3 - 6 SECONDS OF MOVEMENT

To explore the human body as a tool by using movement as a guideline for shape-expression in dress.

The Swedish School of Textile

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Bachelor in Fine Arts
Fashion design
2014

Report nr
2014.3.02
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### THE COLLECTION

[Images of fashion designs]
THE COLLECTION
How does one approach the human body when designing and use it as a tool for investigating to develop shape-expression in dress?

For this research, the movement of the human body has been chosen as the base element to generate shapes from movement, to enable a form of visible objects. This has been accomplished by carefully studying the original movement of a human body through film. Looking at balance, direction and general shape. The new human body, which has been generated from this research, provides the viewer or creator a different perspective of the body in relation to the static body, which is regularly used in fashion design from the beginning of the design process.

This research has been conducted to propose the importance of the human body as an active element in the beginning of the design process and to be viewed as a new platform of innovative design and artistic development in dress. In addition, to develop a contemporary understanding of the body's role when designing and developing fashion design. By using the human body in motion for shape and form, in contrast to the regular static dummy/body or flat sketching, the collection challenges the standard methods of designing and applying techniques.
The human body, as an active element, can be used as a research method or can be part of the end result. However, in saying this, the use of the body becomes central to the expression of the piece and collection. When working with the human body as a central element of a project from the beginning, regarding visual expression or development of a particular field, provides the designer or creator a new establishment of form and movement in dress.

Form and movement in dress is fundamental in the field of fashion design. This is due to creations being made, independent of the inspiration for the collection, will later return to be placed on the human body. Therefore, the body should be an active choice in the beginning of a process, stating which role the human body has for the result or research. For example, this can be that the construction or print works against or with the body as static object, “coat hanger” or to highlight certain function of the body as done in sportswear.

This research investigates the human body in motion in order to visualize a complete shape of a certain movement. In order to portray the importance of using the body as an active tool for development, the shape of movement will be reintroduce onto the real body.

To further understand the importance of movement of the body in dress, further research has been conducted in artists and designers who have achieved this. Artist and designers, such as Bart Hess, Noa Eshkol, Oscar Schlemmer, Erwin Wurm and Rei Kawakubo all use the body as an active element in many of their creations and investigations and have had influence over the design, challenging the initial design process.
“Pushing body parts through a layer of liquid wax solidifies and envelopes the body, acting as an echo of the movement” (Hess, 2013).

The works of Bart Hess, examines the visualization of a movement in a material. Where the wax is given shape as a direct result of a movement. (fig:1). The shape that is created is static but still gives the visual idea of the movement. Which provides the viewer a possibility to view an event they usually only manage to visualize in their minds as a whole.

In an interview conducted by Current Obsession Magazine, Bart describes his method and work as the following,

"Combining a material and a human body is a ‘red thread’ running through my work. For me it’s about creating a tension between the two almost as if they fuse, but they never totally do. The physical reaction when doing so is of great importance for me. Not only for a model during a shoot, but even more so for the audience. Showing the skin and how it reacts to, for example, the weight of the material, adds to the experience I want to convey. It's about the subtle details that make the audience imagine experiencing the materials with out physically doing so." (Current Obsession, 2013, p.76)

In this statement by Bart, he exemplifies the connection and interaction between a body and the material as a whole, where the function of the body directly changes the experience of the material, (fig:2).

Both of these different visualizations use the body as an element that changes the outcome, even if one of the results is static and the other is interactive. However, what is connecting them is the importance of the body and the effect it has on the outcome. That is, the experience for the viewer on the outcome.

In order for the viewer to understand the relation to the body, the experience of an interactive process generating a final product will be used in this investigation.

In the book Shapes of movement by Noa Eshkol and John G.Harries the introduction is as following. “The subject of this essay is movement; not the movement of objects, nor that of shapes, but the shapes of movement made visible. These shapes, therefore, treated as events rather than as accomplished structures or objects. The emphasis is placed on the way in which they are made to come into being, are transformed, and disappear. The events may consist of the persisting presence of unchanging forms, or of the transition of forms, but in either case the passage of time is needed for their perception. The concern here is both their persistence in time and their transition." (Harries 1969 p.1)

