

MAPD 5900 - thesis
Valerio Fornasini

project E

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Abstract

Project Description

On Art

Art, in its broadest sense, includes all human activities - carried out individually or collectively - that leads to creative forms of aesthetic expression, relying on technical, innate abilities and behavioural rules derived from study and experience. At its today's art is closely related to the ability to convey emotion, so the artistic expressions, while aiming to transmit "messages", not a real language, as it does not have a clear code shared between all users, but instead are interpreted subjectively. [<http://it.wikipedia.org/wiki/Arte>]

On Design

*In a larger sense for design means all stages of planning and scheduling of a set of activities that will lead to an expected result, which can be achieved in a total, partial or even be missed. Ultimately therefore almost all human activities occur, more or less effectively, to a design that means, strategies and actions necessary to achieve certain targets
Nowadays the English word Design includes both aesthetic and technical aspects of industrial design. [http://it.wikipedia.org/wiki/Disegno_industriale]*

Almost by definition the function of Art is to create an emotional reaction departing from an individual perception of events, culture, identity. And that's imply that the function of Art can be philosophical, as well as political or social. In the contrary the function of an Industrial designed objects is mostly practical and aim to achieve an artefact that "works".

In my research I would like to attempt a product that contains both artistic and Design qualities in symbiosis with each other starting from a no functional input.

Where is the border in between artistic expression and practical function?
How can I express both qualities in one object?

What if a product also contains features that are not necessarily related to its prime function but encourage a different perspective , a no precise function that can be used subjectively?

The starting point will be an existing project called Embrace. Embrace is a lounge chair that attempted to explore those questions without fully investigating them. In fact Embrace has many inconsistencies that make the project incomplete and undefined. Those conditions are ideal to test my new research questions . The idea is to take this early project and go backward in through its designing process and try to enhance the already existing inner qualities but also add external inputs. Eventually Embrace will be considered a new project and its function and meanings should be improved and/or modified.

Embrace will became **project E.**

Background

Embrace

The initial response to the project brief is driven by the idea of creating an emotional reaction through haptic experience.

Imaging falling in a snowdrift, how far can you go?

Where is the haptic border between falling and landing?

The experience of falling, the primordial fear of loosing stability that leads to the unknown as a starting point.

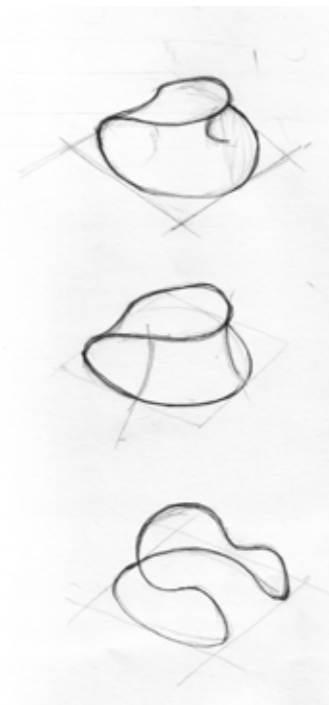
This visceral emotion is uncontrolled till the haptic bodily experience of landing takes over. The touch of stability keeps you safe , absorbs and releases your weight till balanced and embrace you with hope.

Falling-landing-embracing is the emotional journey just through seating on a lounge chair. [4]

The intentions behind Embrace's project were to create an emotional reaction using an everyday object like a chair. The border in between the function and the meaning of the chair is a blurry fine line that should emphasis the one or the other depending on the experience of use. In fact the appearance of the chair is rather sculptural but there are features proper of a traditional chair - size, ergonomics, shape - and by sitting on it the user should experience both function and emotions .

The shape of the chair was the result of a combination of materials that could offer structure and elasticity at the same time. A closed loop made of steel pipes could offer a structure which could be dressed by a stretching material. The use of a stretchy material was crucial to create a falling experience.

