.

The analysing of that the function in both of the fields are meant to enhance the body and put it in “the spotlight” is very clear and is a strong aspect which has been incorporated in all of the outfits in a cleaver way. This by the means of dressing the body in light to enhance or hide certain aspects of the body. This is very clear in the fourth outfit entirely made in reflective material. It is very naked when seen in daylight, but when exposed to a light/flash the body disappears, yet highlights the buttocks in the back by displaying them as in a negative photo.

This aspect could be further developed by placing this shape-wear/non material parts on other places of the body. It could be explored in the showing/objectification of the female body parts by placing it in areas such as the breasts and crotch.

Suggestions:
A change or alternative that could be made to Emma’s work is to rethink the red jacket in the 7th outfit. Though it is a eye-catching piece, the oversized jacket has been frequent used in todays fashion. A suggestion is to remove it and let the lace dress under come forward. The dress can be enhanced by repeating the reflect visibility-thinking in the 4th outfit. The red works good as a contrast in the collection so to let the look stay red would be an alternative, but have it in a red reflective material.

The aspect of shape and work-wear is here a suggestion of a hybrid between breast-tape and a paint worker overall. The cleaver butt-lift aesthetic is then moved to another area of the body.

An additional suggestion would be to enhance the heaviness in the 3rd outfit. The tufted material could be elongated to hang more. This would then compensate for the removal of the heavy jacket which is a good element in the collection.

With these changes an alternative line-up could work in the changing order seen in figure Y. Switching places on the 5th and 6th look to not have two similar silhouettes to close. As a consequence the 2nd and 3rd is switched as to not have the looks which the breasts are in focus from up front.