Eshkol and Harries suggests that the problem of approaching movement as shape needs to be extracted and interpreted into something existing as a constant. However, to provide the viewer a visual idea of the shape in movement, the source from which the shape is extracted is dependent on the flow of time. The visual experience of a shape extracted from a movement becomes questioned when the shape is actually extracted from the source. This makes one question, is it still a movement or is it just a shape? Can a shape be valid as a shape when we are only able to visualize the source as a shape in our mind?
The book Shapes of Movement is based on a movement notation system. "[E]shkol-Wachman Movement Notation (EWMN), is an objective method of defining and symbolizing the elements of the movement of the human body and its organization. The events, which the EWMN is designed to express, are the spatial relations and changes of relation between the parts of the body, which can be treated as a system of articulated axes. The system is the result of an analytical process, which disassembles the phenomenon – body, space and time – into basic units." (EWMNcenter 2014)

When we talk about the shape of a movement, we not only talk about the actual shape we see when someone is in motion, but also the element that the body needs in order to create the movement. In order to use movement as a tool, a system for analyzing all the function and parts must be placed into the investigation, to allow a movement to be created. Movements must be analyzed through different aspects that can describe all variety of movement or a certain style of movement. By doing this, enables the creator to put the movement into a framework from which he or she can use the movement for the desired purpose.

The elements used in order to approach different movements and put them in a framework, in the same manner as the movement notation system, needs a framework in which the movement can be categorized and described.

This method of approaching the human body, as a moving object will be used and adapted for this work not as a base from which others can create but as a method of analyzing the body and use it as a framework from which physical objects can be created.

In Oskar Schlemmer’s work ‘Pole dance’, he investigates the direction of movement in space. Quote from video: "the pole dance uses 12 poles to extend the limbs of the dancer and thus transpose the mechanics of movement into a vast enlarged area of space, the result in Schlemmer’s own words is: a song of the joints" (Schlemmer, 2014).

This piece gives an example of how to visually understand movement or function of a body through added objects. In this case, direction of the limbs is the main focus. (fig:5)

Also in Oskar Schlemmer’s work Das triadische Ballett (fig:6) as an investigation of bodily movement in space Clemens Thornquist states. "Schlemmer started by transforming the body through different wearable objects in order to geometrically abstract the human figure into an artificial gestalt. By adding music and movement, he attempted to synthesize human Dionysian impulsiveness and vitality with Apollonian precision and mechanical reasoning through a choreographed geometry" (Thornquist 2012 p.20).

In Schlemmer’s work, the added objects are placed into a framework from which the conclusions of the work can be made. The importance of Schlemmer’s works, in this context, is not the specific outcome but rather how he approaches the idea of the body in relation to motion and space. Added objects and specific setting is used and put into a system from which the viewer can understand and give emphasis to certain aspects of the body. The idea of what happens to the body in motion is made visible through settings and transformation of the body. This approach helps the creator and the viewer to visually understand the development of movements and shape in relation to each other.
When it comes to the discipline of fashion design, the body as static is often used as starting point of constructing a garment. The body, as an object and as a form, is rarely tempered in fashion design. And as static it can give way for predictable expressions. This is not to say that different expressions cannot be gained in fashion design when based on a static human body. But the shape of our body has given us quite a specific matrix from which we construct and base our investigations and development of garments. In other words, to work within the frame the human body or the dress stand gives us.

What happens when the constant of an already defined system is changed? Does it gives all the other elements of the system new meaning and expression in terms of movement? Or is it, rather shape of movement made visible into a constant? For an example, in Western construction system, the version of the human body is simplified into flat construction in order to create garments.

"A pattern of a tailored sleeve tells us about an arm and a front body piece about the chest. The paradox is that this is also where the separation of the garment from the body begins. When cutting becomes anatomical and pattern pieces are shaped after the body, it becomes possible to cut garments without a body present." (Lindqvist, 2013 p.35)

What happens when we start using the body as a tool? How do designers choose to approach such a fundamental part of designing fashion as the human body?

In motive and ide discussion works of other artists regarding the subject of using the body as a tool for investigating and develop will be reviewed in relation to this investigation.

"In a series of experiments, the work breaks up given definitions of a garment through its dynamic interaction with the body. As such, it emphasizes an alternative perspective on a particular garment and its relationship to the body while, at the same time, questioning the existing definitions of different garments" (Thorququist 2012 p.46) (fig:7)

The works of Rote Pollowe uses the body as an interactive tool to change how we perceive the basic garment. The body becomes the base element for change. What is interesting about Pollowe, is not just the shapes that can be seen in the photographs but rather how the body interacts with the garment and choose to approach how the garment traditionally is worn. However, the movement of the body is still what gives the possibility of the new definition. The motion gives the possibility of changing a defined object because it can move.