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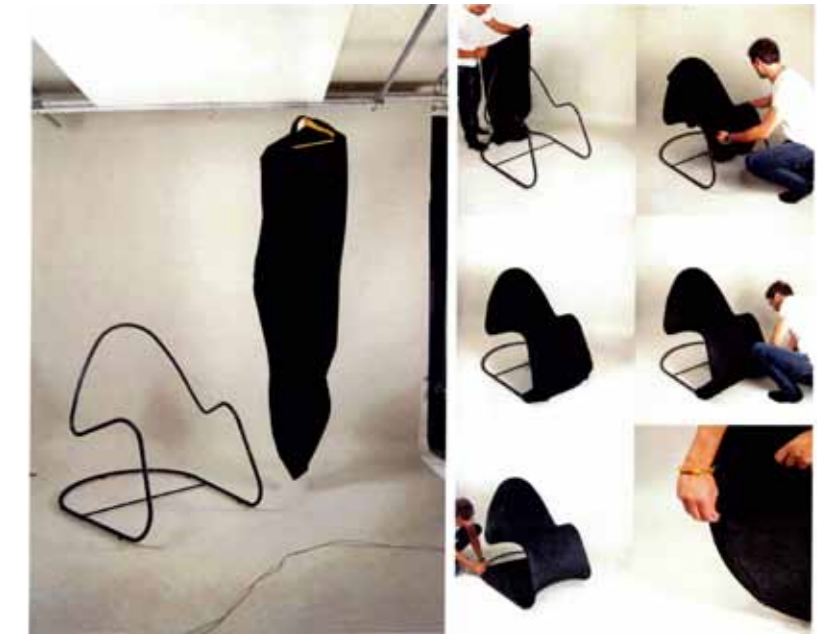


Most of the chairs have a more and less steady support, and most of the time the user expect a certain level of resistance while sitting .
With Embrace I wanted to create a surprise effect. The user could certainly guess some sort of softness before sitting, but yet not completely.
Therefore the emotional reaction was meant to be generated not only by the nature of the material but also by its surprising performance.

The elastic textile dresses the structure like a giant sock from the top to the end of the loop to be then secured with a traditional zip.
This interchangeability suggested also customisation.

The idea was also to maintain a very simple level of designing:
turning a steel pipe in to a close loop and wrapped by a stretchy material.

The initial prototypes were made by using a soft steel wire wrapped by common H&M stocking.
The option were several but there were never being explored completely.



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Survey

The survey consist of trying Embrace and recording the feeling that the chair creates. The survey is divided in two stages : while sitting experience and after sitting experience. In this way I wanted to understand the reaction in both stages.

19 people partecipated to the survey , of which 8 female and 11 men. I have tried to test very different body types from a minum weight of 45 kg to a maximum of 98 kg, from a minimum height of 1.50 cm to a maximum of 198 cm. Different body type different feedback.

Question 1:

70% scared
30% hugging experience

Most of the people felt scared during the sitting experience due to the elasticity of the textile *how far can I go?* Many refer to an hugging experience like *wearing a jumper*.

Question 2:

80% comfy
90% safe

In very contrast with previous question many described the experience as *safe* with emphasis on the rocking movement. Most of the user also felt like *a place without gravity* : a very comfortable chair.

Question 3:

80% relaxed
20% relaxed+active

All the users felt very relaxed. Many also confirm that the chair invites to light activities like gaming, reading, laptop and socialising.

Question 4:

-comfortable aspects :
60% wrapping experience
30% rocking feeling

Most of the user appreciated very much the wrapping experience on their back , especially at the back zone. The no static feeling also increases the comfort.

-uncomfortable aspects:
40% sliding effect
40% head is not in a good position
20% hands too free

The uncomfortable points has been very much related to the body type. Some find the chair too short on the legs so slide occur -despite ha been previously modified -. Other find the head position very uncomfy in very different ways: someone find too little supportive, or too forward or too short so the head bumps on the metal bar. Interesting comment on the hands being too free as there is not armchairs.

Question 5:

Most of the user thought it was a positive experience especially because the chair seems to be *shaped after your body*. Many also find interesting that the chair offer a postion in between lying and sitting.

Question 6 :

The comment on the chair has been different and soemtimes unexpected; from *surrealistic* to *unpredictably confy*, from *sexy* to *chill pill*.

Conclusions:

As general summary of the survey I can say that Embrace had a very positive feedback. The chair is often associated to a confy and pleasurable experience. Most of the negative feedback are related to the ergonomics of the chair even though there is a general appreciation of the feeling the chair produces.

Emotional feedback:

Embrace seems to be a chair that can create very conflicting reactions. In one hand it has been often described as a scary experience ,while sitting on it, but in the other hand it is very confy and safe chair. Those emotions are accompanied by two different stages of the interaction with the chair. In fact the association to hugs and clothes a is very precise qualities of textiles but not visually visible yet in the chair. The falling part isn also hidden and somehow coud enhance the following

Phisycal feddback:

Embrace is not one of the most comfortable chair. There potential though. In fact the idea of using a stretchy textile creates a surprisingly confy results but the geometry of the chair is far from being ideal. By following the users feedback it will be possible to adjust the

SURVEY_Embrace

While sitting on Embrace :

Analyse the haptic/bodily experience during the sitting action

1- How does it feel ?_
What does it remind you of ?_

After sitting on Embrace :

Analyse the sitting experience in its static state

2- How does it feel?_

3- How does it make you feel?_

4- What most comfortable/uncomfortable point?