The understanding of the new definition of the garment is achievable through the documentation of photography. The work is able to exist when the body interacts with the garment but stops when the body stops moving. In order to exhibit the work to an audience, photographs are taken to provide the viewer an understanding of the body and the garment in motion and at a standstill in motion. Yet, the result differs dependent on which context the viewer chooses to view it. In this work, the context is fashion design, which traditionally is garments and or objects shown on a number of models for an audience.

This requires a physical being present on the body, however as described by Noa Eskhol in order to understand and see movement as shape, the "time is needed for their perception. The concern here is both their persistence in time and their transition" (Harries 1969 p.1).

The observation of the body in motion needs to be translated in a physical object. However, this arises problems to the project because without the presence of time, it is difficult to communicate the shape of a specific movement.

fig: 7 Rote Pollowe 2000
MOTIVE AND IDEA DISCUSSION

REI KAWAKUBO

In Rei Kawakubos collection 'Body Meets Dress, Dress Meets Body' the idea of the human body in relation to dress is challenged.

"Kawakubo’s tries to eliminate the static relationship between body and clothes that stems from the traditional western approach to dress. Instead, her work combines body and dress in a united conception through a series of physical bodily experiments that proposes an ostensive definition of a new principle of dress by pointing out examples directly on the body" (Thornquist 2013 p.132)(fig:8)

Body Meets Dress, Dress Meets Body challenges the idea of dress by intercepting the area in-between dress and body by melting the boundaries of the body and our understanding of it together with garments. This in hand, provides a contrast to the regular western construction methods that gives the possibility of constructing garments without the body present. The collection argues for an interesting idea of dress and body together contra separate. However, in relation to the function of the body as shape, the possibility of movement and the dynamics of the shapes when the body is in movement is interpreted as added objects with no real relation to the actual human body and again uses it as a static starting point. The shapes can be described as bridge between body and garments. The idea of using an additive to re-link garment and body strongly questions how designers choose to approach the body when designing and can be seen in relation to this work as another angel of questioning the fundamental starting points for designing, body and construction.

SUMMARY

All the examples and theories brought up in this first section of the investigation use the human body as a tool in order to investigate and generate a result. In order to use the human body as tool, all the examples are achieved by finding aspects of the body that most suited for the investigation. Deciding how to use the body is aided by using a systematic system as in Noa Eskhol’s movement notation system. In addition, the use added objects in order to understand a function of the body in relation to space as seen in Oskar Schlemmers work. Rey Kawacubos ‘Body Meets Dress, Dress Meets Body’ works also illustrates when one brakes apart he relation between the body and an object.

This investigation will try to introduce the human body as an active part of a fashion design process. This can be achieved by many different approaches dependent on what the investigation tries to realize. Due to this initial analysis of the investigation, movement of the human body has been chosen as a specific in order to give an alternative to the standardized body that is frequently approached in fashion design.

When a design process begins, it is a common method to start from an already existing base. Such as draping on a dummy, using a two dimensional silhouette of a human body on paper to sketch on or starting with a basic flat pattern of an archetypical garment. After these initial steps, a creator applies the idea of the investigation.

These initial starting points more commonly use a standardized version of the body often in a static position, which gives the creator a neutral base from where the idea can be applied and investigated. The problem of using the body in this manner, lies in the separation between the actual body and the virtual body being created in order to simplify the process of creating garment. The separation away from the actual body creates results when viewed in relation to the simplified body. Even if most processes tries the results on the actual body at some point, the results often creates some aspect that is not expected. Especially when you see it in motion. For example, walking on a catwalk.

Using movement and the function of the body in motion as a starting point of the investigation provides an alternative way of designing in comparison of more common methods being used. Can we get a better understanding of how the human body can be used as a tool for investigations in the field of fashion design and can we change how to view the body and its role in fashion design?
AIM

TO EXPLORE THE HUMAN BODY AS A TOOL BY USING MOVEMENT AS A GUIDELINE FOR SHAPE-EXPRESSION IN DRESS.

METHOD

GENERAL ABOUT DESIGN METHODS

“Methods are any procedures, techniques, aids, or ‘tools’ for designing. They represent a large number of distinct kinds of activities that the designer might use and combine into an overall design process”. (Cross, 1942 p.33)

“One of the simplest and most common observations about designing, and one upon which many writers agree, is that it includes three essential stages of analysis, synthesis and evaluation. These can be described in simple words as ‘breaking the problem into pieces’, ‘putting the pieces together in a new way’ and ‘testing to discover the consequences of putting the new arrangement into practice’”. (Jones 1992 p.63)

In a very general way of describing design methods, Cross (1942) and Jones (1992) statements can be viewed as the fundamental parts of approaching a design problem. Fitting tools for a design problem is generated or used into a system that the creator believes can help him or her to solve a design problem. John Chris Jones divides this process into three phases.

The first step, being the divergence phase, aims to extend the boundaries of a design situation into a large enough area from which the solution can be found.

The second step, being the transformation phase, is the experimental phase. This is where the active work is done to make examples that can be tried in relation to the question or aim.

The third part, being the convergence phase, is where all the variables of a problem have been identified and the different possibilities have been reduced to one.

Together these elements are the foundation of approaching a design problem. However, these processes all need their specific framework fitted for the question or aim trying to be answered or realized. In order to investigate the findings found during a process they need to be put in relation to the aim. That the relations need to be viewed both ways, meaning that the finding can put the aim or question under new light, making it important to stay flexible regarding the meaning of the aim, question or the findings. The reason for this is based on the investigator or creator gaining new knowledge during a process and is able to adapt based on the new knowledge.
METHOD

The method developed for this investigation is based on the aim of how to explore the human body as tool by using movement as a guideline for shape-expression in dress. As suggested in the aim and in the examples of the introduction of this report, divergence, is to define in which way the movement of the body will be used and visualized. For this, Eskhol’s movement notation system together with Oskar Schlemmer’s way of approaching the body and space together with added elements will be used as a starting point. This will assist in generating a more specific system for analyzing movement, suitable for the investigation.

The second part, the transformation phase, regards the realization of the findings from the divergence phase as a series of experimental prototypes in order to see which technique best translates the understanding of movement as found in divergence phase into physical objects. The third part, the convergence phase, regards putting the different experiments and prototypes against each other in order to find a distinctive solution that can translate movement into a shape without compromising the movement. How these methods are applied will be illustrated and executed in the development chapter.

DEVELOPMENT

HOW TO USE THE BODY AS TOOL FOR FINDING SHAPE

THREE CRITERIAS TO ANALYZE MOVEMENT

A series of experiments where conducted to find a suitable way of analyzing movement. A system for analyzing movement where created using 3 key points which are present in all movement:

- Balance; the balance needed for the body not to tip over.
- Direction; when a body is moving it create a direction in relation to a static position
- General shape of the body; if we view a body as an object we can talk about shape.

Taking into consideration, this shape becomes different because the body has the possibility of moving
This experiment examines the silhouette of basic garments in contrast to the body and its position. The shape of basic garments is a direct result of the shape of the body. When you change the silhouette, the silhouette still keeps a humanoid form to the original garment when based on the bodily in relation to the change of shape.

This experiment looks at how a basic garment that is oversized in relation to the body can be changed in form with added objects that in this case is balloons. It is in these experiments, the expression of the new shape becomes stronger when in motion.

This experiment uses the properties of a moving fabric to create change in appearance of details from a jacket to see how the visual impact of the details changes.

This experiment was conducted to see how two human bodies could interact with one garment. The shape of the garment can be investigated through the different direction of motion dependent on the two bodies.
This experiment was conducted in the same manner as trial 5. The differences between the two experiments were the size of the cover. In this case, the experiment was more circular but still highly elastic. This provides the body bigger freedom to move. The freedom of movement in comparison to the previous experiment has the effect that the shape looses most of its recognition as a human body and becomes objects. The two colors of the shape can be read as two separate objects or as the direction and nature of the movement inside of the jersey.
This experiment is done to understand how added shapes are affected by motion. One aspect of trying and create new shape or shapes based on the human body and movement when adding objects, is how these added objects react on placement and motion. The strips of paper are put on the body in an extreme position so when the body moves the paper strips creates a new shape outside of the boundaries of the body by reacting to the movement.

Description will be given on page 29.
TRIAL 9

This experiment tries to understand the human body in motion and its capability through two completely different photographs of the body in motion. This experiment created new shapes that can be viewed as an extension of the regular body.

TRIAL 10

This experiment was conducted in the same manner as Trial 5. However, in this experiment the new shape is concentrated around one movement of one part of the body that creates new shape by combining several photographs. These photographs gives a better understanding of new shape and balance points of the body. This is due to the body needing to compensate one movement with another to maintain balance.