5- What unusual while sitting on Embrace?_

6- Describe your experience in one/two words_

Elaboration of

ergonomics feedback

The structure of Embrace has been modify several times based on the physical feedback. During the process of readjusting the geometry of the chair additional surveys has been necessary to check the status.

It took five stages before finding the right balance. The most challenging part was the area in between the head and back as while adjusting one the, other was turning uncomfortable and vice-versa.

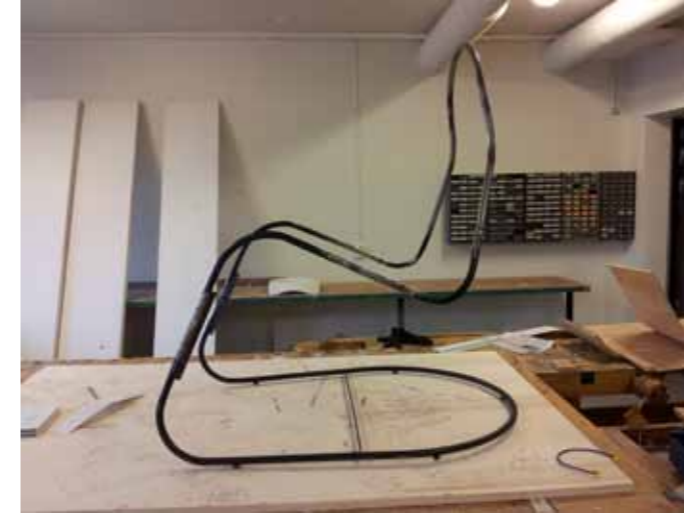
The structure of the chair plays with the tension of the stretchy textile which has unpredictable reactions.



attempt n1 :
by bending backward the headrest I was hoping to create more support to the head.
Wrong : the textile moved to the opposite way making it even more uncomfortable.



attempt n2:
bending forward the headrest it was almost good a part for the fact that most of the people were clashing on the metal pipe.



attempt n3 :
the height of the headrest has been increased allowing more space for taller people. However the bend create an uncomfortable position for the neck.



attempt n4 :
A double bend seems to create a sort of notch that accommodate the head without pressing on the neck. Shoulder and back are comfortable too but bending the pipe back the height of the headrest decreased.



attempt n5 :
By increasing the height of the headrest the chair seems to fit most of the body types delivering a very comfortable position.



making of the structure

project E

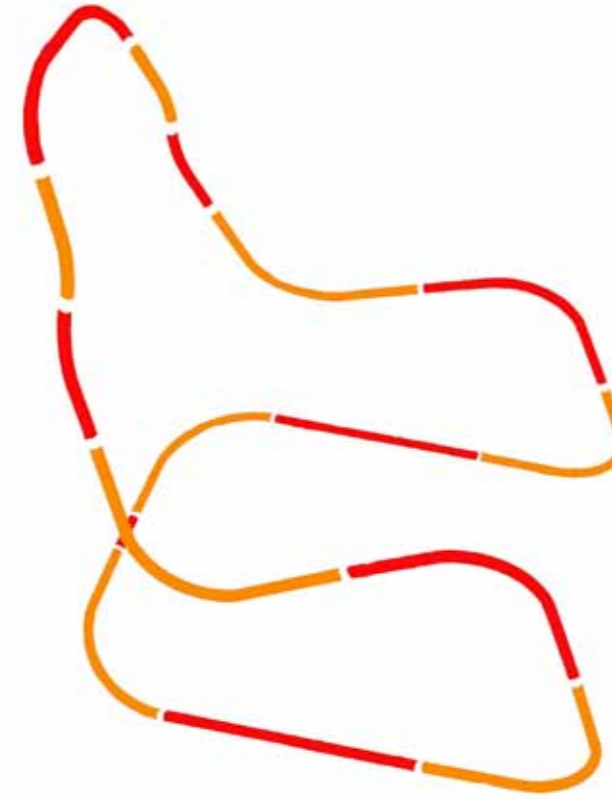
From now on I will call my chair **project E**.

After re-adjusting the ergonomics on Embrace, I started to produce the new structure for the new chair. The principle of construction and the materials are identical to Embrace.

The new structure is composed by 16 different parts. These parts have been previously bent and then connected with each other through an internal rod. After welding the edges of the parts with each other, the new structure has been sanded and tested again.