The conclusion from these experiments illustrates a different perspective on using the body as a tool to find shape but also shape in relation to garments. Why do these experiments different perspectives?

Experiments 8, 9 and 10 were selected due to how they connected the most to the aim in regards to shape and the three key point of analyzing shape with the body: Balance, direction and general shape.

Experiment 9 gives us an interactive shape of an added object as a direct result of movement much as Oskar Schlemmers method of making something visible by adding elements.

Experiment 10 gives us a clear definition of balance for the reason that the double exposed photograph has two different positions, one static, as a relation to a vertical neutral point and one in motion, giving us the shape.

Experiment 11 has the most connection to movement of these three because you actually can follow a limb throughout the movement and see its relation to other parts of the body as a whole or separate.

Shape can always be found throughout all experiments however the body in motion as the shape-giving factor shows best in experiments 8, 9, and 10. Because the actual human body is visible. In The other experiments that use added elements leans closer to a result, showing effects the body can have on different objects or settings and not the actual movement.

Therefore, experiments 8, 9 & 10 will be the basis of the further development of the investigation to generate physical examples that can be tried against the selected movement and in relation to the physical body.
In order to show a variety of different perspectives of movement, a film was pro-
duced together with a dancer. The film is completed in 4 steps where her move-
ments gradually goes from close to the body and quite centered movements, to
off centre into larger movements. Also, the speed in which she moves is gradu-
ally increased because of the demands of centered movement’s verse movements
of being off balanced. The faster she moves the more energy and direction is
generated, creating stronger directions and bigger forms. From this film, certain
segments where chosen with the criteria of displaying a sensational variety of
movement that could give the viewer a relation to movement. This was to ensure
the viewer was not concentrated on one movement but instead could give a rela-
tion between the small variations of a body in motion and large variations. This
will assist in showcasing different aspect of movement and its relation to the
regular body.
The first prototype of the investigation is based on one of the examples from motion in experiment 9. The direction and balance of the movement is extracted from the photograph. However, in this experiment, the added shape is not based on the outline of a movement but rather how the added shape reacts to movement. By adding shape on parts of the body that makes out a joint they transform according to how the body moves.

The first prototype gives us another aspect of how motion can be explored in the sense that it gives us a direct reaction of a motion. On the contrary, the direction and balance extracted from the original movement gets lost and the prototype only gives one an understanding for a small part of the body and how it affects when added shape is in motion. The investigation needs to include a complete body and not only chosen segments of it.
The second prototype of this investigation is based on one of the examples done with motion that takes two different photographs of the body in motion and creates a new shape that is viewed as an extension of a body in a neutral position. Firstly, the direction and balance of the movement is extracted. By extracting the direction and balance of the movement, shape or outline of the movement is translated into an external shape. This shape is realized as a padded base that works as implants for the neutral body.

This second prototype of the project fails in the sense that it doesn't give a clear understanding of movement. This might be due to the lack of balance and direction which make the appearance of the shape non relatable to movement. This result is similar to Rei kawakubos 'Body Meets Dress, Dress Meets Body'.

The third prototype of this investigation is based on one of the examples from motion in experiment 10 and is achieved in the same manner as prototype 2; extracting and analyzing the direction and balance together with the outline of the movement. However, instead of adding to an already existing body, a completely new body is created with the use of polivenyl alcohol material (PVA). PVA material is spun into a tread and for this prototype knitted into an interlock jersey. This material reacts to water, which makes the treads dissolve. However, if you only use a controlled amount of water the material becomes stiff, melting into a solid surface.

Based on the complete new shape of the movement extracted with the criteria's of balance and direction and general shape, a padded dummy where created for the same reason that we use it as a reference when draping for the body in a neutral position. The padded dummy, which is sculpted in the same manner as one draws the naked body from a centre point, analyses a persons posture and angels of the different limbs in relation to each other. The PVA was applied and hardened as a new shell, using a new body with a regular human body inside.
The third prototype gives us a more complete view of a movement made visible as an object. In comparison to the two other prototypes, this option of approaching movement gives a good translation of movement in the sense of balance and direction in contrast to the regular body in a neutral position. When viewed, the interesting part is when we are allowed to view it in different angels. Due to this outcome, we can witness the shape-transforming dependent of the angel it is viewed from. This is the same as when we view a human body in motion together with the flow of time. This presents a new dimension to a garment that usually is viewed from the front, side and back. This way of translating shape will be applied on the movements selected before.

However, the photographic approach will change from experiment 9, which uses two photographs from experiment 10, where a dancer is filmed moving in front of a camera. Still from this video are extracted to enable to communicate the movement being analyzed in this report. When the sculptures are created they are done so by using the video of six specific movements in slow motion repeated during the whole process of sculpting. As an additional feature, the main points of interest and the key points are balance, direction and general shape. These three key point and areas of interest will be applied to the multi exposed photograph described in.
DEVELOPMENT
FINDING MOVEMENTS
TRANSLATING THE MOVEMENTS INTO SHAPES.

First the main points are marked with balloons, they serve the purpose to keep the dynamic of the sculpture intact throughout the process, as seen on page (Add page number) and these are the most extreme points in relation to the static dummy. The second step is to roughly connect the main points following the main point journey from the film showing the movement. The third step is to finalize the sculpture through detailed analyse of the movement trying to capture the more subtle details of the body on motion. For example, the hip-bones journey through the movement.

When looking at the structure of the collection that starts with smaller movements and gradually expands to larger movement, the starting point is represented as a neutral body in a static position. In addition, it is also the part that this investigation tries to criticize. For the purpose of giving a contrasting beginning the static body and the two first shapes (first, second and third object of the collection) will be dressed in more regular garments completely constructed after the principle of western construction system and block patterns. The additive of basic garment (the skirt for being most coherent with the shapes in form) will gradually disappear into the shapes allowing the shapes take over.
PVA (Polyvinylalcohol) is a material that dissolves in contact with water over 20 degrees. However if a controlled amount of water or steam is used the material only melt partly and then solidifies again. In this work the PVA is spun into a thread and thereafter knitted into a vävernit jersey, which has enough density to withstand water, or steam making it possible to melt the threads they connect with each other and thereafter solidifies. The second property of PVA is that I shrinks 2/3 of the area which means that the material fits itself to the sculpture making an exact copy. An extensive experimentation phase where done together with the PVA and different knitting techniques in order to find the right recipe for harness and flexibility of the material. However because the material is so sensitive to water it is possible to make hard in the smaller pieces but not the larger ones. To solve this Carbon fibre two component epoxy where used as a hardener and for protection. Epoxy and PVA don’t interact with each other, much like oil and water. The epoxy encapsulates the PVA, and helps it keep it’s shape. Below we can see some of the try-outs done only with PVA and water.

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<td>2cm</td>
<td>2cm</td>
</tr>
<tr>
<td>Steamed:</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Rest:</td>
<td>12h</td>
<td>12h</td>
</tr>
<tr>
<td>Water:</td>
<td>10c°</td>
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<tr>
<td>Rest:</td>
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<tr>
<td>Water:</td>
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<tr>
<td>Rest:</td>
<td>24h</td>
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</tbody>
</table>

Working with the PVA as the only material, appeared to work once every fifth try, and those experiments where only conducted on smaller shapes. When tried on larger shapes they cracked because of the tension from the material wanting to shrink more then the shape allowed. Picture 1, 2 and 3 below shows some of the failed versions seen on the page 42 in detail. And picture 4, 5 and six at the bottom shows the PVA coated with Carbon fibre epoxy.
When creating the shells, a cover of PVA is draped around the sculpture. The seams are done to follow the movement of the shape, creating a line that helps the viewer understand the movement. When steamed to fit the sculpture one or two layers of epoxy is applied to the PVA depending on the size of the sculpture.

The result of this investigation regarding how to explore the human body as a tool by using movement as a guideline for shape-expression in dress tries to communicate and create a new approach and starting point for developing dress. This is not a universal method that should be applied to all work, but it is a suggestion and encouragement for using the human body that's stands as the base/wearer for most work related to fashion design as an active tool. This is in contrast to methods where the actual body gets separated from the beginning. Such as, flat sketching, draping on a dummy or using block pattern based on simplified versions of the real body. This work succeeds to use the body as tool because all the shapes created originates from the body, or rather a function of the body because of the method created.

What was found when it comes to the physical result was a method partly based in Noa Eskhol’s and Oskar Schlemmer’s theories about the human body and its functions. The method created enables the creator to understand and analyze the movements of a human body as shape. Through this method creates physical and 3 dimensional forms. When it comes to the execution of realizing the shapes, the PVA material together with epoxy were used because of its properties of creating a simple shell that could give the viewer a understanding for the shape in relation to the actual body when they are connected. The results indicates that both shape-expression in dress and a platform can stand as an alternative to the standard methods of using the body and simplifying the body.
Representative photographs of the chosen movements from video.