The material chosen for prototyping is a steel pipe 30 X 3 mm.

Ideally it would be better to use stainless steel as it is more stiff and durable but for prototyping I found this solution perfect. In fact stainless steel will be more difficult to bend, weld and generally manipulate.



Structure composition: 16 parts.

Summary of the process

- 1 Steel pipe has been bent with manual bending machine
- 2 According to previous prototype and initial drawings all the parts have been bent and checked.
- 3 The inner connection with the parts has been customised with the lathe.
- 4 All parts have been checked together with the inner connector
- 5 Inner connector has been placed
- 6 Parts of the structure have been previously welded
- 7 All the parts are slowly joined together and secured in position
- 8 The final composition of parts is ready to be finally fully welded



Final structure ready to be sanded

1

2

3

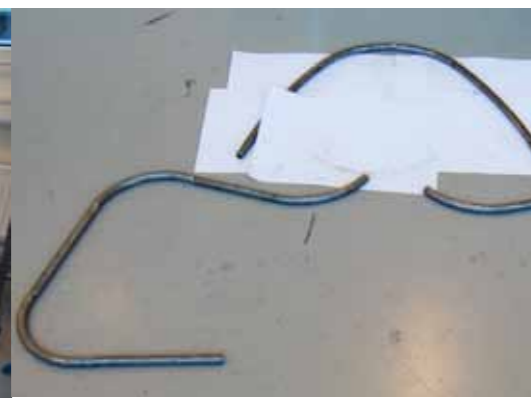
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8



making of the structure

reinforcing the structure

Once all the pieces were in place I had to test the new structure to make sure that it would perform as predicted. The flexion of the chair was quite evident and the textile itself couldn't provide the right support for all body weights. The best solution to create an additional support to the chair came from the a system normally used on sofas or sport car-seat. A series of elastic belt weaved together could create an elastic bed that could help to support weight.

After visiting the main factory of *Intes* in Italy, one of the biggest company in that sector, I had the chance of testing *Elasbelt* on my project.

Elasbelt is an elastic belt with a range of stretching that start from 30% to 100%. Under Intes expert suggestion I have tried belt with 30% stretch, from a standard width of 50 mm and 600 mm.

I made the first attempt by using *Elasbelt* 50 mm, weaved together vertically and horizontally. This solution wasn't ideal as it is recommended for seat with a constant level of support. The *Tagliatelle* chair of Jasper Morrison, for instance, uses an *Elasbelt* 30% which is weaved together on a even surface with a constant level of support. On **project E** the surface is variable and in movement therefore this system resulted ineffective.

Moreover the textile that covers the belts is very thin and the texture of the weaving is therefore quite rough on the body.



Tagliatelle by Jasper Morrison



making of the structure

reinforcing the structure

By using *Elasbelt* wide band the result was much more successful, In fact, a part from being smooth to the body , the band had also a sort of memory effect. After sitting on it the first time the band copied the shape of the body and remained in position. The support was effective but almost imperceptible.

The connection system in between the *Elasbelt* and the chair was made by using two rail system running along the main structure, that work as a coupling , and hooks sewn inside the belt. In this way the belt is removable and changeable.

I have used two types of stretch for the support: on the main sitting area a belt with 30% stretch and under the legs 80 % stretch to modulate support along the body,