Analysis of the movements in three steps: Balance, direction, and general shape.

Realized sculptures of the movements.

Reintroduction of the shape to the human body.
Outfit number one stands as a contrasting additive. Based on a standard block pattern created for a static human body. The same method where applied but because there where no movement it emphasizes how designer regularly approach the human body.
Outfit number two has only a slight movement of the chest and bottom. This means that the balance, one of the key points of analyzing stays the same therefore the shape sculpted only concentrates around general shape of the movement.

The skirt gradually becomes shorter, making the shapes more and more dominant.
Outfit number three is the first shape where all three key points can be detected as form giving factors. The left shoulder goes off balance which means that from a center line the bottom has to compensate in the opposite direction in order for the person not to fall over. The direction of the body goes in a diagonal giving a distinctive relation between the body parts.

The skirt becomes almost unnecessary when the shape starts building its own relationship with the body.
Outfit number four shows a clear relation to the movement, however in this case the shape itself have been sculpted into a smaller version of the movement. The scale of these shapes is not a part of the three key points of the method. The scale is decided by the idea of reintroducing the shapes to the actual body. This means that the sculptures need to be the same size as the movement.
Outfit number five has the same balance pattern as number four. The movements have different directions, number four is moving from a bent position to upright and the other way around for number five. But the same balance pattern is needed for both of them. The shape of the upper body in form number five is created by the journey of the left arm in the original movement therefor the arm is not cut out of the shape, which creates an interesting visual perception of the shape in relation to the actual body.
Outfit number six doesn't have a centered balance point as the other for the reason that the original movement only has one leg on the ground. When the body needs to compensate for standing on one leg the movement becomes big. The “skirt” of shape numbers six is a product of one limb, in this case a leg that in the original movement separates itself from the rest of the body but still has the most impact on how the rest of the body acts and moves according to the three key points. When analyzing the movements investigated in this collection it’s clear that in all movements there is always one part of the body that is superior, that drives the rest of the body.
Outfit number seven shows a movement concentrated around the lower part of the body where the feet have the same position but the whole body does a spiral motion from a bent down position to a stretched out position. The lower part of the realized shape has two static points, the feet. The shape is generated from these two point and the spiral motion comes from the knees and is continued by the chest and ends with the right arm. When this shape is reintroduced to the actual body, the visual result is a body in motion or position. The reason for this that the actual body is completely covered and only selected areas of the actual body is shown, e.g. arms, head or feet. Giving life to the static shape. The first examples number two, three and four don't give the same understanding for the movement realized because the actual body shows more and therefore cuts of the shape which doesn't give the same dynamic relation to the actual body as number five, sic and seven.
OUTFIT 5: SHAPE

OUTFIT 6: SHAPE

POLYVINAL ALCOHOL COATED WITH EPOXY

OUTFIT 7: SHAPE

POLYVINAL ALCOHOL COATED WITH EPOXY

APPLIED TO ALL SHAPES

ENDINGS SECURED WITH HANDSEWN TACKS

HANDCRAFTED SILVER STOPS ATTACHED WITH PINCERS AND EPOXY GLUE

SPIRAL PLASTIC ZIPPER WITH POLYESTER TAPE

TAPE-FASTENED WITH WOODEN GLUE
How does the result of this work answer to the aim (To explore the human body as tool by using movement as a guideline for shape-expression in dress)?

The discussion and reflection can be divided into three parts. First, in what context does this work belong? Second, how does the collection answer to the second part of the aim using movement as a guideline for shape-expression in dress. Third, how does the collection stand as a platform and suggestion for explore the human body as tool for design research and development in the field of fashion design.

First Part. This work is based in questions surrounding Fashion Design however the usual context for fashion designer, being the catwalk maybe isn’t the only possibility of showing the result of this investigation. The structure of this work is built as a collection, which gives the obvious choice of showing it on models walking on a catwalk. However the physical result of this investigation is not bound to a wearer and have the possibility of being free standing objects. Therefore finding the right setting explaining how they were made, e.g. the photographic research this work could also be an exhibition.

In which context this is shown will communicate differently to people. What the different ways will communicate is difficult to describe but in order to make the work fit to the contexts better changes can be made e.g. for a catwalk accessories and styling could help the work be viewed as more garments or exhibit the forms as sculptures together with the photographic material done during the process.