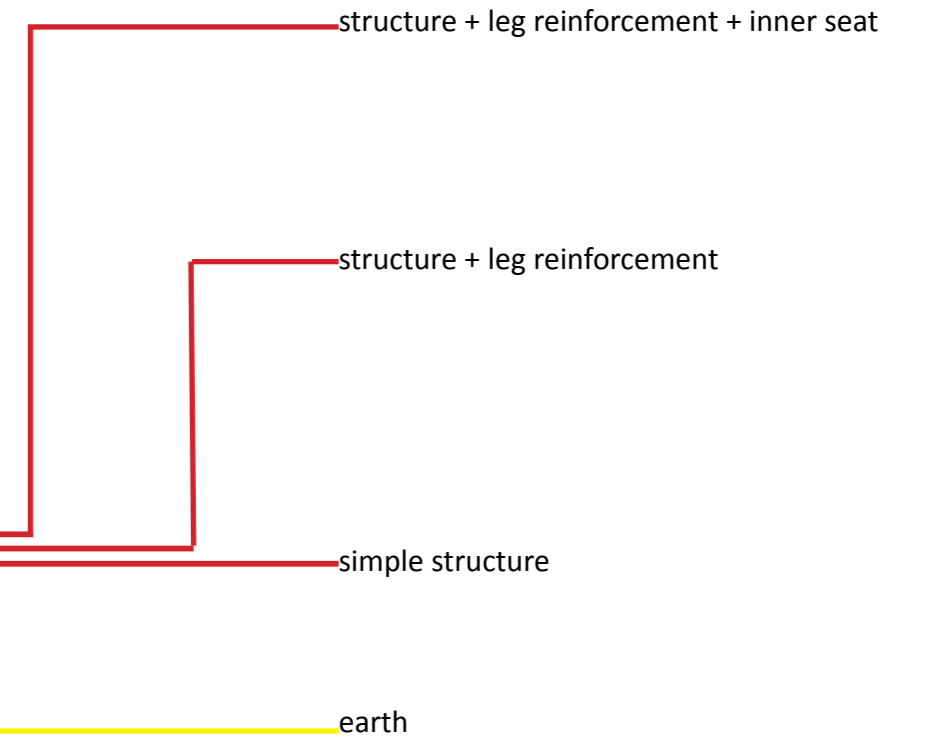


Despite *Elasbelt* helped very much to enhance support, the structure was still bending too much under body weight. The 30 x 3 mm steel pipe is ideal for prototyping with a safe but bouncing effect, To recreate a stiffness similar to a stainless steel I had to reinforce some specific area of the structure.

By adding an additional steel rod to the legs of the chair I have managed to increase stiffness to the whole structure.



chair reinforcement graph



elaboration of

emotional feedback

From the survey's feedback there are two strong and opposite reactions that have been mostly recorded. One is proper of the falling journey and it has something to do with fear of falling, being scared, instability.

The other reaction, in the contrary, is positive and comforting and its described as a safe, hugging, *wearing like a jumper* feeling.

I like the fact that the chair can generated very opposite feeling almost at the same time. Those are emotions that I want to preserve and enhance. In fact, once the structure has been defined and can provide the right ergonomics proper of a design product, those emotions can be the link to a more creative and artistic experience.

The textile is obviously the main reason why the user experience such a comfort and bouncing at the same time.

My next step will be exploring more in details the potentiality of different textiles both as a function and as a artistic expression..



As I previously mentioned, the Embrace project didn't explore fully the potential of the stocking on a structure. Some of the options created through mock-ups were not taken in consideration. Knots, tails, cruises and transparencies were left on the side in favour of a more sleek and sharp design. In my new research I went back some stages and tried to push forward some of those qualities.

At first I have re-explored the stocking by re-making more mock-ups. In this way I have found interesting options: dressing the chair twice - giving the feeling that the chair can change appearance just by undressing/dressing it -, tails that recall a more human-animal appearance or proper of hairstyles, and also the concept of securing the textile without zip, or buttons but just by making knots.

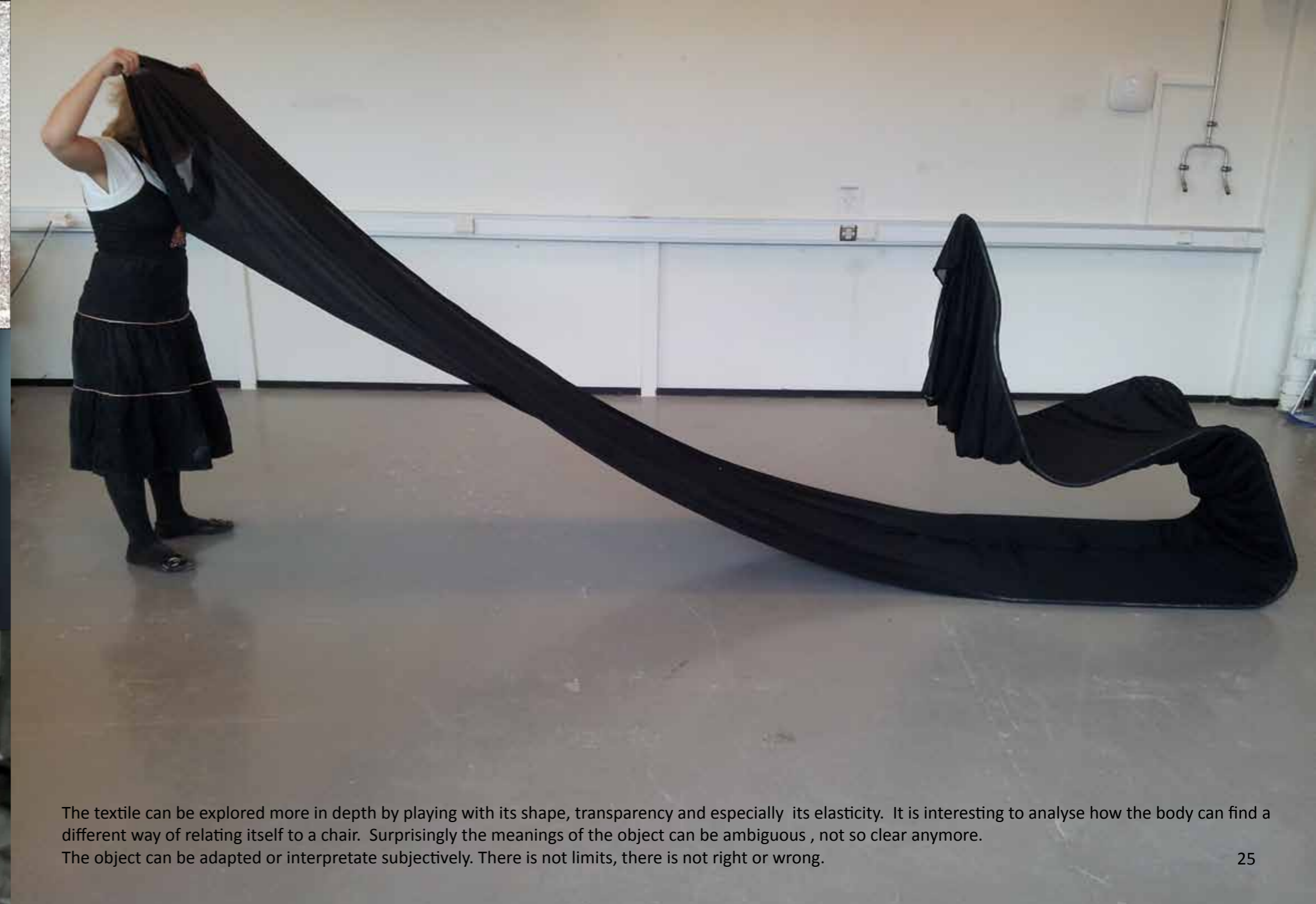
After that I have tried the same textile on the 1:1 prototype to check the reaction on real size, and also the feasibility of those solutions.

The result was very interesting, the chair became almost just a decorative element and its functionality somehow loses priority. However it was impossible to sit on it.





Stocking and the way the textile, in this case, falls into shapes invokes references purely feminine, from the most obvious sensual meanings, to a Sicilian widow, passing from the most religious burka of the Middle East. Many more can be founded. The textile can play an important role to connect the user to a world that departs completely from the concept of a furniture



The textile can be explored more in depth by playing with its shape, transparency and especially its elasticity. It is interesting to analyse how the body can find a different way of relating itself to a chair. Surprisingly the meanings of the object can be ambiguous, not so clear anymore. The object can be adapted or interpreted subjectively. There is not limits, there is not right or wrong.



The interaction between chair and user suggest something new. The whole became bigger than a standard furniture space occupancy. Is the chair now invading other fields?





References

Ernesto Neto

Neto's work has been described as "beyond abstract minimalism". His installations are large, soft, biomorphic sculptures that fill an exhibition space that viewers can touch, poke, and even sometimes walk on or through. These are made often of white, stretchy, stocking like material -- amorphous forms stuffed with Styrofoam pellets or, on occasion, aromatic spices. Very inspiring has been Neto's use of stocking to create shapes and imaginary volumes where the translucency of them reveals body or other contents. Especially with Neto's furniture I have found a connection with my project as the user often became part of the furniture itself. A quality that I wanted to explore in order to create a misleading use of the object.



< Hussein Chalayan

Another interesting reference from Fashion Designer Hussein Chalayan. His work, *Afterwords 2001*, explore the connection in between the body and a furniture a very precise way.

A clothe can be a furniture, and a furniture can be dress a furniture too.

The filed of interaction with the furniture/clothe is definitely less adjustable than with Neto's , but the idea behind is evoking change, and adaptation too.

The object can loose its primary meaning, and become something else.



Issey Miyake >

One of the most inspiring and avant-garde Japanese Fashion Designer.

His work has always been playing with geometries that often are not applied on the Fashion Design.

Quite often foldable in to different objects that are not recalling necessary a garments.

This way of treating clothing investigate the border in between the use and the appearance of them.

The interpretation of those shapes transcends from the awareness of their function and the result is a wearable object, both beautiful when dressed and by itself.





The textile imply playfulness in this project and interaction with the body. Moreover the duality of the dressing/undressing the chair , which was explored earlier in the process,suggests that the chair can be dress itself - and therefore change its appearance as wanted - and also dress the user. A dressable chair.