Second part. The different shapes generated through this research have been created using the same method. The only thing that changes is the movement itself. This suggests that the method of analyzing movement through three key points Balance, Direction and general shape works as a stage of analyzing movement.

However the question of realizing these findings into physical objects is a matter of choice. Even if the choice of using the PVA was taken in relation to the aim and to the other experiments.

Jone Chris Jones description of a creative process Transformation when an aim is pinpointed and elements for approaching the problem is decided, is now validated in an experimental phase where you pinpoint what works and what doesn’t.

“the creative act of turning a complicated problem into a simple one by changing form and by deciding what to emphasize and what to overlook” (Jones 1992 p.66)

The criteria’s for choosing a technic of realizing the movement into physical objects in this investigation decided from the aspect of how easy the shape could be understood and how well it could be reintroduced to the actual body. In order for the viewer to understand the shape had to be seen as an object interacting with the human body.

The critic of this work lies in the decision of how the shapes where realized. When compared to the result of understanding movement as shape, the research and methods gave an answer. But in the Transformation part there is a phase of interpretation where personal choice has impact on the final product. From the different prototypes shown on pages 35 to 37 one was chosen with criteria’s decided in an earlier stage.

In what way a creator chooses to realize the research is something that should always be reflected back towards the aim in so called Glass box thinking, where processes “are concerned with externalized thinking and are therefore based on rational rather than mystical assumptions” (Jones 1992 p.49). What the creator want´s to achieve is decided and reflected upon in an early stage, giving the creator something to validate the findings against.

Many designer or creators come across this problem, when there is no obvious choice of which direction the investigation could take. It’s often a problem of how we reflect and decide what we want to do in the beginning of a process.

Therefore the choice of using PVA works in this context of realizing the movement into an object, however that’s also the part that can be criticized for the reason that it was a choice of what the collection should look like. And not a product of the research. The question is why the PVA works better then the other prototypes on page 35 to 37. Maybe there should have been a more extensive research regarding the realization of the movements as shapes.

A possible change to the final work would be to remove the skirts in outfit two and three. As it looks now the skirts interrupt the understanding of the shape. Instead the sculpted movement in outfit two and three would be altered so the bottom part of the shapes will be longer, covering the buttocks and part of the legs. Also in number two the shape could be altered so there would be a bigger resemblance to the first outfit, The fabric dress, giving a natural transition from basic pattern in fabric being the starting point of a traditional method to the sculpted movement.
DISCUSSION AND REFLECTION

The third Part of discussion and reflection aims to question if this work can be used as a platform and suggestion from which commonly used methods of design and investigating dress can be applied to find new aspect of fashion.

Using the human body as a tool has in this investigation generated shapes based in movement. The result can be viewed by itself as shape of movement but it can also stand as base for applying standard technics of designing, e.g. Western construction or printing.

The result of this work as a platform provides a new human body in terms of shape. In contrast to the body most commonly used today. Which is represented by flat silhouette sketching or the use of a static dummy. The result of this investigation is also static but the shape of these new bodies originates from a function of the body, therefore represent the human body in a new way. Because the body usually is used in a static position when applying a design idea it gives way for a certain expression.

Is it possible for designers to achieve a better understanding for the possibilities the human body can provide as a tool in a design process? In this investigation only one approach to the human body has been taken. What is suggested is that there can be almost endless ways of using the human body as tool. However this is an assumption based on personal knowledge and differs dependent on a person's own encounter with the body. In order to open up these possibilities for other designers there have to exist methods or structured frameworks that can assist the designer in using a certain function of the human body. Only when you give a designer the possibilities/tools to understand and view the body so it may be used as an active element in design research and development of dress.

This work as a platform for challenging regular technics that uses the body as a static object as starting point is a given continuation of this project. Replacing the regular dummy with the new bodies created. What's interesting is that the regular dummy and these new bodies both originate from the actual human body even if the regular static dummy is a neutral starting point, and the one that is most commonly used. If we only where to design from the body as a static dummy and never use the body as a tool we create limitations that’s not necessary. For the commercial market and the mass production of clothing the static dummy and the western construction matrix make sense for the reason that it has to fit a large variation of body types. However there is no reason for creators that don't have the demands of mass production to copy their way of working. Using the body as tool, not only movement, but a large number of aspects generated from the body.

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