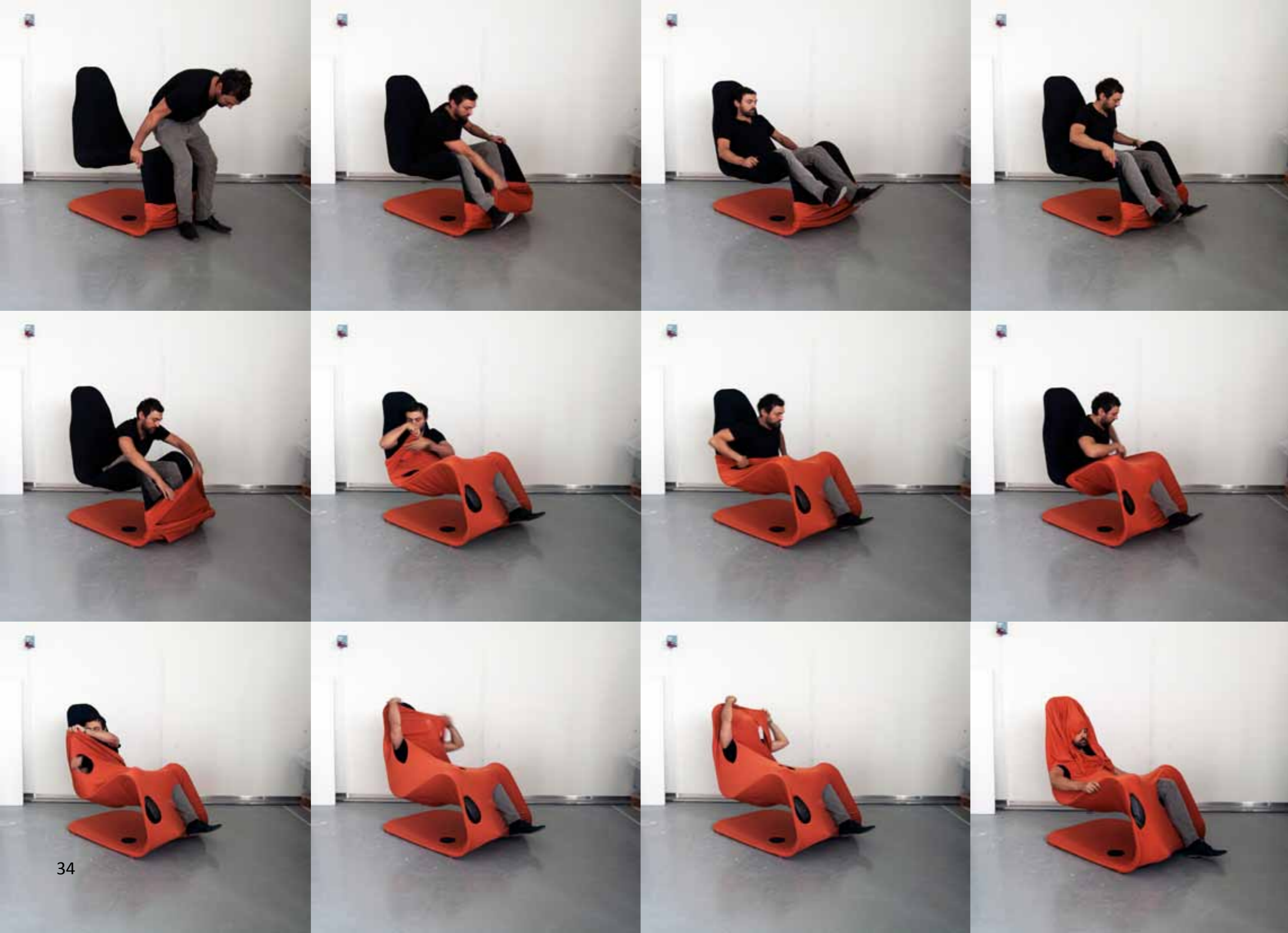
In that way the playfulness of the textile has a double meaning and not a precise interpretation, which in my case, result to be crucial to investigate with the borders in between artistic expression and practical function. The chair has the function of dressing/undressing but also a visual meaning that stands by itself.

By making some opening the options of interacting with the object became almost endless. I like also the fact that this holes reveals part of the structure and other sides of the textile itself. Bones and fleshes.

Once again textile and its drapes recall clothing, tunicas. In this case just by changing the colors of the textile the immediate reference could be a Buddhist Monk , when in orange, as much as a greek statue ,when using a white textile . The chair dresses/undresses itself, a quality that also imply context. In fact the chair can adapt itself to the context just by changing appearance.

Interesting is the connection with the Neto's furniture. The user is wearing the chair, or is the chair wearing the user. Also the ambiguity comes from the unclear border in between human body and object. In this way the user perceive the chair as part of him/herself and the perception of space it might change accordingly.







A dressed chair.





An undressed chair.



Dream + Reality

From Embrace to project E

I consider **project E** a compromise.

Its main input was pure and uncomplicated but its *put in to practice* was polluted by a series of technical escamotage.

The idea of bending a wire, wrapping it with delicate transparent textile and then sit on it was as poetic as suicidal.

The initial idea was definitely an aesthetical elaborations of different material blended together which evokes emotions and references far from far simple chair ,but a chair need to be used as a chair too.

One of my early research questions was analysing the possibility of conceiving a functional object starting from a no functional input, and one of my first discoveries was that you can't.

If you want to make a chair you need to think chair.

Also my idea of combining an artistic thought with product design object almost fail in to contradiction as soon as you start putting material together : yes you can wrap a structure with a good looking material and sit on it while expressing some sort of artistic output but where is the comfort,durability, safety , repeatability? Those qualities are proper of a product design, and they need to be thought through very carefully .

The first frictions screech already when you want to realise a standard product using nonstandard processes. In this case you enter an unknown zone with hidden pitfalls and difficulties. One of my initial main concern was to make sure that the structure was safe and resistant to all body types.



Using only a stretchy textile was almost utopia to make a chair work , in fact I had to modify the structure several time before finding an acceptable solution.

A chair has to perform properly and make sure that you can sit on it without injuries. There is not other ways and more importantly there is not compromises when it comes to safety.

The artistic twist comes more from the use of additional features. Features that can mislead the consciousness of the product and therefore engage a discussion with the user creating questions and personal interpretation. The meeting point in between function and artistic expression is the intervention of textile. In a way it is just the appearance of the chair, a costume or a theatrical trick that emphasis meanings and references that are distracting the viewer/user from reality.

My second research question was concerning about how to conceive a product - or equally a piece of art - that contain both artistic expression and practical function. My answer to the question is "by processing both fields separately but with consciousness that they finally must fit together". Dividing the survey's feedback in two separate guidance helped me to concentrate on specific problems. By adjusting the structure first I was sure that the chair's practical function was going to work at the end, regardless the artistic expression.

Afterward I could focus only on the visual of the chair and its interaction with the user regardless its main function.

There are many options and solutions that haven't being explored completely . My research aimed to explore some of the most obvious ones according to my first interpretation of inputs.

A possible continuation of the project would be the investigation of spatial aspect that the chair encourage to explore when in connection with other objects/people. And ,of course, the experimentation on many other textile and flexible materials.



Note on the textile

Material choice

project E can have an infinite number of textile on it. That's can be planned before production as much as during the life time of the product. The textile plays an important role as makes the project E constantly renewable.

However while the second layer textile can be customised, changed with any other types of textile - even not stretchy - the first layer has to be always the same , or at least always with the same technical specifications.

The first layer textile works mainly as a structural material, allowing the chair to be stretchy and supportive at the same time. Moreover this layer has to have a good resistance to abrasion and perforation as it is in constant contact with other textiles under the pressure of a body weight.

My choice is a product called Atlantic from *Gabriel*, a Danish company leader on textile for furniture.

Atlantic can also provided in many colours so that can match different “dresses” too.

Note.

There is not picture of Atlantic on **project E** as the textile wasn't delivered at the time when this report has been written.

For the actual prototype has been used a traditional stretchy Jersey made of nylon with poor structural and anti-abrasion qualities.



Atlantic from *Gabriel*

Atlantic is designed as a uniform, smooth structure with a discreet relief effect that adds shade and depth to the surface and the colour.

This is a robust, basic fabric with visual values that range from a classic, discreet techno look to a fresh, straightforward, sporty expression.

Atlantic is intended as the knitted counterpart to the popular woven crepe structures, where a mellow, independent expression opens up countless options for applications and combinations.

Like the crepe structures, Atlantic is an ideal design for upholstery – visually, the surface has no easily discernible direction or repeat, and this simplifies the cutting out process and minimises waste. The design also offers good elasticity that makes it easier to upholster curved surfaces.

I would like to thank:

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My Mum and my Dad for constant support.

Also I would like to thank all the courageous people that participated to my survey on my unsafe first prototype, and to all the people that lent me sewing-machines and time of their life.

A special thank to sewing-machine n. 6,
which helped me to finish the prototype on time.